CONSERVATION OPPORTUNITIES for CORRIDOR PRESERVATION and COMMUNITY DEVELOPMENT

Rural Transportation Corridors

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I. INTRODUCTION

Between Route 1 and Route 30, Route 41 passes through or near nine communities that contain extensive prime farmland (some of the most productive land east of the Mississippi River); headwaters to five significant stream systems; and/or active, vibrant downtowns and villages. These economically and ecologically productive lands are currently threatened by development, as Chester County is the fastest growing county in the Commonwealth (2000 U.S. Census data). The improvements to Route 41 as proposed by the Pennsylvania Department of Transportation (PennDOT), could exacerbate these threats since increased land accessibility and road capacity result in decreased travel times and increased land development pressures. Major factors in this phenomenon include Route 41's location as a principal connector to Routes 1, 926, 10, 30; the roadway's importance to transporting agricultural (in particular) and other types of goods; the relatively low cost of land; and, people's willingness to drive longer and longer distances for their jobs.

To address these threats, the Brandywine Conservancy's ***Conservation Opportunities*** initiative provides a wide range of corridor-wide technical assistance to municipal officials and others. Refer to the Conservancy's "Project Overview" document for broader information regarding ***Conservation Opportunities***.

Conservation Opportunities specifically recognized the pre-existence of other situations where land use issues were addressed and considered in the context of transportation improvements. This report summarizes the research into these "Rural Transportation Corridor" (RTCs) examples, defining an RTC as:

> *"A roadway, existing or planned, whose length passes through currently rural land that is potentially developable for uses such as residential, commercial, or retail. If existing, this roadway is subject to planned improvements (e.g., lane addition, interchange enhancements). Either type of roadway was (or is, on an ongoing basis), the focus of land use planning and/or prediction of land use changes, through a proactive process and/or a regulatory process (e.g., the National Environmental Policy Act (NEPA))."*

In addition to inherent development pressures, changes to Route 41 that both improve accessibility to vacant land and increase road capacity (by decreasing travel times) will also likely contribute to accelerated growth in western Chester County. Currently, PennDOT is considering whether to go forward with one of the previously identified 10 improvement alternatives for Route 41. While this report focuses on managing the development pressures that could be induced by implementation of one of these approaches, a majority of the provided tools and resources can be used to manage the

intrinsic growth pressures that already are occurring in the Route 41 area. This report is a "snapshot" as of its publication date; i.e., its recommendations may not be applicable to the selected PennDOT alternative, or to subsequent decisions. This report:

- Summarizes what is known about the relationship between roadway improvements and land use changes.

- Identifies some of the tools and resources that can be used to influence: (1) land use changes resulting from roadway improvements in rural areas; and, (2) the actual design of a highway in a rural area.

- Outlines examples ("case studies") where these tools have been used – largely on a planning basis to date.

- Provides conclusions, a summary, and appendices containing detailed resources (e.g., technical, regulatory, financial).

II. HIGHWAY IMPROVEMENTS AND LAND USE IMPACTS

Federal/State/Regional Interrelationships. The relationship between highway construction or other improvements, and land use changes that may result from those highway infrastructure investments, is complex at best. At the Federal level, this relationship has been and continues to be the subject of extensive research and analysis, as required by applicable transportation policy and the accompanying regulatory framework (i.e., NEPA; refer to page 3). At the local level, citizens living in the midst of proposed highway investments will often debate, at length, these improvements' benefits (e.g., economic) and drawbacks, including increased land development pressures. Regionally, the Chester County Comprehensive Plan policy element, *Landscapes*, also faces this same contradiction relative to Route 41. *Landscapes* designates Route 41 as one of several major County transportation facilities to be maintained over time, while establishing a vision of continued agriculture and rural resource protection in the corridor along with continued revitalization of existing boroughs and villages through new economic and land development initiatives. And in many cases, all levels of government, citizen groups, and others are realizing the impact of roadways on land use and vice versa, and as such, are proactively planning land use along highway corridors (see Section IV. of this report).

