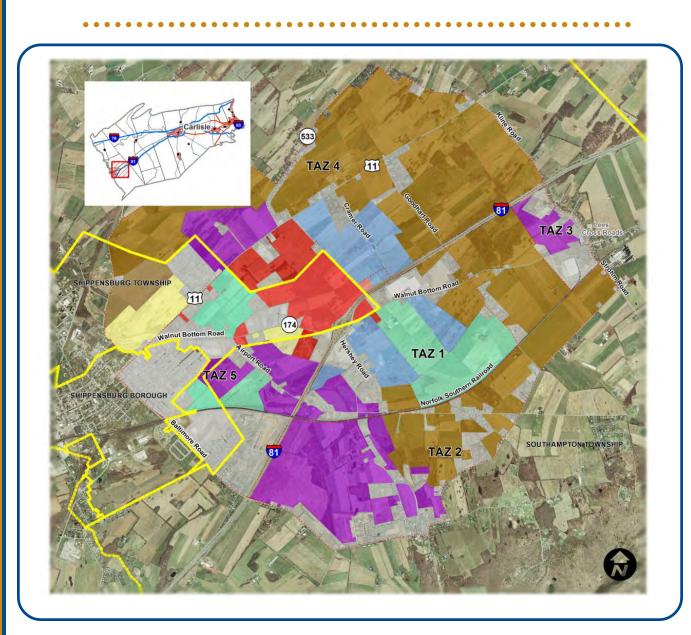
# Cumberland County I-81 Corridor



# Land Use, Transportation & Economic Development Study

SHIPPENSBURG BOROUGH | SHIPPENSBURG TOWNSHIP | SOUTHAMPTON TOWNSHIP



#### 1.0 Executive Summary

#### Introduction

The greater Exit 29 study area has experienced moderate growth over the past decade, including the relocation of the Beistle Company from Downtown Shippensburg and the development of the JLG plant (formerly Little Tykes). Other development over the past decade includes the Gilmore Seavers Medical Center, Shippensburg Health Care Center nursing home, Amerihost Inn, Destiny Image publishing company, Hope Reformed

Presbyterian Church and Industrial Harness. Shippensburg itself is one of the fastest growing communities in the region with a high rate of housing starts, ongoing growth at Shippensburg University (including a 1,700 seat performing arts center), and increased commercial development (including a new

STRATEGIC DIRECTION: Manage growth in order to protect the area's rural quality of life and the performance of the transportation system.

156,000 square foot Wal-Mart, which opened October 27, 2004). Total population has also increased during the 1990s, with growth rates in neighboring Southampton Township exceeding the County's growth rate of 9.4 percent.

Perhaps the most significant land use issue in the Exit 29 study area is 1,650 acres of undeveloped land within a mile of the interchange. These parcels, which likely will be developed, will have a significant effect on the safety and future performance of the interchange and the surrounding highway network. How they are ultimately developed will have transportation impacts. The pending development of ProLogis<sup>1</sup>, a 1.4 million square foot distribution center in Southampton Township has underscored the need for a systematic evaluation of land use, transportation and economic development issues in the Exit 29 study area.

# Background

The I-81 corridor has become a magnet for attracting warehousing and distribution facilities. Neighboring communities in Cumberland and Franklin Counties struggle with the burdens of accommodating the traffic that these new giant distribution centers generate. For the Exit 29 study area, demand for warehousing has been coupled with commercial retail and residential development. Local officials are considering several major land development plans, including sketch plans that developers submitted during the course of the study. All attest to the area's dynamic growth.

The challenge for area planners, elected officials and other leaders is to weigh the area's economic development direction with the ability of the transportation system to support it. Public preferences too are supportive of efforts to concentrate new growth around the Exit 29 interchange, thereby preserving farmland and open space, as well as the residential integrity of outlying areas, such as the Village of Lees Cross Road. A "development program" that outlines a recommended future land use pattern, coupled with a list of priority transportation improvements, was the goal of the study process.

<sup>&</sup>lt;sup>1</sup> Southampton Township supervisors final approved ProLogis' land development plan in March 2004.



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#### Public Involvement

The study process included a public involvement program to identify the issues and concerns of land owners in the Exit 29 study area. The study team held an initial public meeting in May 2004 to learn of public preferences as they relate to the area's future development direction. Figure 1 below demonstrates that the public believes that the area will continue to develop commercially, with a majority predicting warehousing distribution. However, when asked what their preferences are for the area, a majority cited commercial, agriculture, or no development at all. The survey results affirmed the need for an appropriate development/land use strategy that includes the supporting transportation requirements.

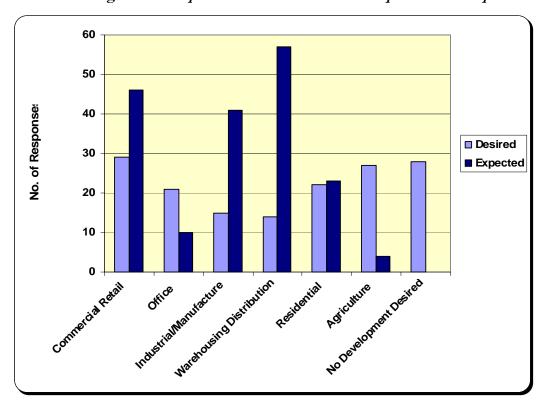


Figure 1: Comparison of Desired Versus Expected Development

The project team held a second public meeting in April 2005 to review the recommended development program and receive public comment. Results of both meetings, including copies of the exit survey instruments are included in the report appendix.

# Developing a Recommended Development Program

In "testing" public preferences for the area, the study team examined the existing zoning ordinances to evaluate the permitted uses in each zoning district, as well as other land use control measures such as set-backs and maximum developable areas (for buildings). The team tested different development scenarios using the ITE<sup>2</sup> Trip Generation Manual to calculate trip generation (as a function of land use and building size).

<sup>&</sup>lt;sup>2</sup> Institute of Transportation Engineers



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#### **Exit 29 Steering Committee**

The study team employed the Tri-County Regional Planning Commission's regional travel demand model (TDM) in modeling transportation improvements to the area highway network. The TDM output data showed how traffic would be distributed across a revised highway network. The team tested two alternatives for modeling analysis, including an extension of PA 533 from US 11 to Walnut Bottom Road. A second alternative examined traffic distribution against an extended PA 533, coupled with the construction of what's known locally as the "Inner Loop": a missing link between Walnut Bottom Road and Baltimore Road running parallel to I-81.

#### Recommendations

After performing an assessment of existing conditions, working with the study steering committee, and communicating with the public, the project team identified the major areas to be acted upon by a variety of agencies for implementation. The recommendations respond to the collective input of the public outreach meetings and the steering committee meetings. They provide the study area municipalities with a series of actions to consider as they continue their efforts to coordinate land use and transportation decision-making in the greater Exit 29 study area.

CATEGORY	RECOMMENDATIONS/ OPTIONS
	ORDINANCE AND POLICY RECOMMENDATIONS
	The study area municipalities should develop an official map that will:
	Provide a tool for planning public capital investments
	Identify areas where open spaces are desired or where public improvements are envisioned (including new roads)
Official Map	<ul> <li>Identify areas where public improvements are envisioned i.e., road improvements or widenings, parks, playgrounds and sites for other public purposes.</li> </ul>
	• The official map could also be used by area municipalities in designating new connector roads (e.g., PA 533 from US 11 to Walnut Bottom Road and the "Inner Loop" connector).
	• Shippenburg Township should amend its zoning ordinance to reduce the allowable building coverage for new buildings within its Commercial General zoning district from 70 percent to 40 percent.
Reduce Allowable Building Coverages	• Such a reduction would significantly reduce the potential square footage for lease, which can directly reduce total trips generated by approximately 43 percent.
	• The proposed reduction is also consistent with other land use management tools already in place in other municipalities in the greater Exit 29 study area.
New Zoning Districts	• <b>Southampton Township</b> : Consider designating a new Medium Density zoning district encompassing the area south of the NS rail line. The area is currently zoned as Village, which permits town homes on 2,400ft <sup>2</sup> lots. An alternative to wholesale re-zoning would be to utilize a conservation design

CATEGORY	RECOMMENDATIONS/ OPTIONS			
	overlay that would require developers to utilize clustering and open space techniques that would supercede the Village District requirements.			
	• Shippensburg Township: Consider designating a new Office zoning district within the existing zoning ordinance and designate some or part of existing parcels near the interchange as such. The new district would provide areas for office use development, thus supporting the creation of higher paying jobs, complementing the presence of Shippensburg University and reducing travel demand vis a vis commercial development.			
Amend Existing Zoning Requirements	• Shippensburg Township: Consider revising the requirements contained as part of its Commercial General zoning district. The recommendation entails moving significant traffic generators such as service stations and drivethrough restaurants from permitted uses to conditional uses, thus giving supervisors more latitude in reviewing and approving land developments with significant travel demands and their implications for the township and PennDOT.			
Other Land Use, Transportation Considerations  • The study area has direct access to rail freight facilities and service Norfolk Southern. The study area municipalities should maintain zoning adjacent to the rail line to help preserve rail freight as a view of the study area.				
	TRANSPORTATION RECOMMENDATIONS			
Intersection Improvements	Reconfigure the intersection of Walnut Bottom Road with Cramer and Hershey Roads.			
Access	• Cul-de-sac existing Cramer Drive at a point 1,500 feet south of its intersection with US 11. This action would eliminate future truck traffic from impacting a residential area in accessing industrially-zoned land to the south - only in conjunction with alternative access (e.g., PA 533 extended).			
Management	• Curbing should be installed along Walnut Bottom Road. This should be included as part of the \$1.3 million TIP project to widen Walnut Bottom Road to 3 lanes in the summer of 2006.			
Non-Motorized Accommodation	A need exists to better accommodate pedestrians in the developing commercial area of Walnut Bottom Road between US 11 and Airport Road. Shippensburg Township should build sidewalks within the existing right-of-way to accommodate the pedestrian trips associated with the expanding commercial development in the Walnut Bottom Road corridor.			
	Construct a new greenway along Burd Run. This facility would connect residents of Shippensburg Borough and students from Shippensburg University to the growing commercial area along Walnut Bottom Road.			
Tri-County Regional Planning Commission's travel demand model indica that an expanded Exit 29 will be necessary by 2030 in order to accommod growing travel demand. Specifics surrounding the recommendation includes the common order to accommod growing travel demand.				

CATEGORY RECOMMENDATIONS/ OPTIONS							
	■ Widening the structure over I-81 to 7 lanes						
	<ul> <li>Widening the interchange's on- and off-ramps and signalizing their intersections with Walnut Bottom Road</li> </ul>						
	<ul> <li>Relocating the intersections of Walnut Bottom Road with both Hershey and Cramer Roads.</li> </ul>						
	• These transportation improvements are linked to the Official Map recommendation above.						
Connectivity	• First includes a proposed \$2.4 million extension of PA 533 from its existing terminus at US 11 to a new intersection at Walnut Bottom Road. The extension would carry an estimated 10,700 vehicles daily in 2030 and would provide direct access from the industrial and commercially zoned properties to Exit 29. The new connection would also position the community for any proposed Outer Loop connector while providing an alternative for access to Shippensburg Borough/University. An extended PA 533 complements the availability of existing sewer and water infrastructure.						
	• The "Inner Loop" connector is envisioned as a roadway link between Walnut Bottom Road and PA 696. Engineering level cost estimates put the construction of the roadway at over \$9.7 million. Traffic planners expect the roadway to carry traffic volumes of 23,300 in the year 2030.						
• Cumberland County and the study area municipalities should were PennDOT to fund the construction of a park and ride facility at I new facility would serve not only commuter travel (15-25 percent workers travel to the greater Carlisle and Chambersburg areas for employment) but could also be used in conjunction with a shuttle special events at Shippensburg University.							
Public/Private Partnerships	• The study area municipalities should consider the feasibility of establishing a Transportation Development District (TDD) that would assess specific fees or assessments on property owners within the TDD for transportation improvements. The District would allow the private sector and the municipalities to negotiate and contribute to the cost of transportation improvements.						
Several safety-related recommendations emerged from a corridor safety a of the study area's two primary roadways: US 11 and Walnut Bottom Roa Recommendations include guiderail replacement, improved lighting, and facets of traffic safety that are typically addressed through PennDOT's roadways:  Betterment and maintenance programs.							

# **Table of Contents**

1.0	EX	ECUTIVE SUMMARY	2
2.0	IN	TRODUCTION	9
2.1 2.2		UDY BACKGROUNDUDY PURPOSE	
2.3	STU	UDY GOALS/SUCCESS FACTORS	10
2.4		THODOLOGY	
2.5	Do	CUMENT ORGANIZATION	12
3.0	GL	OSSARY OF TERMS	14
4.0	EX	ISTING CONDITIONS	17
4.1	Lai	ND USE AND ZONING	17
	4.1.1	Study Area Land Use	
	4.1.2	Existing Zoning	
4.2	Soc	CIAL ENVIRONMENT	
	4.2.1	Population	
	4.2.2	Age Group Distribution	
	4.2.3	Housing Unit Growth	
	4.2.4	Resident Employment by Industry	
		ISTING TRANSPORTATION CONDITIONS	
	4.3.1	Transportation System Data Collection Methodology	
	4.3.2	Existing and Projected Traffic Conditions	
	4.3.3	Evaluating Trip Distribution	
	4.3.4	Corridor Safety Audit	
4.4		ONOMIC ASSESSMENT	
5.0	PU	BLIC INVOLVEMENT	38
5.1	PUI	BLIC INVOLVEMENT 1	38
	5.1.1	Exit Survey Results	39
	5.1.2	Work Station Summary	
	5.1.3	P.I. #1 Summary	41
5.2	Pui	BLIC INVOLVEMENT 2	41
6.0	DE	EVELOPMENT OF RECOMMENDATIONS	43
	6.1.1	Evaluating Trip Generation	
	6.1.2	Evaluating Trip Distribution	
7.0	CH	IOICES FOR OUR FUTURE	49
8.0	AP	PENDICES	61

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- George Bauserman, Southampton Township, Cumberland County
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#### 2.0 Introduction

#### 2.1 Study Background

In response to ongoing land development

pressure throughout the I-81 corridor, the Cumberland County Planning Commission initiated a study of the county's 10 interchanges. The Commission organized the study into three phases, including the development of a policy document for each

STRATEGIC DIRECTION: Manage growth in order to protect the area's rural quality of life and the performance of the transportation system.

interchange, a business park siting study, and a third phase which included a detailed assessment of land use, transportation and economic development opportunities at two priority interchanges.

At the conclusion of the project's first phase, study steering committee members selected two interchange areas for further analysis and evaluation for Phase 3. These interchange areas included Exits 48 and 49 in South Middleton Township, and Exit 29 in the greater Shippensburg area.

For the Exit 29 Phase 3 analysis, the Commission formed a study steering committee consisting of representatives from the three study area municipalities: Shippensburg Borough, Shippensburg Township and Southampton Township. The steering committee also included representatives from Southampton Township, Franklin County, the Franklin County Planning Commission, DCED, Tri-County Regional Planning Commission and PennDOT.

The Exit 29 study area has experienced relatively moderate growth over the past decade, including the relocation of the Beistle Company from Downtown Shippensburg and the development of the JLG plant (formerly Little Tykes). Other development over the past decade includes the Gilmore Seavers Medical Center, Shippensburg Health Care Center nursing home, Amerihost Inn, Destiny Image publishing company, Hope Reformed Presbyterian Church and Industrial Harness.

Shippensburg is one of the fastest growing communities in the region with a high rate of housing starts, ongoing growth at Shippensburg University (including a 1,700 seat performing arts center), and increased commercial development (including a new 156,000 square foot Wal-Mart, which opened October 27, 2004). Total population has also increased during the 1990s, with growth rates in Southampton Township exceeding the County's growth rate of 9.4 percent.

Perhaps the most significant issue at stake in the Exit 29 study area includes the fate of over 1,650 acres of undeveloped land within a mile of the interchange. These parcels that are "in play" will have a significant effect on the safety and future performance of the interchange and the surrounding highway network, depending upon how they are ultimately developed. The pending development of ProLogis<sup>3</sup>, a 1.4 million square foot distribution center in Southampton Township has heightened the need for a comprehensive evaluation of land use, transportation and economic development issues within the Exit 29 study area.

<sup>&</sup>lt;sup>3</sup> Southampton Township supervisors final approved ProLogis' land development plan in March 2004.



#### 2.2 Study Purpose

The aforementioned 1,650 acres of undeveloped land was a factor in Exit 29's selection for detailed analysis as part of Phase 3. In recent years, the I-81 corridor has become a magnet for attracting warehousing and distribution facilities. To the south of the Exit

The interchanges near Shippensburg are among the least developed exits in the entire I-81 corridor, and distribution companies are clearly interested.

29 study area, Target now operates a 1.3 million square foot distribution center; and construction continues in North Middletown Township, where several warehouses have been approved as part of Logisticenter of Carlisle. Neighboring Penn Township has also received plans for warehousing development. In addition to industrial land development, the area has also experienced strong interest in both commercial and residential land development. The new Wal-Mart and a 440-unit retirement community in Southampton Township (Villages at Orchard Hills) all point to growing development interest. Several sketch plans were submitted during the study process, attesting to the study area's dynamic nature.

Along with increased speculation in the Exit 29 study area are Cumberland County's efforts at preserving farmland and open space. The County has placed thousands of acres into Agricultural Security Areas (ASAs) and through other farm preservation methods. Several of these farms are located within the Exit 29 study area.

In addition to land use and farmland preservation concerns is the need for transportation improvements. The Harrisburg Area Transportation Study (HATS) - of which Cumberland County is a member - will in Summer 2005 begin its biennial update of the 2007 Transportation Improvement Program (TIP). One study priority was to identify candidate projects for HATS' TIP update. In addressing safety issues, there were a number of maintenance-related projects identified as well to be addressed through PennDOT's ongoing maintenance and Betterment programs.

Through attention to these planning issues - land use management and transportation - the study area municipalities sought to develop a plan that anticipates and accommodates development, rather than reacting to it.

#### 2.3 Study Goals/Success Factors

At the outset of the study, the study steering committee established key study directions and supporting success factors to help guide the study effort. The objectives used to guide the study include:

- Improve the design of the Exit 29 interchange
- Improve the design of Walnut Bottom Road's intersections with Cramer and Hershey Roads
- Accommodate the transportation demands of the community
- Promote continued inter-municipal cooperation
- Provide ample municipal participation and coordination throughout the project
- Advance recommendations that are implementable.



#### 2.4 Methodology

The study's land use and transportation improvement recommendations are the product of a process that began with the study's kickoff meeting on April 9, 2004.

