
The Value of Connections: Executive Summary

The Economic Impact of the Proposed Pennsylvania Turnpike and
Interstate 95 Interchange

Prepared by

Pennsylvania Economy League and
Economic Development Research Group

April 2000

To download a copy of the full report, please go to the project website at
www.paturndpike.com/i95

Summary of Key Findings

Building a direct interchange between the Pennsylvania Turnpike and Interstate 95 in Lower Bucks County could result in increased economic activity for the Greater Philadelphia region, Bucks County, and the communities located in close proximity to the interchange itself. In particular, the construction of the interchange, when compared to not building the interchange, could provide an infusion of new construction dollars into the economy; reduce the costs of doing business through a more efficient transportation network; and increase the attractiveness of Lower Bucks County as a business location and the region as a tourist destination. These differences are translated into increased levels of net economic impact, through the use of the REMI economic model as follows:

Construction Spending Impact -- The 15-year, \$553 million¹ construction project would support:

- an average of over 500 jobs in the region during the construction project, with the peak year of employment exceeding 800 jobs; Bucks County could realize an average of over 300 jobs with a peak year of 500; Bensalem, Bristol, and Middletown townships could be expected to capture nearly one-third of the Bucks County employment;
- nearly \$630 million in total regional business sales during the construction project, with nearly two-thirds staying in Bucks County and almost \$340 million in regional personal income, with \$150 million going to Bucks County residents.

Travel Cost-Savings Impact -- Once completed, the connection between the two highways is projected to reduce the distances traveled and amount of time spent on the region's roads and highways, when compared to the option of not building the connection. The resulting travel cost-savings due to the completed interchange could support:

- almost 1,200 new regional jobs in existing industries by 2025, with Bucks County projected to gain approximately 178, Burlington County adding 218, and Philadelphia picking up 315; the three Lower Bucks townships could be expected to gain over 50 more jobs;
- over \$125 million in increased regional business sales by 2025, with over 60% going to businesses in the Bucks, Burlington, and Philadelphia counties; as well as nearly \$50 million in regional personal income by 2025, with just over half going to Bucks, Burlington, and Philadelphia county residents.

Market Attractiveness Impact -- Connecting the Pennsylvania Turnpike and I-95 also provides the potential of more attractive markets for office development and tourism in Bucks County and the region. By capturing an increased share of regional office employment growth, Bucks County could realize:

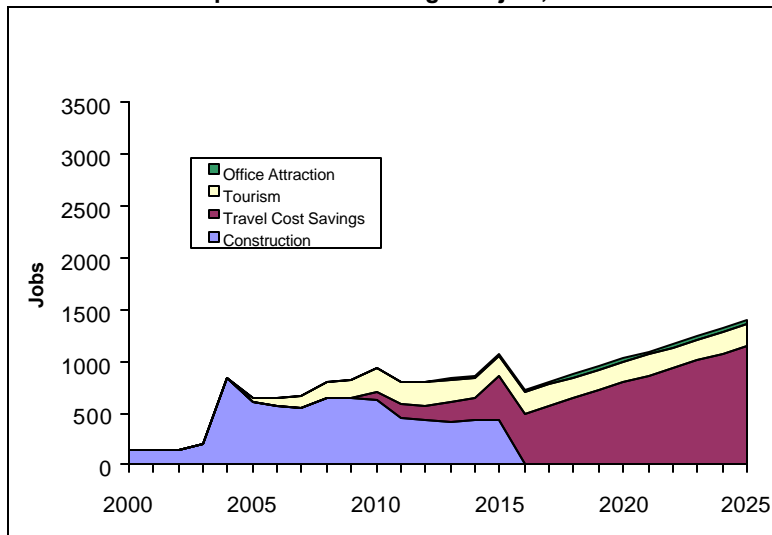
- total employment growth of over 2,700 jobs by 2025;
- over \$375 million in new business sales by 2025 and nearly \$75 million in personal income by 2025.

The new connection could also increase the region's attractiveness as a tourism destination, particularly for day-trip and Northeast Corridor visitors who now could have the attractive option of a direct route past the numerous attractions of Bucks County and the City of Philadelphia. With a slight increase in new day-trip visitors, and the conversion of a small percentage of those visitors into overnight visitors, there is the potential for 230 new regional jobs by 2025 (with over 50 in Bucks County), \$12 million in regional business sales and nearly \$9 million in regional personal income in 2025.

Total Economic Impact -- Combining the various types of impact, the proposed PA Turnpike/I-95 Interchange has the potential to support close to 1,400 jobs in the region by 2025. Locally, Bucks County has the potential for a gain of almost 3,000 jobs by 2025 (equal to approximately 1% of projected 2025 Bucks County total employment), as a result of capturing a higher proportion of regional office sector growth than it is projected to without the interchange.

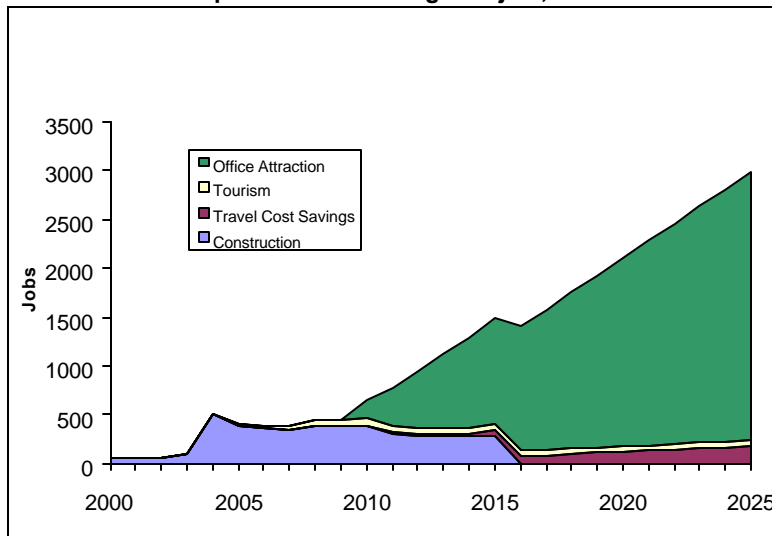
¹ All dollar figures are in constant 1999 dollars