Specifically, this Section of ***Conservation Opportunities*** briefly summarizes what is known of the highway improvement/land use impact relationship, primarily based on two documents: (1) Land Use Impacts of Transportation: A Guidebook (Parsons Brinkerhoff Quade & Douglas, Inc., as funded by the National Cooperative Highway Research Program, Transportation Research Board, National Research Council; 1999); and, (2) Transportation Corridor Management: Are We Linking Land Use and Transportation Yet? (Daniel Carlson and Don Billen; University of Washington, Daniel J. Evans School of Public Affairs; 1996). Other publications, presentations, and reports have also documented and analyzed the highway improvement/land use impact relationship, including the Environmental Impact Statements (refer to Section III. of this report) and/or supporting documents for a number of highway improvement projects, including Route 41. In the absence of an exhaustive, scholarly set of research results, the afore-mentioned publications, in particular, support the conclusion that, in increasing land

accessibility from a roadway – in conjunction with decreased travel time and increased travel speeds – highways and highway improvements can often increase development pressures on adjacent and nearby lands. Depending on the individual highway improvement/land use situation, increased development pressures can also reflect factors such as: land use, taxation, and/or economic development policies at all levels of government; the local real estate market; utility availability; current zoning; and, demographics.

Increased land development may be a desirable result of a highway improvement project, but in other cases, it may not be wanted. In the case of Route 41, most corridor communities are concerned that the increased highway access and decreased travel times will facilitate development inconsistent with both their visions and with *Landscapes* – i.e., sprawling development in rural Townships' farmland and other sensitive areas, without infill and compact growth in appropriate areas such as boroughs, villages, and already, more development locations. The Land Use Impacts of Transportation report further articulates this concern through the identification of the land use impacts of an expanded highway, which are:

- Redistribution of metropolitan growth to highway corridors.
- Decentralization of population and employment.
- Increased land values and concentration of development around interchanges.

These impacts occur because, according to Transportation Corridor Management, "Significant institutional barriers exist to the rational coordination of transportation and its land use impacts … major highways … span … scores … of miles and transcend local political and jurisdictional boundaries, yet it is precisely at this local level where land use authority rests, absent any regional or corridor-wide context." Accordingly and given the complex interrelationship among transportation and land use, and the variety of contributing factors, integration of these issues can influence development patterns and types.

Federal Regulations regarding Highway Improvement Projects. The National Environmental Policy Act (NEPA), and the current Federal Transportation Equity Act for the 21st Century (Appendix B.), require consideration of the potential impacts, as well as the resulting mitigation needs for unavoidable impacts, of Federal actions (e.g., funding for highway planning and construction) through the development of an Environmental Impact Statement (EIS). Three types of impacts are typically addressed in the NEPA/EIS process: (1) *direct* (e.g., wetlands filled by a highway crossing); (2) *indirect* or *secondary* (these terms are sometimes use separately or interchangeably; includes, for example, land development facilitated by improved access to the new or expanded highway that occurs later in time than the highway itself); and, (3) *cumulative* (the sum of environmental impacts resulting from both the new highway as well as other activities in the area). NEPA also allows decision makers to establish a "Finding of No Significant Impact" (FONSI) for a given project. This determination demonstrates that the project will not have a significant effect on the human (i.e., natural, physical) environments.

Pursuant to these Federal laws and guidance, PennDOT published The Transportation Project Development Process: Environmental Impact Statement Handbook (Publication #278; 1993). As indicated by its title, the Handbook pertains specifically to the development of EISs that meet Federal

and state standards. Of specific significance is the mitigation requirement relative to identified environmental impacts. In particular, an EIS must not only document and analyze how various transportation project alternatives impact the environment, but must also propose compensation measures for the unavoidable impacts of the EIS' preferred alternative. The following subsection further describes the evaluation of and mitigation for highway- related land use impacts.

Impact Evaluation and Mitigation Development. Over two dozen qualitative and quantitative models that forecast this relationship have been or are being used by governmental organizations, academia, and/or the private sector. These models vary with respect to their input requirements for parameters such as: data types, amount, and quality; the technical expertise needed to run the model and analyze its results; and, the model's applicability to highway situations (e.g., some apply only to public transportation).

Given the extent and intricacy of the transportation/land use models, and also that it is unknown how PennDOT will evaluate the land use impacts of the Route 41 improvements within the ongoing EIS process, ***Conservation Opportunities*** simply identifies and categorizes most of these models (Appendix A.). Instead, ***Conservation Opportunities*** provides a greater focus in Section III. regarding the tools that local land use decision makers and advocates can utilize to cope with the development pressures that may occur due to the Route 41 improvements and that are already increasing in this area. Section IV. of ***Conservation Opportunities*** identifies and briefly describes examples of transportation corridors and other geographical settings where the land use impacts of highway improvements have been or are being assessed and managed with some of the tools identified in Section III.