Phase 1 entailed the collection of general background information, including existing land use, infrastructure, land use regulations, and traffic data from the I-81 Widening Feasibility Study. The team examined ten of Cumberland County's 12 interchanges along I-81<sup>4</sup>. Two interchanges, Exit 29 and 48/49, were selected by the steering committee for more in depth evaluation.

The study's third phase included the following approach for developing recommendations:

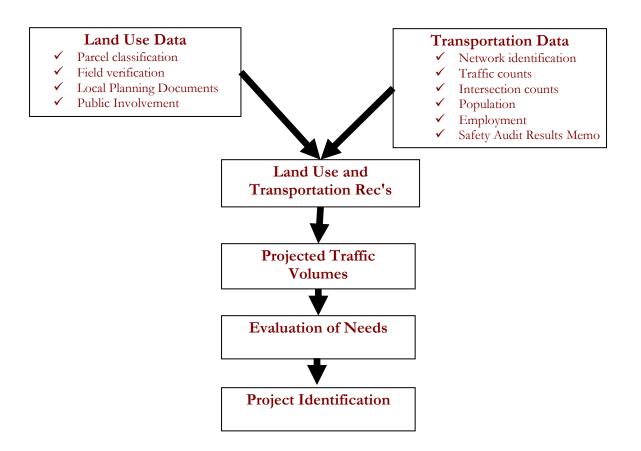
- 1. The original study area as originally defined was expanded to a radius of approximately one mile in order to capture additional potential development impacts.
- 2. Existing land use of the expanded area was field-verified.
- 3. New traffic counts were performed at 11 locations throughout the study area (see subheading 4.3.1). Traffic engineers also conducted a safety audit of the two primary corridors US 11 and PA 174 (Walnut Bottom Road).
- 4. Planners examined the area's land use regulations, particularly zoning ordinances.
- Steering committee members hosted an open house at the South Newton Fire Hall on May 27, 2004. The public participated in an exit survey.
- 6. An initial full build out "worst case" scenario was prepared, based on existing zoning ordinances.
- 7. Initial traffic forecasts indicated that the interchange area's existing roadway network would be "overwhelmed" by the full buildout scenario by 2020. Economic models of IMPLAN (Economic Impact Model) and the Penn State Community Impact Assessment Model were also run.
- 8. A second build out scenario was prepared, to
  - Reduce "buildable areas" of available land to include parking, setbacks, utilities, and other non-buildable areas.
  - b) Incorporate new development projects to provide greater accuracy.
- A second travel demand model run showed that full build out of existing zoning would still generate too many trips for the roadway network to accommodate.
- 10. Planners prepared recommendations based on trip generation data and public preferences as expressed during the May 27, 2004 open house. The proposed study recommendations if implemented would significantly reduce trip generation, as well as provide increased capacity. The Institute of Transportation Engineers' ITE Trip Generation Manual was used to verify the impact of changes.

<sup>&</sup>lt;sup>4</sup> Exit 44 was the subject of a similar study process in 1999; Exit 59 entails a full-speed, limited access interchange with PA 581 and was not included in the analysis.



- 11. An initial recommendation package for municipal review and comment was distributed to study steering committee members on December 10, 2004.
- 12. Planners made final changes to the draft recommendations for endorsement at the study steering committee's January 21, 2005 meeting.
- 13. The study team presented draft final recommendations to the public at a second open house at the Southampton Township building on April 27, 2005.
- 14. The study team prepared a final report taking into account the comments received from the public open house and the study steering committee members.

The study methodology steps is summarized in the flow chart below.



# 2.5 Document Organization

This report summarizes the existing land use, zoning, and traffic conditions for the greater Exit 29 study area. It is organized into the following headings:

- Executive Summary
- Introduction
- Glossary of Terms
- Existing Conditions
- Public Involvement Results



### **Exit 29 Steering Committee**

- Development of Recommendations
- Choices for our Future
- Appendices.

# 3.0 Glossary of Terms

The following land use, zoning, and transportation terms are used throughout the report and are defined here for reference purposes.

Agriculture use the production, keeping, or maintenance, for sale, lease or

personal use of plants and animals useful to man including but not limited to forages and sod crops, grains and seed crops; dairy animals and dairy products, poultry and poultry products; livestock including beef cattle, sheep, swine, horses, ponies, mules, or goats or any mutations or hybrids thereof, including the breeding and grazing of any or all of such animals; bees and apiary products, fur animals; trees and forest products; fruits of all kind, including grapes, nuts, and berries; vegetables; nursery, floral, ornamental, and greenhouse products; or lands devoted to

a soil conservation or forestry management program.

Area and Bulk a zoning term that refers to regulations that dictate the physical

dimensions of a building. **Area** refers to the total area taken on a horizontal plane at the level of the ground surrounding the main building and all necessary buildings, exclusive of uncovered porches, terraces, and steps. **Bulk** refers to the cubic volume of a

building.

**Buildout** projected development of the buildable land in the study area.

For this study's purposes the buildout scenario considered transportation impacts of all of the land being developed as

currently zoned.

Commercial land use land use types that generally include establishments engaged in

retail trade or services.

Gross building area refers to the actual amount of land that may be built upon in a

given lot. The gross building area is the lot size minus setback

and open space requirements.

**Impervious coverage** refers to the percent of the lot area that does not absorb water.

Impervious coverage can be determined by dividing the

impervious area of the lot by the total lot area.

**Industrial use** this land use generally includes: (1) establishments engaged in

transforming raw materials into new products, usually for distribution to other regions and not sold on-site, and (2) establishments engaged in wholesale trade, storage, or distribution with little or no retail trade or service. Because of their shipping, storage and processes that create noise, smoke, smells, or light pollution, industrial uses should not be located in

close proximity to residential areas.

**Institutional use** for purposes of this study, institutional uses refer to schools.

Other common uses of institutional land include personal care

centers, hospitals, places of worship, educational institutions, and government facilities.

Level of service

a traffic engineering term used by the Institute of Traffic Engineers (ITE) that rates a roadway or an intersection's ability to handle traffic flow. The system uses a rating system of A (best) through F (worst). A roadway's level of service is measured by comparing the volume of traffic against the capacity of the roadway. An intersection's level of service is measured by total control delay per vehicle at the intersection.

Light industrial use

manufacturing or storage uses that are characterized by uses of large sites, attractive buildings and inoffensive processes and can be compatible with neighboring residential uses. Differs from industrial by not having processes that have byproducts such as smell, noise, light, having larger lot sizes that allow screening techniques to be used between residential areas.

Lot

a designated parcel, tract, or area of land established by a plot or otherwise as permitted by law and to be used, developed, or built upon as a unit.

Office land use

a land use that involves administrative, clerical, financial, governmental, medical or professional operations.

Open space

any parcel or area of land set aside, dedicated, or reserved for public or private use or enjoyment or for the use and enjoyment of owners and occupants of land adjoining or neighboring such open space. Developers may be required to meet an open space requirement that ensures that a certain percentage of the lot area will remain as open space.

Peak period

traffic engineering term that refers to the time period when a certain roadway carries the most vehicles. Peak periods usually occur in the morning, 6 a.m. - 9 a.m., and in the evening, 3 p.m. - 6 p.m. The peaking characteristics of a roadway coincide with the time when the roadway sees the highest use, usually but not limited to the morning and evening rush hours. Roadways and the associated facilities should be designed to satisfactorily handle the peak period.

Retail land use

land use in which merchandise or goods are sold to the general public for personal or household consumption and rendering services incidental to the sale of such goods. An important component of a retail establishment is that it buys goods for resale.

**SADCO** 

The Shippensburg Area Development Corporation.

TAZ

(Traffic Analysis Zone) a delineated area that has uniform land use, population/employment characteristics in which trip generation and distribution will be further analyzed.

#### **Exit 29 Steering Committee**

Vacant land this land use type includes lands that are not presently developed,

such as wooded areas, unimproved areas not used for agriculture or recreation, and improved areas or buildings that are not

occupied.

Warehousing a break in bulk point for freight movement characterized by large

storage buildings with convenient access to transportation

facilities.

# 4.0 Existing Conditions

#### 4.1 Land Use and Zoning

#### **EXISTING LAND USE CONDITIONS HIGHLIGHTS**

- The study area's total land area is just over 3 square miles.
- Agricultural land comprises the majority of existing land use, at 68 percent. Open space/vacant land is the next most common, at 12 percent.
- Most of the study area's industrial land is located just southeast of the Exit 29 interchange. Manufacturing constitutes less than 4 percent of the study area's existing land use.
- Commercial development is occurring along Walnut Bottom Road west of the interchange. Approximately 4 percent of the study area is currently devoted to commercial uses.
- Each of the three study area municipalities have adopted a zoning ordinance.

The first step in assessing the existing land use conditions was to develop a current land use map. The Cumberland County Planning Commission provided a GIS coverage of the tax parcels and the scanned images. Land uses were assigned to each parcel through a combination of aerial imagery interpretation and field verification. Land uses were assigned using detailed NAICS (North American Industrial Classification System) Codes. For the purposes of the final report, the codes were organized into fewer broad categories (see Table 1).

#### 4.1.1 Study Area Land Use

The study area covers approximately 2,050 acres or 3 square miles. Table 1 summarizes the land uses in the study area.

Table 1- Existing Land Use

Land Use Code	Land Use	Parcels	Acres	Percent Of Total
112	Agricultural	37	1,398.4	68.2
1400	Open Space/Vacant	39	251.3	12.3
1000	Residential	115	181.8	8.9
339	Manufacturing; Misc.	3	76.2	3.7
447	Retail - Service Stations	2	27.8	1.4
453	Retail - Miscellaneous	4	28.6	1.4
441	Retail - Motor Vehicles	3	25.1	1.2
1200	High Density Residential	4	17.0	0.8
620	Health & Social Services	3	11.8	0.6
422	Wholesale - Non-durable goods	1	10.1	0.5
920	Public Administration	2	9.5	0.5
810	Other Services	1	5.1	0.3
710	Accommodation/Food	2	4.4	0.2
520	Fire, Insurance, Real Estate	1	1.8	0.1
540	Professional, Scientific, Technical	1	0.7	0.0



#### **Exit 29 Steering Committee**

Land Use Code		Land Use		Parcels	Acres	Percent Of Total
610	Education			1	0.2	0.0
			TOTAL	219	2,049.7	100.0

Source: Cumberland County GIS

#### Agricultural

With over 68 percent of all land uses, **agricultural land** constitutes the most common land use. (For study purposes, agricultural land was not considered as vacant, or undeveloped.) However, it should be noted that these parcels could develop as residential or nonresidential land uses if they are no longer actively farmed and/or sold. This land would also have to be in a zoning district that permits such uses.

#### Open Space/Vacant Land

In addition to agricultural land is the abundance of **open space** and **vacant land**. Together, these two land use types comprise a significant majority (80.5 percent) of the study area. The extent of undeveloped land and strategic location along the I-81 corridor, coupled with the availability of public water and sewer services translates into significant potential for development. Development of these parcels should be linked with investment in the transportation infrastructure to maintain an efficient flow of people and goods.

#### Residential

Residential land uses constitute the most prevalent developed land use, comprising nearly 9 percent of the study area. Most of the residential development consists of single family dwellings with no public water or sewer. Expansion of the existing sewer and water infrastructure into unserved areas holds potential to increase residential development. A majority of the study area's residential uses are centered on an area south of the interchange in both Southampton and Shippensburg Townships. Significant residential development is expected to continue, particularly in Southampton, where the Township has approved the multi-unit residential developments of Rine Estates, Indian Springs, and the Village of Orchard Hills. The latter represents 450 housing units as part of a new planned retirement community.

# Manufacturing

Manufacturing is the fourth most-common land use. Manufacturing activity is anchored by the presence of Beistle and JLG on Walnut Bottom Road east of the interchange. Traffic related to these enterprises is tied directly to the interchange via PA 174 - Walnut Bottom Road. The construction and potential expansion of ProLogis is an industrial, non-manufacturing use that will consume much of the industrially-zoned land east of the interchange.

#### **Commercial**

A variety of **Commercial Retail and Mixed Use** development is the next most-common land use, yet generates the most trips. Since the development of the Shippensburg Shopping Center in 1984, Walnut Bottom Road has evolved into a regional commercial center, with such retail anchor stores as K-Mart (and now Wal-Mart), fast food, and other traveler conveniences. Much of this land use is centered on Walnut Bottom Road and areas immediately adjacent to the interchange.

The other land uses constitute just under 3 percent of the total study land area.

#### 4.1.2 Existing Zoning

Each study area municipality has adopted a zoning ordinance. Each ordinance permits a range of land uses from agriculture to industrial. Table 2 and Table 3 summarize the requirements for the zoning districts in Southampton and Shippensburg Townships. (Shippensburg Borough, while part of the overall study area, did not have any significant undeveloped parcels to be considered in the evaluation.) The zoning district requirements highlighted in the following tables will have a direct influence on future land uses (and corresponding trip generation) in the greater Exit 29 study area.

Table 2: Southampton Township Zoning District Summary\*

Table 2. countainpoin Township Bonnig Bistice cummary						
District Type	Permitted Uses	Public Water/ Sewer	Minimum Lot Size (Sq. Ft.)	Maximum Building Height	Maximum Lot Coverage / Structure	
	5 11 21	No Water or Sewer	40,000	35	N/A	
Agricultural	Residential	Water only	30,000	35	N/A	
		Sewer only	20,000	35	N/A	
Woodland Conservation	Residential	No Water or Sewer	80,000	40	N/A	
	Residential	No Water or Sewer	40,000	30	N/A	
Village Center	Residential	Water or Sewer	8,400	30	40%	
Commercial	Non- residential	Water & Sewer	N/A	40	25%	
Commercial/Man ufacturing	Non- residential		N/A	60		

Source: Southampton Township Zoning Ordinance

<sup>\*</sup> Southampton adopted the ordinance on November 22, 2004



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Table 3: Shippensburg Township Zoning District Summary

District Type	Permitted Uses	Public Water/ Sewer	Minimum Lot Size (Sq. Ft.)	Maximum Building Height	Maximum Lot Coverage / Structure
		No Water or Sewer	42,000	35	30%
Residential	Residential	Water or Sewer only	18,000	35	30%
		Water & Sewer	10,000	35	30%
Commercial General	Non- residential	Water & Sewer	Enough to accommodate set-back areas	35	70%
Manufacturing General	Non- residential	Water & Sewer	43,560	N/A	60%

Source: Shippensburg Township Zoning Ordinance

The following major developments are currently being considered by the study area municipalities:

- ProLogis Phase 2
- Village of Orchard Hills (450 housing units)
- Hampton Hills Phase II and III (111 housing units)
- Brimdon Hill (480+ housing units)
- Rutters commercial development at intersection of Airport Road/PA 174
- Meadowsgreen Adult Community
- Members First Credit Union
- Wal-Mart fuel pumps
- Shippensburg elementary school.

#### 4.2 Social Environment

#### **EXISTING SOCIAL ENVIRONMENTAL CONDITIONS HIGHLIGHTS**

- During the 1990s, total population growth rates in the study area were higher even than the county rate of 9.3 percent.
- By the 2000 Census, Southampton Township passed Shippensburg Borough to become the study area's most populous municipality. By 2020, the Township is expected to have over 7,600 residents.
- Shippensburg Township was the only study area municipality to experience population decline during the 1990s.
- Nearly two-thirds of all new housing units in the study area created during the 1990s were in Southampton Township.
- Manufacturing is the most significant employment sector in the study area. In Southampton Township, the rate is nearly 25 percent, more than two and a half times the county rate.

Demographic data was another key component of data collection related to existing conditions. Population and employment data were collected for the municipalities using 2000 Census information. Demographic data is a key component of the travel demand modeling process as traffic is a function of both population and employment.

#### 4.2.1 Population

Population growth is a general indicator of a local economy's health and performance over time. Table 4 provides both historic (i.e., 1970-2000) and projected (2000-2020) population trend information for the study area townships and Cumberland County. During the 1990s, population growth in Southampton Township exceeded the county's overall population growth rate of 9.4 percent. Growth in Southampton masked declines in Shippensburg Township for the study area to post an overall population gain of 1,272 residents, or a rate of just over 10 percent. Shippensburg Borough was one of only four Cumberland County boroughs to post modest population gains during the 1990s (the others were Lemoyne, Newburg and Newville).

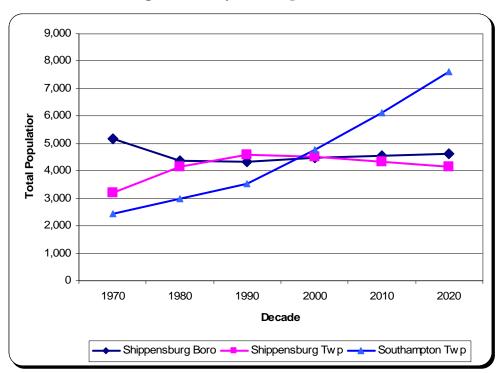
Population projections from BonData show that the area will continue to grow at a moderate rate over the next 20 years. Southampton Township is expected to add an additional 2,800 residents during that time to lead all study area municipalities with a population growth rate of nearly 60 percent. The Township has already overtaken Shippensburg Borough to become the area's largest municipality. By 2020, it is expected to have a total population in excess of 7,600.

Table 4: Historic & Projected Population Change, 1970-2020

Municipality	1970	1980	1990	2000	2010	2020	Percent Change, 90-00	Percent Change, 00-20
Shippensburg Borough	5,172	4,376	4,328	4,467	4,548	4,618	3.2	3.4
Shippensburg Township	3,198	4,136	4,606	4,504	4,339	4,150	(2.2)	(7.8)
Southampton Township	2,451	3,004	3,552	4,787	6,123	7,630	34.8	59.4
Total	10,821	11,516	12,486	13,758	15,010	16,398	10.2	19.2
Cumberland County	158,177	179,625	195,257	213,674	232,521	252,564	9.4	18.2

Source: U.S. Census Bureau

Figure 2: Study Area Population Growth Rates



Source: U.S. Census Bureau

#### 4.2.2 Age Group Distribution

A key factor affecting the study area's population growth is the *distribution* of the total population according to the age of the residents. The size and distribution of each age group directly relates to the future growth and stability of the community.



#### **Exit 29 Steering Committee**

A descriptive analysis of the age groups for each study area municipalities is presented in Table 5. The young adult age group holds the largest share of the study area's household formations. This is also the prime childbearing age group. Therefore, any decline in the number of persons within this age group will directly impact the area's birth rate. Furthermore, this age group represents the population cohort that comprises most of the local labor force and is most likely engaged in home buying or building activities.