**Figure 1: Regional Employment Changes
PA Turnpike/I-95 Interchange Project, 2000-2025**



Source: PEL, EDRG, and REMI

**Figure 2: Bucks County Employment Changes
PA Turnpike/I-95 Interchange Project, 2000-2025**



Source: PEL, EDRG, and REMI

Figure 3: Summary of Economic Impacts as a Result of Building PA Turnpike/I-95 Interchange

	2005	2010	2015	2020	2025
9 County Region					
Jobs	647	932	1074	1025	1392
Business Sales	\$57M	\$74M	\$90M	\$97M	\$158M
Personal Income	\$29M	\$38M	\$41M	\$33M	\$49M
Bucks County					
Jobs	398	655	1499	2104	2977
Business Sales	\$37M	\$62M	\$168M	\$260M	\$401M
Personal Income	\$12M	\$17M	\$38M	\$55M	\$85M

Source: PEL, EDRG, REMI

Business sales and personal income in constant 1999 dollars

Introduction

This report contains an analysis of the potential economic impacts of the proposed I-95/Pennsylvania Turnpike interchange. “Economic impact analysis” is the study of how a project or activity affects the flow of dollars in the economy of a region. These impacts can be alternatively viewed in terms of regional changes in business sales, personal income or jobs. The analysis details:

- the potential impacts associated with the construction of the interchange, a new Delaware River bridge, and associated roadway and infrastructure improvements;
- the impacts associated with cost-savings due to reduced travel times and distances, as a result in changes and shifts in the traffic patterns, mileage, and speed of the movement of goods and services along the reconfigured roadway system;
- the potential business attraction and tourism impacts that the new interchange could cause, as a result of improved access, visibility, and image for local communities and markets.

While this study of economic impacts encompasses a wide range of effects across many sectors of the economy, there are other factors that do not directly affect the flow of dollars in the economy, such as personal time savings and other social and environmental factors. Although there is some discussion of these issues in this report, they will be primarily covered in the forthcoming Environmental Impact Statement (EIS -- see below).

The Pennsylvania Economy League (PEL) has led this effort, with the support and assistance of the Economic Development Research Group (EDRG)². The Pennsylvania Turnpike Commission (PTC) and the Pennsylvania Department of Transportation (PennDOT) commissioned the project, which has been managed by the Turnpike Commission’s project manager, KCI Technologies. In addition, the opinions and insights of the Community Economic Impact Review Group (CEIRG) have guided the work, under the leadership of Chair Garney Morris, Chairman of the Board of the Bucks County Enterprise Zone and President of Garney Morris, Inc.

Project Background

Since the late 1960’s, there has been an ongoing debate and discussion regarding the potential connection of the Pennsylvania Turnpike (I-276) and I-95 where they cross in Lower Bucks County. Currently, such a connection is being studied and planned by the PA Turnpike Commission, in cooperation with the Federal Highway Administration (FHWA) and PennDOT, under prime consultant KCI Technologies. KCI is in the midst of preparing the required Environmental Impact Statement (EIS). As part of that process, a number of community leaders, led by the Bucks County Enterprise Zone and the office of Congressman James Greenwood, requested that an Economic Impact Analysis be conducted for the project.

The PEL team’s role in this project has been to provide information to local, state and national officials who will be making the final decisions as to the viability and advisability of this project. The report documents the economic differences between the “no-build” option (a base-case scenario utilizing existing projections of economic growth for the region and the local communities) and a “build” scenario, where an interchange, expanded PA Turnpike and new Delaware River bridge crossing are constructed.

Scope of Work

PEL was asked to analyze the change in economic activity between the “build” and “no-build” scenarios of the proposed PA Turnpike/I-95 Interchange for:

- Construction Spending
- Traffic Cost Savings
- Market Attractiveness

² See Appendix 2 for more information about PEL and EDRG.

Over the following time periods:

- The duration of the construction project (approximated as 2000-2015)
- 2010 (anticipated interchange and highway widening completion)
- 2025 (design year)

And for the following specific net economic impacts³:

- Employment
- Personal Income
- Business Sales

The economic impacts described above correspond to the following geographic regions:

Figure 4: Geographic Regions Utilized in Economic Impact Analysis

GEOGRAPHIC AREA	DESCRIPTION
Greater Philadelphia Region, or Region	The nine-county Delaware Valley Regional Planning Commission (DVRPC) planning area, including the Pennsylvania counties of Bucks, Chester, Delaware, Montgomery and Philadelphia, and the New Jersey counties of Burlington, Camden, Gloucester, and Mercer.
Bucks, Burlington, and Philadelphia counties	The three counties in closest proximity to the proposed project
Rest of Region	The remaining 6 counties of the DVRPC planning region
Bensalem, Bristol, and Middletown Townships	The three Lower Bucks County townships in closest proximity to the project

Methodology

The PEL and EDRG team used a variety of methods to develop the information and analysis contained in the Executive Summary and full report. These included:

Transportation analysis -- PEL utilized projections of changes in the region-wide (9 county) transportation system and local road network that were produced by the Delaware Valley Regional Planning Commission (DVRPC) for this project. The DVRPC projections modeled the differences between the current situation and the future situation with an interstate to interstate interchange, and the future without an interchange.

Interviews -- PEL interviewed over 70 public officials, local and regional business leaders, and real estate industry analysts and observers to inform the research with insights, observations, and concerns not available in printed publications or reports.

Case Studies -- One of the most effective predictors for future activity is the history available from comparable or similar situations or projects. For this project, the PEL and EDRG team selected seven case studies for comparison, including three interchanges in the Greater Philadelphia region and four national examples. The case studies were chosen for the similarity of projects, similarity of regions, and availability of information.

Economic Modeling -- PEL and EDRG utilized all of the above information to compare two basic scenarios -- the "build" and "no-build" options currently being considered. There are two fundamental types of impacts that result in changes in economic activity as the result of connecting I-95 with the Pennsylvania Turnpike. These are:

- **Transportation user impacts** -- changes in travel distance, travel time, and accidents for travelers;
- **Economic impacts** -- changes in jobs, income and business sales resulting from spending on facility construction and operation, and changes in business productivity, market expansion and household living costs.

The direct economic effects were then analyzed, utilizing the REMI economic model (customized by REMI for this region), for three types of impact -- changes in economic activity as a result of construction spending, travel cost-savings, and increased office and tourism market attractiveness. The REMI model allows for comparison of the two scenarios within a simulation of the local and regional economies.

³ All economic changes presented in this report are in net terms -- in other words, both potential gains and potential losses are included in the economic impacts presented.