With respect to mitigation for the impacts of a proposed highway improvement, several of the case studies in Section IV. identify the management of highway improvement-related land use impacts resulted from mitigation commitments made by the transportation agency(ies), and others, sponsoring the highway project. In these cases, mitigation commitments were made because, simply put, it was recognized that the impacts of the highway project would include increased land development resulting from improved roadway access and/or decreased travel times. This increased land development has its own set of related environmental impacts, such as: nonpoint and point sources of water pollution from residential development; habitat fragmentation; consumption of prime agricultural lands; etc. In fact, Federal policy requires that an EIS consider mitigation measures that address the range of impacts of the proposed highway improvement. In some cases, a FONSI, which does not require an EIS, can include mitigation commitments.

III. PROTECTION AND MANAGEMENT OF LAND USES AND HIGHWAY DESIGN WITHIN RURAL TRANSPORTATION CORRIDORS

There are a number of tools and other resources that local officials can utilize to manage the growth that may be induced by the Route 41 improvements or that is already underway in western Chester County. Other tools can be used to influence the actual planning and design of the Route 41 improvements, given the roadway's rural setting. Some may implemented on an individual basis, while others work better in tandem. Further, implementation can be undertaken or advocated by a single municipality or by a regional partnership of municipalities, other governmental agencies, and/or non-

profit organizations in order to: facilitate politically neutral action; more efficiently use financial or other resources; or, take advantage of permanent protection opportunities such as the acquisition of a conservation easement. In all cases, many resources exist to assist and support interested parties with exploration and implementation of these tools, which range from guidebooks and technical manuals, to technical assistance from a wide variety of organizations and agencies, to "insider" knowledge regarding government programs and policies, to a range of funding sources. See Appendices B. through D. for this detailed information.

Municipal Planning Process. The Pennsylvania Municipalities Planning Code (MPC, also referred to as "Act 247") requires that many growth management tools be implemented within the framework of a municipal comprehensive plan. Overall, a municipal comprehensive plan will identify the: municipality's priorities regarding where growth is desired; supporting infrastructure that this growth requires; resources that need to be protected in both growth and non-growth areas; and, steps needed to manage growth and protect resources. The Route 41 corridor municipalities already have comprehensive plans in place, so use of some of the tools may be fairly straightforward. Current plans may need to be revisited to insure that the planned improvements along Route 41, and the resulting increases in both land accessibility and development pressure, are addressed. Also, several of the Route 41 communities are members of the Octorara Regional Planning Commission (i.e., Atglen Borough; Highland, Londonderry, West Fallowfield, West Sadsbury Townships), which is currently developing the Octorara Regional Plan (scheduled completion: 2004).

Land Use and Highway Design Tools. This Section identifies those tools that are potentially useful to municipal officials, citizens, and others in managing existing and future land development pressures in the face of proposed highway improvements, and in addressing actual highway design. Details regarding implementation of these admittedly complex tools are available from a wide range of regional and local planning, governmental, and/or advocacy organizations. Further, the municipal or regional comprehensive plan is the most effective umbrella for adoption and implementation of some of these tools; sometimes as required by the MPC. In particular, the MPC requires that a municipality's zoning be consistent with its comprehensive plan and that the comprehensive plan (and zoning ordinance) accommodate a full range of land uses. In other words, neither a municipality's plan nor its zoning ordinance can specifically exclude a particular land use unless that municipality participates in a formally developed and adopted regional plan (e.g., the Octorara Regional Plan) that accommodates that land use.

Land use tools are described in the following bullets:

- *Community-based organization, planning, and visioning; education and outreach*: These mechanisms, while not as tangible or specific as the others included here, are often the first to be used by concerned public officials or citizens when the (potential) land use impacts of a transportation project are identified. Especially as the tools relate to and/or support planning and ordinance changes in the face of potential land use impacts, these efforts can, for example, build consensus or articulate a community's future character. In particular, outreach and education efforts involving citizens and other users of the transportation corridor are critical components of community-based efforts.

  While concerned officials or citizens will often at first organize or build consensus within their communities, it is also important for communities to work together on these same efforts.

Several of the case studies provided in the following Section of this report exemplify a more coordinated approach to land use planning along a transportation corridor; the land use concerns often generated by a proposed highway improvement project also often cross municipal boundaries.

Regardless of whether the community-based efforts are conducted on a neighborhood, municipal, or broader scale, many instruments are available to facilitate these efforts ranging from informal discussions at the local coffee shop to design charrettes to public meetings using computer-generated simulations such as "ArcView" or "CommunityViz" (refer to the Appendix B. to this report for additional information).