According to data from the 2000 Census, Southampton Township has over half (55 percent) of the study area's mature adult population, while Shippensburg Borough has nearly half (47 percent) of the study area population over age 65. The largest age groups in Shippensburg Township are those between the ages of 15 and 24. Although not shown in Table 5, much of Shippensburg Township's population losses during the 1990s came primarily from younger age groups (e.g., ages 5-34).

Table 5: Study Area Population by Age Group, 2000

A O	Shippensburg	Shippensburg	Southampton						
Age Group	Boro	Twp	Twp	Total					
School Age Population									
< 5	184	120	297	601					
5-14	405	152	903	1,460					
15-19	284	1,636	360	2,280					
	You	ang Adult Populat	ion						
20-24	1,343	1,525	236	3,104					
25-34	542	222	634	1,398					
35-44	420	253	783	1,456					
	Mat	ure Adult Populat	tion						
45-54	391	239	749	1,379					
55-59	97	41	230	368					
60-64	156	54	216	426					
Senior Age Group									
65-74	334	168	304	806					
75-84	219	91	89	399					
85+	98	53	19	170					

Source: U.S. Census Bureau

#### 4.2.3 Housing Unit Growth

In addition to population growth, the study area also added nearly 760 new housing units during the 1990s. This rate of growth (19 percent) exceeded the county's growth rate of approximately 13 percent. Growth in total housing units was strongest in Southampton Township, where nearly 500 units were added to the Township's housing stock. Clearly, a continuation of this trend places further demands on land and the transportation system. Table 6 and Figure 3 provide more information on change in housing unit growth in the study area during the 1990s.

Municipality	1990	2000	Cha	nge
Wullicipality	1990	2000	#	%
Shippensburg Boro	1,903	2,093	190	10.0
Shippensburg Twp	864	938	74	8.6
Southampton Twp	1,253	1,748	495	39.5
Study Area	4,020	4,779	759	18.9
<b>Cumberland County</b>	77,108	86,951	9,843	12.8

45 39.5 40 35 30 Percent Change 25 18.8 20 15 12.8 10.0 8.6 10 6.3 5 Shippensburg Shippensburg Southampton Study Area Cumberland Pennsylvania borough township township County

Figure 3: Housing Unit Growth Rate, 1990-2000

#### 4.2.4 Resident Employment by Industry

Resident employment is defined as all persons 16 years of age and older that are employed within a specified geographic area. This excludes those serving in the armed forces. Like the general population, the resident employment patterns identify the types and predominance of the major industry sectors in a given area.

The most current resident employment data for the study area municipalities and Cumberland County was collected from the 2000 Census and is presented in Table 7. This data reveals the resident employment of study area municipalities against county averages. To this end, the greatest proportions of study area residents are employed in the manufacturing sector of the economy. The area also has a greater share of those employed in education, health, and social service sectors as compared to the county as a whole. Additionally, a greater proportion (6 percent) of Southampton Township's residents are employed in the agricultural sector than in Cumberland County (1.4 percent).

Table 7: Employment Distribution by Industry Type, 2000

Industry	Shippensburg Boro		Shippensburg Twp		Southampton Twp		Cumberland County	
•	#	%	#	. %	#	%	#	%
Agriculture, Forestry, Fishing	15	0.8	8	0.5	125	5.9	1,405	1.4
Construction	110	5.8	36	2.5	184	8.7	5,929	6.0
Manufacturing	260	13.6	176	12.3	523	24.6	10,734	10.8
Wholesale Trade	28	1.5	19	1.3	52	2.4	4,008	4.0
Retail Trade	342	18.0	248	17.3	210	9.9	13,166	13.2
FIRE	72	3.8	29	2.0	113	5.3	8,716	8.8
Pub. Admin.	131	6.9	56	3.9	152	7.2	10,691	10.8
Transportation/ Warehousing, Util	52	2.7	47	3.2	151	7.2	7,283	7.3
Other Services	138	7.2	73	5.1	68	3.2	5,223	5.2
Education/ Health, Social Services	580	30.4	611	42.8	445	20.9	20,575	20.8
Professional, Scientific, Mgmt	179	9.4	126	8.8	102	4.8	11,426	11.5

Source: U.S. Census Bureau

#### 4.3 Existing Transportation Conditions

#### **EXISTING TRANSPORTATION CONDITIONS HIGHLIGHTS**

- Traffic volumes on Walnut Bottom Road range from 3,340 at Lees Cross Road to a high of approximately 14,000 immediately east of Airport Road. The busiest intersection in the study area is Walnut Bottom Road's intersection with US 11, where PM Peak Hour volumes are as high as 2,000.
- Tri-County Regional Planning Commission's travel demand model data indicates that Walnut Bottom Road west of Exit 29 will have an annual average of daily traffic level (AADT) of over 40,000 in 2030.
- Traffic engineers have noted access management as an important issue to be addressed throughout the Walnut Bottom Road corridor.

#### 4.3.1 Transportation System Data Collection Methodology

Transportation system data was collected through direct observations. Twenty-four hour automatic traffic counts and peak hour turning movement counts were conducted at key locations. The automatic traffic counts were conducted with "tubes" that count cars as they roll over the counter. The turning movement counts were taken manually where observed turning movements for the peak hour were counted and recorded.

The following locations were part of the traffic counting program for the study:

#### Twenty-four Hour ADT Count Locations:

- US 11 just south of PA 533
- US 11 just south of PA 174
- PA 174 just east of US 11
- PA 174 just east of Airport Road
- PA 174 just east of I-81
- PA 174 just east of Lees Cross Road
- Airport Road south of PA 174.

#### **Intersection Count Locations:**

- US 11 at PA 174
- PA 174 at Cramer Road
- PA 174 ay Hershey Road
- PA 174 at Strohm Road (Lees Cross Road).



#### 4.3.2 Existing and Projected Traffic Conditions

Existing traffic conditions were summarized directly from the Tri-County Regional Planning Commission's (TCRPC) travel demand model 2002 base year. The model has been updated in 2004 using land use information gathered from the 2000 census.

The TCRPC travel demand model also includes 2030 base traffic projection. These forecasted traffic volumes are a result of several assumptions about future population and employment growth in the region and the impact this growth is expected to have on the highway network. The assumptions for this growth are a result of the TCRPC's review of local and county comprehensive plans and other land use data.

The network is assumed to include committed projects such as those from the regional Transportation Improvement Program (TIP). The result of the expected traffic in 2030 on the network results in the estimated impact on the system in the future. The existing (2002) and 2030 base forecast traffic volumes are shown below in Figure 4.

2030 Daily Forecast Existing Daily Volume (2002) **Base Conditions** WB/SB EB/NB Total WB/SB EB/NB Total Segment 14,120 14,073 28,193 PA 174 West of I-81 20,024 20,223 40,247 6,689 PA 174 East of I-81 4,376 4,142 8,518 6,386 13,075 PA 533 North of US 11 3,746 3,550 7,296 4,001 4,276 8,277 N/A N/A N/A PA 533 Ext. Btwn. US 11 and PA 174 N/A "Inner Loop" Btwn. PA 174 and Queen St.  $\overline{N/A}$ N/A N/A N/A 8,522 9,094 17,616 12,959 14,583 27,542 US 11 North of PA 174 PA 174 East of US 11 8,723 8,346 17,069 9,657 9,122 18,779 Queen Street Btwn. US 11 and the "Inner Loop" 3,190 5,928 5,244 4,249 9,493 Baltimore Rd. East of I-81 2,738 3,190 5,928 5,244 4,249 9,493

Figure 4: Current (2002) and 2030 Base Traffic Volumes 5

The results show that the network is expected to grow as much as 60 percent on certain segments. These segments are primarily those adjacent to the I-81 interchange where the majority of the population and employment growth to the year 2030 is expected to occur. The estimated growth rates are shown in Table 8 below.

<sup>&</sup>lt;sup>5</sup> The table refers to the "Inner Loop" which is part of a scenario analysis described later in this report.



Table 8: Percent Change, 2002-2030 Base Year

Segment	Percent Change 2002-2030 Base
PA 174 west of I-81	43
PA 174 east of I-81	53
PA 533 north of US 11	13
US 11 north of PA 174	56
PA 174 east of US 11	10
Queen Street btw US 11 and "Inner Loop"	60
Baltimore Rd east of I-81	60

Source: TCRPC TDM; Gannett Fleming

#### 4.3.3 Evaluating Trip Distribution

As discussed earlier the study team used the Tri-County Regional Planning Commission's regional travel demand model (TDM) in estimating the distribution of future trips. Cumberland County (including the Exit 29 study area) is included within the geographic limits of this analysis tool. The TDM gives planners the ability to perform "what if" analyses, showing the diversion of future traffic based on proposed transportation improvements. Given this capability and through discussions with study steering committee members and public meeting output, the team tested two area transportation improvements with the TCRPC TDM:

- The "Inner Loop" connector between Baltimore Road and Walnut Bottom Road.
- The "Inner Loop" connector described above, with an extension to US 11 at PA 533.

As an evaluation tool, the TDM gives planners and decision-makers a general sense of the relative impact and magnitude of traffic diversion as a result of recommended improvements. The impact analyses of both improvement scenarios are described below.

#### Exit 29 Area Inner Loop Connector

For study purposes, the study team modeled the "Inner Loop" Connector as a direct connection of PA 174 and Queen Street to the west of I-81 via a two-lane road with "T" intersections at PA 174 and Queen Street. Table 9 shows the local traffic pattern changes that can be expected in the year 2030 as a result of such a connection. Despite the extent of the model effort, area

<sup>&</sup>lt;sup>6</sup> The possibility of extending the "Inner Loop" connector at PA 174 (Walnut Bottom Road) further south beyond SR3001 (Queen St.) could not be performed using the Tri-County model, as it currently exists. In order to develop reliable forecasts for such analysis, the modeled area represented in the Tri-County model would need to be expanded, at least to the next southern interchange of I-81. Additionally, a more refined roadway network would need to be developed to allow for accurate vehicle assignments. Lastly, the model would need to be re-validated and adjusted accordingly in order to develop meaningful and reliable forecasts. In summary, evaluating



officials ultimately envision the "Inner Loop" as a roadway connecting PA 174 - Walnut Bottom Road with PA 696 - Fayette Street in Shippensburg Borough.

Table 9: Daily Traffic Volumes: 2030 Base vs. 2030 w/Inner Loop

		Daily Forec			aily Forecast	
Segment _	WB/SB	se Condition EB/NB	s Total	WB/SB	Loop Conne EB/NB	Ctor Total
PA 174 west of I-81	20,024	20,223	40,247	27,920	27,034	54,954
PA 174 east of I-81	6,386	6,689	13,075	3,256	3,579	6,835
PA 533 north of US 11	4,001	4,276	8,277	4,182	4,448	8,630
"Inner Loop" btw PA 174 and Queen Street	N/A	N/A		13,398	12,030	25,428
US 11 north of PA 174	12,959	14,583	27,542	9,919	11,526	21,445
PA 174 east of US 11	9,657	9,122	18,779	8,486	8,550	17,036
Queen St btw US 11 and "Inner Loop"	5,244	4,249	9,493	9,993	8,718	18,711
Balt. Rd east of I-81	5,244	4,249	9,493	5,527	5,620	11,147

Source: TCRPC TDM; Gannett Fleming

The addition of the "Inner Loop" would have the effect of diverting vehicles from the PA 174 and US 11 intersection to South Queen Street. The new connector would be heavily used by about 25,500 vehicles daily and would be expected to alleviate some of the expected 2030 traffic from US 11 and PA 174 between the connector and US 11. South Queen Street, however, would expect a significant increase in traffic between the connector and US 11.

Table 10 shows the percent change in traffic of the Inner Loop concept compared to current conditions and the 2030 forecasts under existing conditions for each analysis roadway segment.

Table 10: Percent Change: 2030 Base vs. 2030 w/"Inner Loop" connector

Segment	Percent Change 2002 vs. 2030 W/"Inner Loop"	Percent Change 2030 Base vs. 2030 W/"Inner Loop"
PA 174 west of I-81	95	37
PA 174 east of I-81	(20)	(48)
PA 533 north of US 11	18	4
"Inner Loop" btw PA 174 and Queen St	N/A	N/A
US 11 north of PA 174	22	(22)
PA 174 east of US 11	0	(9)
Queen St btw US 11 and "Inner Loop"	216	97
Balt. Rd east of I-81	88	17

Source: TCRPC TDM; Gannett Fleming

the effects of an extension of the "Inner Loop" connector can performed only after cordon expansion, and re-validation of the Tri-County model is completed.



This analysis reveals that if the "Inner Loop" were constructed more travelers on US 11 would be expected to remain on I-81 until exit 29 where the "Inner Loop" would allow them to reach there destination more quickly. US 11 traffic is expected to be less however there is still a fair amount of traffic even given this connector option (approximately 21,500 vehicles).

#### "Inner Loop" Connector with PA 533 Extension

Just as above, this alternative would provide a direct connection of PA 174 and Queen Street to the west of I-81 via a two-lane road. But this alternative also includes an extension of PA 533 to meet with the intersection of the "Inner Loop" and PA 174. Both sections would be a two-lane road with a "T" intersection at "Inner Loop" connector and Queen Street and a 4-way intersection at PA 533 & US 11 and "Inner Loop" & PA 174. Table 11 below shows local traffic pattern changes with the construction of such an improvement.

Table 11: Daily Traffic Volumes: 2030 Base vs. 2030 w/Inner Loop and PA 533 Extension

		Daily Forectse Condition		2030 Daily Forecast With Inner Loop/PA 533 Ext		
Segment	WB/SB	EB/NB	TOTAL	WB/SB	EB/NB	TOTAL
PA 174 west of I-81	20,024	20,223	40,247	28,603	29,490	58,093
PA 174 east of I-81	6,386	6,689	13,075	1,626	2,741	4,367
PA 533 north of US 11	4,001	4,276	8,277	7,675	6,813	14,488
PA 533 Extension btw US 11 and PA 174	N/A	N/A		5,782	4,907	10,689
"Inner Loop" btw PA 174 and Queen Street	N/A	N/A		11,962	11,380	23,342
US 11 north of PA 174	12,959	14,583	27,542	9,624	9,936	19,560
PA 174 east of US 11	9,657	9,122	18,779	6,232	6,448	12,680
Queen St btw US 11 and "Inner Loop"	5,244	4,249	9,493	8,370	7,942	16,312
Balt. Rd east of I-81	5,244	4,249	9,493	5,488	5,641	11,129

Source: TCRPC TDM; Gannett Fleming

This alternative would have similar usage of the "Inner Loop" but in connection with the extension of PA 533 would work as a Shippensburg by-pass from traffic coming from and going to the north. A few indicators of this include:

- Increased usage of the PA 533 Extension and the "Inner Loop" connector road
- Reduced traffic on US 11 south of PA 533
- Increased usage of PA 533 west of US 11
- Decreased usage of PA 174 east of US 11
- Slightly less usage of South Queen Street between US 11 and the connector road (relative to Alternative 5).



Table 12 below shows the percent change in traffic of this concept compared to the current conditions and the 2030 forecasts under existing conditions for each analysis roadway segment.

Table 12: Percent Change: 2030 Base vs. 2030 w/"Inner Loop" connector and PA 533

Extension

Segment	Percent Change 2002 vs. 2030 Alternative	Percent Change 2030 Base vs. 2030 Alternative
PA 174 west of I-81	106	44
PA 174 east of I-81	(49)	(67)
PA 533 north of US 11	99	75
PA 533 Extension btw US 11 and PA 174	N/A	N/A
"Inner Loop" btw PA 174 and Queen St	N/A	N/A
US 11 north of PA 174	11	(29)
PA 174 east of US 11	(26)	(32)
Queen St btw US 11 and "Inner Loop"	175	72
Balt. Rd east of I-81	88	17

Source: TCRPC TDM; Gannett Fleming

Just as the previous alternative without the PA 533 connection, this analysis reveals that if the "Inner Loop" were constructed more travelers would exit/enter I-81 at Exit 29. Localized traffic on PA 174, PA 533, and Queen Street between I-81 and the Borough would be expected to increase if this alternative were pursued.

#### 4.3.4 Corridor Safety Audit

The study team conducted a Safety Audit Stage 5, Operation/Existing Roads of the study area's primary roadways, including US 11 and Walnut Bottom Road. The following points were noted as part of this audit:

#### PA 174 - Walnut Bottom Road

- Severe rutting on shoulder of pavement was observed. This is severe to the extent that the bottom of low-riding cars will scrape the pavement if they travel over this point.
- Turn-Down guiderail exists on both sides of the roadway on bridge approach. This is done with and without curbing. This type of guiderail end is discouraged, and efforts have been made in many areas to replace them with crash cushions.
- An eroded area was noted around a drainage pipe, very close to the edge of the roadway. Some of the shoulder pavement has been eroded away. This may negatively affect bicycle traffic using the shoulder.
- Numerous unprotected headwalls and ditches were noted. The ideal remedy would be the construction of a closed drainage system.
- A sharp crest curve with limited sight distance was noted. There are also driveways in this area, which can have difficulty accessing the roadway due to limited sight distance.

Ideally, these three short vertical curves could be replaced with one long crest vertical curve.

 Access management was noted as an issue throughout the Walnut Bottom Road corridor. Long areas of open access to businesses along the roadway were noted. It would be ideal for consolidated access points with driveways defined by curbing.

#### US 11 - Ritner Highway

- Turn-Down guiderail end treatments were observed.
- Rutting in travel lanes at the intersection with PA 174 were observed.
- No lighting exists at local intersections.

#### 4.4 Economic Assessment

The consultant team utilized IMPLAN software to measure some of the economic effects of proposed land development projects within the study area. The IMPLAN model uses data from 2001 to calculate impacts. Data collected for input into the model was either measured in 2001 dollars, or scaled back to 2001 dollars as appropriate. Final impacts are reported in 2004 dollars.

The economic impact assessment yields estimates of the number of new permanent jobs that will be created by each development component at each interchange, as well as the compensation associated with those jobs that will be added to the local economy.

In addition to the permanent jobs created, each development project will also create temporary jobs during its construction phase. The assessment estimates the number of construction jobs created and related compensation.

The assessment also identifies the "ripple effects" of the new economic activity related to increased inter-industry spending, as well as increased household spending as a result of the new job creations.

Components of the Exit 29 development scenario include:

- The 1500-seat Shippensburg University Performing Arts Center
- The 1.4 million square-foot ProLogis Warehouse facility
- The 155,530 square-foot Wal-Mart SuperCenter
- A convenience market with 16 gas pumps
- Approximately 32,000 square feet of retail shops and food service businesses.

#### **Construction Phase**

Construction costs were estimated for each component of the development scenario.



