

**Environmental Review
of the Proposed PP&L Electric
138/69KV Coopersburg Transmission Line
For
Springfield Township
Bucks County, Pennsylvania**

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I. Introduction and Summary of Conclusions

A. Introduction

PPL Electric Utilities Corporation (PPL) prepared a submission to the Pennsylvania Public Utilities Commission (PUC) seeking approval to construct a transmission line between Coopersburg and Quakertown, PA (hereinafter termed the Coopersburg Line). The PPL PUC submission evaluated three alternatives for the Coopersburg transmission line and settled on a 7.09 mile route designated the Cross Country Route that for much of its length follows the Tohickon Creek. This environmentally focused review was based on the documents submitted to the PUC by PPL and the requirements for a PUC submission set forth in Chapter 57, Electric Service, Subchapter G of the Commission's regulations at 52 Pa. Code 57.71-57.77.

Princeton Hydro prepared this document to provide a more comprehensive assessment regarding the impacts and regulatory needs of the proposed Cross Country Route, especially as it relates to Springfield Township. The following topics will be covered by this review:

1. PPL's compliance with various Local, State and Federal Regulations;
2. The accuracy of PPL's definition of the natural resources of the proposed line and the impacts that the proposed project will have on these resources;
3. The accuracy of PPL's assessment of project impacts; and
4. The accuracy of PPL's assessment of alternatives to the project.

B. Summary of Conclusions

After reviewing the documentation provided by PPL, Princeton Hydro concludes that the process PPL used to select the preferred route does not provide sufficient detail to satisfy the conditions set forth in 52 Pa Code 57.76 that states *the Commission will not grant the application, either as proposed or as modified, unless it finds and determines as to the proposed HV line:*

(3) That it is in compliance with applicable statutes and regulations providing for the protection of the natural resources of this Commonwealth.

(4) That it will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives.

Briefly, Princeton Hydro has reached the following conclusions, as discussed in more detail in the following sections of this report:

- PPL’s environmental assessment is inadequate and incomplete;
- PPL’s submission to the PUC does not accurately characterize the existing natural environment in areas on and adjacent to the Cross Country route and the alternatives;
- PPL’s submission to the PUC does not accurately evaluate the impacts to the natural environment that are likely to occur with the construction of the Cross Country route or the alternatives; and
- PPL’s submission to the PUC does not fully evaluate the relevant local, state, and federal requirements that would affect the Cross Country route.

II. Requirements for an Objective Environmental Assessment

Typically, an environmental analysis for a project of this magnitude would be designed to specifically satisfy the conditions set forth in the PUC’s regulations at 52 Pa. Code 57.71-57.77. These regulations state in 57.72 (7) that *“A description of studies which had been made as to the environmental impact of the HV line as proposed and the efforts which have been and which will be made to minimize the impact of the HV line upon the environment and upon scenic and historic areas, including but not limited to impacts, where applicable, upon land use, soil and sedimentation, plant and wildlife habitats, terrain, hydrology and landscape.”*

The essential element in any environmental impact analyses is that it must be objective and based on both sufficient and accurate information for all alternatives being considered. This approach to the preparation of an environmental impact analysis or assessment is common to various types of regulatory bodies. Although it is understood that the National Environmental Policy Act (NEPA) does not apply to the PUC, the approach set forth by NEPA for similar projects is relevant with regard to understanding the need for accurate information in order to make sound environmentally based decisions. As stated in 43 CFR 55990 Section 1500.1(b) *“NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA”*. Section 1500.1(c) goes on to state that *“The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. These regulations provide the direction to achieve this purpose”*.

Springfield Township provides a similar description related to the preparation of an Environmental Impact Assessment Report. The Springfield Township definition is *“An assessment which objectively describes, analyzes, and documents both the beneficial and adverse environmental and cultural effects of a proposed project and the measures to be undertaken to mitigate adverse effects in accordance with the provisions set forth in this Ordinance and the Subdivision and Land Development”* (Springfield Township Subdivision and Land Development ordinance).

Lastly, for regulated activities covered by Chapter 105, Dam Safety and Waterway Management Act, which, we believe, will apply to this submission; an environmental assessment is required for projects requiring a Joint Permit. The data required to complete this assessment are far more comprehensive than that provided in the PUC submission, including a detailed description regarding the avoidance and minimization of impacts which is not present in PPL's application to the PUC.

III. PPL Did Not Conduct an Objective Environmental Assessment

Although PPL's submission to the PUC provides a natural resource inventory that "*lists environmental factors considered when evaluating and selecting transmission line routes and substation locations*" (PPL Application, Exhibit B page 3) the submission does not provide enough information to objectively conclude that the project would have minimum adverse environmental impacts on sensitive natural resources.

The PUC submission provides only very general descriptions of the natural resources present in each of the three routes and attempts to support the selection of the preferred route based on this inadequate information. Due to the absence of an appropriate level of detail to accurately characterize the natural resources present in and along each of the alternative routes proposed by PPL, it is not feasible to develop an objective analysis of environmental impacts. Currently, the documents before the PUC are conceptual in nature and fail to objectively and realistically describe the natural resources associated with each of the routes as well as the impact to natural resources associated with the Cross Country route.

In light of the descriptions provided above regarding the goals of an environmental impact assessment the PUC submission is neither objective nor adequate in its characterization of natural resources to satisfy the PUC's requirements.

As previously stated, the PUC submission provides only broad generalizations with regard to environmental issues and does not attempt to identify issues regarding permit compliance or how this proposed project satisfies the sections of the PUC regulations stated above. With regard to environmental issues, PPL's submission to the PUC lacks objectivity and is designed as an apology for the proposed project. In other words, the elements of the PUC submission related to environmental impacts is self serving and designed to support the selection of the Cross Country Route relative to the alternative routes. This criticism of the PUC submission is based on the limitations that PPL placed on its analysis and the context in which the environmental analysis was performed. The following issues indicate why the study lacked the detail and objectivity necessary to be viewed as a viable environmental impact analysis:

1. The analysis did not include an environmental or alternative analysis relating to the siting of the Springfield Substation. The Springfield substation is the "keystone" of PPL's environmental analysis with regard to the submission's

comparison of the three routes. The use of the substation property as the focal point for all of the comparative analysis set forth in the PUC submission skews the analysis of impacts and costs to PPL's desired selection of the Cross Country Route as the preferred route. This type of analysis lacks the objectivity that should be inherent in an alternative analysis and impact assessment.

2. Field investigations related to the environmental analysis of wetlands and wildlife were limited to the Cross Country Route. There is no indication that the alternative routes were the subject of any field investigation designed to describe natural resources. PPL's failure to objectively characterize the other routes has resulted in the environmental impacts of the alternative to be overstated relative to the preferred route.
3. The land or easements needed to construct the Cross Country Route were purchased prior to many of the relevant field studies and the PUC submission. This approach tends to result in the creation of a document designed to fulfill a predetermined objective; in this case to support the selection of the Cross Country Route. In fact some of the important reports were not completed until several months after PPL submitted its application to the PUC.
4. The PUC submission states "*PPL EU worked diligently with cooperating property owners to locate the line to minimize the impact to their existing and future land use plans*". This statement is important in that it provides the key to the placement of the Cross Country Route. The PUC submission never indicates that the preferred route was selected based on either the avoidance or minimization of the line's encroachment into environmentally sensitive landscape features such as wetlands, but instead focuses on the location of the Cross Country Route by avoiding unknown future land uses. This approach appears to have directed the placement of the preferred route in environmentally sensitive lands and those already constrained by local ordinances.

In order to realistically identify project impacts and satisfy the requirements of the PUC a more comprehensive and objective analysis of the environmental impacts of the proposed project is both necessary and warranted. Based on our review of the three routes, the Cross Country Route will have the greatest degree of environmental impact to sensitive natural resources of the three routes considered. PPL's selection of the worst option from an environmental perspective illustrates PPL's failure to apply sound land use planning principles regarding environmental stewardship or watershed management to the selection process.

IV. Compliance with Local, State and Federal Requirements

A. *Municipal Ordinances and Policies*

One of the primary issues with the PUC submission is that it fails to relate basic planning principles regarding the management or protection of sensitive natural resources to the selection of the proposed Cross Country Route. A current understanding of the natural resource management objectives of municipal, county and state regulations and planning documents is essential to the development of an objective impact assessment/evaluation. This element of the review will focus on describing the failure of the PPL submission to comply with the goals and objectives of various regional planning documents such as the Upper Tohickon Rivers Conservation Plan, Springfield Township Comprehensive Plan, and other similar local, regional and state documents. The review document will describe the general approaches to sound land use planning as set forth in local planning and zoning ordinances, comprehensive plans and other similar planning documents and relate these documents to the proposed location of the proposed Cross Country Route. Although we are aware that PPL does not have to follow these local requirements, the PUC submission includes a description of local zoning requirements in their submission. PPL also describes the importance of compliance with local regulations in its corporate policy documents. The PPL corporate responsibility report states “*One of PPL Corporation’s core beliefs is that our business success is linked to the prosperity and quality of life of the communities we serve. That belief drives our environmental principles of responsibility, stewardship, innovation, compliance and improvement*”. As such it is relevant to show how the PUC submission identified sections of local zoning and land use regulations and then developed a plan that conflicts with these regulations as well as a variety of other municipal ordinances and planning documents. The failure of PPL to identify the various pertinent documents and ordinances developed by local governing bodies regarding stewardship initiatives and natural resource protection/management goals resulted in descriptions of various natural resources such as riparian forest buffers being either omitted or understated in the PUC Submission. The following sections provide descriptions related to natural resources that are presented in various relevant and readily obtainable documents.

1. **Springfield Township Comprehensive Plan**

The Springfield Township Comprehensive Plan was designed to “*guide future land use policy and decision-making*”. The plan provides a variety of objectives including ones related to natural resources. The goal of the comprehensive plan with regard to natural resources is as follows; *Protect significant natural features and natural resources such as floodplains, woodlands, steep slopes, wetlands, sensitive geological formations, sensitive wildlife habitat, and bodies of water. Specific objectives set forth in the Comprehensive Plan include; Minimize negative environmental impacts related to development and growth; Prioritize the Cook’s Creek Watershed for preservation and protection; Maintain the natural biodiversity within the township that provides a healthy living environment for plants and animals; Preserve natural*

corridors throughout the township to allow for the movement of wildlife and link habitat areas.

