NOVEMBER 2001

ROUTE 202 SECTION 100

LAND USE STRATEGIES STUDY

Delaware Valley
Regional Planning
Commission

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LAND USE STRATEGIES STUDY

Delaware Valley Regional Planning Commission
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Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester and Mercer counties in New Jersey. DVRPC provides technical assistance and services; conducts high priority studies that respond to the requests and demands of member state and local governments; fosters cooperation among various constituents to forge a consensus on diverse regional issues; determines and meets the needs of the private sector; and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the Commission.

Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for its findings and conclusions, which may not represent the official views or policies of the funding agencies.

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EXECUTIVE SUMMARY

The Delaware Valley Regional Planning Commission (DVRPC) frequently undertakes transportation corridor studies in both Pennsylvania and New Jersey, working closely with county and municipal officials and the respective State Departments of Transportation. Transportation corridor studies are designed to link transportation and land use planning, taking into account the effects that transportation and land use have on each other. This particular corridor study complements the Pennsylvania Department of Transportation's (PennDOT) proposed improvement project along Route 202, Section 100, and recommends land use strategies that can help to preserve the additional roadway capacity that these improvements can provide, as well as local municipality actions to control access and land development along the corridor.

Transportation corridors are defined as networks of transportation links, services and facilities that are of regional importance when viewed collectively. Corridor planning has a strong multimodal emphasis, with transit lines and bicycle and pedestrian facilities considered important and integral components of the transportation network. However, the Route 202 corridor is currently oriented mainly toward single-occupancy automobiles, causing congestion, long journeys to work, and air pollution. This study provides both land use and transportation-based recommendations in order to increase the freedom of residents and employees in the corridor to use other modes of travel. The resulting land use recommendations, if implemented along the corridor, can help to maximize the Commonwealth's investment in the transportation improvements and reduce the need for further capacity expansions in the future.

The Route 202, Section 100 corridor covers a large geographic area, which includes parts of two counties – Chester and Delaware – and eight municipalities within these counties. Section 100 of Route 202, which runs from West Chester to the Delaware state line, provides an important connection between residences, employment centers, and shopping areas. This corridor study provides an integrated, long-range framework for planning transportation improvements and land use changes along Section 100 of Route 202. Individual projects within the corridor can be seen as part of a larger strategy that links land use and transportation, allowing local plans and regional strategies to harmonize.

The study's recommended land use strategies are directed specifically to the municipalities in the Route 202, Section 100 corridor, within the framework of a corridor-wide plan. Many of these recommendations relate to *access management*, which involves controlling vehicular access to Route 202 from adjacent businesses and other land uses. Access management can improve safety and highway efficiency, and if done in conjunction with sound land use planning, can significantly reduce congestion. Other recommendations deal with *transit and pedestrian improvements* along Route 202, to increase alternatives to the single-occupancy automobile along this corridor. In addition, joint planning between neighboring municipalities, in the form of *multi-municipal comprehensive plans* or similar ordinances, can make planning efforts much more effective.

The study also contains several sample zoning ordinances for local adoption. These include a Corridor Access Management Overlay district, which seeks to manage access along U.S. Route 202 and other major roads; a Transit Oriented Development district, which encourages development based around transit centers; and an Official Map, designed to facilitate the completion of the ring road around the intersection of U.S. Route 202 and U.S. Route 1.

CHAPTER I

INTRODUCTION

The U.S. Route 202 Section 100 Land Use Strategies Study was initiated by Delaware and Chester counties, with support from the Pennsylvania Department of Transportation (PennDOT), and was carried out by DVRPC during Fiscal Years 2000 and 2001. The goal of this project was to link transportation and land use planning in order to recommend integrated and proactive land use planning strategies along the highway. This supports PennDOT's plans for a large-scale improvements project on Section 100 of Route 202, reinforcing the agency's efforts to improve efficiency and safety and reduce congestion on Route 202. In addition, an important goal of this project was to determine ways to maximize PennDOT's investment in expanding this road, preserving the additional capacity that the widening will create by managing land use in the corridor. Also, this project has sought to promote better coordination between Chester and Delaware counties, the eight municipalities in the study area, and other state and regional agencies.

Chapter I introduces the Land Use Strategies Study, providing a review of previous studies, an overview of the planning process, and a brief description of the corridor.

Chapter II identifies goals and objectives for the corridor as a whole, adapted from the comprehensive plans of the municipalities along the corridor. For each objective, several planning strategies are recommended. Each of these planning strategies is described at greater length in Appendix A.

Chapter III analyzes existing conditions in the study area. Among the issue areas covered are land use (including land use regulations such as zoning), demographics and housing, natural resources, cultural and historic resources, circulation patterns, and infrastructure.

Chapter IV provides specific recommendations, mostly directed to the municipalities in the study area. These recommendations are accompanied by illustrations, prepared by the design consultant firms of Carter van Dyke Associates and Brown & Keener Urban Design, which show DVRPC's vision for future conditions in certain areas along the Route 202 Section 100 corridor.

Finally, Appendix A provides brief descriptions of the planning strategies identified in Chapter II, and Appendices B, C, and D contain sample ordinances that municipalities in the study area may wish to adopt. Appendix E lists the membership of the Study Steering Committee.

Previous Studies

The scope of the Land Use Strategies Study was largely based on two previous projects: DVRPC's Route 202 Traffic Improvement Study, Delaware State Line to West Chester Bypass, published in 1988; and PennDOT's Route 202, Section 100 Engineering and Environmental Study, published in 1991. The 1988 report by DVRPC recommended several actions to the municipalities in the corridor, such as the adoption of an access management program along Route 202, as well as the creation of a highway overlay zone to control development along the immediate corridor of the highway.

PennDOT's 1991 study made similar recommendations. The study found that integration of land use and transportation planning at the local, county, and regional levels was crucial, and that coordination with the State of Delaware was also necessary. In addition, like the DVRPC report, the study recommended the adoption of a coordinated access management program

along the highway. PennDOT also recognized the importance of preserving natural and cultural resources throughout the corridor, which requires a comprehensive planning approach.

As both of these studies conclude, access management is a crucial issue in the Route 202 Section 100 corridor. Access management involves the coordination of through traffic with vehicles entering and exiting a roadway to create an efficient traffic flow. Access management techniques are often based around limiting access points to major roads, to prevent turning movements from conflicting with high-speed, through traffic. Implementing proper access management controls will aid in alleviating present and future congestion and safety problems.

This study builds on the recommendations of both the 1988 DVRPC and 1991 PennDOT studies. It attempts to integrate land use and transportation planning, and to encourage cooperation between municipalities and between different levels of government. Also, this study recommends the adoption of an access management program along Route 202, in the form of an overlay district to be added to municipal zoning codes, and other access management recommendations.

Planning Process

The Land Use Strategies Study has been conducted by DVRPC over Fiscal Years 2000 and 2001, with considerable support from the planning staffs from Chester and Delaware counties. In Fiscal Year 2000, a Land Use Strategies Study Steering Committee was established. This Steering Committee was made up of representatives from the study area municipalities, Chester and Delaware counties, and PennDOT. Also, a concept map for possible strategies along Route 202 was prepared, after field work with members of the planning staffs from both counties. Municipal comprehensive plans and zoning ordinances were also gathered and analyzed during this period, and existing conditions in the study area were documented.

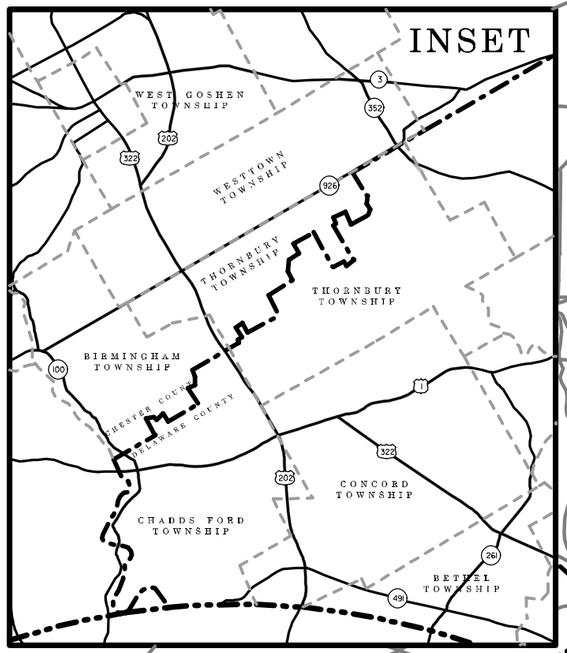
During Fiscal Year 2001, study activity included meetings with the Steering Committee, analysis of municipal comprehensive plans, and developing a set of goals and objectives for the study. Based on Steering Committee feedback, as well as communication with SEPTA, PennDOT, and Urban Engineers, Inc. (the transportation planning firm producing the Route 202 Section 100 Environmental Impact Statement for PennDOT), a list of useful planning strategies and specific recommendations for each municipality were produced. These recommendations were presented at a final Steering Committee meeting, as well as meetings with the Planning Commissions of individual municipalities.

Corridor Description

The Route 202 Section 100 corridor extends nearly eight miles from the Delaware State line to just south of West Chester. This section runs through the historic Brandywine Valley, passing through eight municipalities and two counties. In Chester County, from north to south, these municipalities include West Goshen, Westtown, Thornbury, and Birmingham townships. In Delaware County, from north to south, Route 202 passes through Chadds Ford, Thornbury, Concord, and Bethel townships. The location of the study area is shown in **Map 1**.