Table 13: Development Scenario Construction Costs

Development Component	Construction Cost	Construction Year
Shippensburg Arts Center	\$22,131,960	2004
ProLogis Warehouse	\$49,000,000	2004
Wal-Mart SuperCenter	\$13, 175,000	2004
Convenience mart/gas station	\$400,000	2004
Retail/food service businesses	\$2,720,000	2004
TOTAL	\$87,426,960	

Source: IMPLAN; Gannett Fleming

#### **Operations Phase**

It was assumed that the Shippensburg University Performing Arts Center would have an annual operating budget of approximately \$275,000 (Ebersole 2004).

In similar studies, warehouses have been estimated to create approximately one job per 1000 sq. ft. of space (MIG, Inc. 2004). Therefore, the ProLogis facility was assumed to support approximately 1,400 permanent jobs.

Data on 2001 retail sales per square foot at Wal-Mart was collected from Lehman Brothers Global Equity Research (<u>www.lehman.com</u>). The sales per square foot estimate (\$408) was multiplied by 155,530 sq. ft. to produce an estimate of total annual sales at the new Wal-Mart (\$63,456,240 in 2001 dollars).

It was assumed that the convenience mart/gas station would be similar to an average store of the Pennsylvania-based chain, Sheetz Inc. Data on 2003 per-store sales was collected from Sheetz, Inc. and converted to 2001 dollars (<a href="www.sheetz.com">www.sheetz.com</a>).

No decisions have been made as to what businesses would occupy the 32,000 sq. ft. of retail space available. For the purposes of the analysis, the retail space was organized into the following mix:

Table 14: Retail Space Assumptions

Square Footage	Economic Sector			
13,500	Food service and drinking places			
9,000	Miscellaneous store retailers			
3,000	Food and beverage stores			
3,500	Video tape and disc rental			
3,000	Sporting goods/hobby/book/music stores			
32,000	TOTAL			

#### **Exit 29 Steering Committee**

This retail mix was estimated using similar plazas in the region as a guide, including Silver Spring Commons in Silver Spring Township.

Data on 2001 retail sales per square foot, by store type, was collected from the International Council of Shopping Centers (ICSC). This data was combined with the assumed retail mix to produce an estimate of total annual sales at the future plaza (\$10,536,500 in 2001 dollars).

While the assumed retail mix was created as a "best guess" about the type of stores that will be present, the actual mix may vary from the assumptions. However, the assumed mix should be a reasonable proxy for the actual mix that will occur. In addition, the total sales estimate using the assumed retail mix was within 2% of an estimate that multiplied 32,000 sq. ft by the ICSC overall average retail sales per sq. ft. (\$336). The project team chose to use the assumed mix sales estimate for analysis, as it represents a more specific picture of what will likely occur in comparison to the average estimate. However, the two estimates are very close in magnitude, and using either would produce highly similar results.

#### Results

**Direct effects** result directly from consumers' purchases at a new business. To meet consumers' demand for goods and services, the new business must purchase supplies. These purchases are the direct effects. Direct effects can be expressed either as output generated (sales) or as the number of jobs created at the new business. **Indirect effects** occur when the suppliers to the new local business must increase their purchases from other businesses. An example of an indirect effect would be a farmer buying an additional tractor because a new local restaurant wants to purchase produce from his farm. The restaurant's produce purchase is a first round, or direct effect, and the farmer's tractor purchase is a second-round, or indirect effect, of the new restaurant.

**Induced effects** result from increased income paid to households by both directly and indirectly affected businesses. An induced effect occurs when this increased income is spent on other goods and services. For example, with the additional income the farmer accrues from selling his produce to the new restaurant, he may decide to buy a sports car. Similarly, a waiter at the new restaurant may use a portion of his new salary to enroll in a college course. The purchases of the sports car and the college tuition both represent induced effects of the new restaurant.

The construction and operation of the Arts Center, warehouse and new retail and foodservice businesses will create direct, indirect and induced effects. The IMPLAN model was used to measure these effects, and the results, expressed as number of jobs created, are presented in the tables below. It is important to note that the jobs resulting from construction are *temporary*, and will last only until construction is complete. The jobs created from the operation of the new businesses will be *permanent* (assuming the business continues to operate). Also, the IMPLAN model does not report jobs in full time equivalents (FTE). In other words, the number of jobs in the tables below *includes both part-time and full-time jobs*.

The model shows that the construction at Exit 29 will create approximately 1,082 temporary construction jobs. According to the model, a construction worker in Cumberland County earns, on average, \$40,967 per year when adjusted to 2004 dollars.

Table 15: Temporary Jobs Created

Development Component	Number Of Construction Jobs
Shippensburg Arts Center	258
ProLogis Warehouse	633
Wal-Mart SuperCenter	154
Retail center (including gas station)	37
TOTAL	1082

Table 16: Multiplier Effects of Construction

Development	No. Of Temporary Jobs				
Component	Indirect	Induced	Total		
Shippensburg Arts Center	97	92	189		
ProLogis Warehouse	138	206	344		
Wal-mart SuperCenter	58	55	113		
Retail center (including gas station)	14	13	27		
TOTAL	307	366	673		

The model also shows that the construction will create 307 indirect and 366 induced jobs. Because the indirect and induced employment from the construction encompasses so many economic sectors, the model only reports average employee compensation, not earnings, for indirect and induced jobs. Employee compensation differs from earnings in that it includes benefits such as health and life insurance, retirement payments, and non-cash compensation. Therefore, employee compensation will be significantly higher than a worker's actual earnings. For the indirect and induced employment resulting from construction, average employee compensation will be \$30,046 and \$25,577, respectively.

Table 17: Permanent Jobs Created, by Economic Sector

		Number Of Jobs Per Economic Sector							
Development Component	Retail Trade	Real Estate/ Rental/ Leasing	Accommodation & Food Services	Other Federal Gov't Enterprises	W'housing & Storage	Arts, Entertainment & Recreation	TOTAL		
Shippensburg Arts Center						21	21		
ProLogis Warehouse					1,400		1,400		
Wal-Mart	417			5			422		
Retail center (including service station)	65	48	130				243		

Source: IMPLAN, Gannett Fleming

The table above shows that the development at Exit 29 would directly result in the creation of approximately 2,086 permanent jobs (including full- and part-time positions). The majority of these jobs will be in the warehousing and retail sectors. On average, workers at these jobs will earn approximately \$33,220, as shown in the table below. However, average earnings vary significantly between economic sectors.

Table 18: Exit 29: Average Earnings, Direct Employment

Economic Sector	Average Earnings Per Worker (2004 Dollars)
Retail Trade	\$20,300
Real Estate/ Rental/Leasing	\$8,100
Accommodation and Food Services	\$17,110
Other Federal Gov't Enterprises	\$59,210
Warehousing and Storage	\$40,340
Arts, Entertainment, and Recreation	\$6,380
ALL SECTORS	\$33,220

The development at Exit 29 will also create approximately 209 indirect and 485 induced jobs.

Table 19: Multiplier Effects, Operations Phase

Development	No. Of Permanent Jobs				
Component	Indirect	Induced	Total		
Shippensburg Arts Center	1	1	2		
ProLogis Warehouse	132	386	518		
Wal-Mart	46	66	112		
Retail center (including gas station)	30	32	62		
TOTAL	209	485	694		

Average employee compensation from the indirect and induced employment will be \$28,870 and \$27,220, respectively.

# **Discussion**

The model results show substantial job creation, but must be put into careful context. The model shows simply the level of employment required to sustain the new development. It does not consider the new development's impact on existing businesses. In other words, the model assumes that all the spending at the interchange development is *new* spending, as opposed to *transferred* spending from elsewhere in the region. For the new warehouse, this is likely an accurate assumption. The warehouse probably represents new growth in light industry for the region, and will not take business away from warehouses already in existence. However, a substantial portion of the retail spending may represent a transfer from other shopping areas within or outside Cumberland County.

From Cumberland County's perspective, shifting spending from shopping plazas outside the County to shopping plazas inside the County is a positive impact in that it provides tax revenue and prevents leakages. Leakages are any payments made to goods and services imported from outside the County which do not in turn re-spend the dollars within the County.

The County should be indifferent, however, to spending transferred from one area of the county to another, as it does not represent new growth. Further, spending transferred from surrounding counties to Cumberland may represent job growth within Cumberland County, but job loss in surrounding counties. Cumberland County residents may be employed in these surrounding counties, so transferred spending may merely represent job transfer for these residents.

Therefore, the number of jobs created in the model results represents a **maximum**. The reality is that the number of actual net *new* jobs is likely lower.

# 5.0 Public Involvement

# **PUBLIC INVOLVEMENT HIGHLIGHTS**

- The study steering committee hosted the first public meeting, which was held at the South Newton Fire Hall on May 27, 2004.
- Public perception is that the dramatic growth the area has experienced over the past several years is expected to continue.
- The public believes that warehousing and distribution activities are the most likely to develop in the study area; however, the most desired future development includes commercial retail, agricultural, or no development at all.
- Improving safety and reducing congestion are two top public concerns for the area.
- Public preferences dictate that future development should be oriented around an improved Exit 29.
- Participants at the April 27, 2005 public meeting (P.I. #2) affirmed the draft study recommendations.

# 5.1 Public Involvement 1

This summary covers the key results from the study's first public meeting, which was held on May 27, 2004 at the South Newton Fire Hall.

The Cumberland County Planning Commission held the open house to introduce the study to the general public. The public's input on the existing and future land uses and transportation system issues affecting the Exit 29 study area was received.

All landowners in the study area received a personalized meeting invitation. A meeting advertisement was also placed in the local newspaper and was announced on a local television station.

The consultant team delivered two formal presentations at the open house. Before and after the presentations, meeting attendees were joined in informal groups at work stations in the fire hall to discuss their ideas, concerns and opinions regarding the existing and future development issues. The planning team facilitated and recorded comments at the work stations. An exit survey was also distributed to capture meeting attendee comments on study issues. Public input was subsequently used to develop study recommendations. Key exit survey results are summarized below. A sample of the survey instrument and complete results can be found in the report appendix.

# 5.1.1 Exit Survey Results

The survey provided a good representation of the study area residents and land owners. All three municipalities in the study area were represented equally in the survey results.

When asked to express preferences for future land use by development type for the study area, participants' responses were mixed. Commercial retail ranked as the highest development preference, with no new development a close second. Warehousing distribution and industrial ranked as the least desirable.

In contrast, when survey participants were asked what type of development they *think* will occur in the Exit 29 study area, a majority identified warehousing distribution as the primary development type.

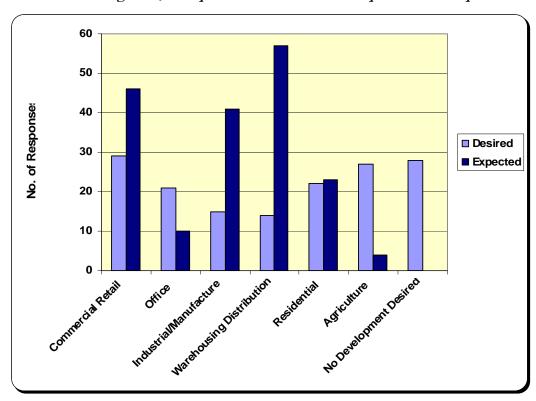


Figure 5; Comparison of Desired vs. Expected Development

Source: Exit 29 Public Meeting #1, May 27, 2004

# **5.1.2 Work Station Summary**

The following highlights common themes expressed at the public meeting:

# **Quality of Life**

- Rural preservation is important; preserve the small town feel of the area
- Interchange area quality of life issues include:
  - o Improving safety



- o Preserving green space
- o Accommodating bicycle/pedestrian travel
- o Planning for the future performance of the interchange.

# Turning Movements/Turning Lanes

 It is difficult to turn onto Walnut Bottom Road from Hershey Road and Cramer Road during peak periods. Industrial and commercial development needs to be limited to a small area around Exit 29.

• Turning left into K-Mart from Walnut Bottom Road is difficult during peak periods.

## Site Distances

• Goodhart Road - needs hill taken off with hidden driveways.

## Traffic

- Increasing truck traffic volumes are a concern east of the interchange, particularly in the Village of Lees Cross Road.
- Explore commercial motor carrier traffic limits east of JLG.
- Possible future use of NS railroad for truck traffic alleviation.
- Baltimore Road is too narrow.
- Access ramps to I-81 from Walnut Bottom Road are too short visibility is also a problem.
- Use of Kline Road has increased with speeding motorists.
- The performance of the intersection of US 11 and Walnut Bottom Road is poor, especially during special events at the University.
- Signalize the on- and off-ramps to I-81 on Walnut Bottom Road.

# Pedestrian and Bicycles

- Place share the road signs on the roadway, in particular along Walnut Bottom Road east of the interchange.
- Improve bicycle and pedestrian accommodation along the developing commercial areas along Walnut Bottom Road, particularly between US 11 and Airport Road.

# Speed Limits, Signals and Other Safety Concerns

- Keep truckers off Walnut Bottom Rd. make it a historical road and save the homes along the Walnut Bottom Rd. and the people who live there.
- The whole area will be a nightmare with the coming of Wal-Mart and adjacent businesses; the area will need more signals and turning lanes.



# **Exit 29 Steering Committee**

- The area needs a stronger police presence.
- Safety is an issue for busing/transporting students to the new educational campus at James Bard School.
- Bicycle use on almost any of the existing roads is very dangerous.
- Concerned with safety for Mennonite horse travel especially if higher commercial usage/trans. envisioned; their lifestyle should not be hampered.

# 5.1.3 **P.I. #1 Summary**

The study area participants are to be commended for their outstanding participation and wealth of good ideas and community spirit. The overall direction of these findings is positive:

This is still a picturesque, rural area...

Keep it that way!

- Comment received at first Public Meeting

- 1. The study area is experiencing growth with associated problems and challenges.
- 2. The study area participants, however, are prepared to face these challenges and recognized the need for a more proactive, planned approach to development.
- 3. What participants want in the study area and what they believe will happen are different. This illustrates that residents do not believe they have a say in community planning.
- 4. That approach can be achieved by going forward in this planning process and beyond to:
  - a. Properly balance the goals of development and quality of life preservation
  - b. Address traffic and safety problems
  - c. Focus development in certain areas that better mesh with available infrastructure and that conflict less with residential areas and other protected land uses (e.g., open space).
  - d. Opportunities for innovation abound—including more cooperative efforts with developers and others for funding regional-scale transportation improvements in generally supporting the emerging vision.
  - e. Continue to build on the great public spirit in completing and implementing the study recommendations.

# 5.2 Public Involvement 2

The study steering committee held a second open house on April 27, 2005. Southampton Township hosted the meeting, which followed the same format as the previous open house, with doors opening at 5:00 and formal presentations at 5:30 and 7:30 PM. As before, the session included the use of an exit survey. There were approximately two dozen public participants. A copy of the slide presentation, as well as the exit survey instrument is included in the report appendix.

# **Exit 29 Steering Committee**

While the first survey focused on general conditions and public preferences, the survey for the second public meeting focused on specific items that could assist the study area in shaping its future. It solicited public perspectives on topics related to zoning, ordinances, priorities, and other specific questions regarding future development and land use controls. Results from the 16 surveys that were submitted are presented below; the complete results can be found in the appendix.

Draft recommendations registering some degree of agreement (percent indicating either strongly agree/agree/ somewhat agree) include:

I-81 Interchanges: Land Use, Economic Development & Transportation Study

**WELCOME!** 

Public Meeting Wednesday, April 27, 2005

Southampton Township Bldg



- 100% Reconstruct Exit 29
- 100% Extend PA 533 from US 11 to PA 174
- 88% Reconfigure intersections of PA 174 with Hershey and Cramer Rds
- 88% Burd Run Greenway
- 82% Develop an Official Map
- 81% Construct the "Inner Loop Connector"
- 81% Implement access management provisions along PA 174
- 76% Create new Office zoning district
- 76% Create a Transportation Development District (TDD)
- 76% Construct a Park and Ride
- 76% Preserve industrially-zoned parcels
- 75% Create new medium density residential district
- 75% Accommodate bicycles/pedestrians along PA 174
- 69% Revise allowable uses in Commercial-General district
- 37% Reduce maximum building coverage to 40 percent.

Recommendations registering the highest percentage of those indicating "Strongly Agree" only:

- 69% Reconstruct Exit 29
- 69% Improve bicycle/pedestrian accommodation along PA 174
- 50% Develop an Official Map

No recommendations recorded more than 1 survey respondent selecting "Strongly Disagree".

A majority of survey respondents (44 percent) were from Southampton Township, with the rest evenly distributed between Shippensburg Township and Shippensburg Borough.

# 6.0 Development of Recommendations

Community development changes can have significant transportation impacts. To evaluate land use development options for the study area, the study team examined different potential development program options to determine the relative varied impacts on the roadway network. This testing allows decision makers to understand the consequences of zoning decisions and their resultant impact on the highway network.<sup>7</sup>

The study team identified the study area parcels that were "in play" and the respective zoning district information regulating each. From this information, the team developed a "worst case scenario", in which each property would be developed to its fullest potential as allowed by the local zoning ordinance.

# 6.1.1 Evaluating Trip Generation

Based on the results of steering committee meetings and public involvement, the study team evaluated the impact of differing land uses as they related to trip generation. As part of the evaluation, the study team organized the study area into 5 Traffic Analysis Zones, or TAZs for modeling and evaluating study area traffic patterns.

According to the current land use and zoning regulations in the study area, a total of 2,981 single family housing units could potentially be built. A total of 4.8 million leasable square feet of warehouse space is also expected to be developed. Most significantly, a total of 8.2 million leasable square feet of commercial retail development is proposed. The evening peak hour traffic volumes for future years 2020 and 2030 were generated and analyzed.<sup>8</sup>

Table 20 shows the results on total trip generation if existing undeveloped parcels would be permitted to develop to the maximum densities allowed under current zoning ordinances.

generated will be internal trips or trips that will have an origin and destination within the TAZ. This can be conservatively assumed because of the interaction that will exist between the different land uses included in the study area. Therefore, the trip generation was reduced by 15 percent to account for internal trips.



<sup>&</sup>lt;sup>7</sup> The actual recommendations themselves are found in the following section titled: "Choices for our Future"

It should be noted that due to the preliminary nature of the developments and trip generation rate limitations (i.e., trip generation rates are only available for certain units such as leasable square footage in the case of commercial developments and not for total building area) the sizes of the commercial developments were adjusted from maximum building square footage to leasable square footage. This was done by reducing the maximum building square footage by 33 percent for commercial buildings and by ten percent for the industrial and warehouse developments.