- *Zoning.* Given the significant effect zoning has on land use, a Township's zoning ordinance can and should facilitate and encourage a community's desired land uses, especially relative to the existing or future Route 41 – a significant regional transportation corridor. These options can include, but are not limited to, zoning districts and ordinances that: allow transfer of development rights; stipulate land uses on a corridor or regional basis; result in effective agricultural land protection; or, promote traditional neighborhood development and/or downtown revitalization. When adopted in accordance with a comprehensive plan, these tools can facilitate the protection of critical agricultural and other resources while allowing landowners to retain development values and/or while facilitating compact, pedestrian-oriented development where it is appropriate.

- *Land easement/acquisition.* As identified in the comprehensive plan, significant open spaces comprising critical natural and cultural resources, prime agricultural soils, or scenic vistas (especially those along roadway corridors) can be protected through at least two mechanisms: (1) an easement on the land that protects it from certain types of development and uses while allowing continued ownership by a private party; and, (2) outright acquisition by a municipality or other governmental agency, or a private organization. Land subject to either type of protection is not completely secure from condemnation due to roadway expansion.

- *Highway design and use.* Access management and context sensitive design are two tools that can be utilized in the design, planning, or construction of expanded highways as means to minimize their impacts on significant natural and cultural resources identified by the comprehensive plan. Further, and where the comprehensive plan establishes areas appropriate for development, these tools can enhance the roadway's use and/or design relative to that development. For example, planting strips, parallel parking, and "bump-out" traffic calming devices will all contribute to village character in such areas.

    1. **Access management** is the process that provides access to developable land, from the new or expanded roadway, while simultaneously preserving nearby traffic flow in terms of safety, capacity, and speed. The basic principles of access management include: limiting the number of conflict points at roadway intersections; separating conflict areas through adequate spacing between intersections; reducing interference with through traffic (e.g., turning lanes); and, providing adequate on-site circulation on local roads.

    2. **Context Sensitive Design** (or "Thinking Beyond the Pavement"), according to the Federal Highway Administration, is a collaborative, interdisciplinary approach that involves all

stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. By considering the total context within which a transportation improvement project will exist, design concerns important for rural roadways (e.g., pedestrian accessibility in villages, routing of agricultural equipment, speed management, etc.) can be addressed.

Further, and where the comprehensive plan establishes areas appropriate for development, these tools can enhance the roadway's use and/or design relative to that development. For example, planting strips, parallel parking, and "bump-out" traffic calming devices will all contribute to village character in such areas.

- *Regulatory, policy, and programmatic tools*. Under Federal and State law, municipal officials and other concerned citizens along the Route 41 corridor have the opportunity, at identified public input points, to comment on various aspects of the project and the resulting impacts. The typical venue is the EIS (prepared by PennDOT and its consultants), which must identify how each of the 10 alternatives for Route 41 would impact the environment, after also demonstrating that these potential impacts have been minimized. The EIS must also propose mitigation measures for the unavoidable impacts of the alternative selected as "preferred" over the other nine. The selection of a preferred alternative and the negotiation of mitigation measures provide the opportunity to address potential resource and land protection impacts due to the proposed Route 41 improvements, as identified in the EIS. Section IV. provides several examples of where the EIS for a highway project has made commitments to actually addressing similar concerns (e.g., funding for land use planning relative to induced growth; open space protection in critical resource areas).

  While PennDOT is fully engaged in the design, planning, and evaluation process for the Route 41 alternatives, it should be noted that this process is an outcome of a complex (and highly political) system of state and Federal laws and regulations that direct transportation policy and govern the expenditure of related funding. Appendix B. provides several contacts for and brief descriptions of several major components of this system, as well as other potentially useful contacts and programs. Represented by this transportation policy and funding system are both vast sums of money and far-reaching strategies whose implementation can have profound influence on the land uses and resources of individual communities. As noted in Section I., "Significant institutional barriers exist to the rational coordination of transportation and its land use impacts … major highways … span … scores … of miles and transcend local political and jurisdictional boundaries, yet it is precisely at this local level where land use authority rests, absent any regional or corridor-wide context."

In addition to the tools provided in this Section, the Appendices to this report provide resources that can support implementation of these tools. Specifically, Appendix B. provides a listing of transportation-related resources and programs, while Appendix C. is a compilation of useful publications and Appendix D. identifies several funding sources that can support impact analysis and mitigation.