Construction Spending Impact

The proposed connection of the Pennsylvania Turnpike and I-95 is a \$553 million project spread out over a fifteen-year construction horizon.⁴ The project is planned in five phases, subject to the availability of federal funding:

Figure 5: I-95/PA Turnpike Connection Construction Project Costs

PROJECT PHASE	TIME FRAME	COST
Split Toll Plaza and I-276 Widening	2000-2010	\$89.3 million
Interchange Construction and I-276 and I-95 Widening	2000-2010	\$285.5 million
Bridge Toll Plaza and I-276 Widening	2011-2015	\$42.2 million
Delaware River Bridge	2011-2015	\$135.9 million
Total	2000-2015	\$553 million

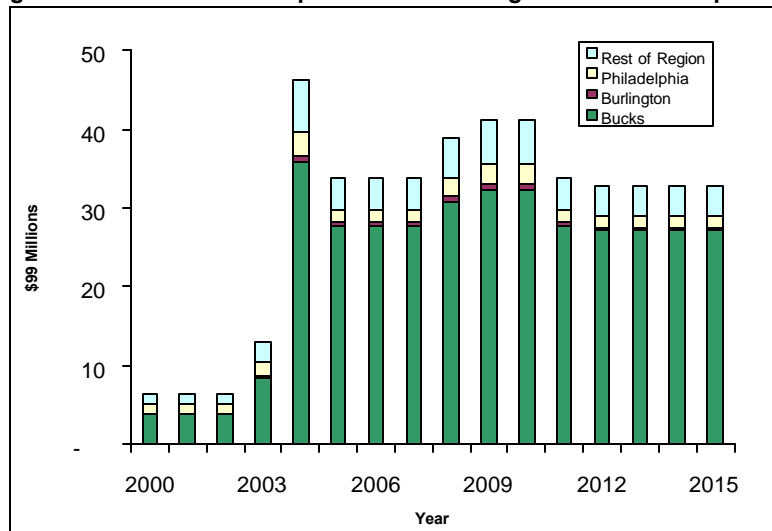
Source: KCI Technologies. All figures are in constant 1999 dollars.

The construction spending would lead to additional jobs (and hence income) through two mechanisms:

- **Design and project engineering** -- Hiring engineers and related workers (including archaeologists and planners) to design and plan the facilities, both prior to and during construction.
- **Construction** -- Hiring construction contractors to build the facilities (including roads, buildings, excavation, landscaping, lighting, signage, etc.). In addition, the construction costs include the necessary materials and products, such as concrete, structural steel, and electrical equipment that are utilized in the construction project.⁵

PEL then applied regional purchasing averages⁶ for typical construction projects to determine the likely amount that would be spent within the region for this project, and calculated that nearly \$466 million of the total \$553 million would be spent in the 9 county region.⁷

Figure 6: Potential PA Turnpike/I-95 Interchange Construction Spending



Source: KCI Technologies, PEL, and EDRG. All figures in constant 1999 dollars and approximate

⁴ PEL arrived at the construction cost estimate by taking the average costs for each of the alternative options (toll plaza, interchange designs, bridge configuration). The total of \$553 million is in 1999 dollars, and the cost is subject to change depending upon project design, actual construction schedule, economic conditions, or unforeseen factors.

⁵ Funds will also be utilized to purchase property and right of way, and finance relocation of displaced property owners. This funding is not included as it represents transfers of ownership and location rather than new sources of income or jobs.

⁶ Provided by REMI model, and based upon typical construction projects in the 9 county region.

⁷ These figures are estimates and can vary according to the results of the contracting process used for PTC highway projects.

Economic Impact of the Construction Project

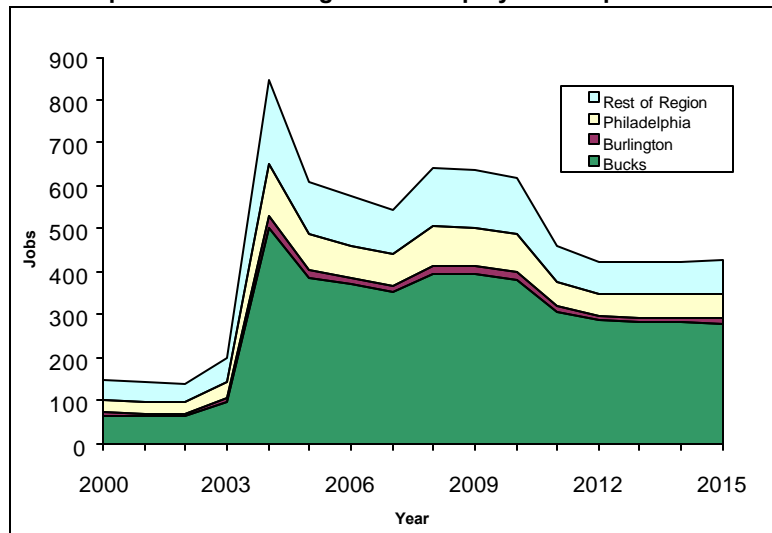
While the construction spending impacts last only for the duration of the project, and end following the project completion, these are impacts that would not otherwise be available to the region save for this project. The interchange is a largely federally funded project, and the Interstate Completion funds are available solely for the purpose of completing the National Interstate Highway System. The funds, therefore, represent new dollars coming into the region from both the federal government and the PA Turnpike Commission. Almost no local funds are required to construct this project.

Employment Impact

Construction spending on the I-95/PA Turnpike Connection would support:

- **Regional employment** -- The construction spending would support over 800 jobs in the region during the peak year of construction and an average of over 500 jobs over the 15-year construction period.
- **Local employment** -- In Bucks County, the construction spending would support over 500 jobs in the peak year and an average of 300 jobs for the entire project period. About one third of the Bucks County jobs are likely to be located in Middletown, Bristol, and Bensalem Townships, based upon historic shares of employment.

Figure 7: PA Turnpike/I-95 Interchange: Total Employment Impact Due to Construction



Source: KCI, Regional Economic Models, Inc., PEL, and EDGR

Business Sales and Personal Income Impact

In addition to employment, the construction spending supports increased business sales and personal income in the local economy.