In addition, the trip generation presented in Table 1 assumes that 15 percent of the trips

Table 20: Trip Generation from Proposed Developments<sup>9</sup>

	Trip Generatio	n Informati	ion	New Trips Generated					
TAZ#	Type	#	Units	Daily _	PM Peak				
	туре	#	Units	Total	Total	In	Out		
	General Commercial	3,187	SQ FT	116,306	10,157	4,875	5,282		
	SF Detached	188	UNITS	1,530	162	102	162		
1	SF Semi-Detached	1,247	UNITS	10,144	1,070	674	1,070		
	SF Homes	34	UNITS	276	29	18	29		
	Warehouse	1,260	SQ FT	5,312	487	126	487		
	SF Homes	162	UNITS	1,318	139	88	139		
2	SF Homes	361	UNITS	2,936	310	195	310		
	SF Semi-Detached	175	UNITS	1,424	151	95	151		
0	SF Homes	45	UNITS	366	38	24	38		
3	SF Semi-Detached	22	UNITS	178	19	12	19		
	SF Homes	371	UNITS	3,018	319	201	319		
4	General Commercial	853	SQ FT	31,116	2,717	1,304	2,717		
	Warehouse/Manuf.	3,356	SQ FT	10,896	2,111	760	2,111		
	General Commercial	3,810	SQ FT	139,048	12,143	5,829	12,143		
	SF Homes	298	UNITS	2,424	256	161	256		
	SF Semi-Detached	78	UNITS	634	67	42	67		
5	Warehouse/Manuf.	174	SQ FT	564	109	39	109		
	Super Center	140	SQ FT	5,110	446	214	446		
	Gas Station/Mart	16	PUMPS	2,214	182	91	182		
	Retail Shops/Food	174	SQ FT	6,554	400	176	400		
		TOT	TAL TRIPS	341,368	15,026	16,286	31,312		

The projected change in trip generation is a function of specific land use. Total trip generation numbers represent estimated volumes distributed over the study area highway network. All traffic changes were assumed to occur over 25 years, the assumed period for development to occur. Based in part on the results shown in Table 20 above, the study team was able to develop policy and ordinance-related recommendations that would lessen travel demand in the study area.

<sup>&</sup>lt;sup>9</sup> Each land use is assigned a trip generation rate which is the number of trips a particular land use produces and attracts per one specific unit of measure. For example, for every single family dwelling unit, there is an average of 9.57 trips generated per day. These rates are established by the Institute of Transportation Engineers (ITE) and were used to develop trip tables which represent the changes in land use and the corresponding changes in traffic generation.



# 6.1.2 Evaluating Trip Distribution

The study team used the Tri-County Regional Planning Commission's regional travel demand model (TDM) in estimating the distribution of future trips. Cumberland County (including the Exit 29 study area) is modeled as part of this analysis tool. The TDM gives planners the ability to perform "what if" analyses, showing the diversion of future traffic based on proposed transportation improvements. Through discussions with study steering committee members and public meeting output, the team modeled two area transportation improvements:

- The "Inner Loop" connector between Baltimore Road and Walnut Bottom Road.
- The "Inner Loop" connector described above, with an extension to US 11 at PA 533.

As an evaluation tool, the TDM does not make decisions, but rather gives planners and decision-makers a general sense of the relative impact and magnitude of traffic diversion as a result of recommended improvements. The analysis of the impacts of both conceptual improvements are described below.

# Exit 29 Area Inner Loop Connector

This alternative would provide a direct connection of PA 174 and Queen Street to the west of I-81 via a two-lane road with "T" intersections at PA 174 and Queen Street. The roadway is called the "Inner Loop". Table 21 below shows the diversions a new roadway between Walnut Bottom Road and Baltimore Road would have on the surrounding highway network.

Table 21: Daily Traffic Volumes: 2030 Base vs. 2030 w/Inner Loop

		Daily Forecase Condition		2030 Daily Forecast With  "Inner Loop" Connector			
Segment	WB/SB	EB/NB	Total	WB/SB	EB/NB	Total	
PA 174 west of I-81	20,024	20,223	40,247	27,920	27,034	54,954	
PA 174 east of I-81	6,386	6,689	13,075	3,256	3,579	6,835	
PA 533 north of US 11	4,001	4,276	8,277	4,182	4,448	8,630	
"Inner Loop" btw PA 174 and Queen Street	N/A	N/A		13,398	12,030	25,428	
US 11 north of PA 174	12,959	14,583	27,542	9,919	11,526	21,445	
PA 174 east of US 11	9,657	9,122	18,779	8,486	8,550	17,036	
Queen St btw US 11 and "Inner Loop"	5,244	4,249	9,493	9,993	8,718	18,711	
Balt. Rd east of I-81	5,244	4,249	9,493	5,527	5,620	11,147	

The addition of the "Inner Loop" would have the effect of diverting vehicles from the PA 174 and US 11 intersection to South Queen Street. The new connector would be heavily used by about 25,500 vehicles daily and would be expected to alleviate some of the expected 2030 traffic from US 11 and PA 174 between the connector and US 11. South Queen Street, however, would experience a significant increase in traffic between the connector and US 11.



Table 22 below shows the change in traffic of the Inner Loop concept compared to current conditions and the 2030 forecasts under existing conditions for each analysis roadway segment.

Table 22: Percent Change: 2030 Base vs. 2030 w/"Inner Loop" connector

Segment	Percent Change 2002 Vs. 2030 W/"Inner Loop"	Percent Change 2030 Base Vs. 2030 W/"Inner Loop"
PA 174 west of I-81	95	37
PA 174 east of I-81	(20)	(48)
PA 533 north of US 11	18	4
"Inner Loop" btw PA 174 and Queen St	N/A	N/A
US 11 north of PA 174	22	(22)
PA 174 east of US 11	0	(9)
Queen St btw US 11 and "Inner Loop"	216	97
Balt. Rd east of I-81	88	17

Source: TCRPC TDM; Gannett Fleming

Users some of the travelers on US 11 are expected to stay on I-81 until Exit 29 where the "Inner Loop" would allow them to reach there destination more quickly. There is still a fair amount of traffic on US 11 even given this connector option (approximately 21,500 vehicles).

# "Inner Loop" Connector with PA 533 Extension

This alternative would provide a direct connection of PA 174 and Queen Street to the west of I-81 via a two-lane road. But unlike Alternative 5, this alternative includes an extension of PA 533 to meet with the intersection of the "Inner Loop" and PA 174. Both sections would be a two-lane road with a "T" intersection at "Inner Loop" connector and Queen Street and a 4-way intersection at PA 533 and US 11 and the "Inner Loop" with PA 174. Table 23 below shows how traffic would be re-distributed across the roadway network with the construction of such an improvement.

Table 23: Daily Traffic Volumes: 2030 Base vs. 2030 w/Inner Loop and PA 533 Extension

		Daily Forecase Condition		2030 Daily Forecast With Inner Loop/Pa 533 Ext			
Segment	WB/SB	EB/NB	Total	WB/SB	EB/NB	Total	
PA 174 west of I-81	20,024	20,223	40,247	28,603	29,490	58,093	
PA 174 east of I-81	6,386	6,689	13,075	1,626	2,741	4,367	
PA 533 north of US 11	4,001	4,276	8,277	7,675	6,813	14,488	
PA 533 Extension btw US 11 and PA 174	N/A	N/A		5,782	4,907	10,689	
"Inner Loop" btw PA 174 and Queen Street	N/A	N/A		11,962	11,380	23,342	
US 11 north of PA 174	12,959	14,583	27,542	9,624	9,936	19,560	
PA 174 east of US 11	9,657	9,122	18,779	6,232	6,448	12,680	
Queen St btw US 11 and "Inner Loop"	5,244	4,249	9,493	8,370	7,942	16,312	
Balt. Rd east of I-81	5,244	4,249	9,493	5,488	5,641	11,129	

Source: TCRPC TDM; Gannett Fleming

This alternative would have similar usage of the "Inner Loop" but this, in connection with the extension of PA 533 would work as a Shippensburg by-pass from traffic coming from and going to the north. A few indicators of this include:

- Increased usage of the PA 533 Extension and the "Inner Loop" connector road
- Reduced traffic on US 11 south of PA 533
- Increased usage of PA 533 west of US 11
- Decreased usage of PA 174 east of US 11
- Slightly less usage of South Queen Street between US 11 and the connector road (relative to Alternative 5).

Table 24 below shows the change in traffic of this concept compared to the current conditions and the 2030 forecasts under existing conditions for each analysis roadway segment.

Table 24: Percent Change: 2030 Base vs. 2030 w/"Inner Loop" connector and PA 533 Extension

Segment	Percent Change 2002 vs. 2030 Alternative	Percent Change 2030 Base vs. 2030 Alternative
PA 174 west of I-81	106	44
PA 174 east of I-81	(49)	(67)
PA 533 north of US 11	99	75
PA 533 Extension btw US 11 and PA 174	N/A	N/A
"Inner Loop" btw PA 174 and Queen St	N/A	N/A
US 11 north of PA 174	11	(29)
PA 174 east of US 11	(26)	(32)
Queen St btw US 11 and "Inner Loop"	175	72
Balt. Rd east of I-81	88	17

Source: TCRPC TDM; Gannett Fleming

# 7.0 Choices for our Future

A plan is only as strong as its implementation. As a matter of good public policy and economic common sense, "getting it done" needs to be paired with "doing it right." The development of an action plan constitutes a proactive, strategic approach to moving from the planning and design stages to implementation and construction (as applicable).

As important challenges and decisions are faced in the months and years ahead, the action plan should be the frame of reference to which the borough, surrounding townships and County's elected officials and transportation planning officials can refer in implementing new policies and programming transportation projects. The purpose of the action plan is to provide the framework for many of the decisions that will need to be made along the way. The action plan also provides the basis for tracking progress over time. The reader should refer to Maps 3 and 4 in this section for the locations of the requisite recommendations.

# Land Use & Zoning Recommendations

# RECOMMENDATION #1 > > Reduce allowable maximum building coverage:

Shippensburg Township should consider reducing the allowable maximum building coverage in its Commercial General zoning district from 70 percent to 40 percent. This would be accomplished by amending the current zoning ordinance. Additionally, the Township could consider other development options such as mixed uses and pedestrian friendly designs. The use of an overlay district may be an appropriate tool to achieve this diversity.

# **BASIS**:

- 1. Significantly reduces the potential square footage for lease, which can directly reduce the total number of trips generated by approximately 43%.
- 2. Is more consistent with current development patterns, particularly given the requirements for adequate on-site parking.

Table 25 - Potential Build-out with 70 Percent Coverage

# of Parcels	Total Area (sq ft)	Total Area (acres)	Adjusted Area - Acres (1)	Minimum Lot Size/ Max. Building Coverage as per Ordinances	Potential Build Out
				max. building	
12	8,651,371.34	198.61	148.96	coverage of 70%	4,541,970 sq ft general commercial
	Parcels	Parcels ft)	Parcels ft) Area (acres)	Parcels ft) Area Area - Acres (1)	# of Parcels ft) Total Area (sq Area (acres) Adjusted Area - Acres (1) Max. Building Coverage as per Ordinances max. building

(1) Total area has been reduced by 25% to allow for setbacks and other undevelopable areas

Table 26 - Potential Build-out with 40 Percent Coverage

Existing Zoning	# of Parcels	Total Area (sq ft)	Total Area (acres)	Adjusted Area - Acres (1)	Proposed Minimum Lot Size/ Max. Building Coverage	Potential Build Out
					max. building coverage	
Commercial -Ship Twp	12	8,651,370.57	198.61	148.96	of 40%	2,595,411 sq ft general commercial

Table 27 - Comparison of Potential Trips (ITE Manual)

Trip Generation I	nformation	Nev	/ Trips G	enerated		
_		Daily	PM			
Туре	Units (Sq. Ft.)	Total	In	Out	Total	
General Commercial	4,541,970	194,343	4,806	6,116	10,922	
General Commercial	2,595,411	111,069	2,750	3,500	6,250	

# RECOMMENDATION #2: Create new Medium Density zoning district.

Southampton Township should consider the creation of a new zoning district (e.g., Medium Density Residential with single family detached units and a minimum lot size of 20,000 sq ft) encompassing the area south of the NS rail line. (LU-2 on the Land Use Recommendations Map.) This area is currently zoned as a Village district, which permits town homes on 2,400 ft<sup>2</sup> lots, in addition to single family detached on 12,000 ft<sup>2</sup> lots.

An alternative to a wholesale rezoning of the area would be to utilize a conservation design overlay that would require developers to utilize clustering and open space techniques and would also supersede the Village District requirements.

# **BASIS**:

1. Reduces the potential number of new housing units within the district by approximately 2,200 units. In turn, this has the potential to dramatically reduce trip generation within the district. Even with the proposed reduction of units within this area, Southampton Township will still have sufficient capacity for new housing to meet future demand.

Table 28 - Comparison of Build-out for Existing and Proposed Zoning

	# of Parcels	Total Area (sq ft)	Total Area (acres)	Adjusted Area - Acres (1)	Proposed Minimum Lot Size/ Max. Building Coverage	Potential Build Out	Assumptions
Proposed Zoning - Medium Residential	10	20,978,525.34	481.60	361.20	SF detached - 20,000 sq ft	787 SF detached	Assumes change in zoning district from village to med density residential
Existing Zoning -	10	20,978,525.34	481.60	361.20	SF detached - 12,000 sq ft	878 SF detached	Assumes two thirds of parcels develop as SF Detached; and
Village	10	20,010,020.01	101.00		Townhomes - 2,400 sq ft	2,163 Townhomes	one third as townhomes; entire area served by sewer, parts by

<sup>(1)</sup> Total area has been reduced by 25% to allow for setbacks and other undevelopable areas



Table 29 - Comparison of Potential Build-out and Future Need

	No. of homes	% of Continued Trend
Potential new housing (Continuation of 1990- 2000 trend; growth rate of 3.9 percent per year)	3,452	100.0
Potential Residential Build-out of Village District (TAZ 2)	3,041	88.1
Potential Build-out of rest of Southampton in Study Area	2,771	80.3
Total Potential Residential Build-out in Southampton in Study Area	5,812	168.4
Potential Residential Build-out of new RM district	787	22.8
Total Potential Residential Build-out in Southampton in Study Area with new RM District	3,558	103.1

2. With the current zoning and an assumed mix of housing, the potential number of trips generated is 16,428. At the reduced density, potential trips would be approximately 6, 938, or 40 percent less.

	Trip Generation	New Trips Generated					
	Type	He	vite	Daily	Daily PM		
	Туре	Units		Total	IN	OUT	Total
<b>Existing Zoning</b>	Single Family Detached	878	UNITS	7673	477	280	757
Existing Zoning	Townhouses	2163	UNITS	8755	501	247	748
<b>Proposed Zoning</b>	Single Family Detached	787	UNITS	6938	432	254	686

Source: ITE Trip Generation Manual, 7th Edition

3. Although many residents would prefer that the area remain unchanged, rezoning to Agricultural/Conservation would not be the best use given the availability of existing infrastructure (i.e., water/sewer).

# RECOMMENDATION #3: Revise Commercial-General zoning district provisions.

Shippensburg Township should consider revising its C-G Commercial General zoning district. The current ordinance allows for a wide array of commercial development. Uses such as service stations and others, such as drive through restaurants and express or parcel delivery agencies that generate significant volumes of traffic should be considered as conditional uses within the district. Ideally, this recommendation would be completed along with #1 and #4 thus providing for improved management of new development.

# BASIS:

1. This recommendation would allow township supervisors to weigh the impacts of such a proposed use. Commercial uses typically generate the most trips; service stations in particular can generate an average of 537 trips per pump on a daily basis according to the ITE Trip Generation Manual.

Table 30 - Comparison of Potential Commercial Uses

Trip Generation Inf	New Trips Generated						
Type	Units		Daily	PM			
Туре	01	iit3	Total	IN	OUT	Total	
Gas Station/Convenience Mart	16	PUMPS	8682	154	154	308	
Retail Shops/Food Service	21000 SQ FT		2463	107	116	223	
Single Tenant Office	1500	SQ FT	77	1157	1157	2315	

# Table 31 – Commercial Permitted Uses -Shippensburg Township Commercial General Zone

	11	-	, 1		
•	Retail Store	•	Shopping Center	•	Bakery
•	Restaurant or caterer	•	Bar or Club	•	Bus station
•	Dry Cleaning	•	Personal service shop	•	Theatre or drive-in
•	Mortuary	•	Church, library, lodge or similar	•	Bank or finance agency
•	Municipal building/park	•	Public or private school	•	Hospital, clinic, nursing home
•	Commercial & professional offices	•	Offices for technical services	•	Contractor's office
•	Newspaper printing	•	Telephone central office	•	Municipal or other public motor vehicle storage
•	Express or parcel delivery	•	Motor vehicle sales and garage	•	Specialized builders/contractors, including millwork and fabrication
•	Industrial equipment and supply	•	Central refrigerated storage	•	Bakery for distribution by truck

**RECOMMENDATION #4:** Create new Office zoning district. Shippensburg Township should consider creating a new Office zoning district within its existing zoning ordinance and designate some or part of existing parcels near the interchange as such.

# BASIS:

1. As illustrated in Table 32 below, the total number of trips generated by office uses is substantially less than for commercial uses.

Indoor recreation center
 Animal hospital

Source: Shippensburg Township Zoning Ordinance

Table 32: Trip Generation: Office versus Commercial

	Trip Gener	New Trips Generated					
Development Type	Type Units		Daily		РМ		
				Total	In	Out	Total
Typical Office Park vs. Commercial in Ship Twp	Office Park	115 A	CRES	17,139	318	1,802	2,119
Research and Development Office Park vs. Commercial	R & D Office Park	115 A	CRES	9,155	213	1,563	1,776
Research and Development Office Park	General Commercial	1,157,579 S	Q FT	49,559	1232	1,568	2,800
AND Commercial (50/50)	R & D Office Park	58 A	CRES	4,617	107	788	896

Source: ITE Trip Generation Manual, 7th Edition

2. Jobs associated with office development typically provide higher paying wages than commercial services. In addition, the encouragement of this type of development will provide a greater balance in the area's economy.

Table 33: Wage Comparison, Office Versus Commercial Development

Job Sector	Average Earnings Per Worker*
Architectural and engineering services	\$51,082.00
Management Consulting Services	\$42,584.00
Scientific Research and Development Services	\$34,949.00
Offices of physicians, dentists, etc.	\$67,828.00
Food and Beverage Stores	\$20,856,00
Hotels and Motels	\$21,990.00
Dry Cleaning and Laundry	\$18,903.00

<sup>\*</sup>Earnings per worker are provided by the IMPLAN model used to assess the economic impact of proposed developments and include other benefits (e.g., health care) in addition to wages.