IV. CASE STUDIES: WHERE LAND USE TOOLS HAVE BEEN STUDIED AND IMPLEMENTED IN RURAL TRANSPORTATION CORRIDORS

This Section identifies and outlines a number of "case studies," those more rurally situated areas or projects where studies or actions relative to the land use/transportation interrelationship are or have been underway. These case studies have utilized, in some form or another, the tools identified in the previous Section, and further, establish whether the example resulted from proactive planning, or as an outcome of a regulatory process (e.g., an EIS). Some case studies straddle this line; the project may have started on a proactive basis and ultimately ended up being subject to an EIS. Each write-up does note whether planning recommendations resulted in the actual implementation of land use changes relative to the transportation corridor, as noted in the sidebars labeled, "Implementation Example." Detailed information, contacts, and context for each case study is available through the Brandywine Conservancy.

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Pennsylvania. There are several examples of land use/transportation planning here in Route 41's home state.

1. *I-99, Centre County*. This new section of interstate highway will connect the existing extent of I-99 with I-80 in the general vicinity of State College. While this project was exempt from an EIS (Section II. of this report) due to congressional action, funding under the *Transportation and Community and System Preservation Pilot* and *Growing Greener Programs* (Appendix D.) supported a community visioning process regarding the new highway and its land use impacts. "Vision 2020, Living with I-99" resulted in a number of recommendations whose implementation supports a sustainable vision for the I-99 corridor, including natural resource and farmland protection, and focused development in villages, boroughs, and at interchanges. While implementation of the recommendations is long-term, since many of the 23 corridor communities need up-to-date or new comprehensive plans, a model interchange overlay zone was developed as part of the project.

   IMPLEMENTATION EXAMPLE:

   Centre County communities adopted zoning that specifically addresses and directs the growth both anticipated and desired at the interchanges of the new section of I-99.

2. *Corridor "O," Centre County*. This new highway project, also exempted from NEPA by congressional action, was subject to a Draft EIS as voluntarily prepared by the Pennsylvania Department of Transportation. The project's purpose is to provide connections among I-80, Route 220, and Route 322; the latter being a significant regional and interstate truck route. PennDOT's process to develop the Draft EIS included identification of a Corridor alignment preferred by citizen advocates, resource protection agency representatives, and other interested parties.

3. *Lancaster County*. Several ongoing efforts in Lancaster County (and beyond) have either a direct relationship to Route 41 or have studied the land use/transportation relationship. First, the "Wilmington-Harrisburg Freight Study," completed earlier this year, analyzed the movement of freight along Routes 41/30/283 in both Lancaster and Chester Counties, Pennsylvania, as well as beyond into Delaware. Study recommendations include both local and regional solutions,

ranging from a combination of local roadway improvements to using rail to greater optimization of the Pennsylvania Turnpike for long-distance freight.

Secondly, PennDOT is conducting the Route 30 Corridor Improvement Study which focuses on the section of Route 30 between Routes 41 and 896. The study's outcomes will focus on congestion reduction and improvement of safety conditions, and is a resumption of a previous effort that was suspended in 1996 due to funding limitations.

Finally, Route 23 and its environs (i.e., eastern Lancaster County) have been the subject of the PA23 Corridor Study, the Eastern Lancaster County Land Use Study, and now an EIS. Specifically, the EIS as currently under development by PennDOT is evaluating transportation alternatives and associated land use strategies along Route 23. Similarly, the Eastern Lancaster County Land Use Study focuses on similar goals for a larger area; i.e., a land use plan that supports local visions of the future, consistent with the Lancaster County Comprehensive Plan.

IMPLEMENTATION EXAMPLE:

The State of Delaware has purchased land, and is also willing to purchase easements, in order to prevent development of land that could affect an area's rural character or push highway capacity limits.

Delaware. The notable example of land use-related transportation planning for Pennsylvania's neighbor to the southeast is the Route 13 relief route (i.e., Delaware 1, between Route 95 and Dover). Under consideration for well over 30 years, various alternatives for the relief route/new section of Delaware 1 raised concerns that included growth inducement and impacts to prime agricultural lands. Once the final layout for the relief route was chosen, the Delaware Department of Transportation (DelDOT) agreed to consider the growth-inducing potential of a new interchange at Route 8 (Dover), given the particularly rural nature of this area. Accordingly, DelDOT is now using state funds to purchase easements and otherwise preserve land in the vicinity of the Route 8/Delaware 1 interchange as a means to protect these properties from future development.