2. Springfield Township Zoning Ordinance

Reviewing the Springfield Township Comprehensive Plan, it is clear that this municipality values its water and its streams. This commitment to natural resource protection is inherent in the township's ordinances and land use planning policies. Although the PUC submission (exhibit B) provides a review of a few applicable zoning districts and overlay ordinances it does not provide a comprehensive review of the Township's ordinances. The submission indicates "*municipal zoning is an indicator of the potential type and location of future community development*". The submission did not, however, describe any conflicts with the ordinance. With regard to Springfield Township the PUC submission limited its reference to Springfield Township's ordinances to the floodplain overlay and a brief description of the Resource Protection Zoning District. With regard to local ordinances, although compliance with Township requirements is not mandated by the PUC, it is however important to understand that many local requirements have their genesis in state laws such as Act 167 or through the results and recommendations of state funded projects. It is also important to understand that the environmental elements of the Springfield Zoning ordinance are typical of most municipalities in the region and are clearly supported by the Pennsylvania Municipalities Planning Code.

Section 508, Environmental Protection Standards includes 100% protection of the 100-year floodplains, wetlands and streams and watercourse. With regard to wetlands, the ordinance states that "*Wetlands shall not be altered, re-graded, developed, filled, piped, diverted, or built upon except that a road, driveway or utility may cross wetlands where a special exception is obtained from the Zoning Hearing Board after the applicant demonstrates that there is no feasible means to provide access to the property or to reasonably engage in a permitted use on the property except by disturbance of the wetland margin*". The township also requires a stream buffer to protect these sensitive resources in accordance with Section 508 B4. A stream/watercourse margin shall be required that extends 125 feet from each side of the center of the bed of a perennial stream or watercourse, 125 feet from the center of an intermittent stream or watercourse and 50 feet from the center of an ephemeral stream or watercourse. The ordinance also indicates that natural vegetation is critical to the functionality of the buffer and that disturbance shall be limited to invasive control and passive recreational activities in the no disturbance zone; minimal path construction (no impervious surfaces), native plantings, and invasive control in the minimal disturbance zone; tree removal and replacement and maintenance mowing in the transition zone (no grading, structures or facilities). The importance of riparian corridors is common knowledge and recommended by a variety of State and Federal resource agencies as a method or BMP (best management practice) to protect the quality of surface waters.

The PUC submission indicates that the proposed line will cross the Resource Protection Zoning District but fails to describe the intent of the ordinance. This district is designed to *“To protect areas consisting largely of natural features such as mature forest, steep slopes, scenic areas, wetlands, streams, floodplains and ponds including those identified in the latest version of the Bucks County Natural Resources Plan. Intensities are such as to ensure that these resources are preserved, while providing for residential development with suitable sewage disposal”*.

The Floodplain overlay was mentioned in the PUC submission but did not convey the Township rationale to this overlay zone. The ordinance states *“Floodway Protection Overlay (FP) – To recognize that streams represent a significant natural resource. These areas are important to the protection of the water supply, indigenous wildlife, and scenic beauty of the Township and therefore must be protected from all development. FP is an overlay district and, as such, it adds to but does not replace, existing regulations in the district affected. To protect key areas that greatly affect the water quality of the water supply of many Township residents and businesses. To protect against flood-related damage.”* It is of interest to note that in PPL’s Environmental Inventory Guidelines (Appendix A) it states under the heading of 100-year floodplain *“These areas are generally avoided to prevent potential disruption of floodplains and flood control facilities”*.

Although we are aware that the PUC submission did not have to satisfy the requirements of local zoning, the failure of the proposed Cross Country route to satisfy even the minimum standards of the Springfield Township ordinance illustrates PPL’s failure to recognize the values of the natural resources being impacted by this project. Since the objectives of the various elements of the Springfield Township ordinance related to natural resource protection are grounded in well established natural resource protection standards and objectives, many frequently expressed by state agencies, PPL’s failure to recognize these natural resource requirements in their selection process exemplifies an overall lack of environmental sensitivity to the protection of Pennsylvania’s natural resources.

B. County and Regional Plans and Policies

1. Bucks County Natural Resources Plan

Many of the requirements set forth in the Springfield Township ordinance are not unique and are also reflected in the Bucks County Natural Resources Plan (Bucks County Planning Commission, 1999). This plan defines its natural resource protection goal as *“To sustain and restore the health and abundance of our land, water, air and significant natural features through effective planning, regulation, and management of our natural resource base”*. The plan identifies various natural resources and provides recommendations regarding how municipalities can protect these resources. For example, recommended performance standards for floodplain and wetlands are similarly designated by Springfield Township and require 100% protection. The plan also recommends that a 100 foot wetland margin be placed along the wetland boundary.

Other recommendations provided in the plan include the following: Requirements to minimize the alteration, re-grading or clearing of woodlands in environmentally sensitive areas such as floodplains, wetlands and wetlands margins; protect and enhance the quantity and quality of surface and groundwater resources; incorporate riparian buffer zones into local ordinances to provide for 100% protection of riparian zones to reduce stream water temperature and streambank erosion.

2. Bucks County Natural Areas Inventory

The Bucks County Natural Areas Inventory “*was undertaken to identify and prioritize the most significant remaining natural features in Bucks County*”. The PUC submission describes the 10 sites in the general vicinity of the proposed Coopersburg Line. The report also identifies that the only site to be effected by the Coopersburg Line, the 309 Woods, is associated with the Route 309 alternative. Although the areas included in this inventory were identified in the PUC submission it is important to understand why this inventory was undertaken. The inventory was developed to identify those fragments of natural habitat remaining in the county to establish priorities for protection. The report states that this is not a comprehensive list and that there are “*undoubtedly other sites that should be considered*”.

This report indicates that “*the zone of diabase that stretches across the county is very important because of the continuous forest cover and unusual geology .It provides habitat for birds and other species that depend on extensive tree-covered areas and is likely the source of much of the bird diversity seen elsewhere in the county*”. The Mellon report (2007) prepared for PPL supports this position by indicating that the least fragmented forests in the study area support twelve area-size sensitive bird species. Although not all of the extensive forests covering this part of the County are currently included in the Bucks County inventory they possess many of the same attributes as other areas that are on the list. The richness of the flora in the corridor is made apparent in the bog turtle surveys prepared by Mellon Biological Associates. Although the survey did not indicate the presence of bog turtle it did indicate several possible sites and illustrated the rich flora of the wetlands along the Cross Country Route. The plant communities described in the two reports prepared by Mellon Biological Associates identify the presence of many of the attributes common to sites included in the Bucks County inventory, such as vernal pools, extensive contiguous forest and rare bird species. It is for these reasons that Dr. Ann Rhoads, the author of the Bucks County Natural Resource Inventory, will be including additional areas in the vicinity of the Cross Country Route in the pending update to the inventory.

The Bucks County Inventory also identifies the most important threats to the conservation of natural resources and biological diversity in Bucks County and includes incompatible land use resulting in destruction or degradation of habitat, fragmentation, altered hydrology, pollution and invasive exotic species. Although the PUC submission does not discuss any of these impacts, all would be associated with the construction of the Cross Country Route. The impacts to the sensitive natural resources of Bucks County and the Commonwealth warrants a more rigorous

analysis than the simple comparison of GIS data layers presented in table 1 Exhibit C of the PUC submission. The simplistic representation regarding wetlands and woodlands in the three routes and the characterization that the impacts are comparable, or in the case of woodlands that the Cross Country Route will have the least impact, is misleading and without merit.

3. Upper Tohickon Rivers Conservation Plan

In addition to the report's failure to objectively describe municipal requirements, the document fails to reference other readily obtainable references that describe the natural resources of the Tohickon Creek. For example, the ecological value of the headwater portion of the Tohickon Creek that would be affected by the proposed Cross Country Route is described in the document entitled "The Upper Tohickon Rivers Conservation Plan" dated 2005 (Richland Township, 2005). This plan represented the efforts and contributions of a broad project team dedicated to studying this unique watershed and identifying the necessary steps to preserve its resources. According to the DCNR website "*The purpose for these grants is to develop a Rivers Conservation Plan identifying significant natural, recreational and cultural resources. Issues, concerns and threats to river resources and values are determined locally as part of planning, as well as recommending methods to conserve, enhance and restore Pennsylvania's many streams and rivers*". This plan was funded through a Growing Greener grant in accordance with the goal of providing funds and technical assistance to county or municipal governments, county conservation districts, watershed organizations and to plan and implement local watershed based conservation efforts designed to improve water-quality-impaired watersheds and for watershed protection.

The study was done with funds received from a grant from the Pennsylvania Department of Conservation and Natural Resources and allowed Richland Township (Bucks County) to initiate the planning process for the Upper Tohickon Rivers Conservation Plan. The Plan Advisory Committee (PAC) for the study included municipal and school district representatives, conservancy members, members of Township and Borough Environmental Advisory Boards and Open Space Commissions, and interested citizens. Springfield Township was one of the project sponsors.

Study Results

The study revealed that, overwhelmingly, residents wanted to preserve the scenic rural character of the area, including recreational opportunities such as fishing, hiking and other natural activities. Water quality was voted as the most important issue facing the streams, followed by sustainability for future generations, water quantity, conservation, education and open space/recreational use development.

The portion of the Tohickon Creek watershed proposed to be impacted by the proposed Cross Country Route was included in this study and was designated as Upper Tohickon Creek

subwatershed or Tohickon Creek headwaters. The headwaters to the main stem of the Tohickon Creek cover a large area in the far northwestern corner of the watershed and drain the area immediately north of Quakertown. These headwaters of the Tohickon Creek consist of 8,789 total acres (18.5% of the watershed), most of which is forested. The forested nature of the Cross Country Route in Springfield Township is also acknowledged by Richard Mellon, PPL's ecologist, in the report entitled Wildlife and Plant Survey Report for Coopersburg #1 and #2 138/69KV Line Reconstruction dated July 30, 2007.