Route 202, Section 100

Map 1: Regional Location



LEHIGH

BERKS

HUNTERDON

SOMERSET

NEW JERSEY
PENNSYLVANIA

BUCKS

Doylestown

MERCER

MONTGOMERY

Norristown

PHILADELPHIA

CHESTER

West Chester

DELAWARE

Media

Chester

Wilmington

LANCASTER

BURLINGTON

GLOUCESTER

CAMDEN

PENNSYLVANIA
DELAWARE

PENNSYLVANIA
NEW JERSEY

PENNSYLVANIA
MARYLAND

0 2 4 6
MILES

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission

Route 202 is a major arterial highway that generally forms an outer beltway around the western suburbs of Philadelphia, passing through Pennsylvania from Wilmington, Delaware to central New Jersey. Over most of its length, Route 202 is a limited access highway, designed to allow through traffic, with grade-separated interchanges. Section 100, on the other hand, features virtually unlimited access, with many driveways and other access points directly onto the highway, and has lower posted speed limits than the other sections of the highway. Thus, this section of Route 202 functions both as a local road and as a regional highway.

This section of Route 202 has recently been experiencing rapid change. Painters Crossroads, located at the intersection of Route 202 and U.S. Route 1, is becoming a regional employment center, with a high employment base and new construction continually occurring. Population in the study area is also increasing rapidly. While it is not possible or desirable to prevent these changes from occurring, if they are not shaped and managed by proactive planning, these changes threaten to overwhelm infrastructure systems and erode local character and history.

Corridor Land Use and Transportation Planning Linkage

Corridor planning recognizes the linkages between land use and transportation, and allows the creation of integrated, comprehensive plans that cross municipal and even county boundaries. According to the Institute for Traffic Engineers:

"...trip-making patterns, volumes, and modal distributions are largely a function of the spatial distribution and use of land. Over the long run, the spatial distribution of land use can greatly influence regional travel patterns, and in turn this land use can be influenced by the level of accessibility provided by the transportation system. Avoiding future congestion therefore requires careful attention to zoning and land use plans, in coordination with the strategic provision of transportation services to influence where development occurs." (quoted from *Linking Land Use and Transportation in the Delaware Valley*, a DVRPC report published in 1991)

Transportation corridors are appropriate planning areas for linking land use and transportation. These corridors are large geographic areas that provide important connections between regions, and are defined as networks of transportation links, services and facilities that are of regional importance when viewed collectively. Corridor planning has a strong multimodal emphasis, with transit lines and bicycle and pedestrian facilities considered important and integral components of the transportation network.

The benefits of planning at the corridor level are many. Corridor planning provides a general, long-range framework for needed transportation improvements and land use changes. *This larger view allows local projects to occur as part of a larger strategy, rather than as isolated improvements, and provides a framework for establishing priority*. Also, because the corridor is treated as a network of various transportation modes, corridor planning often examines alternatives to simple road improvements, such as transit options, access management, and transportation demand management programs. In general, corridor planning, in linking land use patterns with transportation networks, provides a means for local plans and regional strategies to harmonize.

CHAPTER II

EXISTING CONDITIONS AND STUDY AREA ISSUES

To develop a strategy for the future of the Route 202, Section 100 Corridor, an accurate inventory of the existing highway and land use conditions is essential. This chapter documents and analyzes those existing conditions. Specifically, it seeks to formulate a clear understanding of the corridor's current physical, demographic, social, and economic conditions, based on current circumstances and historical development. It also evaluates and assesses the pattern and intensity of land use in the corridor and, based on this assessment, evaluates the compatibility of existing uses, the extent of land consumption, and predicts the direction that future development may be expected to take in light of existing conditions. The inventory and analysis is intended to enable the counties, local governments and corridor residents to identify potential problems, to determine future needs, and to develop necessary policies and strategies to respond more effectively to future growth.

Throughout this document, two geographic levels of analysis are used. The first is the immediate corridor of Route 202, which includes most land within one-half mile of the highway, although this area has been adjusted in places to conform to zoning districts or natural or manmade boundaries. Whenever possible, this document's discussion of existing conditions refers to this immediate corridor. In other cases, where a broader discussion of existing conditions is appropriate, conditions in the eight municipalities in the study area are described. Throughout the document, it is specified which of these two levels is being used for analysis.

The material in this chapter is based on existing data available through various governmental sources and through field surveys conducted by the Delaware Valley Regional Planning Commission during the preparation of this study. The chapter has been divided into a series of six focused analyses produced during the planning process.:

- The **Land Use** section describes of the existing land use pattern and an analysis of recent development activity in the corridor and the implications for future development.

- The **Population, Employment, and Housing** section reviews selected socio-economic characteristics of the corridor's residents, employers, and employees, as well as housing development, and also includes population, housing and employment forecasts.

- The **Natural Resources** section provides a summary of environmental factors that are capable of affecting the location and intensity of future development.

- The **Cultural and Historic Resources** section documents those cultural and historic factors that are relevant to consideration of new development along the corridor.

- The **Circulation** section assesses existing conditions regarding traffic, circulation, and public transit.

- The **Community Facilities and Infrastructure Systems** section analyzes public services and facilities serving the corridor and examines the provisions for water and sewer services and public utilities.

Land Use

Corridor-Wide Land Use

The Route 202, Section 100 Corridor, located in the historic Brandywine Valley of Chester and Delaware counties, is visibly changing due to commercial development adjacent to the highway, increased residential development in corridor municipalities, and continuing development pressure. Simultaneously, the corridor, strategically positioned as a north-south artery, is also experiencing increased traffic volumes and congestion as the roadway serves as both a local road and a regional highway. Besides the many traffic-generating commercial and residential developments, the roadway is also the most efficient route for reaching employment centers in West Chester, Painter's Crossroads, Great Valley, central Delaware County and New Castle County, Delaware.

Section 100 is 7.8 miles long and spans eight municipalities: Birmingham, Thornbury, West Goshen, and Westtown Townships in Chester County and Bethel Township, Chadds Ford (formerly Birmingham), Concord, and Thornbury Townships in Delaware County. Land use in the corridor is shown in **Map 2**, and as this map demonstrates, a wide variety of land uses can be found in the study area. New development over the past three decades has been mainly in the form of single-family detached units on large lots and highway-oriented commercial uses. Despite this increase in residential and commercial development, the corridor still has a large percentage of agriculture, forested lands and vacant properties.

In this report, land use figures are derived from estimates based on 1995 aerial photographs. Every piece of land is assigned to a land use category, which include the following developed land uses:

- **Residential – Single-Family Detached** units include single-family dwellings that are not attached to another dwelling unit, and are the most common dwelling unit type in the study area.

- **Residential – Single-Family Attached** units include duplexes and townhouses.

- **Residential – Multi-Family** units include apartments and group quarters.

- **Manufacturing** includes the area devoted to fabrication and/or assembly of raw materials or components.

- **Transportation** includes areas devoted to rail and highway transportation. Highways are included only when they are double lane divided roadways. To account for local roads, 25 percent of all residential land in the municipalities was subtracted from the residential total and added to the transportation category. Parking is also included in the transportation category, regardless of its attendant land use.

- **Communications and Utilities** include power generation and substations, major transmission lines, radio, television, and microwave towers (when separate), water filtration and storage (except reservoirs), wastewater treatment, and landfills.

- **Commercial** includes retail, wholesale, personal and professional services, hotels, and motels.

- **Community Services** includes hospitals and clinics, government buildings (except military), educational facilities, places of worship, and cemeteries.

- **Recreation** includes parks, recreation sites (e.g., playgrounds) as interpreted, amusement parks, resorts and camps, public assembly sites, and golf courses. The portion of recreational or cultural areas that can be identified on an aerial photograph will most likely not conform to the site boundary. Such information is derived from other sources.

Undeveloped land use categories include the following:

- **Agricultural** includes land devoted to crops, pastures, orchards, tree farms, or other agricultural uses. Farmsteads and associated buildings and single or double lot splitoffs with houses are included in the this classification.

- **Wooded** (forested) areas are determined by continuous canopy or solid tree cover, and include woodland, natural lands, marshes, and swamps. Hedgerows (windrows) are not interpreted as wooded, nor are wooded areas associated with residences. Wooded areas which are emerging from formerly agricultural fields are interpreted as wooded if, in the judgment of the interpreter, the wooded category dominates.

- **Vacant** land is not clearly wooded, not agricultural, and not developed, or is cleared or unused and not tied to other uses.