Further, the EIS process for Delaware 1 identified the potential impact of increased traffic on existing Delaware 1 south of the new relief route, as the existing Delaware 1 provides connections to the Delaware beaches and to other areas of the Delmarva peninsula. DelDOT developed a "corridor preservation plan" for existing Delaware 1, since it did not anticipate funding large scale improvements that could alleviate both the additional relief route traffic plus that from future development. While encouraging current, rural land uses along Delaware 1 (e.g., extensive agriculture), the plan provides for measures to manage access onto Delaware 1 when land is developed; the plan also acknowledges the potential need for compensation should access management limit development potential. As part of the corridor preservation plan, DelDOT is also willing to negotiate with Delaware 1 landowners who may be willing to sell development rights to their property.

New York. Two recent and similar efforts in southern New York State provide good examples of transportation corridor-related land use planning: the Route 202/35/6 Bear Mountain Parkway Sustainable Development Study and the Route 303 Corridor Sustainable Development Study. While both study areas are largely suburban, they also contain significant natural resources and historic villages. Further, both used Federal transportation and other sources of funding, professional planning assistance, and significant public involvement to identify, evaluate, and communicate: land use scenarios (e.g., full buildout based on current zoning); transportation scenarios such as bypass construction; and, the effects of their interrelationship.

IMPLEMENTATION EXAMPLE:

Along the Route 303 corridor, the Sustainable Development Study has already resulted in the Town of Orangetown's adoption of a Corridor Overlay Zoning District for its portion of the Route 303 corridor.

New Hampshire. Several examples of integrated land use/transportation planning exist in New Hampshire.

1. Portions of *Route 16*, a regionally significant highway, were subject to extensive, community-based land use planning through both regulatory and non-regulatory venues. First, the EIS for the Route 16 bypass of the Town of Conway, which documented impacts to ecologically significant wetlands, committed to the outright protection of approximately 800 acres of wetland. Also, the regional office of the US Environmental Protection Agency directly provided planning funds to the Town of Conway, which resulted in the adoption of several local ordinances including a corridor overlay zoning district and a wetlands protection zoning district.

   IMPLEMENTATION EXAMPLE:

   Using specially granted Federal funds, the Town of Conway adopted zoning that protects ecologically significant wetlands and directs corridor-related growth along a new bypass.

   South of the Conway bypass, Route 16 passes through over 50 varied communities, some very concerned about growth induced by the new bypass. Using Federal transportation funds, the New Hampshire Department of Transportation (NHDOT) studied the corridor south of the bypass, undertaking a much more land use-focused approach than a traditional traffic study. Of the 50 communities along Route 16, four, including the Town of Ossippee, asked for additional assistance, which included substantial public involvement (e.g., design charrettes), alternatives analysis, and focused assistance from the regional planning agency.

   IMPLEMENTATION EXAMPLE:

   The Town of Ossippee changed their zoning ordinance such that some areas along Route 16 were downzoned to prevent development not wanted in those areas, and others "upzoned" to facilitate compact, nodal, and village development.

2. *Interstate 93 widening.* This interstate highway widening project in southern New Hampshire is the subject of an ongoing EIS process; the Draft EIS was recently completed. Given the DEIS' acknowledgement and analysis of growth induced by the expanded highway, compensation

measures proposed by both the project proponent and DEIS reviewers include acquisition of significant undeveloped parcels, and several million dollars worth of funding to support local and regional technical planning and mapping services. These proposals are controversial, and have not been resolved as of the time of this report. It should be noted that the Federal and state agencies involved spent significant time and resources to analyze the growth-related impacts of the widened highway, including application of the "Delphi" model (Appendix A.) to predict land use changes.

3. *Route 2 Corridor Planning.* Route 2 is a major east-west route in northern New Hampshire, supporting significant levels of both truck and tourist traffic (the latter levels are especially high in summer and fall). Passing through five communities, the corridor was the subject of a US Department of Transportation-funded corridor study that also considered the roadway as it passed through similarly significant areas in Vermont and Maine. Using extensive community involvement, NHDOT and other concerned organizations determined that the differences among the five communities were not major, and agreement was reached to ultimately develop a regional master plan that addresses land use, transportation, and rural development in one effort. In the meantime, the Route 2 Corridor Study provides general recommendations for corridor improvements, such as an intermodal facility to reduce truck freight, bicycle lanes, and slow vehicle lanes where needed.

Maryland. While Maryland is quite different from Pennsylvania in that both state and county government have authority over land use, these examples are nonetheless included to demonstrate that land use and transportation planning and decisions can be integrated at the policy level.