Based on the public and community response to this plan the protection of the natural resources of the Tohickon Creek is apparent. It is, however, even more important with regard to the upper segment of the Tohickon Creek beginning north of Quakertown because it is currently in excellent condition. The report indicates that the headwaters of Tohickon Creek were sampled at 5 locations during June and July of 2001. Four of the locations were at or upstream of Pumping Station Road in the headwaters of the stream, with the final station located downstream near the confluence with Dry Branch Creek at Erie Road (southernmost portion of the Upper Tohickon headwater subwatershed). The four upstream stations were generally characterized by a diverse assemblage of both insect and non-insect invertebrates, with both a high density and a large number of distinct pollution-sensitive groups. The eastern headwater tributary was characterized by a slightly more pristine invertebrate fauna and appears to have higher water quality than the western tributary. This may be related to the western tributary's passage along and under Route 309 for much of its length and the likely water quality stress associated with its close proximity to this busy road. Please note that the impacts of the proposed powerline corridor are located along the eastern tributary of the Tohickon Creek. The report also notes that "*The invertebrate fauna at Erie Rd. is distinctly different from that in the headwater tributaries, reflecting important changes in the habitat and water quality at this more downstream site. Although a broad diversity of invertebrate groups are present at this lower station, an absence of the sensitive stonefly groups indicates either distinct impairments to water quality or elevated water temperatures (or both) in the stream. In addition, the sensitive caddisfly group likewise undergoes a severe contraction at this station, with only a single caddisfly taxon (the moderately tolerant Hydropsychidae) collected in July of 2001*". These data indicate that negative changes have occurred in the Tohickon Creek between Pumping Station Road and Erie Road. It is also important to note that the State has listed this stretch of stream as "impaired" and not attaining its designated uses. The invertebrate community within both headwater branches is exemplary and demonstrates the generally high water quality seen throughout the headwater tributaries for the Upper Tohickon Creek sub-watershed. As a result of this high quality, the State has determined that the headwater tributaries above Pumping Station Road are "attaining" their designated Pennsylvania Chapter 93 use classification, Trout Stocking Fishery (TSF). The studies also illustrate that the "existing use" of the headwaters of Tohickon Creek are dominated by a variety of pollutant sensitive organisms.

Recommendation of the Tohickon Rivers Conservation Plan

One of the requirements of a rivers conservation plan is to set forth recommendations to maintain the quality of attaining streams and to restore impaired streams to their designated uses. The final plan sets forth a variety of specific goals designed to manage the watershed in a sustainable manner. Plan recommendations included the following;

Encourage municipalities to enforce existing regulations and/or establish new regulations for natural resources that maintain and enhance biodiversity and support water quality objectives; to include the following resources:

- i) *Floodplains*
 - ii) *Steep Slopes*
 - iii) *Natural Areas Inventory Areas*
 - iv) *Groundwater Supply and Recharge Areas*
 - (1) *Research and map critical recharge areas within the watershed.*
 - (2) *In critical recharge zones, limit development of impervious surfaces, and require no net change in infiltration for any development activity.*
 - (3) *Identify well-head protection zones and implement well-head protection Ordinances in each Township.*
 - v) *Wetlands*
 - vi) *Forests*
 - vii) *Hydric Soils*
 - viii) *Ponds, Lakes and Streams*
 - ix) *Riparian Buffers*
 - x) *Agricultural Soils*
 - xi) *Link Corridors and Greenways for Animal Transit*
 - xii) *Native Plant Species*
 - xiii) *Endangered Plant Species*
- b) *Protect and Restore Riparian Buffers*
- i) *Encourage residents and municipalities to re-vegetate the riparian corridors around all streams, focusing on re-forestation in all possible settings with native flora.*
 - ii) *Implement riparian buffers off all surface waters and wetlands in municipal Ordinances.*
 - iii) *Construct detailed maps of riparian buffer widths on all mapped streams.*

- iv) *Develop funding and distribution system for native trees to be used by residents, non-profit organizations, and municipalities in riparian re-vegetation.*
- c) *Encourage and promote preservation/conservation easements on privately owned lands.*
- d) *Consider the use of “purchase of development rights”(PDR’s) and other methods of funding to preserve riparian areas.*
- e) *Encourage/advocate the use and protection of native species of plants.*
- f) *Distribute information to residents, businesses, and organizations about the importance of riparian buffers, stable stream-banks, and headwater streams for the quality of streams and lakes in the watershed.*

Based on the recommendations set forth in the Upper Tohickon Rivers Conservation Plan the protection of riparian areas (as shown in Figure 1), as well as headwater streams is important and that these resources warrant protection. It is also important to recognize that the protection of existing surface water quality of Pennsylvania’s streams is a fundamental element of the Growing Greener program.

This Rivers Conservation Plan was done in accordance with the Pa. Rivers Conservation Program. This state-funded program was developed to conserve and enhance river resources through preparation and accomplishment of locally initiated plans. The program provides technical and financial assistance to

Figure 1 View up Tohickon Creek near California Road



municipalities and river support groups to carry out planning, implementation, acquisition and development activities. The completion of a Rivers Conservation Plan is essential to obtaining additional Growing Greener funds such as Watershed Protection Grants. According to the

PADEP, “*The purpose of the Watershed Protection Grants are to address the concerns mentioned above through local, watershed-based planning, restoration and protection efforts. The statutory authorities for these grants are Section 6105(b) of the Environmental Stewardship and Watershed Protection Act (27 Pa. C.S. 6101 et seq.), Section 319(h) of the federal Clean Water Act and Section 18(j) of the Surface Mining Conservation and Reclamation Act (52 P.S. 1396.1 et seq.)*”.

Riparian projects have been a significant component of the funds provided through Growing Greener since the program’s inception in 1999. According to the Growing Greener website “Growing Greener has funded the restoration of 737 miles of stream buffer (<http://www.depweb.state.pa.us/growinggreener/cwp/view.asp?a=3&q=481701>). The importance of riparian buffers is also indicated in the Governor’s Report on State Performance, Fiscal Year 2006-07. This report indicates that since 2003, more than 15,000 acres of forested buffers have been installed along streams in Pennsylvania to prevent erosion and protect water quality (http://www.state.pa.us/papower/lib/papower/attachments/2006_07_govperformancerept_web.pdf).

With regard to this project, the high quality of the Tohickon Creek’s “existing use” would appear to be directly related to the extensive natural presence of the areas forest and riparian forest buffer cover. The impacts associated with the numerous stream crossings proposed and the impacts to riparian forests are counter to the recommendations set forth in the Rivers Conservation Plan. The impacts associated with the Cross Country Route will likely affect the high quality of these headwater streams in a manner that is inconsistent with the objectives of the Growing Greener program.

C. State and Federal Policies and Requirements

1. Riparian Corridors

The importance of riparian corridors to the sound management of watersheds and the protection of surface water quality is not, however, limited to Springfield Township or the Growing Greener program. As previously indicated, the protection of riparian corridors is acknowledged by various Pennsylvania Departments and Bureaus including the PADEP, PA Fish and Boat Commission (PFBC), Pennsylvania Game Commission, Department of Conservation and Natural Resources (DCNR) and Bureau of Forestry as well as the US Environmental Protection Agency (USEPA) and the US Army Corps of Engineers (COE). The PFBC indicates on their website that, “*The establishment and/or preservation of vegetated buffer zones along waters of the Commonwealth is a widely accepted conservation practice providing numerous benefits to fish and wildlife resources and to the residents of the Commonwealth*”. The need for the protection of this resource is based on numerous studies that indicate the value of forested riparian buffers to maintain the quality of surface waters. The value of riparian buffers is also seen in Pennsylvania’s use of buffers to restore the designated uses of impaired streams in

accordance with the Clean Water Act. This funding approach is consistent with Pennsylvania's compliance with various sections of the Clean Water Act including Sections 303 and 306.

Although references to the values of riparian buffers are widespread and easily attainable there is no mention of these resources in the PUC submission. It is apparent that PPL does not view the importance of these resources as do various Pennsylvania resource agencies. The failure of PPL to identify riparian buffers as important resources is probably why so much of the proposed Cross Country Route was located to maximize the impact to this important natural resource.

2. Wetland Regulations

This review includes a description of the project in a regulatory context and describes the permitting process needed to satisfy Pennsylvania Department of Environmental Protection (PADEP) and COE permitting requirements. The review will also assess compliance with Army Corps permit requirements and failure to document a comprehensive assessment of impacts such as those related to construction, extent of permanent and temporary impacts, extent of clearing of forested wetlands and the possibility of increased flooding.

We believe that this section of the review may also provide a format to discuss the impact of the project on water quality and the potential to impact the existing use of the stream in accordance with the Commonwealth's water quality standards, PA Chapter 93. This is especially relevant due to the headwater nature of the areas streams as they are sensitive to drastic environmental changes such as those proposed.

Based on the information provided by PPL in the Introduction and Overview section of the PUC submission dated February 14, 2008 "*The preferred Cross Country route does involve greater wetlands acreage than the two alternative routes. Any impact upon wetlands will be mitigated because PPL Electric will utilize upland areas and avoid wetlands wherever possible, and PPL Electric will obtain all required permits prior to construction*". This statement is extremely misleading in that it does not fully characterize the wetlands of the preferred route relative to that of the two alternatives and fails to provide even a preliminary description regarding the type and extent of impacts related to the construction of the transmission line. The PUC submission limits its impact analysis to GIS based information and summarizes the impacts to wetlands in a table. The approach to wetland impact analysis employed by PPL tends to convey the belief that all of the wetlands in the study area are of equal ecological value and serves to avoid any realistic characterization of the resources that will be affected by the project as proposed. It is also important to understand that in any objective environmental impact analysis the characterization of impacts would not be simply limited to a comparison of areas obtained using GIS maps, but would instead include site specific characterizations of natural resources. The type of characterization warranted should include descriptions of the type of wetland communities to be impacted as well as the landscape context of the communities. For example, if the wetland is already fragmented or located adjacent to existing development or dominated by invasive

species—as appears to be the case with wetlands within the Route 309 and SEPTA alternatives-- the level of impact may be substantially less relative to that of the large contiguous forest community located within the Cross Country route. In addition, since portions of the corridor have been delineated in the field by a PPL wetland consultant, the impact to wetlands should have included site specific characterizations that would more accurately reflect the level of project impacts to wetlands, including the extent of impact.

The PUC submission (Exhibit B – Restrictive Constraints) indicates that *By federal law it is illegal to build structures in wetlands without rigorous permitting, so the wetlands may restrict transmission line siting.* However, the PUC submission does not provide any meaningful description related to the permitting needs of this project and limits its description of impacts to general statements such as *“Most wetlands in the study areas are small, and could be easily crossed by transmission lines”*. Based on review of the information in the PUC submission this comment is inaccurate and the Cross Country Route will result in more than minimal adverse impacts to regulated resources and as such necessitates the need for a rigorous permit review process. The permit process that will be triggered by the proposed Cross Country Route is described below.