**RECOMMENDATION #5:** Develop an Official Map. The study area municipalities should develop an Official Map for the purpose of identifying areas needed for future public capital investments. The Official Map would effectively preserve rights-of-way as shown on the Land Use Recommendations Map for PA 533 extended and an associated cul-de-sac to preserve access to commercially-zoned properties. Article IV of the Municipalities Planning Code provides the legal details regarding the Map. Alternatively, the municipalities should

# **Exit 29 Steering Committee**

work with potential developers to ensure preservation of adequate right of way for proposed transportation improvements.

West Bradford Township in Chester County has utilized the Official Map quite successfully. For additional information about their experiences, contact the Assistant Township Manager Vincent Visoskas at (610) 269-4174 or <a href="mailto:asstmgr@westbradford.org">asstmgr@westbradford.org</a>.

# **BASIS**:

- 1. An Official Map would provide the affected municipalities with a powerful tool in shaping the highway network in undeveloped land. While this can be relatively expensive, it is the most effective tool available to ensure that the right of way is preserved, thus eliminating the need to retrofit the proposed improvement.
- 2. Would preserve the access needed to industrial and commercially zoned properties, thus making them more marketable.

**RECOMMENDATION** #6: Orient and focus new growth to the interchange. The municipalities of the greater Exit 29 interchange area should continue to focus new growth around the interchange area, which will help to preserve the area's rural character.

# **BASIS**:

- 1. Public preferences expressed at the May 2004 meeting revealed that the public believes population and development will increase "dramatically" over the next 10 years. The public meeting also revealed a disconnect between the types of development that the public expects to occur (warehousing and commercial retail) versus what is actually desired (agricultural or no development at all).
- 2. Recommendation is consistent with the policies espoused by the county's future land use map and Tri-County Regional Planning Commission's Regional Growth Management Plan.

# Transportation Recommendations

**RECOMMENDATION #1>> Reconstruct the Exit 29 interchange** to accommodate the expected growth in the development program for the greater Exit 29 study area. This recommendation incorporates the transportation improvements as part of the ProLogis (warehouse) traffic improvement package, and includes:

- Widening the bridge over I-81 to 7 lanes;
- On- and off-ramp widening and improvements;
- Signalization of the ramps and ProLogis entrance on Walnut Bottom Road; and
- Relocation of the intersection of Walnut Bottom Road and Hershey Road.

**COST ESTIMATE:** Estimated planning-level engineering costs for these improvements (including preliminary engineering and construction) are approximately \$55,450,000. This estimate includes the addition of a fourth lane on I-81 for one mile both NB and SB.

## **BASIS:**

- 1. Outputs from the TCRPC travel demand model indicate that volumes on PA 174 immediately west of the interchange will be 40,000 by 2030.
- 2. Will also benefit entire area as traffic is projected to increase substantially according to I-81 widening study, as well as Phase 3 Build Out Alternative.
- 3. Addresses the safety and congestion concerns voiced during the public meetings in May 2004.

**RECOMMENDATION #2 >> Construct an extension of PA 533 south** from US 11 to PA 174/Walnut Bottom Road complete with access cul-de-sac (as shown on map). A related project would be to cul-de-sac Cramer Road approximately 1,500 feet south of its terminus with US 11 to protect existing residential properties from commercial vehicle traffic (trucks) associated with the industrially-zoned parcels immediately

to the south. <sup>10</sup> A third component of this recommendation includes a proposed "Inner Loop" connector - a 1.25 mile link between PA 174 and Baltimore Road. As a concept, the reader should note that the location of the "Inner Loop" as shown on the Transportation Recommendations study map (see appendix) is conceptual in nature.

**COST ESTIMATE:** Estimated planning-level engineering costs for these improvements (including preliminary engineering and construction) are as follows:

- \$2,466,000 for the extension of PA 533 from US 11 to PA 174
- \$9,765,500 for the construction of the "Inner Loop" between PA 174 and PA 696
- \$21,500 to cul-de-sac Cramer Road.

# **BASIS**:

- 1. Outputs from the TCRPC travel demand model indicate that volumes on the extension of PA 533 in 2030 would be 10,700, while the "Inner Loop" would carry a 2030 AADT of approximately 23,300.
- 2. The construction of an "Inner Loop" in tandem with the proposed PA 533 extension would yield more favorable traffic benefits on the area's highway network than if either were constructed in isolation. See Figure 6 for more details.
- 3. Recommendation would provide access to industrial and commercial properties north and west of the interchange.
- 4. Provides greatly improved access to properties currently zoned for industrial and commercial development.

<sup>&</sup>lt;sup>10</sup> Cramer Road would be abandoned south of the proposed cul-de-sac



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# **Exit 29 Steering Committee**

- 5. Positions the community for the proposed Outer Loop Connector while providing a nearer term alternative for access to Shippensburg Borough/University.
- 6. Ties commercial and industrial traffic more directly to the Exit 29 interchange.
- 7. Addresses safety concerns with regard to the intersection of Cramer Road and PA 174.
- 8. Complements the availability of existing sewer and water infrastructure.
- 9. The table below shows the changes in traffic volumes across selected points in the study area network against Alternative 1 ("Inner Loop") and Alternative 2 (PA 533 Extension with "Inner Loop" from PA 174 to Baltimore Road).

Figure 6: Change in Traffic Volumes: Alternative 1 ("Inner Loop") and Alternative 2 ("Inner Loop" with PA 533 Extension)

		Alte	rnative 1	Alternative 2		
Segment	Percent Change 2002-2030 Base	Percent Change 2002 vs. 2030 Alt. 1	Percent Change 2030 Base vs. 2030 Alt 1	Percent Change 2002 vs. 2030 Alt. 2	Percent Change 2030 Base vs. 2030 Alt 2	
PA 174 West of I-81	43%	95%	37%	106%	44%	
PA 174 East of I-81	53%	-20%	-48%	-49%	-67%	
PA 533 North of US 11	13%	18%	4%	99%	75%	
PA 533 Ext. Btwn. US 11 and PA 174	N/A	N/A	N/A	N/A	N/A	
"Inner Loop" Btwn. PA 174 and Queen St.	N/A	N/A	N/A	N/A	N/A	
US 11 North of PA 174	56%	22%	-22%	11%	-29%	
PA 174 East of US 11	10%	0%	-9%	-26%	-32%	
Queen Street Btwn. US 11 and the "Inner Loop"	60%	216%	97%	175%	72%	
Baltimore Rd. East of I-81	60%	88%	17%	88%	17%	

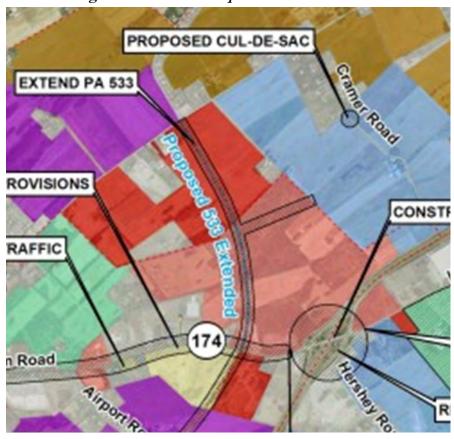


Figure 7: Limits of Proposed PA 533 Extension

**RECOMMENDATION** #3 >> Establish a Transportation Development District (TDD), which is an element of the Transportation Partnership Act, Act 47. It enables local property owners or cooperating municipalities to voluntarily establish a TDD and assess specific fees or assessments on property owners within the TDD for transportation improvements. The main benefit is that the practice allows the private sector and local municipalities to negotiate and contribute to the cost of transportation improvements. PennDOT's Transportation Partnership Manual provides specific information regarding TDDs. Moon Township Transportation Authority in Allegheny County provides a good example of one in action. The Authority's director, Tara Nicotra should be contacted for

## **BASIS**:

Provides a mechanism for funding alternatives, including impact fees and similar to encourage private investment in needed transportation improvements.

**RECOMMENDATION** #4 >> Construct a park and ride facility. A park and ride facility could be used not only for commuter travel but also in tandem with special events in Shippensburg Borough or at Shippensburg University. The municipalities should coordinate with Cumberland County and PennDOT District 8-0 in developing a Park and Ride facility adjacent to the interchange.

additional information concerning successful TDDs.

**COST ESTIMATE:** Estimated planning-level engineering costs for these improvements are approximately \$80,600 and includes a paved, 50-space facility with lighting.

## **BASIS**:

- 1. Journey to work information from the US Census reveal supporting data by municipality:
  - a. **Shippensburg Borough**: Approximately 15 percent of resident workers commute to employment destinations in Chambersburg, while an additional 10 percent commute to Carlisle/South Middleton Township.
  - b. **Shippensburg Township**: The Township has the study area's highest percentage of people working within the municipality of residence (35 percent), yet still sees 16 percent of its resident workforce commuting to the greater Chambersburg and Carlisle areas.
  - c. **Southampton Township**: The majority of workers (28 percent) commute to destinations in Shippensburg Borough and Township, while 11 percent go to Carlisle, and 9 percent to Chambersburg.
- 2. In addition to serving commuter travel, a new park and ride facility (with combined shuttle service) could potentially be used as a relatively inexpensive alternative to accessing Shippensburg University, particularly during special events. A joint shuttle concept among Raider Regional Transit, Capital Area Transit would ease congestion on Walnut Bottom Road and in Shippensburg Borough. A park and ride is one solution in mitigating access problems to the university; the school is currently looking at a highway-based solution.
- 3. The current zoning (commercial and industrial) of adjacent parcels is ideally suited to the development of complementary transit facilities park and ride, university shuttle and intercity bus shelter, etc.
- 4. Park and ride concept **preserves open space** and **reduces trip generation** vis a vis commercial development.

**RECOMMENDATION** #5 >> Implement access management solutions and accommodate bicycle/pedestrian movement and other non-motorized modes through the implementation of access management ordinances and provision of facilities for non-motorized modes along PA 174. (See TR-5 on the Transportation Recommendations Map) Ideally, the entire Exit 29 study area would be pedestrian-friendly.

**COST ESTIMATE:** Estimated planning-level engineering costs for the pedestrian improvements are approximately \$600,000 and includes new curbing on the north side of PA 174 as well as a 6-foot wide sidewalk on both sides of PA 174 between US 11 and the interchange. Preliminary and final engineering, right of way acquisitions, and other associated costs are not part of this estimate.

## **BASIS**:

- The future improvement of PA 174 will help address some of the corridor's existing access management challenges. The roadway will be the subject of a \$1.3 million TIP project beginning in February 2006, when the project will be let and subsequently widened to three lanes. The improved roadway will feature 12 foot lanes and 5 foot shoulders to accommodate horse & buggy travel. Existing curbing will be replaced, although no new curbs are planned for areas where none currently exist.
- To protect this investment and the capacity of the roadway, Shippensburg
  Township and Borough should consider joint development of an Access
  Management plan which would require shared driveways and parking areas, thus
  improving roadway capacity and safety. (Too many curb cuts create problems for
  through traffic, and particularly for business. Fewer decision points provides for
  more predictable travel patterns, reduces delay, and even allows for higher
  volumes.)
- Nearly half of all those surveyed indicated that "Safety at all hours" was an issue in the study area, particularly on Walnut Bottom Road between Shippensburg Borough and I-81. East of I-81, wider shoulders for horse and buggies and/or "Share the Road" signs would be appropriate.
- Shippensburg Borough and Township should work with individual property
  owners and businesses in encouraging them to create drive connections between
  their properties and potential opportunities for joint parking
- Owners of new development should be encouraged to allow for joint use and access, with a maintenance agreement that outlines maintenance responsibilities. Access points should be planned for adjacent parcels as site plans are submitted to encourage joint driveways.
- This program if applied would result in a reduced number of access points along PA 174 for existing properties and will reduce the overall number of traffic conflict points caused by closely spaced driveways. Over time, the municipalities should attempt to obtain an average spacing of 250 feet between access drives.

**RECOMMENDATION #6 >> Develop a greenway along Burd Run** between Shippensburg University and Wal-Mart and the developing commercial center along Walnut Bottom Road (*see TR-6 on the Transportation Recommendations Map*).

## **BASIS**:

- 1. Reduces travel demand on Walnut Bottom Road.
- 2. Would provide a buffer around the creek, thus helping to protect water quality.
- 3. Could be used as a recreational facility for students and residents.
- 4. Provides alternative transportation (bicycle/pedestrian) for university students to shopping and employment.



# RECOMMENDATION #7 >> Preserve industrially-zoned parcels adjacent to the NS rail line.

# **BASIS**:

- 1. Maintaining appropriate zoning helps preserve rail freight as a viable option in the area. (ProLogis will eventually be receiving freight by rail.) Appropriate zoning decisions should be made that would ensure the viability of the line and its attractiveness to rail-reliant shippers.
- 2. The availability and increased reliance on rail freight service could reduce congestion on area roadways. Each rail car has the potential to remove as many as 4 trucks from the roadway network.
- 3. Retention of developable rail accessible land in the greater Shippensburg area is critical in order to properly plan, direct and support existing industrial properties such as JLG and others, as well as future development in the area.
- 4. Southampton Township should continue to work with the Shippensburg Area Development Corporation, or SADCO.

**RECOMMENDATION #8 >> Advance Safety Projects**: Complete/implement the recommendations made in the project Safety Audit of US 11 and PA 174.

## **US 11:**

- Replace turndown guiderail with crash cushions
- Install lighting at local intersections

## PA 174/Walnut Bottom Road:

- Replace turndown guiderail on Walnut Bottom Road with crash cushions
- Replace three short vertical curves with one long crest vertical curve
- Replace unprotected headwalls and ditches with a closed drainage system.

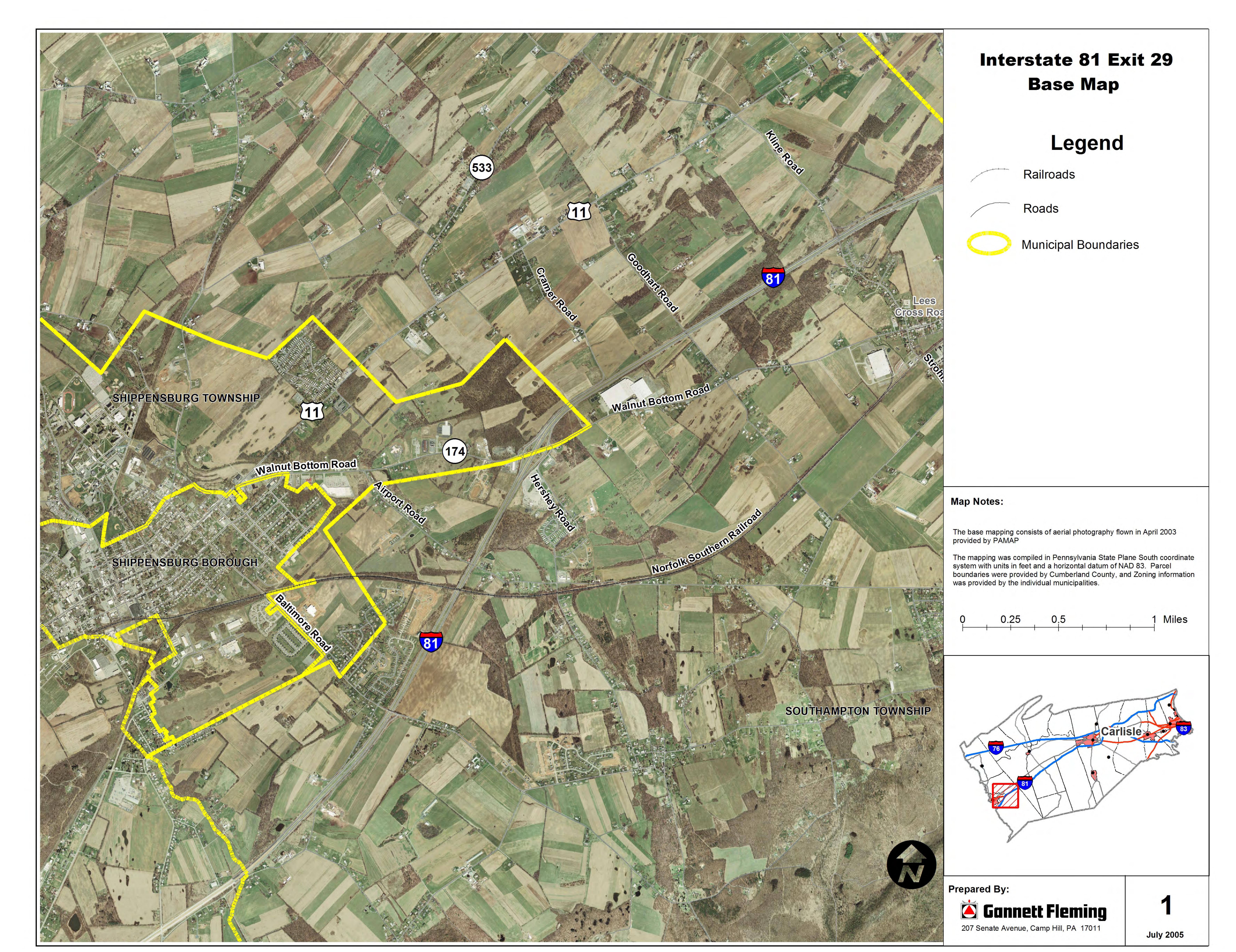
**HOW TO**: PennDOT's annual Betterment Program is developed using public and legislative input, as well as the Department's Pavement Management System. The study area municipalities should work with the PennDOT County Maintenance Manager in including these recommended improvements as part of a coordinated maintenance program.