1. *State Approach to Bypass Planning.* Under the umbrella of then Governor Glendenning's smart growth plans and policies, most of the bypasses proposed in Maryland's transportation plans were eliminated since they were not located in "priority funding areas" (i.e., those areas identified by municipalities where the State is directing funding in order to stimulate appropriate growth). The Middletown area bypass that will go forward is undergoing community visioning and market-based traffic studies to address potential impacts to an historic downtown. Alternately and in Little Westminster where a bypass was eliminated, the State studied the land use impacts of improving the road that would have been bypassed. This analysis, which included community visioning, showed that downtown changes (e.g., improved pedestrian access) would yield the economic benefits that some had thought would be created by roadway improvements. Finally, the bypass around Brookville was the subject of a "Memorandum of Understanding" (MOU) between the State and Montgomery County. Through the MOU, the County agreed not to allow subdivision access to the bypass in order to maintain the roadway's capacity, as well as to protect downtown Brookville from the impacts of sprawling development along the bypass.

2. *Vision Planning for the Perryman Area.* This initiative, co-sponsored by Harford County and the Maryland Department of Transportation, targeted the Perryman area in northeastern Maryland due to its growth potential, as well as its existing and potential transportation infrastructure. The composite community vision for Perryman includes designated village areas, train station, bike paths, and new roads, including a truck route. Future action items including changing the County plan and zoning to facilitate this vision.

Virginia. Route 50 provides significant major east – west connection opportunities in Virginia. Using Federal funding, including that from the *Transportation and Community System Preservation Program* (Appendix B.) and matching state funding, a traffic calming-based plan was designed to maintain Route 50's 2-lane, rural character, especially in its villages. This plan was developed in place of the 4-lane plan originally proposed by the Virginia Department of Transportation in the early 1990's. The 2-lane, traffic calming plan is currently going through the EIS process.

Kentucky. Over the past 20-30 years, two examples of highway planning relative to the rural nature of the surrounding countryside have been ongoing in the Lexington area of Kentucky.

1. The Paris-Lexington Pike was one of the first examples of context sensitive design (Section III. of this report), the result of over 25 years of discussion and debate over the widening of the highway from 2- to 4-lanes. The ultimate resolution of the extended debate was the legislative appointment of the Paris-Lexington Advisory Task Force, comprised of transportation officials, other government officials, landscape architects, and citizens. Under the umbrella of an MOU, the road was ultimately rebuilt with four lanes in accordance with the originally proposed widening. With the use of context sensitive design measures (e.g., variable-width medians, detours around significant trees and landscape features, wood guard rails, stone bridges), the result was a very different roadway, visually, than what was originally proposed. The design and planning of the Pike also addressed how development of adjacent lands could adversely affect the character of the corridor. Based on consultant recommendations, Fayette County (at the Lexington end of the Pike) adopted zoning requiring a minimum lot size of 40 acres, while the other County, Bourbon, has not adopted a standard reflective of the character of the Paris-Lexington Pike and its area.

2. The Lexington-Frankfort Scenic Corridor, which is actually comprised of several roads, was the subject of a scenic analysis by the Brandywine Conservancy in 1990. The Conservancy made a number of recommendations, including the protection of important natural resources such as highly transmissive limestone geology, as well as zoning to prevent development impacts on the highway's scenic values, and to encourage appropriate infill, village-like development.

North Carolina. Plans to complete the I-485 beltway around Charlotte led to significant concerns regarding the local land use impacts of the highway's interchanges. Accordingly, the Mecklenburg-Union Metropolitan Planning Organization developed the "I-485 Interchange Analysis," that outlined plans for each of the 35 interchanges based on individual land use and transportation analyses. Recommendations pertain to each interchange, are based on the analyses, and include roundabouts, pedestrian access, and access management. While the "I-485" document did not specifically connect the report and its recommendations to the regulatory process, the EIS's for each segment of the beltway should consider these recommendations.

Michigan. In 1987, Federal funds were earmarked to study the "Petoskey Bypass," which would carry traffic around the city of Petoskey, and through two rural townships. This region is situated on Michigan's lower peninsula, on the Lake Michigan shore. Considered a "back room deal" by many, citizen protests led to redirection of the original Federal funds to study local road upgrades in addition to the bypass. With the development of additional alternatives and after much continued advocacy, the Michigan Department of Transportation (MDOT) abandoned the bypass proposal in late 2002. Instead, MDOT offered $275,000 to develop plans that will "preserve existing land uses, identify

problems before seeking solutions, and continually seek public comment;" expenditure of these funds began in early 2003.