Figure 8: Business Sales and Personal Income Supported by Construction Spending

REGION	TOTAL BUSINESS SALES (2000-2015)	TOTAL PERSONAL INCOME (2000-2015)
Bucks County	\$415M	\$149M
Burlington County	\$16M	\$16M
Philadelphia	\$81M	\$55M
Rest of Region	\$115M	\$119M
Regional Total	\$627M	\$340M

Source: KCI, Regional Economic Models, Inc., PEL, and EDGR
Business sales and personal income in constant dollars

Additional Considerations

A number of local concerns about the construction project and process were raised during interviews and meetings:

Will construction closings or detours during the project hurt local businesses? This is a legitimate concern, but it depends upon how the construction project is planned and implemented, what road closings will be necessary, and thus how specific local businesses will be affected. From an economic perspective, there is likely to be little net impact -- when traffic is diverted via a detour from one area, it is directed to another local area that will realize an increase in business during that period. Over time the exchange of economic benefits cancel each other out. As a result, no estimate is provided of potential job or dollar loss due to construction project displacements. Any negative impacts could be minimized with planning assistance from organizations like the Bucks County Transportation Management Association.

Will local companies get construction contracts? Bucks County appears to be well positioned to benefit from this project. It has the base of workers and companies to service much of the project requirements. In addition, however, it is important to remember that in a project of this size and length, companies are involved over a long-enough period of time that they will be hard-pressed to avoid opening or expanding a local office to service the project. It could be important to look to examples of projects, such as the Kvaerner shipyard, where special programs have been established within competitive contracting guidelines to maximize local participation in major projects.

Wouldn't the money be better spent elsewhere? The PA Turnpike/I-95 Interchange project is specifically designated as an element of the National Interstate Highway System program, meaning that the federal Interstate funding must be used for Interstate System Completion projects. It cannot be shifted to other project types or uses.

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Travel Cost Savings Impact

There are three fundamental types of transportation impacts that arise from the connection of I-95 and the PA Turnpike:

- reduced travel distances
- reduced travel time
- reduced accident rates as a result of reduced travel time

**Figure 9: 2025 Daily Regional Mileage and Travel Time Changes
Comparison of Build and No-Build Scenarios**

	VEHICLE MILES TRAVELED (VMT)	VEHICLE HOURS TRAVELED (VHT)
No-Build	122,436,254	4,273,722
Build	122,269,651	4,263,654
Savings	166,603	10,068

Source: DVRPC

The total value of time, expense and accident cost savings for all affected travelers using the region’s transportation network is then computed, based on studies of how people value time and what expenses they incur from traffic accidents. The total value of these cost savings to businesses is estimated to be \$5.9 million in the opening year (2010), rising to \$38.7 million in 2025. The additional value of the direct “out-of-pocket” expense savings to households is estimated to be \$1.4 million in the opening year (2010), rising to \$11.6 million in 2025. (All values are in constant 1999 dollars.)

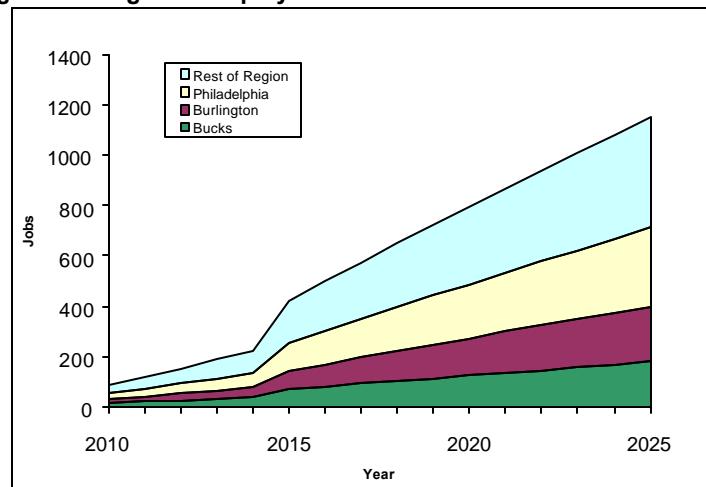
Economic Impact of Travel Cost-Savings

Employment Impact

The REMI forecasting results indicate that by 2025:

- Regional employment could increase by almost 1,200 new jobs, with the service sector (46%) and the retail trade sector (17%) leading the way.
- The local benefits from cost savings are more dispersed across the region, with Bucks County expected to gain 178 jobs, Burlington County adding 218, and Philadelphia picking up 315.
- Bensalem, Bristol, and Middletown Township would together add over 50 jobs.

Figure 10: Regional Employment Growth due to Travel Cost Savings



Source: DVRPC, Regional Economic Models, Inc., PEL, and EDGR

Business Sales and Personal Income Impacts

Both income and business sales will grow at a similar pace as employment as the travel cost savings grow and regional competitiveness improves as a result of lower business operating costs.

Figure 11: 2010 and 2025 Business Sales and Personal Income Impacts of Travel Cost Savings

GEOGRAPHIC AREA	2010 BUSINESS SALES	2010 PERSONAL INCOME	2025 BUSINESS SALES	2025 PERSONAL INCOME
Bucks	\$1.2M	\$0.4M	\$19.8M	\$7.7M
Burlington	\$1.2M	\$0.4M	\$21.18M	\$7.8M
Philadelphia	\$2.1M	\$0.6M	\$35.8M	\$10.2M
Rest of Region	\$3.3M	\$1.4M	\$48.7M	\$23.5M
Total	\$7.9M	\$2.8M	\$125.3M	\$49.2M

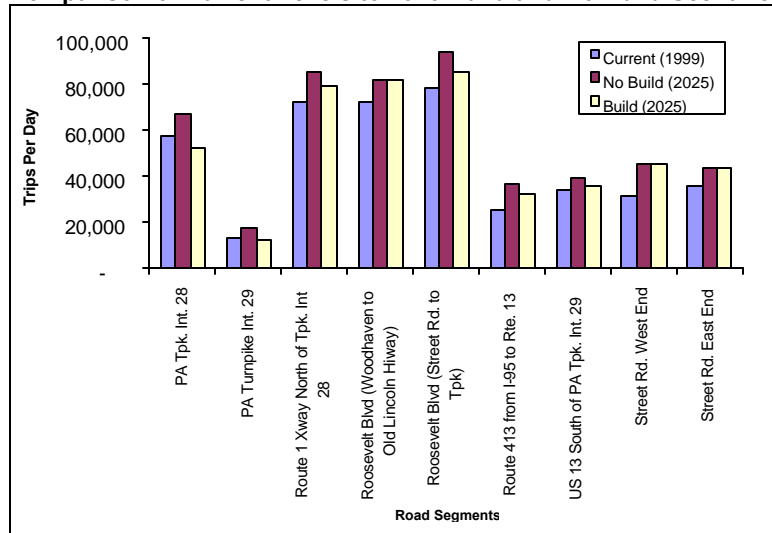
Source: PEL, ED RG, and REMI. All figures in constant 1999 dollars.