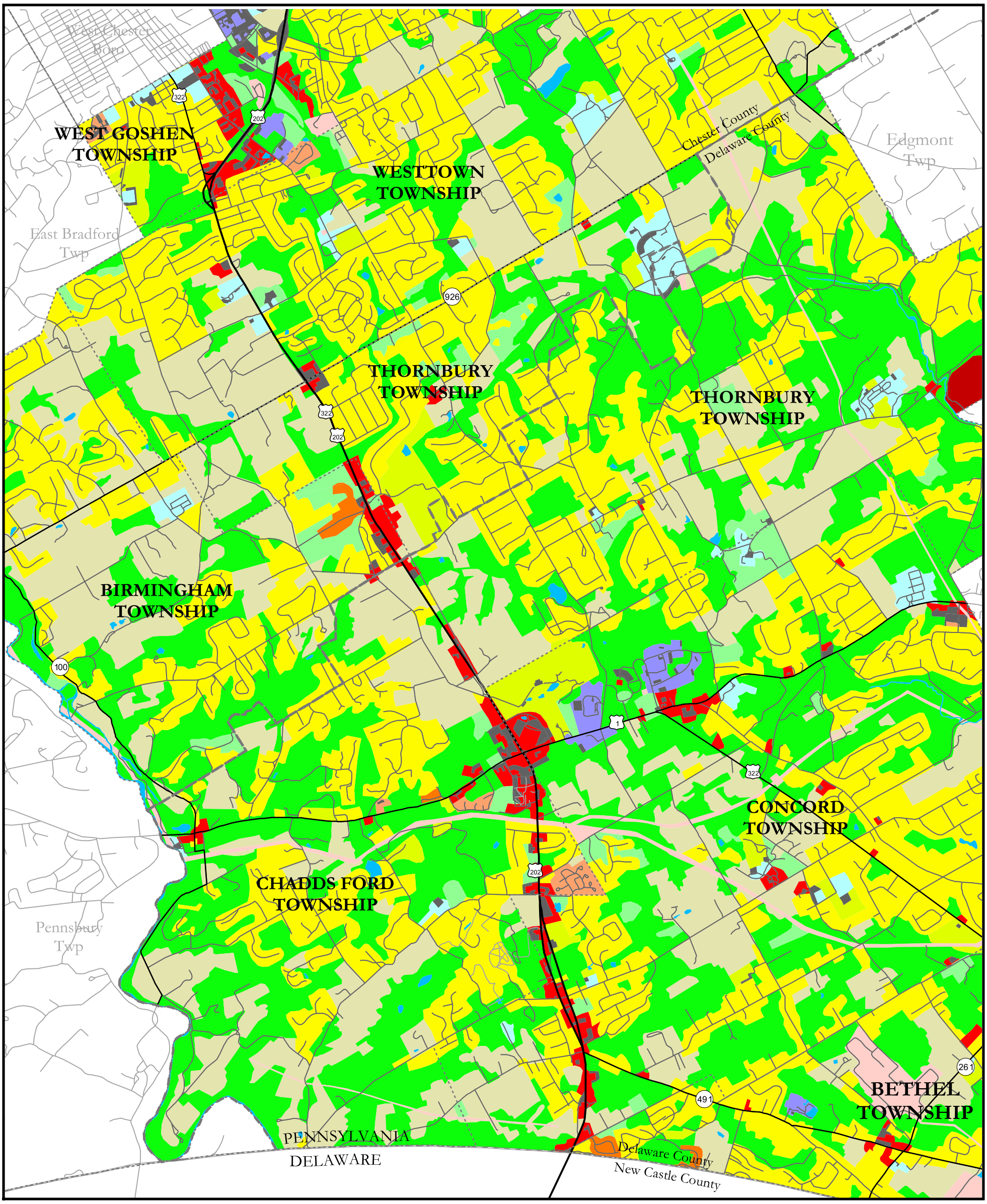
- **Water** areas include rivers, streams, lakes and ponds. Water areas are not divided into wetland categories since a variety of wetland definitions are being used by federal and state agencies and separate mapping is available for wetland areas.

The total land area of the municipalities in the study area is about 44,000 acres, or just under 69 square miles. Concord and West Goshen townships are the largest of these municipalities, and Concord and Chadds Ford townships contain the most frontage along Route 202. In total, close to half of the land in the municipalities in the study area was developed in 1995. West Goshen Township, which borders directly on West Chester Borough, is the most developed of all the municipalities, with more than two-thirds of its land occupied by uses classified as developed in 1995. Chadds Ford and Thornbury (Delaware County) townships, on the other hand, have lower levels of development, with about one-third of their land classified as developed.

The study area is situated in both Chester and Delaware counties, each with a very different overall land use pattern. In general, Delaware County is far more developed, with 63% of its land developed compared to 26% in Chester County. However, the study area municipalities are unusual, in that those from Delaware County are from the least developed part of the county, and those from Chester County are from one of its most developed portions.

Route 202, Section 100

Map 2: Land Use



Land Use Category

- Residential-Single Family Detached
- Residential-Multi Family
- Residential-Row Homes
- Residential-mobile homes
- Manufacturing-Light
- Transportation
- Commercial /Services
- Community Service
- Recreation
- Agriculture
- Mining
- Utility
- Wooded
- Vacant
- Water

N

0 1 2 Miles

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission.

Tables 1 and 2 show the breakdown of developed land use in the corridor in 1995, in absolute terms and by percent of total. As these tables demonstrate, within the category of developed land, most was used for residential purposes. In each municipality, the amount of land in residential use exceeded the amount of land in any other developed use.

Table 1. Developed Land Use by Acre, 1995

Municipality	Residential	Transportation	Commercial	Total Developed	Total Land
Bethel	939	315	47	1,616	3,455
Chadds Ford	1,121	402	141	1,804	5,581
Concord	2,040	771	231	3,753	8,715
Thornbury (Del.)	1,427	486	9	2,101	5,925
Subtotal (Del.)	**5,527**	**1,975**	**427**	**9,274**	**23,676**
Birmingham	1,018	341	44	1,589	3,983
Thornbury (Che.)	643	228	36	1,113	2,530
West Goshen	2,724	1,435	363	5,322	7,719
Westtown	2,084	707	49	3,025	5,590
Subtotal (Che.)	**6,470**	**2,711**	**492**	**11,050**	**19,822**
Corridor Total	**11,997**	**4,686**	**919**	**20,324**	**43,498**
Delaware County	41,758	16,447	4,989	76,678	122,058
Chester County	75,039	28,847	6,188	127,486	486,158

Source: Delaware Valley Regional Planning Commission

Table 2. Developed Land Use by Percent of Total, 1995

Municipality	Residential	Transportation	Commercial	Total Developed	Total Land
Bethel	27%	9%	1%	47%	100%
Chadds Ford	20%	7%	3%	32%	100%
Concord	23%	9%	3%	43%	100%
Thornbury (Del.)	24%	8%	0%	35%	100%
Subtotal (Del.)	**23%**	**8%**	**2%**	**39%**	**100%**
Birmingham	26%	9%	1%	40%	100%
Thornbury (Che.)	25%	9%	1%	44%	100%
West Goshen	35%	19%	5%	69%	100%
Westtown	37%	13%	1%	54%	100%
Subtotal (Che.)	**33%**	**14%**	**2%**	**56%**	**100%**
Corridor Total	**28%**	**11%**	**2%**	**47%**	**100%**
Delaware County	34%	13%	4%	63%	100%
Chester County	15%	6%	1%	26%	100%

Source: Delaware Valley Regional Planning Commission

As Table 2 shows, in 1995, residential land ranged from 20% of total land in Chadds Ford Township to 37% in Westtown Township, with an average of about 28% across the eight municipalities. Transportation systems were also major users of land, taking up 11% of the land in the study area. West Goshen Township contained a higher proportion of transportation and commercial uses than any other municipality, with 19% of its land in transportation use and 5%

in commercial use. On the other hand, Thornbury Township (Delaware County) had less than 1% of its total land in commercial use, and Chadds Ford Township had only 7% of its land used for transportation.

Table 3. Undeveloped Land Use by Acre, 1995

Municipality	Agriculture	Wooded	Vacant or Water	Total Undeveloped	Total Land
Bethel	383	1,402	53	1,838	3,455
Chadds Ford	1,300	2,367	110	3,777	5,581
Concord	1,472	3,167	322	4,961	8,715
Thornbury (Del.)	1,227	2,357	137	3,720	5,925
Subtotal (Del.)	**4,382**	**9,293**	**622**	**14,297**	**23,676**
Birmingham	1,200	1,000	194	2,394	3,983
Thornbury (Che.)	645	640	132	1,417	2,530
West Goshen	490	1,591	315	2,397	7,719
Westtown	1,256	1,155	155	2,566	5,590
Subtotal (Che.)	**3,591**	**4,386**	**795**	**8,772**	**19,822**
Corridor Total	**7,973**	**13,680**	**1,417**	**23,070**	**43,498**
Delaware County	7,950	29,364	7,826	45,140	122,058
Chester County	202,163	143,771	11,669	357,604	486,158

Source: Delaware Valley Regional Planning Commission

Table 4. Undeveloped Land Use by % of Total, 1995

Municipality	Agriculture	Wooded	Vacant or Water	Total Undeveloped	Total Land
Bethel	11%	41%	2%	53%	100%
Chadds Ford	23%	42%	2%	68%	100%
Concord	17%	36%	4%	57%	100%
Thornbury (Del.)	21%	40%	2%	63%	100%
Subtotal (Del.)	**19%**	**39%**	**3%**	**60%**	**100%**
Birmingham	30%	25%	5%	60%	100%
Thornbury (Che.)	25%	25%	5%	56%	100%
West Goshen	6%	21%	4%	31%	100%
Westtown	22%	21%	3%	46%	100%
Subtotal (Che.)	**18%**	**22%**	**4%**	**44%**	**100%**
Corridor Total	**18%**	**31%**	**3%**	**53%**	**100%**
Delaware County	7%	24%	6%	37%	100%
Chester County	42%	30%	2%	74%	100%

Source: Delaware Valley Regional Planning Commission

Tables 3 and 4 show undeveloped land use in the corridor in 1995. As these tables demonstrate, in each township in the study area, a considerable portion of the land was wooded in 1995, ranging from 21% in West Goshen and Westtown Townships to 42% in Chadds Ford. The amount of agricultural land also varied greatly between municipalities, from as low as 6% in West Goshen to 30% in Birmingham Township.

Table 5 shows land uses directly adjacent to Route 202, compared to land uses in the study area municipalities as a whole. It demonstrates the significant differences in land use at these two levels of analysis. Not surprisingly, the land along the highway is more heavily developed than land at a greater distance from transportation routes. The major discrepancy is in commercial land, which constitutes 2% of the total study area but nearly half of the land along the highway. Other land uses commonly found abutting Route 202 are agriculture, single-family residences, and forested land.

Table 5. Major Land Use along Route 202 as Percent of Total, 1995

Land Use Classification	Adjacent to Route 202	Total Municipalities
Commercial	50%	2%
Agriculture	15%	18%
Residential	15%	27%
Wooded	10%	31%

Source: Delaware Valley Regional Planning Commission

Local Land Use

West Goshen Township

West Goshen Township is located at the extreme northern end of the study corridor, and only a small part of Section 100, about 0.6 miles long, extends into the township. West Goshen is the most densely developed municipality in the study area, with more than two-thirds of its land developed. Most of this developed land is residential, but West Goshen also has the largest proportions of transportation and commercial land uses along the corridor. In the Township in general, development continues at a rapid rate, with residential developments dominating.