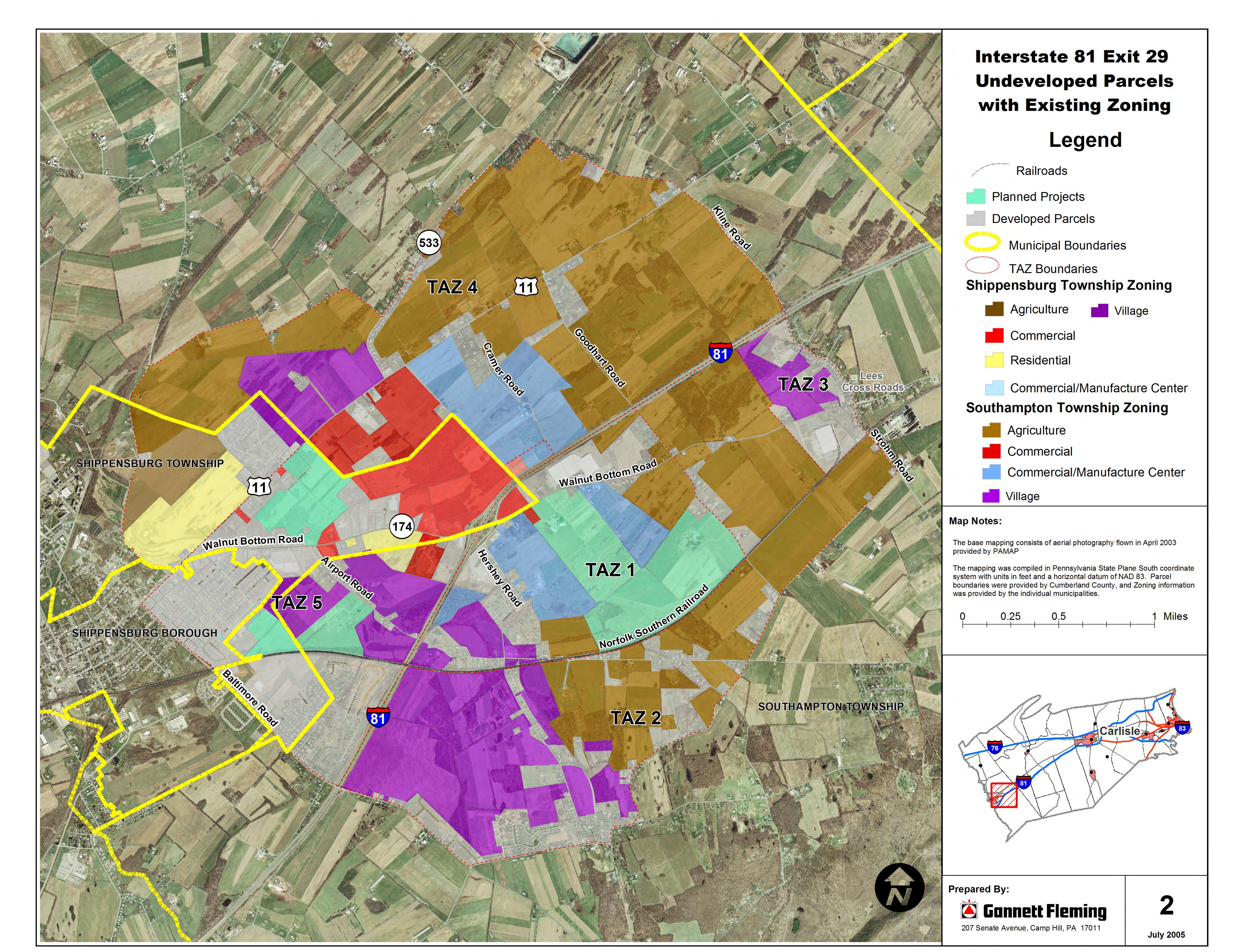
# 8.0 Appendices

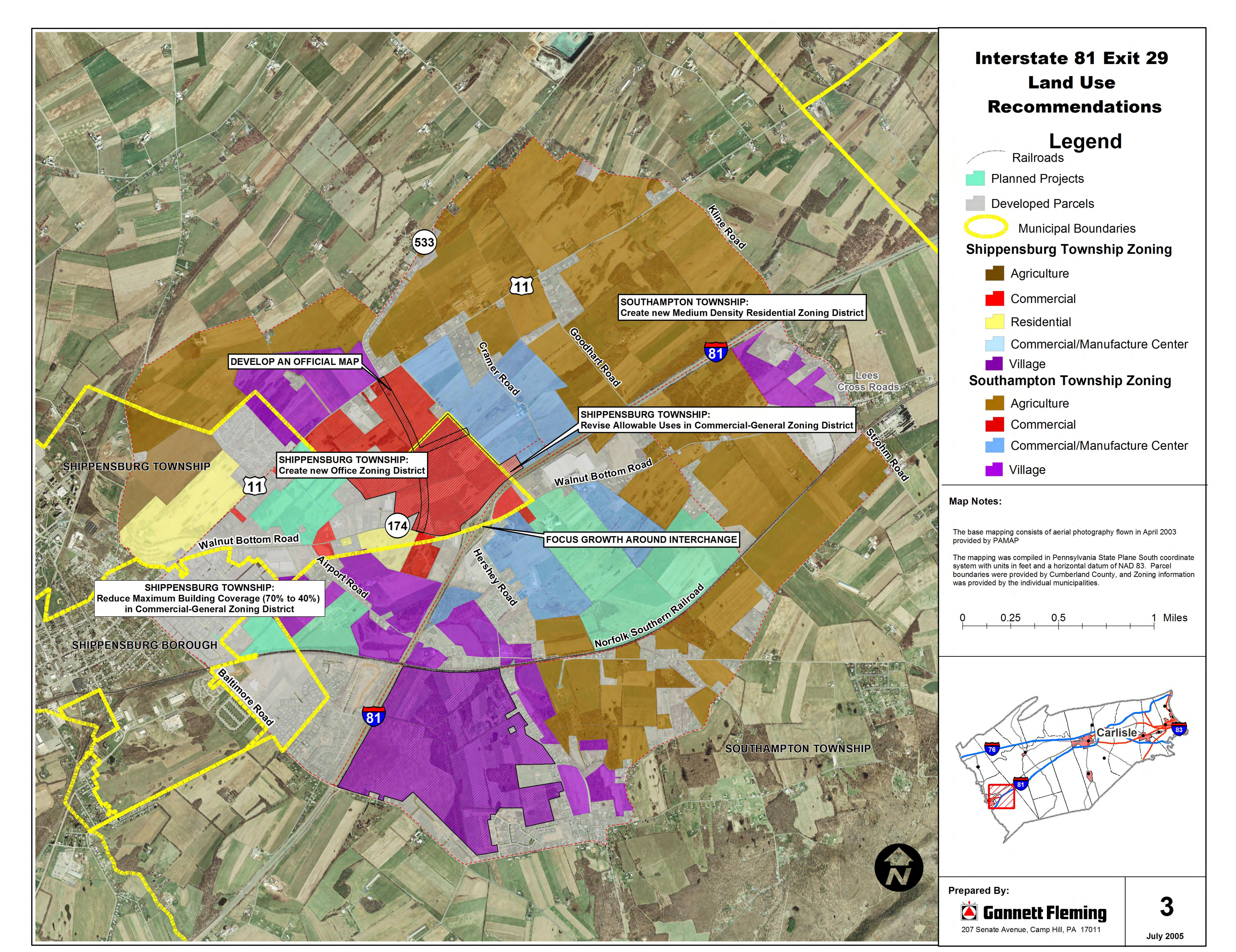
- Mapping
- Exit Survey (Instruments/Results)

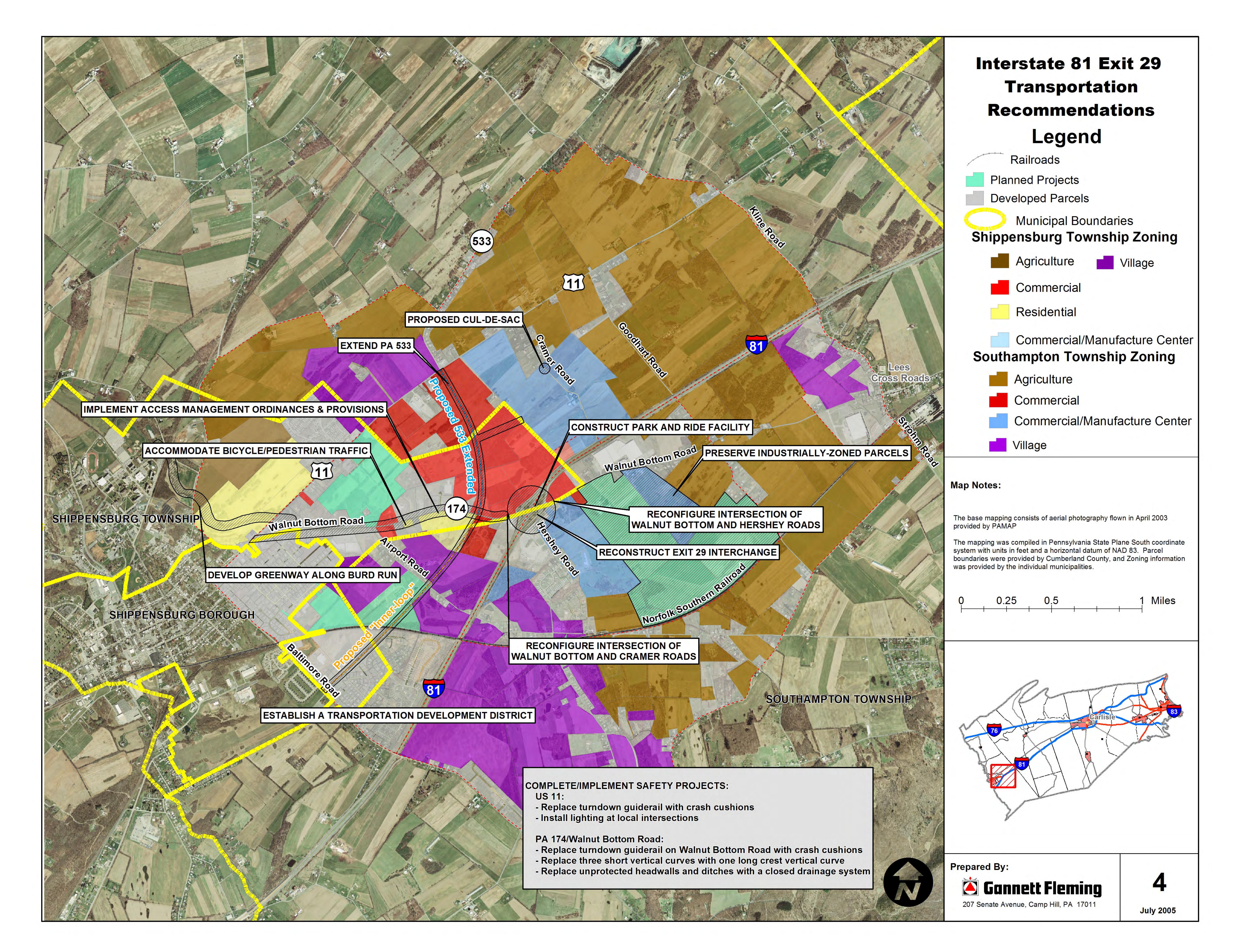


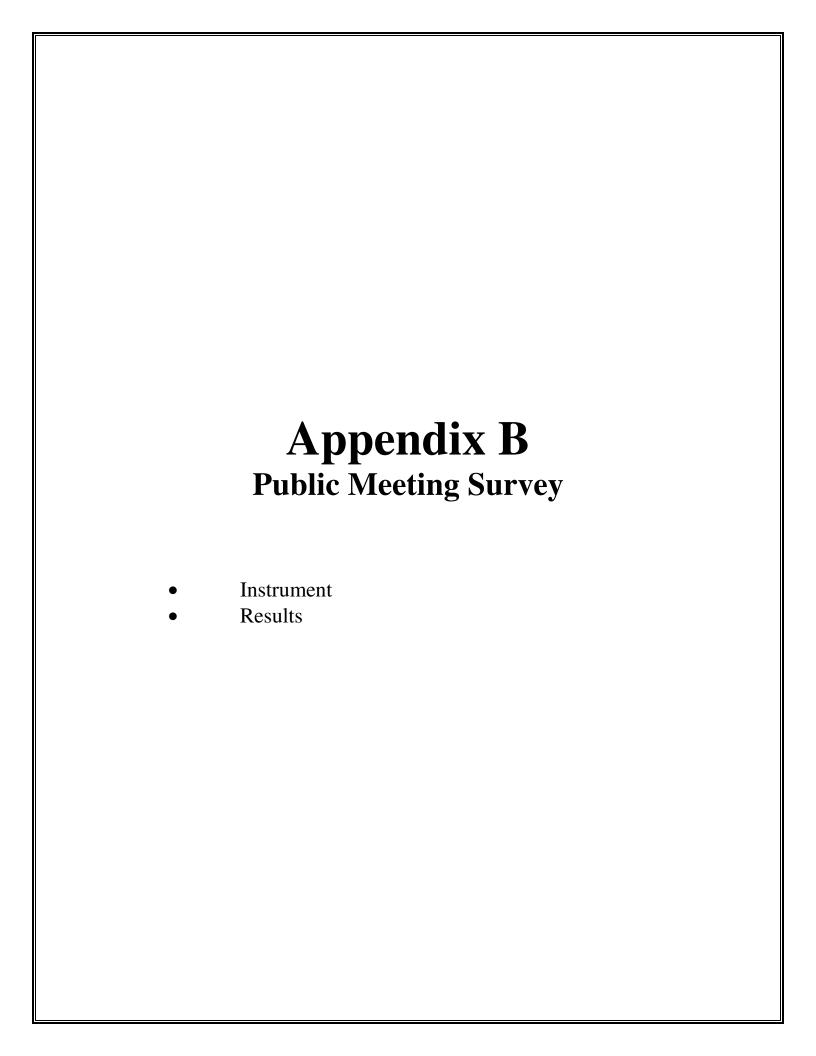
- Base Map
- Undeveloped Parcels with Existing Zoning
- Land Use Recommendations
- Transportation Recommendations











# **Cumberland County Planning Commission** 18 North Hanover Street Carlisle, Pennsylvania 17013 Phone: (717) 240-5381

May 12, 2004

««AddressBlock»»

«OWNER1»

«OWNER2»

«ADD1»

«ADD2»

«CITY» «STATE» «ZIP»



Re: Exit 29 – Detailed Land Use & Transportation Study

Dear Landowner.

Cumberland County, in cooperation with Shippensburg Borough, Shippensburg Township, Southampton Township, the Pennsylvania Department of Transportation (PENNDOT), and the Pennsylvania Department of Community and Economic Development (DCED) have been working on an Integrated Land Use, Transportation, and Economic Development Study that has focused on all of the Interstate 81 interchange areas in Cumberland County. The first phase of the study examined existing land use, recent development patterns, traffic, and municipal regulations at each interchange. Based on the information gathered, Exit 29 has been selected.

According to County records, your property is within the study area. You are invited to a public open house that will be held on May 27, 2004 from 4:30 PM to 9:30 PM at the South Newton Fire Hall on Firehouse Road. The purpose of the open house is to introduce the study and to receive input on the transportation needs and preferred land use patterns within the Exit 29 interchange area. Staff from Gannett Fleming, Inc., the study consultant, as well as County, municipal, and PENNDOT officials, will be on hand to answer your questions and document all of your ideas and suggestions.

The open house will include two presentations: one at 5:00 PM and another at 7:00 PM for your convenience. An exit survey will also be distributed to all attendees to gather additional input on transportation and land use related issues in the study area.

Your participation at this event is strongly encouraged. As a land owner in the study area, your input on future land use patterns and transportation needs will be critical in developing this plan. We look forward to meeting you at the Open House.

Sincerely,

Kirk Stoner, Director

Kuh It

**Cumberland County Planning Commission** 

# Cumberland County I-81 Interchanges Land Use, Transportation & Economic Development Study Phase 3 – Exit 29



This is the final phase of the I-81 Corridor Study and will review the relationship between land use and the transportation system in the area surrounding the King Street Interchange (Exit 29).

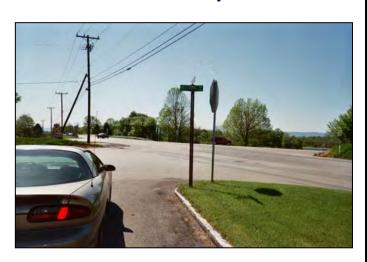
In addition to the Cumberland County Planning Commission, DCED, and PENNDOT, the following municipalities are working together to complete the study:

- **Shippensburg Borough**
- Shippensburg Township
- **5** Southampton Township

This interchange has seen some moderate growth over the past 10 years, including the relocation of the Beistle Company from Downtown Shippensburg and the development of the JLG plant (formerly Little Tykes). Shippensburg is one of the fastest growing communities in the region with a high rate of housing starts, University growth, and increased commercial development including the new Wal-Mart. There is over 1,650 acres of undeveloped land within 1 mile of this interchange, which, if fully developed, has the potential to cause traffic gridlock in the future.

A complete review of existing land use and traffic data, along with zoning ordinances, and comprehensive plans will be the first step in the process. Findings will then be presented to the general public for review at an open house. As part of the open house format, residents in the study area will have

an opportunity to express their ideas about future land uses in the study area.



The information will then be used to develop three possible future transportation scenarios for consideration. Based on the ultimate scenario, a regional improvement program that includes specific projects and funding options will be developed. This program will be designed to encourage sound land use practices to ensure the adequacy of the future transportation system. The program will be presented to the public at a second open house and refined based on comments received. A final report will be prepared upon completion.