Additional Considerations

Will the new interchange remove traffic (and customers) from local roads?

The only places where there are projected future reductions in traffic levels for the build scenario from current traffic levels are at the places where reductions are most desirable -- the two Turnpike interchanges, 28 (US 1) & 29 (US 13) (See Figure 12). For the other major local roads, traffic under the build scenario increases from current levels, but at a slower pace than under the no-build scenario. There will be change and loss of certain types of business as a result of this project. However, the improvement in local economic conditions that could occur as a result of this project (described in the following chapter) have the potential to provide local businesses with enough new business to make up for the losses that might come from reductions in through trips.

Figure 12: Traffic Changes, Major Lower Bucks Interchanges and Roads Comparison of Current Levels to 2025 Build and No-Build Scenarios



Source: DVRPC Traffic Projections

Market Attractiveness Impact

In addition to the benefits to existing businesses due to cost savings from improved transportation flows, the new connection of I-95 and the PA Turnpike has the potential to impact the local and regional economies in three ways:

- Expanding the reach and attractiveness of project area office markets
- Increasing the flow of tourism dollars through Bucks County and the region
- Increasing the quality of life in the local area

To calculate the potential economic benefits that each of the above can bring to the project area and the region, three primary sources of information were utilized:

- Traffic projections, showing the changes in travel time between local and regional market areas;
- Case studies of national and regional interchange areas; and
- Interviews with local and regional business, real estate, and tourism experts.

Improved Connections

An interchange between I-95 and the Pennsylvania Turnpike improves transportation access, both for the region and for the local communities:

- Traffic projections show that the interchange will result in reduced travel time for people traveling from the local markets to the growing business markets to the east and west along the New Jersey and Pennsylvania Turnpikes.
- The new interchange also is projected to help slow the growth of traffic and congestion on the local highway network, and the resulting pressures on local roads that are currently being used by residents as a means to avoid congestion on the local highway grid.⁸

Case Study Findings

PEL and EDRG selected seven case studies to offer insight into the potential impacts of the project. They include four areas outside Greater Philadelphia, and three within the Philadelphia region. Each of these major highway interchanges had varying impacts on their surrounding communities. Some were clearly essential in turning around distressed areas and encouraging economic growth. Others did little to stimulate growth and revive a struggling economy, and some had a mix of significant positive and negative impacts. In general, the following was found:

- Interchanges between two highways most notably have an effect on an area's access to nearby business and commercial markets. Likewise, the area around a new interchange is more readily accessible from other regional markets.
- The effects of an interchange on an industrial area can vary. Such areas often remain industrialized and opportunities for warehousing and distribution can be increased. In cases where there is a strong demand for space in nearby communities, such as in the case of Plymouth Meeting, old industrial sites are often re-developed for commercial and office use.
- Areas that are severely distressed will not necessarily experience an economic upswing as a result of an interchange, as long as problems like crime remain unaddressed.
- The design of an interchange itself can have important implications for development potential in its vicinity. Sites immediately adjacent to an interchange may suffer due to a particularly large, poorly designed, or poorly located interchange.

⁸ Source: DVRPC traffic projections

- Combining increased highway access with government incentives, such as Enterprise Zones, as in West Conshohocken, can lead to sweeping redevelopment and investment in commercial properties.

Perceptions of Opportunities

PEL encountered many individuals and businesses with a great sense of optimism for the positive effect that the I-95/PA Turnpike Connection project could have on the local economy, particularly at key points of the highway network. After years of lagging behind the office growth rate of other suburban communities in the region, many local business leaders and observers believe that the lower half of Bucks County from Bensalem through Bristol and Middletown Townships to the Newtown/Lower Makefield area is positioned to take a step forward as a business location. The interchange project was viewed as a crucial piece of the puzzle for improving the competitiveness of Lower Bucks County. These observers felt that the interchange could:

Increase the attractiveness of Lower Bucks as a premiere office location -- The Lower Bucks market area has lagged the region in developing as an office center, and there is a belief it will be greatly enhanced by connecting the two interstates. If new projects are to be successful and not just drain tenants from nearby or adjacent office locations, Lower Bucks must increase its share of office employment in comparison to other suburban locations. The connection of the Turnpike and I-95 will increase the attractiveness of key exits on I-95 and the Turnpike (Business Route 1 in Middletown, 413 in Bristol, Turnpike Interchange 28 at US 1 in Bensalem and Turnpike Interchange 29 at US 13 in Bristol) by providing them with direct, limited access links to two interstate highways. In addition, extended markets like Newtown/Yardley, Burlington County, and the Woodhaven Road area of Philadelphia will now be able to tout the advantages of proximity and connections to new interstate highways traveling all directions.

Accelerate redevelopment/repositioning of industrial parks and aging retail locations -- An interchange connecting I-95 and the Pennsylvania Turnpike would be likely to increase the value of existing properties and allow for their repositioning and redevelopment into a broader range of uses (including light industrial/research or back-office operations). In addition, there will be increased opportunities and options for the redevelopment and repositioning of aging or vacant properties close to the interchange (particularly in Middletown and Bristol Twps.). Finally, if truck and car traffic using local roads merely to travel from one interstate highway to another could be reduced, new growth and business opportunities could emerge along or close to the area's major business corridors.