Several major employers, such as Electronics Boutique and Federal Express, are located in the study area in West Goshen Township, and most of the land along Route 202 is used for offices, warehouse centers, or commercial outlets. In the study area, a Microtel Inn recently located on one of the few remaining undeveloped parcels on the east side of the highway. A considerable amount of land on the west side of the highway remains open, owned by West Chester University, and therefore may not be readily available for development.

Westtown Township

Westtown Township, located between West Goshen and Thornbury (Chester County) townships, contains about 1.5 miles of Route 202. Westtown is second only to West Goshen in level of development, with over half of its land developed. The township has a significant amount of residential land, and devotes a greater percentage of its land to residential uses than the other study area municipalities. Most of this residential development is single-family, although Westtown also devotes nearly 90 acres to multi-family housing, more than any other township but West Goshen.

Much of the township's land area adjacent to Route 202 was used for single family detached residential areas in 1995. Some commercial activity exists on a few tracts along the corridor, primarily near the intersection of the Routes 202 and 926. Recent residential developments along Route 202 include the Jefferson at Westtown apartment complex, which contains about 250 apartment units, and the nearby Sunrise Assisted Living facility, which includes about 80 units of housing for the elderly. Several nonresidential developments have also occurred in

recent years, and include a daycare facility near the new apartments and a Catholic elementary school just off the highway.

The Crebilly Farm, located on the northwest corner of Routes 202 and 926, may soon be developed as well. The Township's plans currently include an office park along Route 202, a golf course to the west, and preserved open space near the Township's boundary with Birmingham Township. The Township wishes to encourage the office park to be designed in a way that is historically sensitive, incorporating existing historic buildings and the scenic landscape of the Crebilly Farm.

Thornbury Township (Chester County)

Thornbury Township (Chester County) is south of Westtown Township, and contains land on both sides of Route 202 for about 0.7 miles of the highway's length. Single-family residences, agriculture, and wooded land were the uses with the greatest areas in 1995, each of them making up about 25% of the township's total area. Single-family housing units are the predominant housing type in the township and are situated on large lots connected to a cul-de-sac street network. Along Route 202, Thornbury Township's frontage is less heavily developed than most other townships in the study area, and access to the highway has been controlled.

A recent major residential development near to Route 202 is Brandywine at Thornbury, which provided the Township with its first multi-family housing and doubled its population. This development has limited access points to Route 202, and is buffered from the highway by berms. Another major proposed development, called the Shoppes at Dilworthtown, is planned, and some construction has already begun. This development will include at least 130,000 square feet of commercial space and approximately 200 apartments.

Birmingham Township

Birmingham Township is located just to the north of Dilworthtown / Brintons Bridge Road, the approximate midpoint of the Route 202 study area. It includes land on both sides of the highway, although the portion to the east of Route 202 is only a narrow strip along the highway no more than a few hundred feet wide. The segment of Route 202 that passes through Birmingham Township is about a mile in length. As a whole, the Township is a developing residential community with low to medium density housing. The overall level of development is relatively low, below the average of the eight municipalities. In 1995, Birmingham had the highest concentration of agricultural land in the study area, with about 30% of its total land devoted to farming. Historically significant sites can be found in a number of places within the township, which includes a major section of the Brandywine Battlefield.

Birmingham's commercial uses are concentrated along Route 202, stretching from Dilworthtown Road to just south of Green Tree Drive, containing an intensive mix of small and medium size uses, mixed with parking lots, a few vacant parcels, and numerous access points onto the highway. Automobile dealerships are especially common along the highway in Birmingham, with a Cadillac dealer and Mercedes dealer soon occupying land along the highway near an existing BMW dealer. In addition, a major residential development known as the Knolls of Birmingham has recently been constructed near the highway.

Thornbury Township (Delaware County)

Only about 600 feet of Route 202 are adjacent to Thornbury Township (Delaware County), which is located on the east side of the highway between Concord and Thornbury (Chester County) townships. Thornbury Township (Delaware County) has not experienced much

development, and is second only to Chadds Ford Township in its percentage of undeveloped land. It contains a high proportion of wooded land, which makes up about 40% of its total. Among developed land uses, residential land is by far the most common; less than 9 acres of commercial uses exist in the Township, the lowest in the study area, and only 0.1% of its total area.

Not much development has occurred along the small stretch of Route 202 in the township. Agriculture still prevails; however, since current zoning regulations permit residential development, this land may not remain in farming use for long. Also, highway expansion may make this land more attractive for development.

Chadds Ford

Chadds Ford Township is located south and west of Route 202's intersection with Brintons Bridge/ Dilworthtown Road, the approximate midpoint of the Route 202 study area. Three miles of the Route 202 corridor is contained within the township, and for over two miles Chadds Ford borders the highway on both sides. It is the least developed of all the municipalities along the corridor, with less than one-third of its land devoted to developed uses. Chadds Ford contains large expanses of agricultural and wooded land, and has the highest percentage of wooded land in the study area. Much of this undeveloped land is contained within the Brandywine Battlefield Park, an important historic resource and source of open space. Because of this low level of development, Chadds Ford has retained a significant amount of its rural character.

Most growth in Chadds Ford Township has been concentrated along Route 202, where the land is best suited for development. The intersection of Routes 1 and 202, known as Painter's Crossroads, has been the site of intensive office development in Chadds Ford, and development in this area continues. Slightly south of this intersection, near the out-of-service Octoraro rail line just south of Painters Crossroads, large office buildings and a shopping center dominate the southbound side of Route 202, as part of the emerging employment center in this area. In other areas along the highway, individual, small-scale uses predominate, and the high number of individual driveways cause access problems along the highway.

Concord Township

Concord Township, located to the east of Chadds Ford and north of Bethel, is the largest municipality in the study area, and also contains a large segment of Route 202. Slightly less than three miles of the highway pass through the Township, with over two miles bordered on both sides by it. Concord's level of development is slightly below the average for the study area. In 1995, Concord had more acres of wooded land and more agricultural land than any other municipality in the study area.

Concord is a predominantly residential township, but it has a significant commercial base along Route 202. Major apartment developments, such as the 350-unit Summit Valleybrook complex and the 280-unit Smithbridge Apartments, have been proposed for the southern part of Concord's section of Route 202. In addition, several lower-density single-family developments have been constructed or proposed near Route 202, though not directly along the highway. Commercial and office uses are common along the entire stretch of Route 202 that runs through Concord Township, but occur at a higher intensity in the Painters Crossroads area. Here, State Farm Insurance, probably the largest employer along the corridor, is located. Also, Applied Card Systems, which will employ about 1,000 people, is planning a move to Painters Crossroads.

The Village of Elam, located near the section of the highway where northbound and southbound lanes are split, is a key feature of Concord Township. Elam is a historic village, with higher densities than most surrounding developments and some integration with commercial uses. The village is currently bisected by Route 202, and will be affected by the future improvements to the highway.

Bethel Township

Bethel Township is located on the extreme southern end of the corridor, on the border with Delaware. Only a few hundred feet of the township abut Route 202, the shortest stretch of any of the municipalities in the study area. Bethel's level of development is about average for the corridor, with slightly less than half its land developed. The township retains a large amount of wooded land, with over 40% of its total area forested in 1995. Development occurred rapidly in Bethel during the 1990s, as its population nearly doubled between 1990 and 2000.

Patterns of Change

Between 1990 and 1995, the municipalities in the study area developed at quite variable rates, as Tables 6 and 7 demonstrate. Bethel, Chadds Ford, and Thornbury (Chester County) townships all increased their area of developed land by over 15% during these years. On the other end of the scale, Westtown Township, which was already highly developed, only experienced a 3% increase in developed land. For the study area as a whole, developed land increased by 8% between 1990 and 1995, by a total of 1,500 acres or about 2.4 square miles.

Much of this newly developed land was occupied by residential uses. About 980 acres (or 1.5 square miles) of previously undeveloped land was converted to residential use between 1990 and 1995, an increase of about 9%. *The municipality with the largest increase in residential land was Bethel Township*, which added over 180 acres of residential land over these five years, an increase of 24% over its 1990 figures. Also, over 370 acres were consumed by transportation uses, such as residential streets, in the study area as a whole, in addition to nearly 80 new acres of recreational uses and almost 30 acres of commercial uses.