3. Wetland Permitting Requirements

Based on recent conversations with Mr. Mike Hayduk of the COE (June 25, 2008) he indicated that there was a recent meeting held at PPL’s offices between the COE, PADEP and PPL with regard to the proposed project. Mr. Hayduk indicated that the wetlands impacts related to the project would be of sufficient magnitude to warrant the need for an Individual Wetland Permit. In accordance with Section 404 of the Clean Water Act the need for an individual wetland permit indicates that the project will have more than a minimal adverse impact to “waters of the United States” including wetlands. Typically, Individual Wetland Permit applications are evaluated in accordance with environmental criteria set forth in Section 404(b)(1) of the Clean Water Act and may require a public interest review. The need for an Individual Wetland Permit from the COE is significant and the failure to convey this need to the general public and PUC is important in that it indicates that PPL did not accurately or adequately describe the impacts of this project to the sensitive wetland resources of the Commonwealth. Since PPL indicates that *“construction of this project needs to start as soon as possible to meet an in-service date of May 2009”* an accurate assessment of project impacts and permitting needs should have been provided in the PUC submission. The analysis of project impacts to areas regulated by COE needs to include not only the aerial crossing of wetlands and *“waters of the United States”* but areas proposed for temporary disturbances for access roads, stockpile areas, permanent access roads and the extent of mechanized land clearing envisioned to implement the project. As it currently stands the PUC submission does not describe any impacts related to the implementation of the project. Failure to convey these impacts to the public in the PUC submission should preclude PPL from making any assertions that the project complies with PUC requirements. It is also relevant to note that PPL did not discuss the project with the Army Corps until May 20, 2008; a meeting requested by

the Corps.

The anticipated need for an Individual Wetland Permit will require a thorough alternative analysis in accordance with Clean Water Act section 404(b)(1) guidelines. This analysis will require PPL to illustrate that the proposed route was designed to first avoid and then minimize impacts to regulated areas including “waters of the United States and adjacent wetlands”. It is also relevant to understand, at least in general terms, the process that PPL will need to satisfy to obtain an Individual wetland permit from the US Army Corps of Engineers. In accordance with 40 CFR Part 230 specifically requires that “no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences”. This section of the clean water act also states that if the proposed regulated activity is not water dependent then “*practical alternatives that do not involve special aquatic sites are presumed to be available unless clearly demonstrated otherwise*”. Moreover, the impacts associated with the proposed powerline corridor must assess impacts to a variety of natural resources including water, aquatic organisms, threatened and endangered species, wildlife, aesthetics, wetlands and pool and riffle complexes. Inherent in this process is to indicate that measures have been taken to minimize impacts and an alternative analysis that focuses on avoiding and minimizing environmental impacts. Currently, the PUC submission does not indicate that the Cross Country Route was located to avoid the sensitive natural resources of the Commonwealth, but instead indicates that it was located to avoid land that could be developed in the future. The PUC submission does nothing to illustrate that avoidance or minimization of sensitive natural resources such as wetland or forest was contemplated in the selection and location of the Cross Country Route.

The submissions’ failure to document how the Cross Country Route was located to avoid and minimize wetland impacts will become extremely important with regard to satisfying the projects permit needs. As part of its review of a permit application, the Corps of Engineers will also be required to assess the initial, cumulative, and long-term effects of any proposed permit on all aspects of the environment. With regard to the requirements set forth in the CWA it will include the need to satisfy Section 401, Water Quality Consistency. In the document entitled “National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution” the EPA provides guidance regarding management measures that may be used to protect and restore the NPS (non-point source) pollution abatement functions of wetlands and riparian areas. This document describes the role that wetlands and riparian areas serve with regard to NPS abatement functions and how to maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition, geochemistry of the substrate, and species composition. This document also states “*An activity within a wetland could be determined to be consistent with water quality standards if existing use requirements are met and if the activity does not cause or contribute to significant degradation of the aquatic environment as defined in the guidelines developed under section 404(b)(1) of the Clean Water Act (USEPA, 1991)*”. Princeton Hydro

does not believe that the proposed Cross Country Route can satisfy this test and that the proposed Cross Country Route will result in the degradation of surface water resources.

The importance of riparian areas to the Corps of Engineers is also set forth in the Federal Register January 15, 2002 (66FR 42070). Based on the PUC's submission's failure to objectively identify or describe the project's impacts to wetlands, State open waters and riparian habitats of the Cross Country Route it would not be feasible for PPL to illustrate compliance with PUC requirements regarding the absence of impacts to the natural resources of the Commonwealth. The presence of viable alternatives such as the SEPTA Route would not result in the same level of impact as the Cross Country route and should warrant further and more thorough evaluation prior to considering approval.

4. PADEP Wetland Permit Requirements

A permit also will be required from PADEP in accordance with Chapter 105 and it is our belief that a Joint Permit will be required since the project does not meet the requirements for General Permit BDWM- GP5. Utility Line Stream Crossings. This general permit is not authorized in the following areas:

- a. Historic, cultural or archaeological sites as identified in the latest published version of the Pennsylvania Inventory of Historical Places or the National Register of Historical Places.
- b. Local historical sites officially approved or recognized by a municipality.
- c. Sites identified in the latest published version of the National Registry of Natural Landmarks.
- d. Areas in or within 100 feet of a watercourse or body of water designated as or nominated for a National or State Wild or Scenic River in accordance with the National Wild and Scenic Rivers Act of 1968 or the Pennsylvania Scenic Rivers Act (32 P. S. § § 820.21—820.29).
- e. Important wetlands regulated under § 105.17 (relating to wetlands).
- f. Wetlands, greater than 10 acres in size.

The project fails to meet the General Permit requirements due to the fact that it will be impacting wetlands that are part of a contiguous system of greater than 10 acres. The bog turtle report entitled Phase 1 & 2 Bog Turtle Surveys for Coopersburg #1 & #2 138/69KV Reconstruction by Mellon Biological Services, Inc. dated July 21, 2008 indicates in Table 2 that the wetlands are in excess of 10 acres. It is also probable that at least some of the wetlands to be impacted may be designated as important (exceptional value).

5. Joint Permit Requirements

As stated above, PPL will need to obtain approval from the PA DEP in accordance with PA Code Chapter 105 in order to construct the Cross Country Route as currently proposed. Chapter 105 describes the steps necessary for the DEP to grant approval for regulated activities such as those contemplated by PPL. In accordance with Chapter 105, *“The Department will not grant a permit under this chapter for a dam, water obstruction or encroachment in, along, across or projecting into the wetland which is not an exceptional value wetland, or otherwise affecting the wetland, unless the applicant affirmatively demonstrates in writing and the Department issues a written finding that the following requirements are met:*

(1) The project will not have a significant adverse impact on the wetland, as determined in accordance with § § 105.14(b) and 105.15. The determination of whether an adverse impact is significant includes an evaluation of the following factors:

(i) The areal extent of the wetland impacts.

(ii) The wetland’s values and functions.

(iii) Whether the affected wetlands values and functions are unique to the area or region.

(iv) Comments from other State and Federal environmental agencies concerning the scope and effect of the impact.

(2) Adverse environmental impacts on the wetland will be avoided or reduced to the maximum extent possible.

(3) There is no practicable alternative to the proposed project that would not involve a wetland or that would have less adverse impact on the wetland, and that would not have other significant adverse impacts on the environment. An alternative is practicable if it is available and capable of being carried out after taking into consideration construction cost, existing technology and logistics. An area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed to fulfill the basic purpose of the proposed project shall be considered as a practical alternative.

Before PPL receives PUC approval, it should demonstrate how the project satisfies the above referenced conditions. It is also relevant to point out that PPL was made aware of the PADEP’s requirement for a non-wetland alternative by Woodland Design Associates in a memo to Kenneth Kuhns dated April 30, 2008 with regard to wetland filling contemplated for the Shelly Substation site. The need for a non-wetland alternatives to the Cross Country Route will also

need to be satisfied as well as an analysis of secondary impacts.

THE PADEP Environmental Assessment would follow the requirements set forth in a standard form (PADEP 3930-PM-WM0017). The environmental analysis required to satisfy the conditions of this assessment are comprehensive and include a description of the immediate and long term impacts on the local and regional ecosystems, aquatic habitats, biodiversity, habitat degradation, wildlife, endangered and threatened species, and water quality as it relates to Chapter 93 and secondary impacts. The permit requirements of this project are far more rigorous than that provided in the PUC submission and require a detailed analysis of impacts that is noticeably absent in the PUC submission. With regard to Chapter 93 the high quality of the headwaters of Tohickon Creek will need to be evaluated with regard to the maintenance of the streams “existing use”. In accordance with Chapter 93, section 4a, *Existing use protection for surface waters. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.* The impact to the existing water quality of the Tohickon Creek is an important component of this project and warrants a thorough analysis. The PUC submission does not provide any meaningful discussion regarding water quality nor does PPL follow their own Inventory Guidelines relating to water quality and aquatic life in this submission.

We believe that the Cross Country Route will have more than a minimal adverse environmental impact to the natural resources of the Commonwealth and that alternative alignments that would result in less impact are available. Our concerns regarding the impacts to the natural resources of Pennsylvania are also elucidated in the April 30, 2008 letter from Mr. James Newbold of the PADEP to Mr. Kenneth Kuhns, siting Supervisor of PPL. This letter states that “Of all of the alternatives, the Cross Country Route appears to have the most environmental impact”.

5. Exceptional Wetland Designation

With regard to Chapter 105 it is also important to consider the presence of endangered and threatened species in or along the corridor since the presence of a listed species would result in the designation of the wetlands as being exceptional. In accordance with PA Chapter 105 the presence of endangered or threatened species in or proximate to a project site will result in the designation of a wetland as “exceptional”. Chapter 105 states ‘Exceptional value wetlands are wetlands that exhibit one or more of the following characteristics:

(i) Wetlands which serve as habitat for fauna or flora listed as “threatened” or “endangered” under the Endangered Species Act of 1973 (7 U.S.C.A. § 136; 16 U.S.C.A. §§ 4601-9, 460k-1, 668dd, 715i, 715a, 1362, 1371, 1372, 1402 and 1531--1543), the Wild Resource Conservation Act (32 P. S. §§ 5301-5314), 30 Pa.C.S. (relating to the Fish and Boat Code) or 34 Pa.C.S. (relating to the Game and Wildlife Code). (ii) Wetlands that are hydrologically connected to or located within 1/2- mile of wetlands identified

under subparagraph (i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).

The report prepared by Mellon Biological Services entitled Wildlife and Plant Survey for Coopersburg #1 and # 2 138/69KV line Reconstruction dated July 30, 2007 provides a description of the endangered and threatened plant and animal species present in and near the proposed power line corridor. The report indicated that possible habitat for bog turtle (*Glyptemmys muhlenbergii*) a federally-listed species and five plants designated by the PA DCNR as Special Concern, including Slender Blue Iris (*Iris prismatica*), Downy Phlox (*Phlox pilosa*), Buxbaum's Sedge (*Carex buxbaumii*), Bushy Aster (*Aster dumosus*) and Prairie Coneflower (*Ratibida pinnata*). Three of these species were indicated in the Mellon Report to occur in areas of diabase geology such as that found in Springfield Township, but do not specifically state whether these species occur within the proposed Cross Country Route.