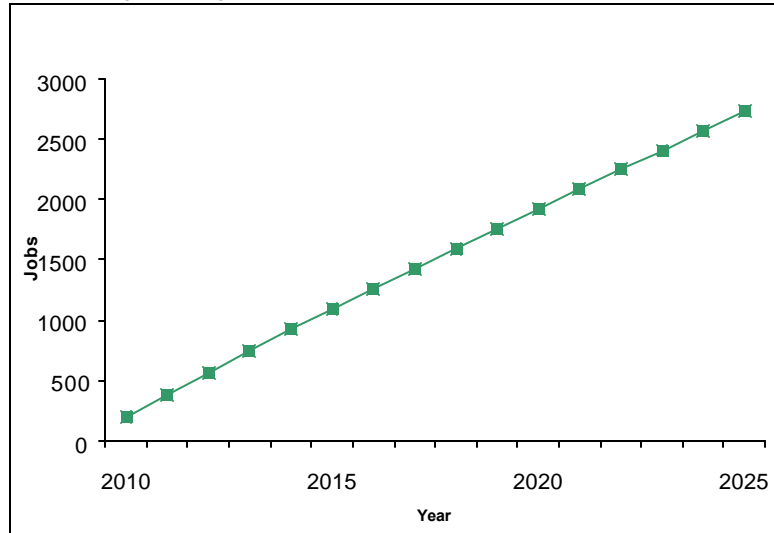
Market Attraction Economic Impact

As the traffic data, case studies and the interviews showed, the new interchange and bridge could change the market reach and competitiveness for some key markets, making the entire lower half of Bucks County more attractive as a place to locate new office activity. In this case, it is likely that most of the new development in Bucks County could shift from elsewhere in the region, with a smaller portion representing business growth moving into the area from other parts of the country. Based on the expected traffic improvements and an analysis of regional and local office development (and discussions with real estate professionals), it is estimated that the additional office attraction to Bucks County could grow by an additional 100 jobs in 2010 to over 1800 more jobs in 2025.

Employment Impact

- The estimates for office sector growth in Bucks County show that just by capturing a slightly larger proportion of the region's office growth, Bucks County employment could grow by as much as 3000 jobs in 2025 (equal to approximately 1% of total projected Bucks County employment in 2025).
- A much slower rate of regional office growth is projected, as the interchange is a smaller factor in the *region's* attractiveness as an office location..
- Locally, it is reasonable to expect that a large majority of the new office-based employment will be located in the Bensalem, Bristol, and Middletown Townships. In addition, local residents will have increased office-based employment opportunities close to their homes.

Figure 13: Bucks County Employment Growth due to Increased Business Attraction, 2010-2025

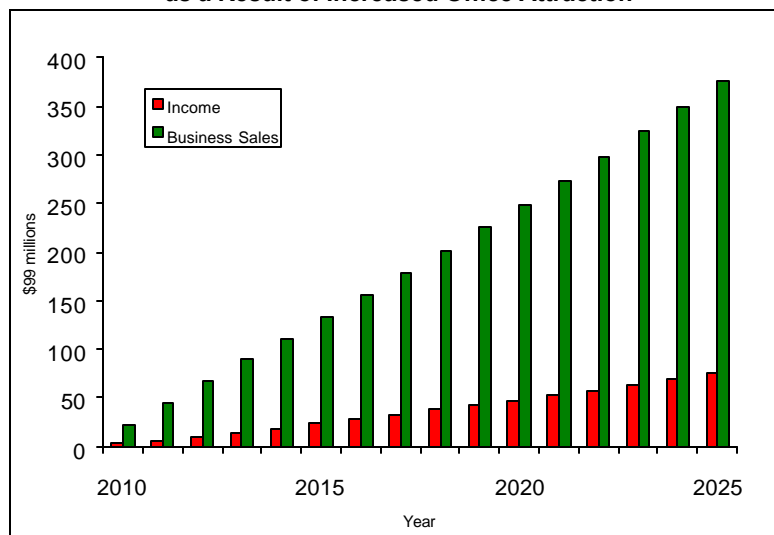


Source: PEL, EDRG, and REMI

Business Sales and Personal Income

The increased business attractiveness in Bucks County could also mean an expansion of business sales and income, growing to nearly \$75 million in income and just over \$375 million in new business sales to the county by 2025.

Figure 14: Business Sales and Personal Income Changes in Bucks County as a Result of Increased Office Attraction



Source: PEL, EDRG, and REMI

Tourism Impact

The lack of a connection between the region’s two major interstate highways has hampered Greater Philadelphia’s development as a tourist destination. It has been relatively easy for potential visitors from the Northeast or Middle Atlantic areas to completely bypass the tourist attractions of the City of Philadelphia and Bucks County via the New Jersey Turnpike or Interstate 295. The new interchange could result in more opportunities to attract visitors to existing local tourist attractions like Washington’s Crossing, Sesame Place, and Pennsbury Manor; new attractions like the Bucks County Tourism Center and the Mother Drexel shrine;

and shopping attractions like Peddler's Village, the Neshaminy and Oxford Valley Malls, and one of the region's top visitor destinations, the Franklin Mills Mall.

New Visitors to the Region -- Because of the new connection between I-95 and the Pennsylvania Turnpike, PEL projects that there will be a slow but steady increase in day visitors⁹, growing to an additional 225,000 day visitors to the region per year (or about 600 per day) by 2010. The suburban growth should be more heavily weighted toward Bucks County, given the fact that the connection would draw people into and through Bucks County. In addition, a number of those day-visitors will make future decisions to come back to the region and stay overnight. PEL expects that on average, 5% of the day visitors will return the following year and stay overnight, resulting in an increase of about 11,000 overnight visitors per year by 2010.

According to the Greater Philadelphia Tourism Marketing Corporation, day-visitors spend an average of \$46 dollars per day at local restaurants, retailers and tourist destinations. If those visitors decide to stay overnight on a future trip, they spend close to \$200 dollars per visitor in the local economy. Using those estimates, it is estimated that the additional tourism spending in Bucks County could be in the range of \$3.7 million/year, and regional spending would increase by almost \$13 million per year by 2025 as a result of increased visits due to the improved interchange.

Economic Impact of Increased Tourism Spending -- The expected increase in visitor days and spending translates into an increase of 230 new regional jobs by 2025 in the region, with over 50 in Bucks County. The visitor increase will also support \$12 million in regional business sales and nearly \$9 million in regional personal income.

Quality of Life

Finally, there are additional impacts for people that do not directly affect the flow of dollars, in terms of disposable household income or business profitability and competitiveness. These include:

Personal travel time savings

The interchange project results in reductions in travel time for non-work (shopping, recreation and personal) trips, which is clearly a benefit for people, although it does not necessarily change the amount of money they have to spend. Of more importance, people will spend less time on the roads completing their normal every day activities if the interchange is constructed than if it is not built, resulting in intangible benefits that cannot be measured in an economic study.