Table 6. Land Use Change in Acres, 1990-1995

Municipality	Residential	Trans	Commer	Agriculture	Wooded	Vacant or Water	Total Developed
Bethel	182	59	6	-77	-134	-34	245
Chadds Ford	94	38	0	-41	-119	14	147
Concord	87	39	10	-148	-26	2	172
Thornbury (Del.)	141	47	0	-165	-72	49	188
Subtotal (Del.)	**505**	**184**	**16**	**-432**	**-351**	**32**	**751**
Birmingham	174	46	0	-293	3	75	215
Thornbury (Che.)	124	47	-2	-176	-51	59	168
West Goshen	139	86	2	-310	-51	82	278
Westtown	40	10	11	-48	-57	13	92
Subtotal (Che.)	**477**	**188**	**11**	**-826**	**-156**	**229**	**-754**
Corridor Total	**981**	**372**	**27**	**-1,258**	**-508**	**260**	**1,505**
Delaware Co.	1,138	493	136	-597	-1,108	-136	1,834
Chester Co.	6,441	2,361	641	-8,085	-2,899	715	10,242

Source: Delaware Valley Regional Planning Commission

Table 7. Land Use Change as % Increase, 1990-1995

Municipality	Residential	Trans	Commer	Agriculture	Wooded	Vacant or Water	Total Developed
Bethel	24%	23%	13%	-17%	-9%	-39%	18%
Chadds Ford	9%	11%	0%	-3%	-5%	14%	9%
Concord	4%	5%	4%	-9%	-1%	1%	5%
Thornbury (Del.)	11%	11%	0%	-12%	-3%	56%	10%
Subtotal (Del.)	**9%**	**9%**	**4%**	**-10%**	**-4%**	**5%**	**8%**
Birmingham	21%	16%	0%	-20%	0%	62%	16%
Thornbury (Che.)	24%	26%	-5%	-21%	-7%	80%	18%
West Goshen	5%	6%	1%	-39%	-3%	35%	6%
Westtown	2%	1%	27%	-4%	-5%	9%	3%
Subtotal (Che.)	**7%**	**7%**	**2%**	**-23%**	**-4%**	**29%**	**7%**
Corridor Total	**9%**	**9%**	**3%**	**-14%**	**-4%**	**23%**	**8%**
Delaware Co.	3%	3%	3%	-7%	-4%	-2%	2%
Chester Co.	9%	9%	12%	-4%	-2%	10%	9%

Source: Delaware Valley Regional Planning Commission

Most of these 1,500 newly developed acres were either agricultural or wooded in 1990. Between 1990 and 1995, over 1,250 acres (nearly 2 square miles) of agricultural land were lost in the study area, a 14% decrease. West Goshen and Birmingham townships lost the largest amount of agricultural land, around 300 acres each. For West Goshen, this represented a large portion of its remaining agricultural land; if trends during this period continue unabated, there may be no farmland left in the township by 2003. Wooded land also suffered major decreases, especially in Bethel and Chadds Ford townships, which each lost more than 100 acres of forestland.

Farmland loss occurred at a greater rate in the study area municipalities than either County. About 14% of the agricultural land in the study area was converted to other uses between 1990 and 1995, compared to 7% in Delaware County and just 4% in Chester County. Based on these high rates of growth, it would seem that pressure to develop land in the corridor is high, with development occurring rapidly in most of the municipalities.

According to a land use model developed by DVRPC, land consumption will continue at a similar rate into the near future. The results of applying this model to the municipalities in the study area are shown in Table 8. Between 1995 and 2005, as Table 8 demonstrates, over 3,600 acres of land will be converted from undeveloped to developed uses. Concord Township will have the most land consumed over this period, closely followed by Westtown Township, but the largest percentage increase in developed land will occur in Birmingham Township.

Table 8. Projected 1995-2005 Land Use Change

Municipality	Developed Land in Acres		Absolute Change	Change as %
	1995	2005		
Bethel	1,616	1,946	330	20%
Chadds Ford	1,804	2,087	283	16%
Concord	3,753	4,482	729	19%
Thornbury	2,101	2,450	349	17%
Subtotal (Delaware)	**9,274**	**10,965**	**1,691**	**18%**
Birmingham	1,589	2,172	582	37%
Thornbury	1,113	1,361	248	22%
West Goshen	5,322	5,714	391	7%
Westtown	3,025	3,740	715	24%
Subtotal (Chester)	**11,050**	**12,986**	**1,937**	**18%**
Corridor Total	**20,324**	**23,952**	**3,628**	**18%**
Delaware County	76,678	80,463	3,785	5%
Chester County	127,486	143,918	16,432	13%

Source: Delaware Valley Regional Planning Commission

Proposed Development Activity

One method to assess the area's housing market is to examine the number of residential building permits that were issued in selected years. By examining municipal totals versus countywide totals, generalized statements about the relative growth in housing can be made. These figures are presented in Table 9.

Between 1990 and 1999, over 6,200 residential building permits were issued in the study area. Concord Township issued more than any other municipality, followed by Bethel, Westtown, and West Goshen townships, while Chadds Ford Township issued the smallest number. *A dramatic rise in annual numbers of building permits occurred around 1996*. During the early 1990s, on average, less than 400 building permits were issued per year in the study area as a whole. After 1996, though, the average rose to nearly 970 per year, and almost 2,000 permits were issued in 1996 and 1997 combined.

This rise in building permit issuance indicates that land use may have changed considerably since 1995, the most recent year for which land use data is available. Based on building permit

data, land development accelerated in the latter half of the 1990s, and that the land use changes recorded between 1990 and 1995 were eclipsed by changes between 1995 and 2000.

Table 9. Building Permits Issued, 1980-1999

Municipality	1980-84	1985-89	1990-94	1995-99	1980-99
Bethel	52	376	375	807	1,610
Chadds Ford	115	426	64	50	655
Concord	214	206	111	1,303	1,834
Thornbury	79	97	204	197	577
Subtotal (Delaware)	**460**	**1,105**	**754**	**2,357**	**4,676**
Birmingham	221	300	254	333	1,108
Thornbury	39	180	80	500	799
West Goshen	279	616	367	595	1,857
Westtown	457	614	401	578	2,050
Subtotal (Chester)	**996**	**1,710**	**1,102**	**2,006**	**5,814**
Corridor Total	**1,456**	**2,815**	**1,856**	**4,363**	**10,490**
Delaware County	4,236	6,771	3,445	5,770	20,222
Chester County	10,321	19,393	10,625	15,164	55,503

Source: Delaware Valley Regional Planning Commission

Current Zoning Regulations

Municipal zoning regulations have a direct bearing on the future functioning of Route 202. Zoning provisions establish controls for land use, density, lot dimensions and building placement, among other things. These regulations dictate the extent and location of new development, which in turn impact the level of traffic generated.

To obtain a thorough understanding of current regulations, the zoning ordinances of corridor municipalities were reviewed. Uses, densities, and setback requirements in each zoning district shape the character of land development and influence traffic patterns.

Map 3 illustrates the location of the varied municipal zoning districts. Districts have been placed into generalized categories to form a composite map. The basic provisions of each district are outlined below. This data indicates that there is little continuity in zoning regulations along Route 202. Permitted land uses range from low density, single family homes to industrial uses. Tables 10 and 11 outline existing municipal zoning districts and the composite zoning classifications by municipality.

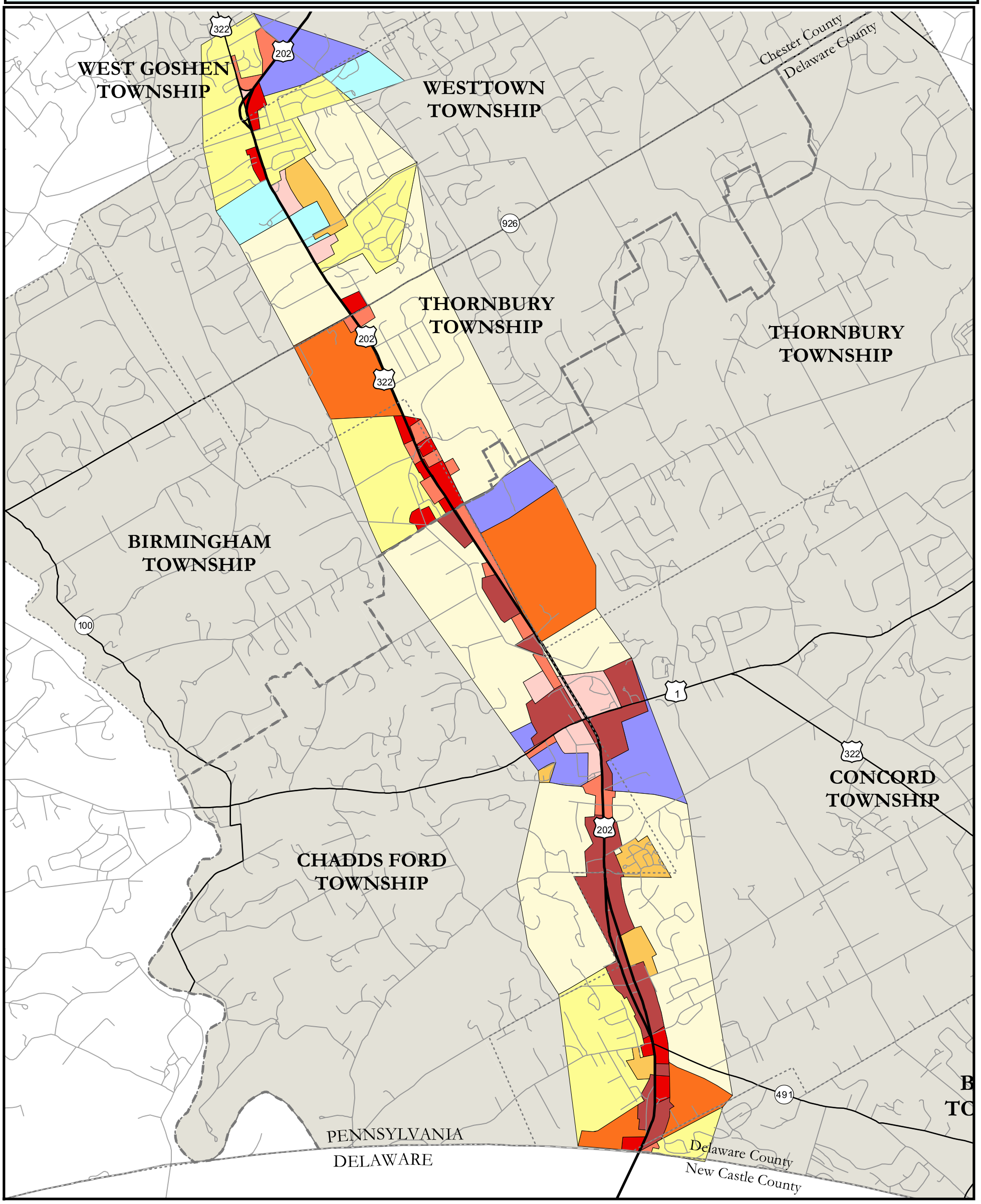
Table 10. Generalized Zoning Districts and Descriptions

Zone	Description
R-1	Low density residential – intended for low density, single family suburban development. Only single-family detached houses are allowed, and minimum lot size is one acre.
R-2	Medium density residential – intended for suburban development at a higher density than R-1. Only single family detached houses are allowed, and minimum lot size varies between 15,000 square feet (about 1/3 acre) and one acre.
R-3	High-density multi-family – intended for a diversity of housing types at relatively high densities. Single-family, two-family, and multi-family units are permitted, and minimum lot size can be as low as 2,000 square feet.
PRD	Planned residential development – intended for generally large-scale, planned developments, mostly of single-family homes.
C-1	Neighborhood/regional commercial – intended for commercial centers that mostly attract local customers. Most small-scale commercial uses are permitted, and minimum lot size varies between a few thousand square feet and one acre.
C-2	Highway commercial – intended for larger scale commercial centers that serve a larger market. Most commercial uses are allowed, and minimum lot size is one acre.
LI	Light industrial – intended for industrial uses that are appropriate in a suburban setting. Non-nuisance industrial uses, as well as office and laboratory uses, are permitted. Lot size is generally two or more acres.
PBD	Planned business development – encompassing industrial and office parks, as well as large-scale commercial development. Non-nuisance industrial, research, office, or commercial development is permitted, with very large lot sizes; minimum lot sizes vary, but are usually 10 acres or more.