The PUC submission indicates that the survey will be limited to “along the proposed line route”. This approach fails to contemplate the possibility that the wetlands within the powerline corridor may be of exceptional resource value. The bog turtle surveys that were performed by PPL through its consultant Mellon Biological Services were limited to the corridor and in places up to 300 feet from the corridor. These results of the bog turtle survey just became available (Mellon Biological Services, July 21, 2008). Although the report satisfied the minimum requirements for performing a bog turtle survey the investigation did not contemplate potential impacts to areas greater than 300 feet from the project footprint as indicated in the letter from the USFWS dated March 7, 2007. Moreover, failure to investigate areas adjacent to the route can miss currently unidentified populations and thus misrepresent project impacts on wetlands that would warrant an exceptional value designation for the PADEP.

Figure 2. Potential bog turtle wetland located within ½ mile of Cross Country Route



Inspection of properties by Princeton Hydro and local residents in the vicinity of the proposed powerline resulted in the identification of a wetland located to the south of Hickon Road that contains the essential habitat requirements necessary to support bog turtles (See Figure 2). Although this site is not located in the corridor it provides an excellent example to illustrate the potential for impacts to sensitive species, such as the bog turtle, present outside of the corridor. As previously indicated the presence of this species within wetlands that are

hydrologically connected to or located within 1/2- mile of the project area would result in the wetland being designated as exceptional by the PADEP.

As part of the federal listing of this species as a threatened species, a recovery plan was prepared by the USFWS that provides guidance for the protection of this species (USFWS, 2001). This guidance document sets forth protection measures for the wetlands occupied by bog turtle designated as Zone 1 as well as a buffer area of 300 feet (Zone 2) and a third area (Zone 3) that includes upland, wetland and riparian areas extending a minimum of one mile beyond the buffer area/Zone 2. With regard to potential project impacts the USFWS states “*activities in these areas have been shown to have the potential to adversely affect bog turtle and their habitat. This particularly applies to activities affecting wetlands or streams connected to or contiguous with Zone 1, because these areas may support undocumented occurrences of bog turtles and/or provide travel corridors*” (USFWS, April 2006). It is also important to note that the final determination regarding the presence or absence of bog turtles in or near the Cross Country Route rests with the US Fish and Wildlife Service and the PA Fish and Boat Commission. Until these regulatory agencies make a final determination the impacts associated with the proposed route cannot be realistically assessed.

Although the PUC submission provides text regarding the presence of endangered and threatened species it does not provide any meaningful discussion regarding either the presence of these species or the impacts that the project would have on these species if they occur either in or proximate to the proposed line. The PUC submission simply states, “*Any conflicts with the above species of concern will be resolved prior to the start of construction* (Exhibit B page 25)”. As encountered throughout the submission no detail was provided with regard to how PPL would resolve this potentially complex regulatory issue. The accurate characterization of listed species is not only essential to understanding the permitting needs of a major project such as the one being proposed but is a necessary and important element of any alternative analysis.

V. Impact Assessment

A. Introduction

Although a key element of the PUC submission is to illustrate compliance with Chapter 57, Electric Service, Subchapter G of the Commission’s regulations at 52 Pa. Code 57.71-57.77 PPL did not provide any realistic discussion regarding project impacts to the natural resources of Pennsylvania. Instead, the PUC submission simply states that the “*construction operations and maintenance of the Coopersburg #1 and #2 138/69kV Tap will not have any significant environmental or land use impacts*”. Although the submission indicates that “*an extensive siting analysis*” was performed and that it “*reflects a proper balance of functional requirements, social and natural resource factors and cost requirements*” the environmental component of the submission’s analysis is poorly conceived and fails to provide an objective assessment of the project’s environmental impacts. Moreover, the assessment of alternatives described in the PUC Submission is misleading at best. The part of the PUC submission entitled **Introduction and**

Overview indicates that PPL Electric performed a detailed environmental impact assessment and calculated right-of-way acquisition and line construction costs for each. The impacts and costs for each alternative were quantified and are set forth in tabular form in Table 1, at pages 11-13 of Exhibit C. The indication that the environmental information provided in the table equates to a detailed environmental assessment is without merit as the comparisons of alternative routes is limited to general digital GIS data. The information used to develop this table lacks sufficient detail with regard to the quality of the resources described since the information is based solely on GIS mapping. Although site-specific information was obtained for the proposed Cross Country Route it was not utilized in the impact assessment table. The failure of PPL to provide site-specific environmental data for all of the three routes significantly limits the value of Table 1 with regard to the assessment of impacts. PPL's reliance on this table to illustrate the environmental impacts misrepresents the impacts associated with the project and is misleading since the level of impacts is directly related to PPL's selection of the Springfield substation. PPL's failure to clearly represent the disturbed nature of both the SEPTA Route and the SR 309 Route serves to understate the environmental impacts associated with the Cross Country Route.



For example, the table indicates that the SR 309 Route would impact 2.34 acres of an area, the Route 309 woods, identified as being an outstanding Natural area in the Bucks County Natural Resource Inventory. Although the report correctly indicates that the Route 309 woods is considered an outstanding natural area and that the proposed line would traverse this feature, the report fails to indicate that there is an existing cleared transmission line right of way through the woods (please refer to Figure 3, Exhibit MG 1, Photo 5). After reviewing each of the three routes considered by PPL it is difficult to understand how the Cross Country Route impacts the least amount of woodland. It is clear from review of the aerial photograph accompanying this report (Exhibit MG 1) that these routes are readily visible and either not wooded or fragment existing woodlands. If, however, the increasing woodland impact is related to the two additional double circuit transmission lines of 1.86 miles each for the 309 Route and 2.1 miles each for the SEPTA Route to connect to the Springfield Substation then a description of these routes is warranted. Currently, the plan does not indicate the location of these routes and the impacts assessed to each of these Routes. Early iterations of the Impact Assessment Table from October, 2006 (June 17, 2008 A.102) indicate that the SEPTA Route would only impact 4.9 acres of woodland.

The SEPTA Route is indicated to be 5.74 miles long, without the 3.86 miles of connection required to reach the proposed Springfield Substation site and SR 309 Route is 5.38 miles long without the 4.2 mile connection. Although the longer length of the two alternative routes was included in the impact table and used as a reason to support the selection of the Cross Country Route no detail was provided regarding the specific location of these routes. Moreover, the assessment of impacts based on the location of the Springfield Substation lacks objectivity and it establishes the basis for a self fulfilling goal. In other words, if the substation was not included in the impact analysis the SEPTA route would be 1.28 miles shorter than the Cross Country Route.

The PUC submissions failure to accurately describe the resources associated with the existing transmission line is misleading especially when compared to the clearing and fragmentation of undisturbed and environmentally sensitive forest that will be required for the Cross Country Route.

Although the SR 309 route and the SEPTA route are described in general detail the relationship of the developed elements of these two routes is not described relative to the impact analysis. PPL's reliance on existing GIS maps to assess impacts also resulted in the misrepresentation of impacts as it relates to wetlands and forest located proximate to the SR 309 Route and the SEPTA Route. The use of GIS maps without site specific information to perform a "detailed" impact analysis does not allow for the verification of the accuracy of the mapping or any characterization regarding habitat quality. The wetland coverage illustrated on map 6 does not appear to be of sufficient resolution to indicate the presence of development features within the SEPTA Route such as the existing rail and rail bed. For example, much of the SEPTA line contains existing stone fill to support the track that would be considered non-wetland. The PUC submission does not indicate if this was taken into account when stating that there would be 1.29

acres of wetland impact. In other words, does this acreage constitute new impacts to wetland or is it an artifact of the accuracy of the GIS data? This issue is also relevant to the SR 309 Route since that area is indicated to have 4.04 acres of wetland impact. In this case, however, the character of the wetlands is essential to a realistic impact analysis. As indicated previously, it is extremely important to determine the quality of the habitat being impacted and not limit the analysis to a review of digital information. Although PPL provided a description of the Cross Country Route no site specific description of the other routes was provided. Since most of the 309 Route is indicated to follow the existing Coopersburg Tap these wetland areas would already exist in a managed easement. It is also important to note that the NWI maps are typically from the early 1980's and based on the amount of development that has occurred along Route 309 are likely inaccurate in light of the development that has occurred in this region. As such, the representation of impacts presented in the PUC submission between the Cross Country Route and the two alternatives is misleading and does not provide a realistic assessment of the impacts.

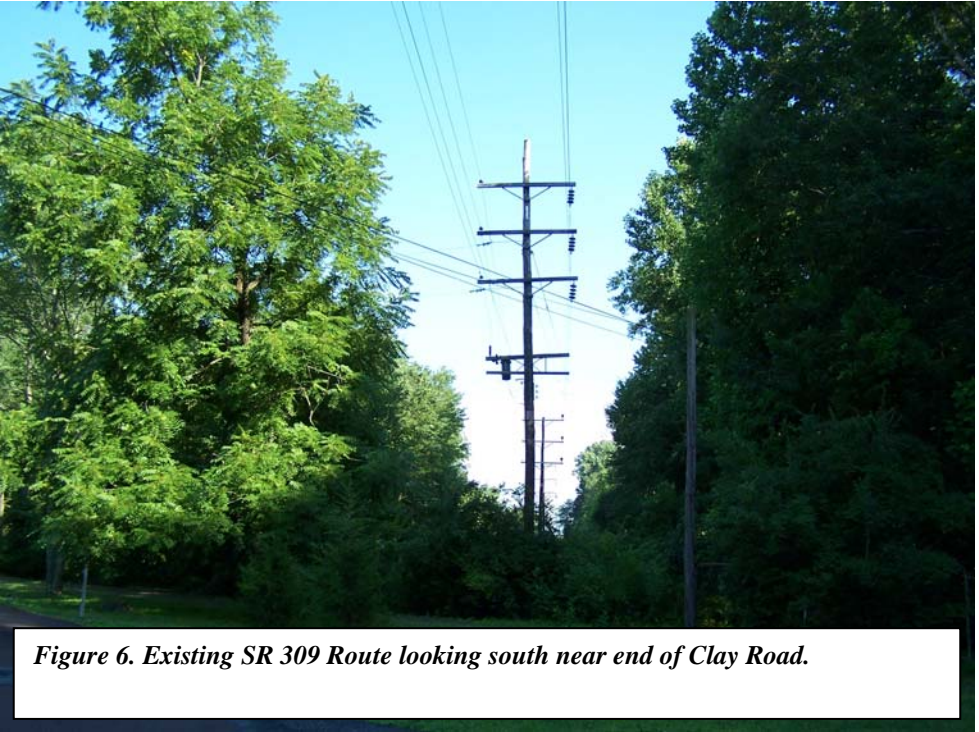
It is also of importance to understand that the extent of wetland impacts stated in the PUC submission to this valuable natural resource is significantly understated. Based on my review of the maps included in the Mellon Biological Services bog turtle report (July 21, 2008) more detailed wetland boundaries were provided. Based on rough calculations of the maps there is significantly more than 4.87 acres of direct wetland impacts associated with the Cross Country Route. A cursory analysis of the area proposed to be impacted by the twenty-seven crossing of wetlands and streams (Mellon, July 21, 2008) associated with the Cross Country Route is closer to 12 acres; an impact far greater than the 4.87 acres presented in the PUC submission. The greater area of direct impact indicated in the most recent documents from PPL is especially noteworthy with regard to the projects potential impact to the water quality and wildlife habitat value of the headwaters of Tohickon Creek. It is also important to note that until the Army Corps agrees to the proposed wetland boundaries established by PPL the exact acreage of wetland impact cannot be accurately determined.