Impact on government revenues

From the governmental perspective, there is a great deal of concern as to how local governments would be able to replace any lost property tax revenues that would occur as the result of property condemnation and clearing to make way for new and expanded highway facilities. However, as this project is a connection of two existing highways with significant right of ways allowing for expansion, the actual loss of property tax ratables is small – only about two-tenths of one percent of total Bucks County assessed valuation. While not guaranteed, the likelihood is that increased investment in existing properties and new development tied to the connection of I-95 and the Turnpike will more than make up for the shortfall.

The key to making up the lost revenue is to focus on doing those things locally which, combined with the new interchange, will make the area a prime business destination. The increases in assessed values that have been seen in West Conshohocken since the opening of the Blue Route (I-476) clearly demonstrate the value of the interchange to local taxpayers and schools.

⁹ Day-visitors are those visitors who drive to regional attractions and do not stay overnight, either returning home or continuing on their trip to and from another destination point.

Figure 15: Changes in Assessed Value, 1987-1997
Lower Bucks County Jurisdictions and West Conshohocken Boroughs

	TOTAL ASSESSED VALUE OF REAL ESTATE		
	1987	1997	% Change
West Conshohocken Borough	\$3,946,000	\$9,145,000	131.75%
Bensalem Township	\$134,209,000	\$138,209,000	2.98%
Bristol Township	\$18,239,000	\$18,996,000	4.15%
Middletown Township	\$102,855,000	\$117,269,000	14.01%

Source: Local Government Statistics, PA DCED

Residential property values

This project results in relatively few displacements as a result of the new interchange, toll plazas, road widening or new bridge. History shows that property values increase with increased access to highway interchanges, although they go down for properties abutting highways. In this case, however, the highways are already in place and most of the affected properties are already abutting them. As a result, the primary changes associated with the project would be positive effects since many local residents and businesses, including those closest to the interchange, would have improved accessibility as a result of new proximity to one or the other major interstates or reductions in local congestion. Other factors in property value changes include:

- **Design of the projects.** Design should be a key consideration of the project planning, and every effort should be made by local, state and federal officials to ensure that appropriate aesthetic sensitivity and mitigation of impacts are among the considerations in the design of the project.
- **Placement of sound barriers.** Studies indicate that each decibel of noise above a threshold of 50 to 55 dBA reduces the value of a home by 0.2% to 1.3%. According to the project engineers, however, the installation of sound barriers as a result of this project will result in **reduced** noise levels for all but a few properties in 2025 over current levels, despite an overall increase in traffic flow on I-95 and the Turnpike and additional lanes on the PA Turnpike. One important consideration when comparing the build and no-build scenarios for this project is that the sound barriers will only be constructed if the project is ultimately built. However, with the no-build scenario, highway noise will continue to increase on the interstates and local highways due to growing traffic levels.
- **Removal of traffic.** One of the difficulties in calculating the economic effect of localized pollution and noise impacts is that the focus is only on those properties in direct proximity to the project. Little attention is paid the potential benefits for other residents of the local community. In fact, the project shifts through-traffic off of local roadways and onto the interstate highway system, potentially reducing the build-up of congestion and traffic -- and the associated noise and pollution -- on many local roads.
- **Local property tax rates.** An increased commercial property tax base could lower the proportion of local property taxes that are paid by homeowners. In addition, it can help to diversify the tax base paying for schools and local government services, a key factor in evaluating the attractiveness of communities for residents.

Health care and environmental costs

Concerns have been expressed that increased pollution arising from the traffic flowing through the completed project area would result in increased health care problems, and therefore costs, for local residents. While a detailed economic analysis of environmental and health care costs was beyond the scope of this study, here are a few points to consider:

- **Health insurance premiums** are not determined by street address, and therefore localized impacts do not come into consideration. Some health care costs may actually be reduced by the project -- particularly those involving vehicle accidents. The reduction in time traveled due to the new interchange is likely to reduce traffic accidents and their associated health care costs.

- **Regional air quality** is determined by a wide range of factors, including ozone and other pollutants that are generated outside of the region and transported via air currents into the region. Research varies as to the economic value of the improvement in regional air quality that occurs as a result of improved traffic flow. In addition, there is no specific regional data available for this project by itself. It is included as part of the Regional Transportation Improvement Program (TIP) prepared by DVRPC. The TIP, which includes the proposed interchange, is projected to improve regional air quality. While there are estimates of regional pollution changes, there is wide disparity in the economic value they represent. Available literature supports a possible value range of regional cost savings for the TIP of from as little as \$12,000 annually to over \$4 million annually from reduced Carbon Monoxide (CO) emissions; between \$38,000 and \$480,000 from reductions in Volatile Organic Compounds (VOC); and between \$18,000 and \$270,000 from reductions in Nitrogen Oxide (NO).^{10 11}
- **Local air quality.** The project team is required to perform a Microscale (“Hot Spot”) carbon monoxide (CO) analysis for areas along I-95 and the PA Turnpike in the project area to determine if localized concentrations increase over the 1-hour and 8-hour standards. These standards, which are conservative, health-based and established by the US Environmental Protection Agency (EPA), are not exceeded at any of the 22 air quality receptors modeled for the project.¹²

In addition, the project team is not required to model the reduced CO levels along arterial roadways that experience less stop-and-go traffic because of the interchange construction. Thus, from an economic perspective, it is impossible to estimate the localized impacts, because of a lack of analysis related to those potential air quality improvements.

¹⁰ Delucci, Mark, “Summary of Non-monetary Externalities of Motor Vehicle Use”, Institute of Transportation Studies, University of California Davis, UCD-ITS-RR-96-3(9), 1998, p. 96. EDRG converted 1991 dollars to 1999 dollars.