Source: Delaware Valley Regional Planning Commission, Based on Study Area Municipal Zoning Ordinances, Summer 2000

Route 202, Section 100

Map 3: Composite Zoning



Zoning District

- (C-1) Neighborhood/Regional Commercial
- (C-2) Highway Commercial
- (LI) Limited/Light Industrial
- (MU) Multiple Use
- (PCD) Planned Commerical Development
- (POD) Planned Office Development
- (PRD) Planned Residential Development
- (R-1) Low Density Residential
- (R-2) Medium Density Residential
- (R-3) High Density/Multi-Family Residential

N

0 1 2 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission, Skelly and Loy,Inc.

Table 11. Generalized Zoning Classifications by Municipality

Municipal Zoning Classification	Generic Classification
West Goshen	
R-3 (Residential)	R-2
C-1 (Neighborhood Commercial)	C-1
C-1-R (Neighborhood Commercial – Restricted)	PBD
C-3 (Limited Highway Commercial)	C-2
I-2 (Light Industrial)	LI
Westtown	
R-1 (Residential)	R-1
R-2 (Residential)	R-2
R-3 (Residence-Office)	R-3
C-1 (Neighborhood & Highway Commercial)	C-2
POC (Planned Office Campus)	PBD
A/O (Agricultural / Office)	PBD
M-U (Multi-Use)	other
Thornbury (Chester County)	
A (Agricultural / Residential)	R-1
A/PRD/MH (Planned Residential / Mobile Home)	PRD
B (Business)	C-2
Birmingham	
RA (Residential-Agricultural)	R-1
R-2 (Residential)	R-2
C-1 (Highway-Commercial)	C-2
C-2 (Heavy-Commercial)	C-2
C-3 (General-Commercial)	C-1
C-H (Historic Commercial)	C-1
Thornbury (Delaware County)	
MHP (Mobile Home Park)	R-3
PRD3 (Planned Residential Development)	PRD
LI (Limited Industrial)	LI
Chadds Ford	
R-1 (Residence)	R-1
R-2 (Residence)	R-1
R-M (Residence/Multi-Family)	R-3
R-A (Residence/Apartment)	R-3
B (Business)	C-1
PBC (Planned Business Center)	PBD
POC (Planned Office Center)	PBD
LI (Light Industrial)	LI

Source: Delaware Valley Regional Planning Commission, Based on Study Area Municipal Zoning Ordinances, Summer 2000

(continued on next page)

Table 11 (continued).

Municipal Zoning Classification	Generic Classification
Concord Township	
R-2 (Residence)	R-1
R-2D (Residence)	R-1
R-3 (Residence)	R-2
R-A (Garden Apartment)	R-3
R-AH (High Rise Apartment)	R-3
R-PRD-1 (Planned Residential Development)	PRD
C-2 (Planned Business and Commercial)	C-2
C-2A (Planned Business and Commercial)	C-2
C-3 (Service Commercial)	C-2
LI (Light Industry)	LI
PLO (Planned Laboratory-Office)	PBD
Bethel Township	
R4 (Residence District)	R-2
C1 (Commercial District)	C-1

Source: Delaware Valley Regional Planning Commission, Based on Study Area Municipal Zoning Ordinances, Summer 2000

There is a wide range of uses permitted within the corridor. About half of the highway frontage is zoned commercial, although often this is a narrow strip only a few hundred feet wide. Commercial zoning can also be found along major cross roads such as Route 1 and Brintons Bridge Road, but in general it is clustered along Route 202. Most land not directly adjacent to the highway but within one-half mile is zoned residential. A majority of this residential land is zoned for low density development, although several areas are zoned for large scale planned residential development. There is also a fair amount of medium density residential zoning, with only a few scattered islands of high density or multi-family zoning.

Residential Uses

High density residential uses have historically been accommodated in the Villages of Dilworthtown and Elam. Today, high-density residential districts have expanded along the corridor, and many municipalities have concentrated their high-density residential development along Route 202, such as Birmingham, Thornbury and Westtown Townships in Chester County, as well as Concord Township in Delaware County. Under a series of flexible design standards, the densities in some municipalities may be increased to as much as 12 dwelling units per acre. In addition, lands fronting Route 1 in Chadds Ford are currently zoned for high-density residential development. While not located directly on Route 202, this location is in proximity to the intersection of Routes 1 and 202 and has the potential to direct traffic to the corridor.

The Townships of Westtown, Thornbury (Chester County), Chadds Ford, and Concord have zoned most land near Route 202 for low-density residential development. These districts do, however, provide opportunities for higher density and more intensive uses when certain conditions are met, such as off-site utilities or through special exception or conditional use processes. Without provisions for access management, these potential higher densities could create traffic flow and turning movement problems within the corridor.

Commercial Uses

Approximately half of the highway frontage is zoned for commercial uses, ranging from retail and services to office and research, with minimum lot sizes varying between one and two acres. Approximately eighty percent of the highway frontage between US 1 and the Delaware State line is zoned for commercial uses, mostly large-scale planned commercial development. The zoning standards in this area are rather flexible, allowing a wide range of uses, from retail sales to light industrial.

Development of these properties could generate significant traffic volumes. The practice of encouraging strip commercial districts along the highway has increased the concentrations of access points and created conflicting turning movements where no median is present.

Lot Widths

The width of a lot at the street line, also known as lot frontage, influences driveway placement. As lot sizes decrease and frontages narrow, driveways become concentrated. The lot frontage provision, therefore, becomes an important tool in managing highway access. Without access controls, zoning regulations can quickly deteriorate the efficacy of a highway.

In the corridor, lot widths at street line range from fifty to four hundred feet. While fifty feet may be an adequate width for residential uses on local roads or the internal road network of a subdivision, it becomes inadequate as the function of the road increases, resulting in more access points along the highway. For a major arterial such as Route 202, with high traffic volumes and high speeds, access management for proper functioning of the road is required. Innovative access management techniques include: providing greater flexibility in locating access points; requiring additional separation distances between driveways; and reducing the concentration of land uses. All of these techniques can ease congestion and improve safety.

Most of the non-residential districts require a lot width of between two hundred and four hundred feet. Such widths not only provide additional driveway separation, but offer the opportunity for designing a variety of access treatments. Lot widths of fifty feet in business districts, however, can still be found in both Chadds Ford and Concord townships.

Building Setbacks

Building setback provisions, also known as front yard requirements, pose an additional impact on highway planning. Shallow setback requirements leave a limited area for future highway improvements to occur, possibly requiring acquisition of yard areas. These improvements may come in close proximity to structures or may not have adequate room without taking additional properties.

Within the corridor, setback provisions range from fifty to one hundred and twenty feet in Chadds Ford and Westtown Townships, respectively. Westtown has incorporated a special design provision which links building placement with the function of the road. A minimum front yard of one hundred feet is required for all lots fronting along a designated highway, regardless of zoning district provisions.

Most of the municipalities also measure setback distances from the right-of-way line rather than the centerline of the road. This measurement indirectly scales setbacks with the road function. Typically, the right-of-way width increases as the road function increases. The result is a uniform setback requirement, which affords adequate width for most highway improvements.

Vacant Parcel Analysis

To project potential land use patterns and traffic generation, a list of large, developable, vacant parcels and their applicable zoning district provisions was compiled. Vacant tracts include lands presently in pasture, woodlands or other undeveloped uses, and "large" indicates ten acres or more. Then, the maximum number of units/uses permitted on a tract was calculated using minimum lot size and uses by right. This represents the "worst case" scenario in which all tracts are developed, commonly referred to as "build out."

The figure was then multiplied by the trip generation standards defined in the 1997 Institute of Transportation Engineers' (ITE) *Trip Generation* manual to determine an estimate of traffic volumes. In districts that provided for a wider range of uses, the most intensive use was considered in the trip generation calculation. Table 12 shows the calculations.

The analysis found that current zoning provisions allow ample additional development within the corridor. The wide range of permitted densities provides for a significant number of potential dwelling units. While total build-out of these properties may never be achieved, at least 872 new dwelling units are permitted under current zoning.