# Cumberland County I-81 Corridor Land Use, Transportation & Economic Development Study

# Exit 29 King Street Public Open House Survey

Cumberland County, in partnership with Shippensburg Borough, Shippensburg Township, Southampton Township, PENNDOT, and the Department of Community and Economic Development (DCED) is conducting a study to plan for the future of the area around Exit 29 King Street. The attached map shows the defined study area.

wa	nt your	t is the crucial part of this study. Your electer community to develop. The survey only tachness in the box provided. Thank you!						
1.		r opinion, which of the following best desevelopment over the past 10 years? (see						
	b.	Very slow Somewhat slow Average	e.	Somewhat fast Very fast Other				
2.	<ol><li>Looking forward, which of the following best describes the change you expect in the study area's population over the next 10 years? (see map)</li></ol>							
	b.	Decrease greatly Decrease somewhat Remain about the same	e.	Increase somewhat Increase dramatically Other				
3.		types of development would you like to see all that apply)	ee o	occur in the interchange area?				
	b. c.	Commercial Retail (Shopping, Restaurants, etc.) Office Industrial/Manufacturing Warehousing Distribution	f.	e. Residential . Agriculture g. No development desired				

- 4. What types of development do you think will occur? (Circle all that apply)
  - a. Commercial Retail (Shopping, Restaurants, etc.)
  - b. Office
  - c. Industrial/Manufacturing

- d. Warehousing Distribution
- e. Residential
- f. Agriculture

(Over)





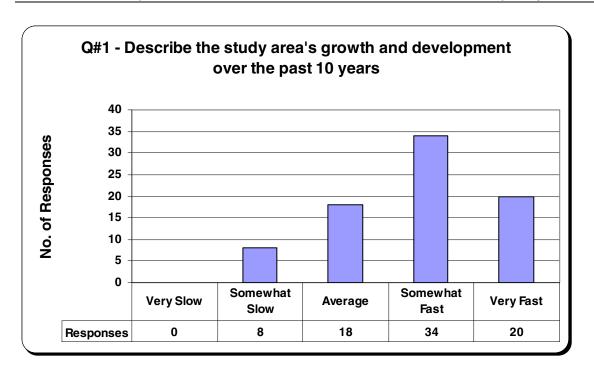
# Cumberland County I-81 Corridor Land Use, Transportation & Economic Development Study

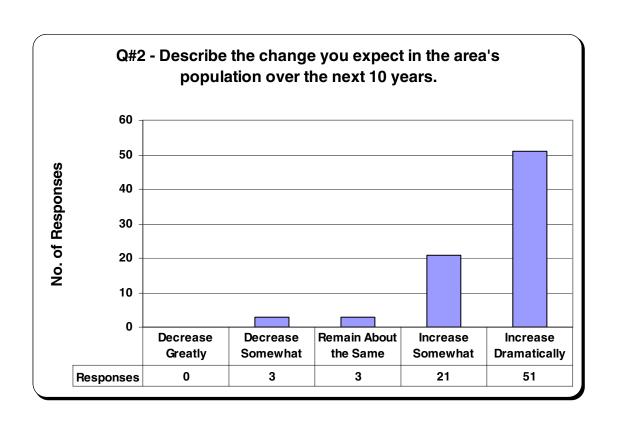
	a.	No delays		
	b.	Minor delays		
	C.	Delays during rush hours		
	d.	Delays at all hours of the day		
6.	List a	ny specific locations in the study a em.	rea where traf	fic congestion is currently a
7.	How v	vould you describe the study area	roadways in te	erms of safety?
	b.	Safe Minor safety issues Safety issues during rush hours	d.	Safety issues at all hours of the day
8.	List a	ny specific locations in the study a	rea where saf	ety is currently a problem.
Ad	ditiona	ıl Comments:		

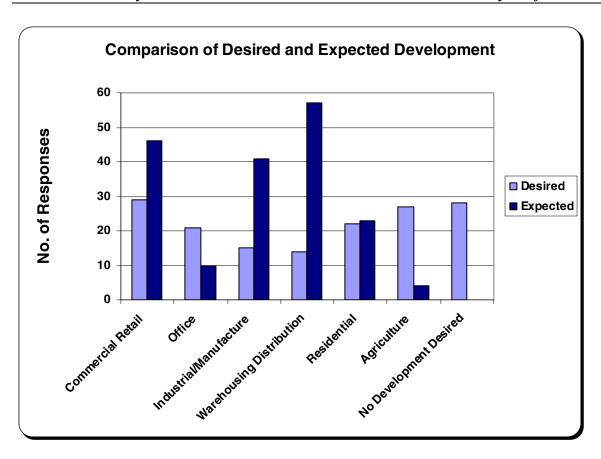
5. How would you describe roadways around Exit 29 in terms of traffic congestion:

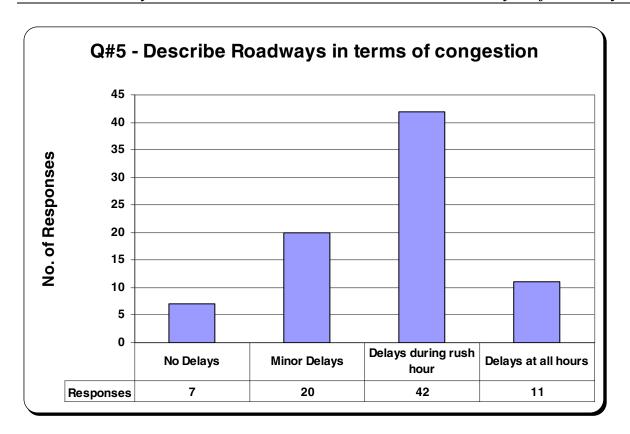
Thank you for your time and input into this study process!











Question # 6 – List any specific locations in the study area where traffic congestion is currently a problem.

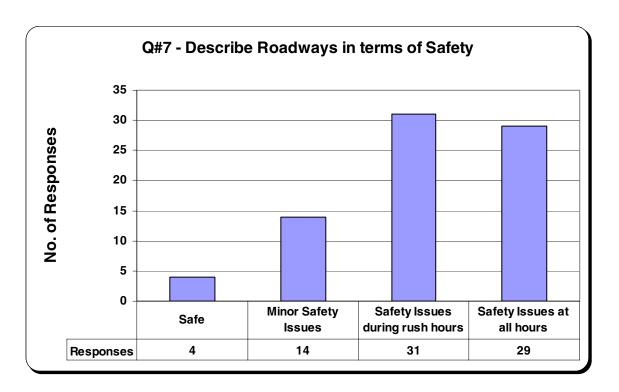
- **•** 174 & 11
- **174 & 11**
- **174 & 11**
- **174 & 11**
- 174 & 11 at H&H
- 174 & 11; I-81 and 174; Airport Rd & 174
- **•** 174 & 11; 174 & 233
- 174 & 11; I-81 and 174
- 174 & 11; Queen & King Streets
- 174 & 11; Queen & King Streets; Orange & 174
- 174 & Hershey RD

- 174 from Airport Rd to Ship; I-81 interchange
- 174 from Beistle to 11
- 174 from Beistle to 11
- 174 from Ship to I-81
- 174 from Ship to I-81; road to Pharo's Truck Stop
- 174 near K-Mart when local businesses change shifts
- 174; Queen Street
- 174; Queen Street

# I-81 Corridor Study Phase 3 – Exit 29 - Public Involvement #1 Exit Survey Draft Summary

- 81 people don't stop at stop signs
- Airport & 174
- Airport & 174
- Airport & 174
- Airport & 174
- Airport & 174; Orange St & 174
- Along the entire 81 Corridor, esp. around Carlisle
- Baltimore Road
- Cramer Rd & 174
- CVS signal during university events
- Exit 29 SB exit ramp
- Exit from 81 to 174 gets backed up; left turn into K-Mart from 174 is problematic;
- Hershey & 174
- Hershey & 174; 174 when Beistle gets out
- Hershey & 174; Cramer Rd;
   Airport Rd; Ramps are short;
- Hershey & Cramer Rd
- I-81
- I-81 and 174
- I-81 and 174; 174 from Ship to I-81
- I-81 and 174; Lees Cross Roads
- I-81 interchange
- I-81 interchange
- I-81 interchange

- I-81 interchange
- I-81 interchange
- I-81 interchange
- I-81 interchange
- I-81 interchange; Baltimore Road; Airport Rd; 174 & 11
- I-81 interchange; K-Mart
- I-81 interchange; Lees Cross Roads
- I-81 River to MD line
- Interchange; @CVS signal;
   Baltimore Rd; US 11 when trucks routed from 81
- King Street between 3 & 5;
   Coming thru Pine Grove
- K-Mart Plaza Access
- none
- Orange St & 174
- Orange St & 174; Interchange
- Queen and King Street @ Sheetz
- race track traffic and noise congestion; I-81 interchange
- Shippensburg
- Shippensburg lights are poorly timed
- University
- Walnut Bottom Rd approaching intersection with Rt 11; Rt 11 will be a problem when Wal-Mart opens



Q#8 – List any specific locations in the study area where safety is currently a problem.

- #76 Goodhart Rd needs hill taken off hidden driveway
- **174 & 11**
- **174 & 11**
- **•** 174 & 11
- 174 & 11; I-81 and 174; 174 from Ship to I-81
- 174 & 11; 174 & Orange St;
   Cramer Rd & 174; Hershey
   Rd/174/NB off Ramp; Queen
   Street; Baltimore Rd is too narrow
- 174 & 11; 174 @ K-Mart
- 174 & 11; when 81 is shut down and traffic is routed through town
- 174 & Strohm Rd
- 174 from Beistle to 11
- 174 from Beistle to 11; I-81 exits

- 174 from Ship to I-81
- 174 from Ship to I-81
- 174 from Ship to I-81; S. Queen Street; Baltimore Rd
- 174; Queen Street
- 174; Queen Street
- 81 is a major risk due to increased traffic and speeds
- 81 to and from Pharos
- access ramps to 81 from 174 are too short; visibility is a problem
- Airport & 174
- Airport & 174; Conestoga and 11; Cramer & 174
- Airport & 174; Orange St & 174
- Airport & 174; Hershey & 174;
   Cramer & 174

# I-81 Corridor Study Phase 3 – Exit 29 - Public Involvement #1 Exit Survey Draft Summary

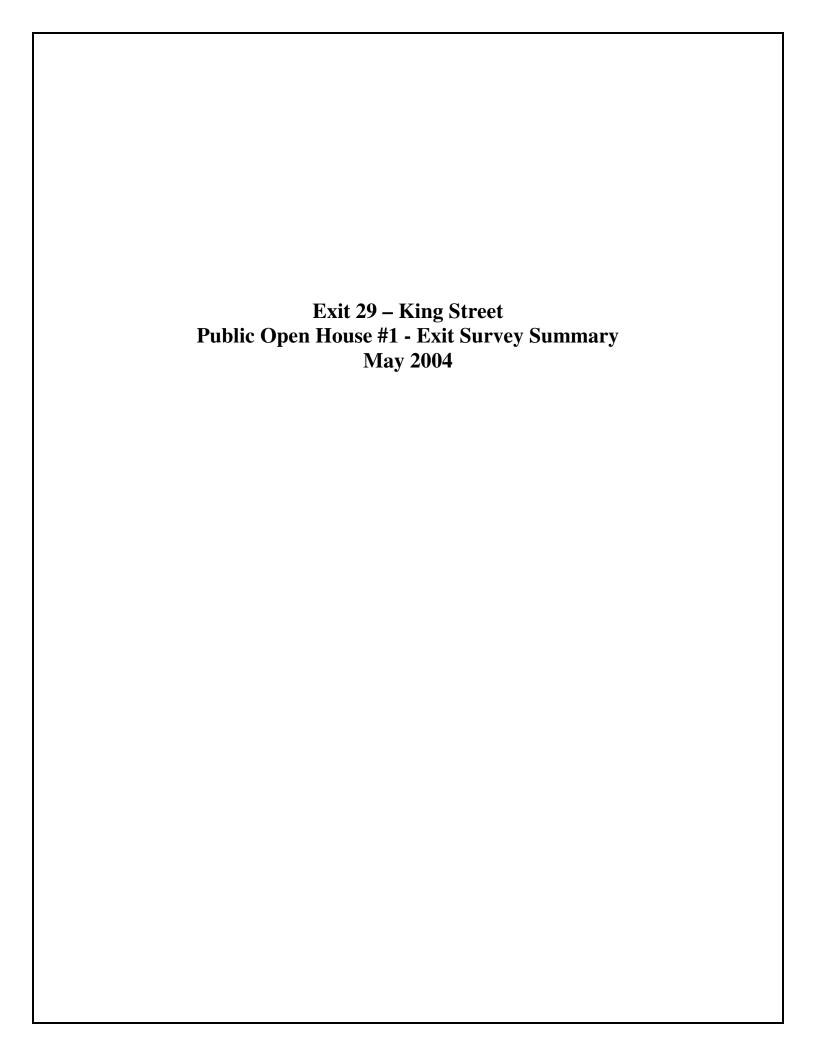
- Baltimore Rd @Giant; 174 @ K-Mart
- Cramer & 174
- Entrance to truck stop
- Giant; CVS intersection
- Hershey & 174
- Hershey & 174; 174 from Airport Rd to Ship
- Hershey & 174; Airport & 174
- Hershey & Cramer Rd
- Hershey & Cramer Rd
- I-81 at Pharo's
- I-81 interchange
- I-81 interchange
- I-81 interchange
- I-81 interchange; 174 from Ship to I-81

- I-81 interchange; 174 from Ship to I-81
- I-81 interchange; Cramer Rd.]
- I-81 interchange; Hershey Road
- I-81 interchange; Lees Cross Roads
- I-81 interchange; Orange Street
- Kline Road use has increased cars race up and down...
- Lees Cross Roads (Strohm & 174)
- Left turns from 81 north or south
- limited merge area onto/exit of 81
- none
- Orange St & 174
- Orange St & 174; Hershey & 174
- Orange St & 174; Interchange

# **Exit 29 Public Open House Exit Survey Summary of Additional Comments**

# LAND USE

- ➤ I know growth is inevitable, but I do not want to see this area end up looking like the Carlisle Exits Plainfield, with ugly warehouses; College St. with commercial sprawl or like the Chambersburg exit to Rt. 30. I do not want to see a continuation of the type of development on Baltimore Rd. Farmland and wild, green spaces must be preserved. This is still a picturesque, rural area. Keep it that way.
- Development (industrial & commercial) needs to be limited to a small area around Exit 29. Road infrastructure will not support development outside of this area. The "inner loop" concept is nothing more than passing Shippensburg's perceived problems on the Townships.
- ➤ Keep in agriculture
- Let everything the way it is!



- ➤ 174 heading south is an ideal area for residential growth with some commercial and industrial zoning directly next to I-81
- Need to ensure that development affecting Exit 29 interchange requires developers (i.e. Prologis) to share costs of necessary improvements and not pass burden to existing businesses or new developments in the future.
- Exit 29 is the main entrance to Shippensburg; Exit 24, the other entrance and exit to Shippensburg, has already been targeted as an industrial zone. We need to cluster industrial to that exit and the already existing industrial zones. Targeting Exit 29 as industrial would be a disaster. It will destroy Shippensburg and will no longer be considered "one of the top 25 small towns in America"; also, are we considering this is some of the best farming soil around? Who would want to go to a Corn Festival noticing all of the warehousing and trucks on the way into town?
- ➤ NO MORE low income housing
- ➤ I am very concerned about allowing development to occur around the interchange. That is the place that development should occur. It is being held back and businesses are going elsewhere because of road issues. We have personally experienced this.
- ➤ We do not want low income housing or trailer courts! Keep the farmland!
- ➤ We do not want low income housing or trailer courts to develop. Keep Farm Land.
- We need to have controlled growth; zoning to deter the growth of the trucking.
- ➤ We need to keep residential zoning. Stop changing it.

# PHYSICAL IMPROVEMENTS

- ➤ Construct a new exit from interstate 81. Option #1 make an exit onto the Baltimore Rd., extend N. Queen St onto the University Campus; Option #2 Construct an exit approximately 2-3 miles north of exit 29 join onto Rt. 11
- ➤ PennDOT, Townships, and Water & Sewer Authority need to make long-term commitments to construction and improvements to roads so that utilities and road work is done together
- ➤ We should make it easier to get to Ship U to the Performing Arts Center by improving the road to the college; The College and the new arts center are pluses to our community.

# I-81 Corridor Study Phase 3 – Exit 29 - Public Involvement #1 Exit Survey Draft Summary

- ➤ In addition to highways, PennDOT should get involved in a study to double-track the Norfolk Southern line and get the trucks off I-81; I suspect that business interests will override any attempts to put limits on growth.
- ➤ What about inner/outer loop?!?? (It is important!)
- Add exit at Baltimore Road
- ➤ Planned improvements:
  - o Airport Road & 174 intersection by new Wal-Mart
  - Widening of 174 to three lanes by PennDOT 2005
- ➤ Move Hershey and Cramer Roads

# SPEED LIMITS; TRAFFIC LIGHTS AND OTHER SAFETY CONCERNS

- ➤ Keep trucks off the Walnut Bottom Rd. make it a historical road and save the homes along the Walnut Bottom Rd. and the people who live there.
- The whole area will be a nightmare with the coming of Wal-Mart and adjacent businesses; will need more signal lights and turning lanes
- > Speeders need more police presence.
- > Safety for busing/transporting students for new educational campus at James Bard School
- What happens to the school if there is a "spill" on the train tracks close to the schools?
- ➤ Bicycle use on almost any of the existing roads is very dangerous
- ➤ Concerned with safety for Mennonite horse travel especially if higher commercial usage/trans. envisioned; their lifestyle should not be hampered.

# TRAFFIC GROWTH AND PATTERNS

- ➤ I suggest you schedule representatives from trucking, warehousing, etc. to give the opposing views and may be able to clear up and explain some transportation questions.
- ➤ Trucks are a big problem and traffic when Beistle lets out; Cannot seem to be able to go left; cannot see; people turning to left to get onto 81 and trucks taking whole road to turn into Hershey Road; We need a loop for Ship.; 81 truck on one (left) side of the road...
- ➤ The local roads were never designed to accommodate bypass/detoured traffic especially tractor trailers; there are many blind curves, knuckles and knolls, narrow bridges; local traffic includes many farmers on farm equipment, meanwhile, farmers in buggies, wagons, and bicycles, school buses, picking up and depositing children. Re-routed traffic

does not take this into account – they speed as if they are still on the interstate. Additionally, noise pollution, carbon monoxide, and diesel fumes greatly increase; increased development will only exacerbate the current problems

- Use railroads more
- Anybody who can drive in the Shippensburg area can drive any where

# **MISCELLANEOUS**

- ➤ Why is this survey concentrated around roadways and traffic? This is as meaningful as traffic surveys?
- A well-balanced community is a combination of people, work places, and recreation in favorable areas; a tax base must be in place for a community to thrive.
- Good meeting
- ➤ Thanks for the opportunity to take part in the survey
- ➤ I would like to see a transportation study regarding light rail transportation along the I-81 from Hagerstown to Harrisburg with consideration of construction within 25 years.

# 1 Siff comber Starty

# Interstate 81 Integrated Land Use and Transportation Study – Exit 29 Public Open House # 2 - Exit Survey



Please circle ONE number that best represents your level of support for each of the following recommendations.

In the final column, please identify the three recommendations from each category that you believe should receive priority status for implementation and number them 1 through 3. Please refer to the display maps for additional information.

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree	Priority
<ol> <li>Shippensburg Township: Reduce maximum building coverage in the Commercial General Zoning District to 40%.</li> </ol>	1	2	3	4	5	6	
2. Southampton Township: Create new Medium Density Zoning District.	1	2	3	4	5	6	
3. Shippensburg Township: Revise allowable uses in Commercial-General Zoning District.	1	2	3	4	5	6	
4. Shippensburg Township: Create new Office Zoning District.	1	2	3	4	5	6	
5. Develop an Official Map.	1	2	3	4	5	6	
6. Reconstruct Exit 29 interchange.	1	2	3	4	5	6	
7. Extend PA 533 from US 11 to Walnut Bottom Road.	1	2	3	4	5	6	
8. Construct "Inner Loop" Connector.	1	2	3	4	5	6	
9. Relocate Walnut Bottom Road intersections with Cramer & Hershey Roads.	1	2	3	4	5	6	
10. Establish a Transportation Development District.	1	2	3	4	5	6	
11. Construct a Park and Ride facility.	1	2	3	4	5	6	
12. Implement access management ordinances and provisions.	1	2	3	4	5	6	
13. Improve bicycle/pedestrian accommodations along Walnut Bottom Road.	1	2	3	4	5	6	
14. Preserve industrially-zoned parcels.	1	2	3	4	5	6	
15. Develop a greenway along Burd Run.	1	2	3	4	5	6	

In which municipality do you live?	

Additional comments:	