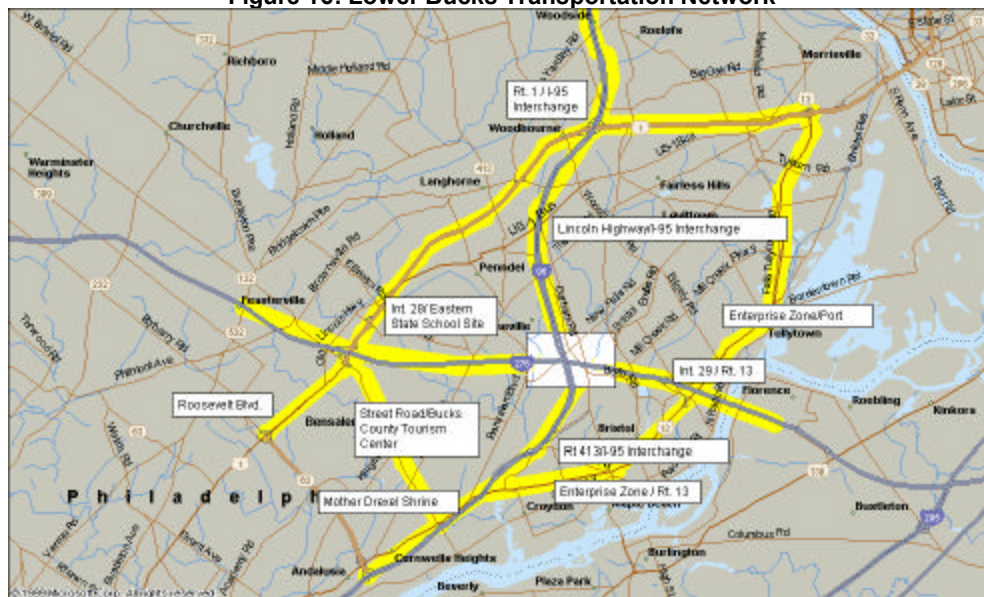
¹¹ M.Q. Wang, D. J. Santini & S.A. Warinner, “Monetary Values of Air Pollutants in Various U.S. Regions”, *Transportation Research Record 1475*, 1995, pp. 33-41. EDRG calculations included converting 1989 dollars to 1999 dollars and converting tons to Kg.

¹² The noise and air studies cited here are based upon the 2020 traffic projections and are being re-run with the newer 2025 traffic projections.

Local Opportunities

The changes in the market’s competitive position present some very real opportunities for local communities. With the new highway interchange, the area can become a more attractive location for service and finance-oriented firms, most typically occupying office buildings close to interstates and other highways in order to maximize their range for attracting employees and their connections to other office locations. In addition, the area’s industrial properties near the interchanges should continue to see subtle changes, as facilities are built or redeveloped into flexible buildings that can serve the needs of a variety of tenants – industrial, distribution, or even back-office operations.

Figure 16: Lower Bucks Transportation Network



As the local economy grows as a result of increased attractiveness of the area, new opportunities and customers will be available for retail, restaurant and hotel operators, although they will also see new and increased competition. As a result, they will be forced to closely examine their business strategies, to ensure that they are well positioned to take best advantage of the changing local economy. Rather than serving the through traffic that might happen to stop at their store, they will have the opportunity to serve new business customers that will be working in their communities and local residents who have returned to the major local highways.

Figure 17: Potential Local Opportunities

MARKET AREA	AREAS OF OPPORTUNITY	SPECIFIC OPPORTUNITIES
Bensalem Township	Office development Tourism	Eastern State Site/Youth Development Center Bucks County Tourism Center Mother Drexel Shrine Archdiocese of Philadelphia site
Bristol Township	Redevelopment of industrial properties Development of flex space Repositioning aging highway corridors	Enterprise Zone Route 413 Corridor Route 13 Corridor
Middletown Township	Retail infill Diversification of commercial property mix	Lincoln Highway corridor Matrix site
Other Bucks	Industrial revitalization Office development (Newtown/Yardley) Retail redevelopment	Levittown Shopping Center Enterprise Zone Novolog Port
Burlington County	Warehouse and distribution	Redevelopment of Rt. 130 corridor
Philadelphia	Industrial redevelopment Corridor improvements Tourism	Roosevelt Blvd. (Byberry site) Conrwells Heights/Amtrak potential Franklin Mills

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Concluding Comments

PEL's role in this project was to provide analysis of the economic potential of the proposed interchange between I-95 and the Pennsylvania Turnpike without taking a position on whether the project should happen or not. That required looking far into the future, both in the build and no-build scenarios, and attempting to understand the implications for the region and the project area in either case. Too often, projects like these are judged purely on the immediate impact, with little consideration of how local and regional economies change over time, changes in transportation patterns and usage, and the influence of local officials to direct and encourage change. If this project is built, there is an opportunity for Lower Bucks County and its neighboring counties to plan for and adjust to a changed transportation system. Some actions that could enhance or support economic growth include:

- **Need for effective planning and zoning** -- While the improved access that will result from connecting I-95 and the Pennsylvania Turnpike is likely to provide can improve the competitiveness of local communities in the project area, there is a need for effective planning and zoning in order to best take advantage of potential opportunities. In the case studies, it was clear that forward-thinking communities were better able to utilize new interchanges to improve their local economies. And those that worked best, planned for tomorrow's economy, not yesterday's. Today's New Economy values connections, talent, and flexibility. Any strategies should take these into consideration, and also look at broader economic trends in the office, retail, hospitality and industrial sectors.
- **Opportunities for cooperative marketing** -- The build up to construction offers an opportunity to develop joint economic development marketing and planning strategies, touting and marketing the transportation and market access connections of the area. Examples in other areas demonstrated that connections between highways can connect local markets and growth can radiate from key points within the network to adjacent markets.
- **Build on organizational strengths** -- Lower Bucks County has a wealth of business and transportation organizations, and there is an opportunity to utilize these existing organizations to reduce potential negative project impacts and to maximize project benefits. This could include the Bucks County Transportation Management Association working with the construction managers, local and state government officials and employers to minimize the impacts of road closings and detours during the construction period and to maximize the number of local contractors being aware of and bidding competitively on pieces of the construction project.
- **Anti-sprawl implications** -- Many highway projects are criticized because they are believed to be major factors in creating the conditions that encourage suburban sprawl -- leading people and businesses away from established communities and planting them in greenfields far from urban neighborhoods. This project could have the reverse effect. Not only would it direct resources and investment into established communities, making them more competitive, it would do so at a time when many suburban communities are putting limits on the amount of growth they will accept. There are potential state government incentives available that could help the Lower Bucks County communities maximize the benefits of the infrastructure investment in the community. By working together, the Lower Bucks County communities could have an opportunity to capture a greater share of the region's employment and business growth and redirect it into the built infrastructure of established communities, rather than pushing the edges of the region further and further outward.
- **More help needed** -- Advocate for additional transportation improvements that could be moving along parallel tracks with the interchange construction. Local road improvements, combined with better regional connections, would likely increase the economic development benefits described in this report. Many local improvements are already underway, including the widening of Rt. 413, improved signaling on US 13 and a redesign of the Street Rd./ I-95 interchange. However, local officials should continue to work to ensure that funding is available for these and other improvements.