Table 12. Large Developable Parcels in Corridor

Municipality	Acreage	Zoning	Dwellings under Build-Out*	Non-Residential Space (sq ft)*	New Daily Trips under Build-Out**
Chadds Ford	12.3	POC	-	133,000 sq ft	1,700
Chadds Ford	11.6	PBC	-	127,000 sq ft	7,900
Westtown	15.2	MU	114	--	700
Westtown	423.1	R-1	360	--	3,400
Thornbury (Delaware Co)	187.1	RRD-3	398	--	3,700
Total	**649.3**		**872**	**260,000 sq ft**	**17,400**

Source: Delaware Valley Regional Planning Commission, Institute of Transportation Engineers

* Figures include allowable units per acre based on total acreage less 15% for development infrastructure.

** Trip generation standards are set by ITE. Residential trips are based on total dwelling units while commercial and office trips are based on square footage of floor area. Floor area equals maximum building coverage multiplied by total acreage.

When development potential is translated into trip generation, the public impacts become clearer. An estimated average of 17,400 new trips could be generated each day. This volume could place significant strain on Route 202 as well as Routes 1 and 926, and all collector roads, including those owned and maintained by municipalities. Under the "build-out" scenario, a number of existing intersections along Route 202 could face over-capacity or very poor levels of service.

Planning Implications of Land Use Conditions

- The corridor is affected by numerous factors which exist beyond its boundaries and have significant municipal and regional impacts such as land use patterns, transportation improvements to Route 202 and other roads, protection of the Brandywine Creek and its tributaries and the preservation of the Brandywine Battlefield.

- Although most municipalities within the corridor have similar land use philosophies, improvements to Route 202 will create development pressures throughout the area. Uncoordinated development will significantly impact all municipalities along the corridor and potentially generate regional traffic impacts.

- Land use projections indicate development of another 18% of the corridor's total land area over the next ten years, exceeding county growth rates.

- Corridor municipalities have issued a substantial number of building permits for new home construction between 1980 and 1999, with 10,490 permits issued.

- There are still large areas of the corridor zoned for high density residential uses, which if developed, could greatly impact the corridor by generating more vehicle trips.

- Fewer commercial or industrial uses exist in the northern portion of the corridor, though some recent new development is commercial.

- With lot widths ranging from fifty feet to four hundred feet in some municipalities, the issue of access management is critical in the corridor.

- Large undeveloped vacant tracts still exist within the corridor, which could support the development of significant dwelling units and commercial and office operations.

Population, Employment, and Housing

Demographic and population trends within the corridor affect land use, community facilities, and transportation. This data can also help to explain current development patterns in the Route 202 corridor, as more people require more schools, more homes, and more trips. How the corridor has recently changed, and how it is forecast to change in the next 25 years, is discussed in this section.

With reports showing that the suburban counties combined have attracted more people, paid more wages, and enticed more spending than the City of Philadelphia since 1995, the economic hub of the region is shifting. The study area paints such a picture of a strong regional economy highlighted by growth in housing and increased job opportunities. This is reflected in the addition of retail development at Painters Crossroads, as well as the relocation of major employers such as State Farm Insurance and AIG Insurance. Locally, the eight study area townships are expected to add 31,100 residents from 1990 through 2025 (a 51% increase), with an increase of 22,300 jobs during the same time (a 42% increase). At a broader scale, DVRPC forecasts a 46 percent increase in jobs from 1990 through 2025 for Chester County, and an 18 percent increase in jobs for the same time period for Delaware County, adding 132,000 total jobs.

Population

According to the most recent Census figures, the eight municipalities in the study area grew by over 14,000 people between 1990 and 2000, an increase of about 28%. This population increase has created the demand for new housing units and retail services, and has added to the already high congestion found throughout the corridor.

Table 13. Population Trends 1970-2000

Municipality	1970	1980	1990	2000	% Change 1990-2000
Bethel	1,834	2,438	3,330	6,421	93%
Chadds Ford	1,093	2,057	3,118	3,170	2%
Concord	3,149	6,437	6,933	9,933	43%
Thornbury (Del.)	2,035	3,653	5,056	7,093	40%
Subtotal (Del.)	**8,111**	**14,585**	**18,437**	**26,617**	**44%**
Birmingham	834	1,584	2,636	4,221	60%
Thornbury (Che.)	803	1,323	1,131	2,678	137%
West Goshen	12,853	16,164	18,082	20,495	13%
Westtown	5,071	6,774	9,937	10,352	4%
Subtotal (Che.)	**19,561**	**25,845**	**31,786**	**37,746**	**19%**
Corridor Total	**27,672**	**40,430**	**50,223**	**64,363**	**28%**
Delaware County	553,154	555,007	547,651	550,864	1%
Chester County	277,746	316,660	376,396	433,501	15%

Source: 2000 U.S. Census

Table 13 illustrates these population trends, indicating that Chester County has experienced steady population gains since 1970, while the population of Delaware County has remained stable. It is also important to note that the Delaware County townships in the study area, which had a lower level of development to begin with, experienced greater population gains than the

Chester County townships in the study area. The study area municipalities in Delaware County are receiving a large portion of their County's growth, while those in Chester County are growing at an average rate for their County. Another trend to note is that from 1990 through 2025, DVRPC has forecasted a 45 percent increase in population for Chester County, compared to an overall loss of 1.3 percent for Delaware County.

This trend of rapid growth and its resulting demands is forecast to continue in the eight townships through 2025, as Table 14 shows. With the exception of West Goshen, Chester County, every municipality is expected to grow at rates higher than that of their respective counties as a whole. Birmingham and Thornbury Townships in Chester County are expected to grow the most in the corridor from 1990 through 2025, with a 185 and 108 percent increase, respectively. Within Delaware County, Concord Township is expected to grow by 106 percent in the 35-year period from 1990 through 2025. Forecasted population increases along the corridor will only exacerbate the existing traffic problems experienced during the morning and evening commutes, as well as increasing traffic volume on the highway network.

Table 14. Municipal Population Forecasts 1990-2025

Municipality	1990	2000	2025	% Change 1990-2025
Bethel	3,330	6,421	6,250	88%
Chadds Ford	3,118	3,170	5,200	67%
Concord	6,933	9,933	14,250	106%
Thornbury (Del.)	5,056	7,093	7,230	43%
Subtotal (Delaware)	**18,437**	**26,617**	**32,930**	**79%**
Birmingham	2,636	4,221	7,500	185%
Thornbury (Che.)	1,131	2,678	2,350	108%
West Goshen	18,082	20,495	23,000	27%
Westtown	9,937	10,352	15,550	56%
Subtotal (Chester)	**31,786**	**37,746**	**48,400**	**52%**
Corridor Total	**50,223**	**64,363**	**81,330**	**62%**
Delaware County	547,651	549,070	540,460	-1%
Chester County	376,396	433,544	546,777	45%

Source: Delaware Valley Regional Planning Commission, 2000 U.S. Census

To produce its forecasts, the DVRPC uses a multi-step, multi-source methodology by applying standard demographic methods along with current demographic and economic information available at the regional, county, and municipal level. Population change has six major components: births, deaths, domestic in-migration, domestic out-migration, international immigration, and changes to group quarters' populations. The demographic analysis provides a basis for predicting future growth and estimating residential and nonresidential land area requirements. Table 14 presents a summary of DVRPC population forecasts for the study area.

Population breakdown by age is also shifting in the study area. By reviewing the 1990 U.S. Census data age distributions in the corridor, useful insight into future needs of corridor residents can be obtained. These age breakdowns are given in Table 15.

Table 15. 1990 Municipal Population by Age

Municipality	**0-4**	5-17	18-29	30-54	55-65	65+
Bethel	209	607	480	1,351	330	353
Chadds Ford	162	469	522	1,315	356	295
Concord	427	1,351	995	2,803	736	621
Thornbury (Del.)	206	1,048	1,831	1,292	349	330
Subtotal	1,004	3,475	3,828	6,761	1,771	1,599
Birmingham	132	640	268	1,219	223	154
Thornbury (Che.)	66	207	157	455	103	143
West Goshen	1,459	3,049	3,181	6,860	1,541	1,992
Westtown	801	2,080	1,288	4,201	871	696
Subtotal	2,458	5,976	4,894	12,735	2,738	2,985
Corridor Total	3,462	9,451	8,722	19,496	4,509	4,584
Delaware County	38,335	88,344	103,729	178,479	53,901	84,932
Chester County	27,972	66,053	67,661	141,060	32,673	40,977

Source: 1990 U.S. Census

The above information clearly shows that a large portion of the population is of school age (ages 5 to 17), while a still larger portion is of child bearing age, indicating a potential need for additional facilities such as schools and recreation areas. It is also apparent from the table that significant portions of the population were of, or approaching, retirement age, in both Chester and Delaware counties. This may also indicate that special facilities and services, such as assisted living facilities and public transportation, will be needed in the future to support this population. Trends in county population by age were also forecasted from 2000 to 2025 by DVRPC, and are given in Table 16. These forecasts reflect specific distributions in various age groupings within the DVRPC region.

Table 16. Elderly Population 2000-2025

Age	**2000**	2015	2025	Absolute Change, 2000-25	% Change, 2000-25
Delaware County					
55 to 69	70,837	98,270	100,958	30,121	43%
Over 70	62,638	62,563	75,170	12,533	20%
County Totals	133,475	160,833	176,128	42,654	32%
Chester County					
55 to 69	51,192	99,444	100,617	49,426	97%
Over 70	33,715	46,672	73,218	39,504	117%
County Totals	84,907	146,116	173,835	88,930	105%

Source: **Delaware Valley Regional Planning Commission**

Employment

As the character of the area has shifted from agricultural to a more suburban development pattern, the amount of employment opportunity has also increased. With numerous office and commercial developments, the corridor has seen a substantial increase in the amount of professional employment opportunities, as well as an increase in retail and service sector jobs. According to DVRPC estimates, both Chester and Delaware counties are expected to have relatively strong employment growth in coming years, as can be seen in Table 17.