Similarly, the characterization of the SR 309 and SEPTA Routes regarding forest impacts is important since PPL uses these acreages to compare impacts relative to the Cross Country Route. Since both of these routes, especially the 309 Route, already possess extensive cleared areas, the woodland impacts provided in the PUC submission would appear to be significantly inflated (See Figures 3, 4, 5, 6, 7, 8 and 9, Exhibit MG 1 photos 2, 4, 5, and 6). Inspection of the SEPTA Route indicates that the line is currently dominated by a variety of non-native ruderal species (Figure 10). With regard to these two issues the PUC submission states "*The preferred alternative has the largest wetlands impact but has the least amount of tree clearing*". The statement does not accurately represent the impact of woodland clearing since it does not rely on any site specific information. Since those sections of the existing Coopersburg Tap are subject to routine maintenance it is unlikely that the amount of woodland impact is as extensive as indicated in the PUC submission. In addition, at least a portion of the SEPTA line would either lack woody vegetation or, as previously stated, be dominated by ruderal species. It is also important to understand that the SR 309 and SEPTA Routes would be located in woodland that

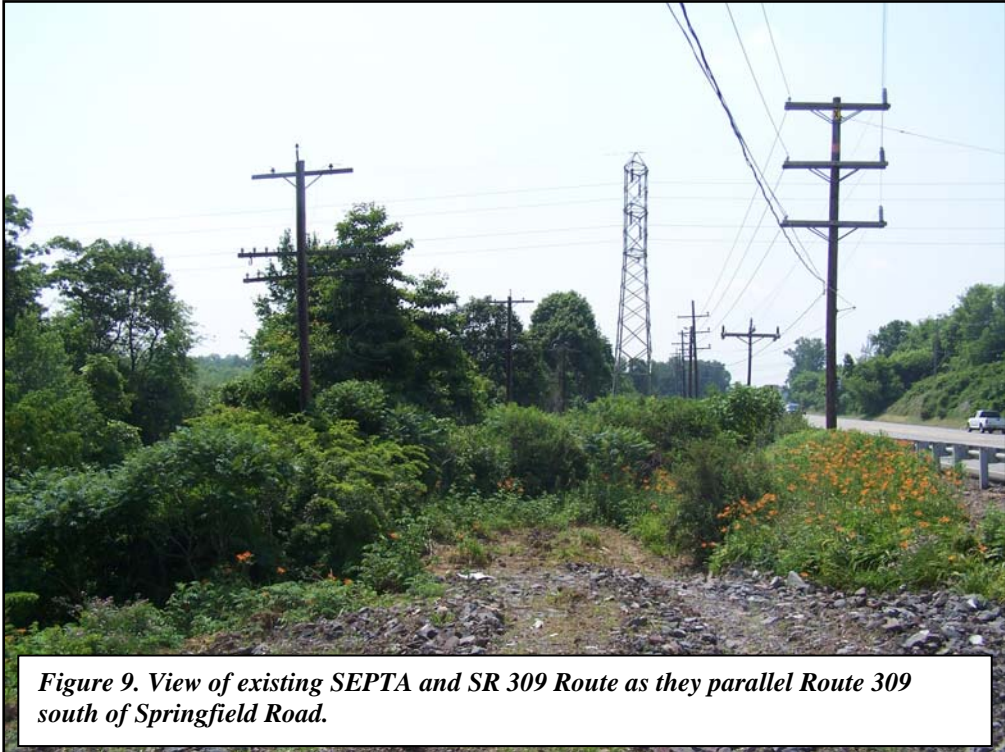
has already been fragmented (please refer to the photographs provided on the following pages and Exhibit MG 1, and photos 1, 2, 3, 4, 5 and 6). The accurate characterization of the habitat that currently exists in each of these routes is essential to the development of an objective analysis of impacts.

The failure to accurately characterize the plant communities present within each of the proposed routes serves to misrepresent the impacts to woodland associated with the Cross Country Route. The impacts associated with the Cross Country Route are far more significant than indicated in the PUC Submission. The sensitivity of the habitat through which the Cross Country Route is proposed is more effectively and accurately communicated in the Wildlife and Plant Survey Report (July 30, 2007). It is in this document that PPL's expert recommends that "*Intrusion into large unfragmented forest should be avoided if possible*". This sentiment is repeated in PPL's inventory guidelines which state that "*An attempt is made to minimize clearing of wooded area,*









which is considered a constraint due to disruption of existing environment". It is however, important to note that the general alignment of the cross country route was established prior to the site specific studies performed by Mellon Biological Services. As such, it is clear that Mr. Mellon's recommendations were not contemplated in the selection of the Cross Country Route. PPL's failure to integrate environmental impacts such as expressed by Mr. Mellon as well as those presented in this review can be readily observed in the October 17, 2006 correspondence from Nat Jenkins, PPL Siting Coordinator, to Kenneth B. Kuhns, which does not make a single reference to possible environmental impacts related to the selection of the Cross Country Route. Instead, the PUC submission includes multiple examples in which PPL indicates that the project will have minimal environmental impacts but does not provide any objective discussion regarding how this conclusion was reached nor does it provide any scientific support for this position. As such the PUC submission does not provide enough information regarding natural resources to objectively state that the project will have less than minimal adverse impacts to the natural resources of the Commonwealth. The project, as currently designed, will not be able to meet this standard.

B. Forest Fragmentation

The Mellon Report indicates that the forests, through which the Cross Country Route is proposed, will fragment habitat that supports a variety of area sensitive species. The Mellon Report states that *"there is increasing concern regarding species that require large contiguous homogeneous habitats to survive and reproduce. These birds are referred to as "interior species"*. The report also indicates that the size of the forest required to support forest interior species ranges from a low of 80 acres but can vary based on the shape of the forest and its proximity to larger contiguous forest habitat. A map indicating the location of interior forest habitat is provided in Appendix A. The mapping is consistent with Mr. Mellon's statement that *"The largest contiguous forests are associated with the higher elevations of the power line and by definition are the least fragmented forests, which is consistent with the distribution of forest species reported in the Atlas of Breeding Birds in Pennsylvania (Bruaning, 1992)"*. The report also lists the interior forest species reported in the study area during the 1990 and current bird atlas fieldwork as; broad-winged hawk (*Buteo platypterus*); pileated woodpecker (*Dryocopus pileatus*); wood thrush (*Hylocichla mustelina*); Veery (*Catharus fuscescens*); red-eyed vireo (*Vireo olivaceus*); yellow-throated vireo (*Vireo flavifrons*); black-and-white warbler (*Mniotilta varia*); American redstart (*Setophaga ruticilla*); ovenbird (*Seiurus aurocapillus*); Louisiana waterthrush (*Seiurus motacilla*); Kentucky warbler (*Oporornis formosus*) and scarlet tanager (*Piranga olivacea*).

Although Mr. Mellon recommends that *"habitat sensitive species generally occur in large contiguous habitats, which are the most sensitive habitats in the study region and are the most susceptible to loss of habitat"* the report does not provide any discussion regarding the impacts to these species related to the proposed Cross Country Route. He does, however, state that *"Intrusion into large unfragmented habitat should be avoided if possible"*. Exhibit C of the PUC

submission limits its discussion of forest clearing to the following; “*Approximately 46 acres of vegetation management is required to ensure the safe and reliable operation of the proposed line*”. Appendix B of the PUC submission simply indicates that “*Positive and negative impacts on area species are predicted*”. The extensive nature of the forests through which the Cross Country Route is planned is also indicated in the Phase 1 & 2 Bog Turtle Report (Mellon, 2008) in which it states that over half of the 7.29 mile route is forested. The level of impact assessment provided in the PUC submission regarding this important topic once again indicates PPL’s failure to objectively characterize the impacts associated with the Cross County corridor. The impacts to the contiguous forest communities of Springfield Township associated with forest fragmentation and edge effects are real issues and warrant discussion. Large habitat patches are critical for maintaining viable populations of area-sensitive species while fragmented patches of forest habitat support fewer species and smaller populations of species that are sensitive to habitat change.

Although there are numerous scientific papers describing the impacts of fragmentation and edge effects on area-sensitive/forest interior species by linear corridors the Pennsylvania Wildlife Action Plan (PGC, 2001) provides an excellent overview of these issues. The Wildlife Action Plan indicates one of the priority issues to be addressed relative to forest habitat is to “*Minimize fragmentation of remaining, large contiguous forest tracts*”. This document also states “*The largest forest blocks, especially those within well-forested landscapes, should be targeted for protection efforts. These large blocks represent the foundations from which conservation actions should begin for the mature forest suite of species in this physiographic area*”.

Several of the birds listed in the Mellon Report are also indicated to be birds of conservation concern. The Birds of Conservation Concern reflects a mixed strategy of bird conservation. Rare, locally distributed and declining species are listed because they are representative of habitats in decline. Each of the species listed below are referenced in both the Mellon Report and the Wildlife Action Plan. A brief description regarding why the following species were included as a species of concern is provided.

Broad-winged hawk (*Buteo platypterus*), **Habitat:** Extensive forests.

Reason(s) for concern: Indicator of large-scale forests. Sensitive to prey availability and forest fragmentation. State is major autumn migration corridor.

Wood thrush (*Hylocichla mustelina*). **Habitat:** Deciduous and mixed forests.

Reason(s) for concern: Partners In Flight priority species; Pennsylvania Watch List species; significant range-wide declines; indicator of higher quality forests; Pennsylvania has high responsibility for this species with 8.5% of the breeding population (1995). Sensitive to forest fragmentation. State is major autumn migration corridor.