Wisconsin. The proposed improvements to Highway 12 northwest of Madison which included widening from 2 lanes to 4 as well as a bypass generated significant concern regarding the project's impacts (e.g., accelerated residential development in an environmentally sensitive area, the Baraboo Range National Natural Landmark) during the EIS process. These concerns were so significant that the mitigation commitments in the final EIS included: $500,000 to support land use planning services for project corridor communities; $5,000,000 for land or easement acquisition; and, $500,000 to assess methodologies for evaluating secondary impacts such as accelerated development.

Wyoming. The "Wilson Community and Transportation Corridor Plan" reflects the expenditure of Federal *Transportation and Community and System Preservation Pilot* (Appendix B.) funds. As overseen by Teton County planning staff and developed by professional planners, the Plan visualizes Wilson as a mixed use, village node – Wilson is located on Highway 22, west of Jackson Hole. The Plan was developed using extensive public involvement, largely through a design charette. The next phase, the ongoing Highway 22 corridor planning effort, including a particular intersection of concern within Wilson, will specifically address issues identified by the Plan which include water quality protection, access management, and pedestrian/bicycle travel opportunities.

California (and in many other locations). Citizen advocates, nonprofit organizations, and government officials came together to raise funds, including Federal transportation monies, to protect a scenic and ecologically critical 38-acre parcel that abuts Morro Bay on the California coast, between Los Angeles and San Francisco. Transportation bill provisions (i.e., "*Transportation Enhancements*") in effect at the time (ISTEA, see Appendix B.), and which are still in effect under the current bill (TEA21, also Appendix B.), require that states set aside at least 10 percent of their Federal funding for *Transportation Enhancements*, which can include the acquisition of "Scenic Easements and Scenic Sites." Through the San Luis Obispo Council of Governments, the coalition received $500,000 in *Enhancements* funding; additional public and private contributions totaled $1.1M.

IMPLEMENTATION EXAMPLE:

Federal transportation funding under the Transportation Enhancements program, in combination with other sources, was used to preserve a key parcel of land along an important transportation corridor in California. In Pennsylvania, the same sources of Federal transportation funding were used to purchase, for example, historic lands (Brandywine Battlefield, Delaware County) and scenic vistas (Hawk Mountain Scenic Gateway, Berks County). Many other examples exist within Pennsylvania, Delaware, New York, and beyond.

V. SUMMARY

The Route 41 corridor communities can grow, while protecting key resources, in accordance with plans, ordinances, and policies developed by the municipalities themselves, a group of municipalities, and/or other interested organizations. However, these growth and resource protection patterns may be adversely influenced, or otherwise exacerbated, by PennDOT's plans to improve Route 41 – especially that section north of Route 1, given the area's strong development potential and valuable farmland, historic, water, and other natural and cultural resources. Accordingly, ***Conservation Opportunities***, as undertaken by the Brandywine Conservancy, provides research and analysis, and technical assistance, to the communities north of Route 1 and south of Route 30 (i.e., Atglen, Avondale, West Grove Boroughs; Townships of: Highland, Londonderry, London Grove, West Fallowfield, West Marlborough, West Sadsbury). These efforts include: local and regional geographic mapping; build-out scenarios; land use ordinances; costs of community services studies; and, time-based analysis of the Route 202 corridor – a once similar rural corridor.

A particular effort of ***Conservation Opportunities***, this "Rural Transportation Corridors" report examines and documents the relationship between highway construction or improvements and the growth induced by increased access, decreased travel times, and/or increased road capacity. "Rural Transportation Corridors" also provides information for communities and others concerned to understand how the highway-land use relationship can be predicted using models. And as part of the larger ***Conservation Opportunities*** approach, this report: identifies the planning and design tools that lessen a transportation project's impact; and, provides policy, programmatic, and financial resource information that can support project mitigation, conduct pertinent studies, and otherwise address the corridor communities' concerns.

The tools and resources provided by this report would typically be used under the umbrella of a Comprehensive Plan and implementing ordinances pursuant to the Municipalities Planning Code and established municipality authority. Accordingly, communities and other interested parties may need to manage the potential impacts of the Route 41 improvements, and any future growth, using anything from old fashioned, face-to-face meetings that build consensus and trust, to complex and time-consuming plans and ordinances that direct appropriate development to appropriate areas, all while protecting critical resources. Further and given that the proposed Route 41 project is state-driven and largely Federally-funded, corridor communities may need to make use of available technical assistance, relentlessly pursue grant opportunities, and even advocate for regulatory changes in order to meet their goals for the future of their communities. This report contains examples of where the Federally-mandated regulatory process applicable to transportation improvements was used to support land planning, and to protect important resources.