Yellow-throated vireo (*Vireo flavifrons*), **Habitat:** Mature deciduous forests, especially riparian.

Reason(s) for concern: Partners In Flight priority species; indicator of forests with tall canopies.

Louisiana waterthrush (*Seiurus motacilla*) **Habitat:** Riparian forest.

Reason(s) for concern: Partners in Flight priority species; indicator of high quality mature forest and excellent stream quality. A forest interior species sensitive to edge effects.

Kentucky warbler (*Oporornis formosus*). **Habitat:** Forests, especially those with shrubby understory.

Reason(s) for concern: Indicator of high quality forests, especially those with shrubby understory in wetter, low elevation locations. A forest interior species sensitive to edge effects.

Scarlet tanager (*Piranga olivacea*). **Habitat:** Forests.

Reason(s) for concern: A forest interior species sensitive to edge effects. Pennsylvania has high responsibility for species with 17% of breeding population.

The Kentucky warbler and wood thrush were also indicated to be birds of conservation concern by the US Fish and Wildlife Service (USFWS, 2002). The overall goal of this report was to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities and draw attention to species in need of conservation action.

The following species are included in this discussion since they were listed in the Mellon report and occur elsewhere in the region.

Red-shouldered hawk (*Buteo lineatus*)

Habitat: Forests, especially riparian and swamp forests.

Reason(s) for concern: Indicator of higher quality and large-scale forests.

Acadian flycatcher (*Empidonax virescens*). **Habitat:** Riparian forest. In northern part of state, strongly associated with hemlock.

Reason(s) for concern: Partners in Flight priority species. Indicator of high quality riparian forest. Hemlock is threatened by diseases and pests.

Clearly, the species listed above are all indicators of high quality forest communities and are sensitive to disturbance such as that related to fragmentation and edge effects. Transmission line corridors also create edge habitat that is avoided by habitat-sensitive birds and utilized by more common generalist species and nest predators such as brown headed cowbird (*Molothrus ater*). As previously stated the impacts to these species and the contiguous forests of this part of Bucks County warrants an objective assessment with regard to the impacts associated with the Cross

Country Route. The current PUC submission fails to indicate that the impacts to forest communities were even considered when selecting the location of the proposed line and instead rely on a rather simplistic comparison of impacts of each of the three routes based on GIS mapping. It is however, important to note that Mellon Biological Services states that habitat sensitive species occur “*rather commonly in the forests of the study area*”. The impacts to natural resources related to the Cross Country Route can, however, be avoided since there are other viable options that would enable the project to follow routes through previously fragmented landscapes.

The importance of migratory birds and the impacts to sensitive habitats are also reflected in Executive Order 13186 of January 10, 2001, Responsibilities of Federal Agencies to Protect Migratory Birds. This executive order states the following; *Migratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries.* The executive order was developed to ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern. In addition, the DOE and USFWS entered into an MOA regarding this Executive order which sets forth guidelines ensuring that migratory bird protection and conservation is considered in NEPA project reviews. Although this project does not fall under NEPA review it is reasonable to anticipate that the guidance set forth in the MOA would be recognized by a public utility the size of PPL.

C. *Impacts Associated with Loss of Riparian Forest*

The preservation of riparian corridors/forests was described previously; mostly with regard to existing watershed protection efforts. However, to understand the significance of the impacts associated with the removal of forested riparian buffers requires an understanding of the services that they provide. Based on a variety of recent studies the stream ecosystem services that these important resources provide have been well documented. For example, the results of a recent study of riparian forests performed at the Stroud Water Resource Center (Sweeney, Bernard W. Et al., 2004) concluded “*The results reinforce both current policy of the United States that endorses riparian forest buffers as best management practice and federal and state programs that subsidize riparian reforestation for stream restoration and water quality. Not only do forest buffers prevent nonpoint source pollutants from entering small streams, they also enhance the in-stream processing of both nonpoint and point source pollutants, thereby reducing their impact on downstream rivers and estuaries.* The Stroud study illustrated that most forested stream channels studied in the Piedmont Region possessed the following attributes relative to deforested channels; wider channels, lower average water velocity, higher bed roughness; slower channel migration, significantly more benthic habitat, an increased abundance of disturbance-intolerant groups like mayflies and stoneflies, higher removal of nutrients per unit of channel length and greater organic matter content and quality. The study concluded, “*the increased value of*

riparian forest “services” relative to forest “products” could significantly change economic analyses and lead to a reduction of riparian deforestation for profit”. The report also stated that the “*data should also enhance public appreciation of stream ecosystem services, which should “help promote connections between science and management” of aquatic ecosystems*”. The proposed transmission line has the potential to disrupt functions and services provided by the Tohickon Creek. As previously stated the Upper Tohickon Creek Rivers Conservation Plan documented the relative high quality of this headwater section of the Tohickon Creek. The presence of Louisiana water thrush in this area is also an indicator of excellent stream quality (PGC, 2005). It is interesting to note that the PUC submission acknowledged the value of riparian forest by stating in Exhibit B that “*Woodlands found near streams help create a natural buffer that enhances stream quality and also serves as a habitat corridor for wildlife*”. Based on the location of the Cross Country Route this statement did not appear to be relevant to the selection process. Due to the proposed route of the Cross Country Route it is likely that the comparatively high quality of this stream system will be compromised and the services that this system currently provides will be reduced. Impacts such as that proposed by PPL are avoidable as other alternatives that would result in fewer impacts to the natural resources of the Commonwealth are available.

D. Invasive Species

Transmission lines corridors also provide habitat for a variety exotic, invasive plant species. Invasive plant species gain a foothold where native vegetation is frequently disturbed. Invasive plants spread rapidly, alter vegetation structure, and further degrade habitat quality.

The impacts associated with the Cross Country Route likely will result in the conversion of extensive areas of forest, including forest interior habitat, to 100 foot wide swaths of managed meadow or scrub/shrub communities much of which will likely be dominated by non-native invasive species. Based on inspection of other power line corridors managed by PPL in Springfield Township the dominance of undesirable invasive species is probable. Corridors in Springfield Township possess large stands of common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), autumn olive (*Elaeagnus umbellata*) and tartarian honeysuckle (*Lonicera tartarica*). The replacement of structurally diverse mature woodland communities with stands dominated by invasive species is an impact that warrants consideration in the PUC submission. This is especially relevant since the 309 Route and the SEPTA Route are already disturbed and support populations of these species. The PUC submission is, however, silent with regard to this issue.

The impact of invasive species, in particular aquatic invasive species, to the Commonwealth of Pennsylvania is clearly described in the document entitled Commonwealth of Pennsylvania Invasive Species Council, Aquatic Invasive Species Management Plan, October 2006. This document defines aquatic invasive species as “*aquatic invasive species are defined in this document as non-native species that threaten the diversity or abundance of native species, the*

*ecological stability of infested waters, human health and safety, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters. This definition was derived from the federal Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. This document goes on to state “Article 1, Section 27 of the Pennsylvania Constitution states that **the people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and aesthetic values of the environment. Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.** The value of Pennsylvania’s aquatic resources demands a comprehensive response to the threat posed by aquatic invasive species. The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, amended by the National Invasive Species Act of 1996, calls for the development of state and regional AIS management plans. Gathering input from Pennsylvania representatives of state and federal agencies, industry, nongovernmental organizations and other stakeholders, and using guidance from the federal Aquatic Nuisance Species Task Force, this plan has been developed to coherently address AIS issues across Pennsylvania. This plan is to be implemented under the auspices of the Governor’s Pennsylvania Invasive Species Council (PISC)”.* This document lists the following invasive species: common reed, purple loosestrife

and Japanese Knotweed; all of which are common in other PPL transmission lines (please refer to Figures 11 and 12).

It is also important to understand that invasive species typically colonize sites that have been exposed to disturbance such as that related to the construction of a powerline corridor. Once established these species are

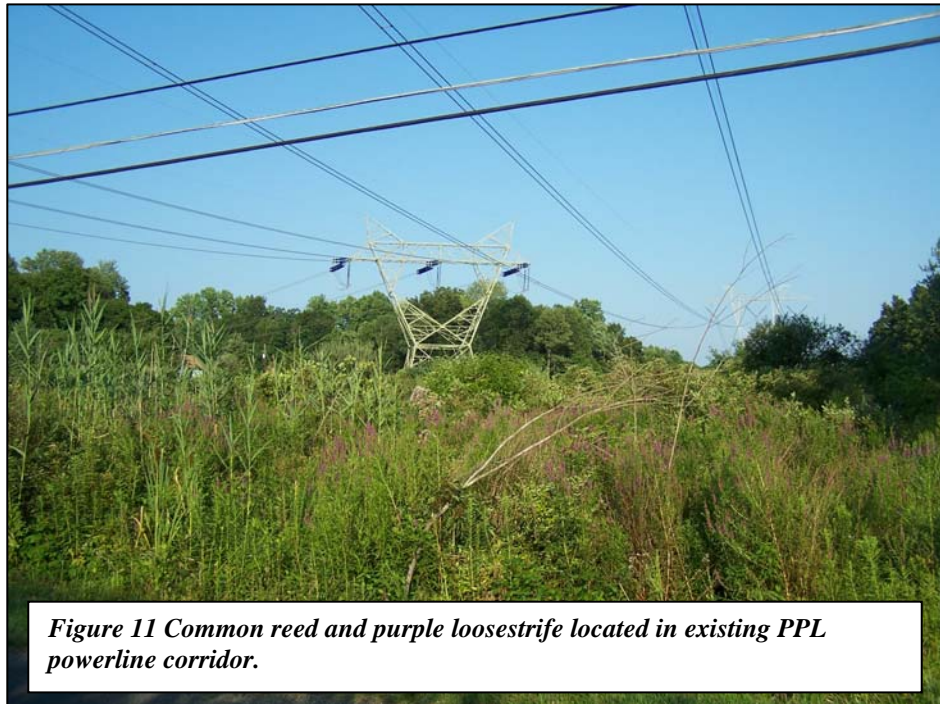


Figure 11 Common reed and purple loosestrife located in existing PPL powerline corridor.

provided the opportunity to spread into other suitable adjacent habitat. For example, the presence of purple loosestrife is common in wetlands within powerline corridors. Once this species is established it can spread in to emergent wetlands that may be dominated by desirable native species. The recently released bog turtle report (Mellon, July 21 2008) identifies many wetland areas in and along the corridor that are currently dominated by desirable wetland plant species

that would be susceptible to degradation by invasive species.



Figure 12, Dense patch of the invasive species, Japanese knotweed, in existing PPL corridor.

As previously stated, the removal of more than 46 acres of woodland related to the construction of the proposed Cross Country Route will likely result in a variety of impacts related to forest fragmentation; such as the loss of area sensitive forest interior bird habitat, loss of riparian buffer and impacts to water quality. The inevitable colonization of the Cross Country Route with non-native invasive species would, for lack a better term, “add insult to injury”.

VI. Review of Alternative Analysis

The Siting Analysis element of the PUC submission indicated that “*the preferred route was selected with consideration for public and government input, construction and maintenance impediments, and by analyzing land usage and environmental consideration and costs for each alternate*”. The selection

of the preferred Cross Country Route also relied on information generated in the Environmental Inventory (Exhibit B of the submission). As previously stated the environmental inventory relies primarily on secondary sources of information, primarily related to GIS mapping obtained from various sources. Although the inventory indicates that field reconnaissance was performed it would appear that this effort was limited to the Cross Country Route. The inventory was based on guidance set forth in Appendix A of the PUC submission.

As indicated throughout this review it is our position that the Cross Country Route will result in significant impacts to the natural resources of the Commonwealth and that the impacts are

avoidable. Review of the rationale for inventorying specific environmental features is set forth in Appendix A and indicates that PPL did not even follow their own guidance with regard to the environment in making their selection of the Cross Country Route. For example, the stated rationale set forth in category G Natural Features, section 1a. Water Quality states that *“The potential for siltation or obstruction with silt or mud, and temperature increases due to removal of bank vegetation are avoided to the greatest extent possible”*. In the same category under section B Fish, aquatic life, the rationale states *“major aquatic organisms present in potentially affected waterbodies are identified to determine potential impacts”* and *“caution is exercised when crossing to avoid decrease in water quality, especially due to siltation”*. In the category of Terrestrial Resources under vegetation type the rationale states that *“major types of vegetation are identified to characterize habitats and predict the occurrence of wildlife species and potential impacts of removing these vegetation types”*. This section also states that *“An attempt is made to minimize clearing of wooded areas, which is considered a constraint due to disruption of existing environment, costs of clearing and reduced liability”*.

Review of the PUC submission does not indicate that the guidance set forth in their inventory guidelines was incorporated into the selection process. In addition, the inventory did not include any site specific environmental information with regard to either the 309 Route or the Septa Route. The impact analysis provided in the submission is misleading as it incorporates impacts such as those related to wetlands and forests that are not based on an accurate characterization of these resources. For example, the GIS mapping used to quantify impacts does include areas within existing easements of the Cross Country Route which is covered by natural, relatively pristine forest communities. Based on our inspection of the two alternative routes the impacts to natural resources would be far less significant than those associated with the Cross Country Route.

It is disconcerting that a more objective description of the environmental character of the alternatives was not presented in the submission, especially since guidance set forth in PPL’s inventory guidelines states *“Paralleling existing linear features, particularly existing transmission lines, is often desirable for several reasons. Paralleling usually adds only incrementally to existing impacts, rather than creating new impacts. Narrower rights of way are needed because maximum utilization is made of land already encumbered”*.

It is also relevant to note that the reason for dismissing the alternatives as viable options did not indicate that environmental factors were seriously considered in the selection process. Instead the submission simply provides generalized comments regarding impacts such as *“Impacts to streams will be minimal”* and *“PPL Electric will utilize uplands and avoid wetlands wherever possible”*. These statements remain unsubstantiated by PPL. With regard to wetlands it is important to understand how PPL will avoid wetlands when relying solely on secondary data sources. Although site specific wetland delineations have been performed the submission does not reference any of the data. Moreover, the acquisition of easements along the Cross Country Route will reduce PPL’s ability to support this position. Contrary to what has been stated in the

PUC submission with regard to environmental impacts the submission is clear in that PPL “worked diligently with cooperating landowners to locate the line to minimize impacts of existing and future land use plans”. Based on the placement of extensive segments of the Cross Country Route in lands already constrained by floodplain, wetland and riparian buffers this approach would appear to have been more important to the selection process than the protection of natural resources of the Commonwealth.

VII. Summary and Conclusion

The PUC submission does not accurately describe the impacts associated with this project nor does it illustrate how it will comply with the requirements set forth in Chapter 57, Electric Service, Subchapter G of the Commission’s regulations at 52 Pa. Code 57.71-57.77. The submissions failure to objectively characterize the natural resources of the three routes was misleading in that it provided PPL the opportunity to make the impacts seem similar in severity. However, with regard to natural resources this approach does not accurately portray the impacts associated with the Cross Country Route as it is likely that this alignment will result in significant natural resource impacts. Based on review of information contained within more recent PPL documents (Mellon, July 21, 2008) the impacts associated with the Cross Country Route related to more accurate wetland information indicated that there will be substantially greater natural resource impacts that indicated in the PUC submission. Based on discussions with the Army Corps of Engineers it was indicated that PPL would need an individual wetland permit to construct the Cross Country Route. The need to apply for an individual 440 permit indicates that there will be more than minimal adverse impacts to “waters of the United States”. At this juncture in the review process the public has not been provided any detail regarding the actual extent of wetland impacts as it relates to both permanent and temporary impacts. This information is relevant to the selection process and should have been available for public review and comment as part of the PUC review process.

It is also important that PPL relate the environmental impacts associated with this project to PUC’s requirements which stipulates that a project will not be approved unless the PUC “finds and determines as to the proposed HV line: That it will have minimum adverse environmental impact, considering the electric power needs of the public, the state of available technology and the available alternatives. The PUC submission did not describe how the proposed Cross Country Route will have minimal adverse impacts and instead limited its impact discussion to generic phrases such as “the construction, operation and maintenance of the Coopersburg #1 and #2 138/69kV tap will not have any significant environmental or land use impacts” (Introduction and Overview section of PUC Submission). Since impacts to sensitive natural resources can mean different things to different people or groups it is essential to support comments such as those made by PPL in their submission with scientific literature. Currently, the only scientifically based documents submitted as part of this application were prepared by

Mellon Biological Associates and the recommendations provided by Mr. Mellon to avoid impacts associated with forest fragmentation were not even mentioned in the PUC Submission.

Princeton Hydro concludes that the Cross Country route will have significant adverse impacts to the areas natural resources. The lengthy descriptions provided in this review regarding the importance of environmental issues such as the impacts of forest fragmentation on birds of conservation concern, invasive species and riparian forest/buffers was provided to indicate the importance of these resources to the Commonwealth of Pennsylvania and the failure of PPL to



Figure 13 Existing mature forest along proposed Cross Country Route.

identify impacts to these resources as being significant. An alternative assessment of impacts is provided in Table 1 on the following page.

The Cross Country Route is located in a very sensitive landscape. As indicated in the Upper Tohickon Rivers Conservation Plan the streams in this area remain of high quality and support a diverse macroinvertebrate community and good

water quality. The quality of this headwater stream system can be at least partly attributable to the relatively undisturbed native forest in this area (please refer to Figure 12). As indicated in the Mellon report the forest community in Springfield Township is of sufficient size to support a number of area sensitive bird species. The presence of these species is also indicative of the ecological health of this area. The proposed Cross Country Route will jeopardize all of these resources. Although PPL emphasizes the cost savings associated with the Cross Country route they failed to indicate the cost to the Commonwealth of Pennsylvania regarding the loss of ecological services that would be directly attributable to this project. This is especially relevant since there are alternatives that would be far less ecologically damaging.

Table 1. Summary Table Regarding the Environment Impacts of the Three Alternative for the

| <i>Impact Category</i> | <i>SEPTA Route</i> | <i>SR 309 Route</i> | <i>Cross Country Route</i> |
|---|---|--|---|
| <i>Natural Resources</i> | | | |
| Contiguous Forest Habitat | No, the habitat is already fragmented | No, the habitat is already fragmented | Yes |
| Presence of Area Sensitive Forest Interior Birds | No, the habitat is already fragmented | No , the habitat is already fragmented | Yes, 12 species listed by PPL (Mellon, 2007) |
| Vernal habitat | Highly unlikely | Unlikely | Yes |
| High Quality Forested wetlands | No | No | Yes |
| High quality surface waters | Likely locally degraded due to pre-existing development | Likely locally degraded due to extensive development | Yes |
| Presence of extensive development along route | Yes | Yes | No |
| Presence of invasive species in proposed corridor | Common | Extensive | Extremely uncommon in Forested areas |
| Bucks County Natural Resources Inventory | Yes, but cleared transmission line corridor already existing | No | To be proposed in update to Bucks County Plan (Ann Rhoads, 2008) |
| Alternative associated with existing linear development | Yes | Yes | No |
| <i>Anticipated Project Impacts</i> | | | |
| Wetland impacts | Impacts Currently Existing | Impacts Currently existing | Severe impacts due to high quality of wetlands |
| Water quality Impacts | Likely minimal because any impacts such as that related to thermal degradation already existing | Likely minimal because any impacts such as related to thermal degradation already existing | Significant because of the high quality of existing macroinvertebrate community, intact riparian forest and extensive nature of contiguous forest |
| Number of stream crossings | 12 (PUC submission) | 13 (PUC submission) | 15 (Mellon, July 21, 2008) |
| Number of wetland crossings | No data presented | No data presented | Over 20 wetland crossing/encroachments |
| Impacts to functions and values of existing riparian corridors | Likely to be low since corridor already exists | Likely to be low since corridor and rail bed already exists | Significant, riparian buffer in excellent shape |
| Length of route without connections to Springfield Substation | 5.74 miles | 5.38 miles | 7.09 miles |

VIII. Recommendations in Case the Project is Approved

Although we do not believe that the Cross Country Route warrants approval by the PUC or permits from either the PADEP or the US Army Corps of Engineers due to its environmental impacts it is still prudent to address the possibility that approvals may occur. In the event that this line receives approvals we strongly encourage the PUC to incorporate requirements for mitigation measures designed to avoid and minimize impacts to the sensitive natural resources of Springfield Township and the headwaters of Tohickon Creek. The following recommendations are requested:

- Copies of all permit applications to either the PADEP or the US Army Corps of Engineers should be provided to Springfield Township for review and comment
- The project should be designed to satisfy the requirements of the Springfield Township Stormwater Ordinance related to water quality and recharge.
- The project should respect the Riparian buffers required by Springfield Township
- The final design plans should be subject to the review of the Springfield Township Engineer.
- An invasive species management plan should be prepared for the future ROW and a schedule developed to illustrate how the future colonization of the ROW by invasive species will be controlled.

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