Table 17. Regional Employment Projections 1990-2025

Municipality	1990	2000	2010	2020	2025	% Change 1990-2025
Bethel	909	1,060	1,330	1,610	1,850	104%
Chadds Ford	5,487	7,160	9,900	12,210	12,980	137%
Concord	3,974	4,930	6,090	7,450	8,020	102%
Thornbury (Del.)	2,221	2,500	3,020	3,700	4,020	81%
Subtotal	**12,591**	**15,650**	**20,340**	**24,790**	**26,870**	**113%**
Birmingham	111	250	300	300	250	125%
Thornbury (Che.)	185	300	450	550	650	251%
West Goshen	14,921	18,050	19,500	20,500	21,000	41%
Westtown	2,629	3,100	3,550	3,800	3,950	50%
Subtotal	**17,846**	**21,700**	**23,800**	**25,150**	**25,850**	**45%**
Corridor Total	**30,437**	**37,350**	**44,140**	**50,120**	**52,720**	**73%**
Delaware Co.	230,000	236,000	250,000	266,000	270,000	17%
Chester Co.	198,000	230,000	257,000	278,000	289,000	46%

Source: Delaware Valley Regional Planning Commission

Table 17 shows that employment in Chester County is forecasted to increase 46 percent, while figures for Delaware County show a 17 percent increase. Besides West Goshen Township, with an employment increase of 41%, all of the municipalities along the corridor exceed their countywide average for the forecasted percentage change in employment from 1990 through 2025. Taken in the aggregate, these forecasts provide impressive expectations for job growth in the corridor. The proximity of the corridor to I-95, US 1, and Route 322 may be the impetus for much of the surrounding growth. Also, the relatively undeveloped state of the area may provide an additional attraction.

Housing

Trends in housing can illustrate whether a municipality is providing a suitable mix of housing types and what types of housing may be constructed in the future. Ideally, a municipality should support a number of housing types at different price ranges to accommodate the needs of its residents. Affordability, quality, and the condition of housing in a community should all be considered.

The rates of new residential development in the study area have been increasing for several years. From 1970 through 1990, only two townships (Thornbury and West Goshen townships in Chester County) had lower percentages of change than their respective countywide averages. The growing number of households in the area has contributed to higher volumes on Route 202 and local roads.

Table 18. Total Number of Existing Housing Units 1970-1990

Municipality	Number of Units, 1970	Number of Units, 1980	Number of Units, 1990	% Change 1970-1990
Bethel	547	750	1,148	110%
Chadds Ford	391	798	1,288	229%
Concord	1,217	1,905	2,297	89%
Thornbury (Del.)	691	810	1,021	48%
Subtotal	**2,846**	**4,263**	**5,754**	**102%**
Birmingham	237	492	866	265%
Thornbury (Che.)	243	335	388	60%
West Goshen	3,989	5,717	6,802	71%
Westtown	1,371	2,028	3,279	139%
Subtotal	**5,840**	**8,572**	**11,335**	**94%**
Corridor Total	**8,686**	**12,835**	**17,089**	**97%**
Delaware County	184,401	201,335	211,024	14%
Chester County	80,451	110,099	139,597	74%

Source: U.S. Census Bureau

Access management strategies may be able to mitigate the negative impacts of this increased traffic. Table 19 shows DVRPC housing estimates through 2025, and shows that the trend of significant increase in housing stock is expected to continue.

Table 19. Total Housing Unit Estimates 1995-2025

Municipalities	**1995**	**2005**	**2015**	**2025**	**% Chg. 1995-2025**
Bethel	1,439	1,925	2,230	2,250	56%
Chadds Ford	1,339	1,549	1,833	2,218	66%
Concord	2,527	3,351	3,974	4,705	86%
Thornbury (Del.)	1,060	1,338	1,483	1,658	56%
Subtotal	**6,365**	**8,163**	**9,520**	**10,831**	**70%**
Birmingham	1,064	1,708	2,024	2,775	161%
Thornbury (Che.)	444	658	795	865	95%
West Goshen	7,231	7,993	8,672	8,971	24%
Westtown	3,528	4,715	5,317	5,473	55%
Subtotal	**12,267**	**15,074**	**16,808**	**18,084**	**47%**
Corridor Total	**18,632**	**23,237**	**26,328**	**28,915**	**55%**
Delaware County	210,723	216,132	215,917	213,827	2%
Chester County	149,542	175,286	194,761	209,415	40%

Source: Delaware Valley Regional Planning Commission

Housing Affordability

As has been the trend across much of the Delaware Valley, limited availability of affordable housing is becoming a serious problem along the corridor. Difficulty in obtaining affordable housing is no longer a problem associated with only the lowest income segment of the population. Rather, many moderate income households, including service, retail, clerical and public sector employees, are facing problems purchasing homes.

While nearly all indicators of growth along the corridor relating to population, employment, and housing indicate large gains, much of this growth and prosperity may be threatened in the future by a lack of affordable housing. Young first-time home buyers may not be able to finance homes. For corridor employers, numerous negative consequences can arise, such as: the need to provide or assist employees in locating suitable housing; the need to pay disproportionately high wages to attract employees; and the possibility that businesses may suffer from reduced productivity due to a combination of absenteeism, tardiness, and a higher rate of employee turnover, with the associated costs of retraining. Therefore, a lack of affordable housing may act as a direct threat to increased job growth along Route 202 by deterring prospective employers seeking to expand within the region. Other effects may follow from this trend – as employees who live farther away are hired, their daily commutes will contribute to increased air pollution and traffic levels.

DVRPC has recently completed a housing affordability index that was calculated by dividing the region's median family income in 1998 (estimated at $55,330, based on 1990 data adjusted by changes in the Consumer Price Index) by the minimum income required to purchase a median-priced housing unit in each corridor municipality. Therefore, if a median-income family earned exactly enough to buy the median priced housing unit in a municipality, the result would be a value of 1. Thus, an index of less than one indicates that a median-income family could not afford to purchase the median priced housing unit in that municipality (the lower the index, the less affordable the unit is). The minimum income necessary to purchase the unit was determined based on the following assumptions:

- the average buyer would provide a 16.8% down payment (average figure obtained from the National Association of Realtors) and mortgage the remainder;
- the buyer would obtain a 30-year fixed rate mortgage at an interest rate of 6.90% (the 1998 average interest rate in the Northeast, as obtained from Freddie Mac);
- the buyer would also be required to pay private mortgage insurance (PMI), which would add 0.25% to the interest rate;
- additional costs would include yearly hazard insurance (0.324% of the home's value), closing costs (2% of the value) and property taxes (based on each individual municipality's tax rate); and,
- the housing-expense ratio requirement (the ratio of the buyer's annual housing payment to annual income) equals 25%, meaning that each household's yearly housing payment (including the mortgage payment, property taxes, hazard insurance and private mortgage insurance) cannot exceed 25% of their total annual income (as per the National Association of Realtors). The minimum income required to purchase a unit was calculated such that the buyer earned enough each year to meet this 25% housing-expense ratio requirement.

Within the corridor, Birmingham, Thornbury (Chester County), West Goshen, Westtown, Bethel, Concord and Thornbury (Delaware County) townships all had an index of less than one, indicating the possibility of less affordable housing. Chadds Ford Township was the only municipality with a value equal to or greater than of one, indicating a degree of affordability. The results of this affordability analysis are presented in Table 20.

Table 20. Affordable Housing Index

Municipalities	1998 Median Sales Price	Affordability Index	Affordable (Yes/No)
Chester County			
Birmingham	$279,000	0.56	No
Thornbury (Che.)	$251,542	0.65	No
West Goshen	$185,000	0.88	No
Westtown	$206,250	0.80	No
Delaware County			
Bethel	$205,438	0.71	No
Chadds Ford	$122,450	1.49	Yes
Concord	$225,165	0.65	No
Thornbury (Del.)	$290,000	0.63	No

Source: Delaware Valley Regional Planning Commission

Fair Share Housing

A review of housing characteristics and trends must also consider legal obligations for providing housing opportunities. A fair share analysis determines whether a municipality is providing its "fair share" of multi-family dwellings and to what degree existing regulations support multi-family development. The basic premise behind the fair share principle is that a local government is required to plan for and prepare land use regulations to meet the legitimate needs of all categories of people who may desire to live within its boundaries.

The analysis of fair share uses the test established by the Commonwealth Court case of Surrick v. Upper Providence Township, 476 Pa. 182, 382 A.2d 105 (1977). This test consists of a three-tier analysis based on the following questions: 1) Is the municipality a logical place for growth and development? 2) Is the municipality a developed or developing community? and 3) What is the potential for development of multi-family units and is the amount of land set aside for multi-family development disproportionately small in relation to population growth pressures?

Based on municipal population projections, the availability of various housing types and the regional highway network, the corridor will continue to grow and develop. Given the fact that there is land available to accommodate potential growth, most municipalities in the corridor would still be considered developing communities. Further, as development continues to spread out from both West Chester and Wilmington, the potential for development of multi-family units becomes even greater. Finally, multi-family dwellings are still accommodated in all municipalities, either near the corridor or elsewhere, through higher density zoning districts or Planned Residential Development (PRD) Overlay Districts. This situation may indicate that municipalities are meeting their "fair share" of housing. However, as growth pressures continue, municipalities within the corridor may need to consider additional locations for future multi-family housing.

Planning Implications of Population, Employment, and Housing Conditions

- West Chester, the Painters Crossroads area, and the Wilmington metropolitan area continue to serve as the primary commercial and industrial centers for this portion of the region.

- Most residents continue to rely on a majority of employment and shopping opportunities outside the corridor.

- With an increase in population and housing, infrastructure and municipal service planning issues will become critical.

- Although single family homes continue to predominate in the corridor, municipalities will also need to be responsive to “fair share” housing objectives in future land use decisions.

Natural Resources

Although the communities along Route 202 have seen increased development in recent years, both the quality and quantity of natural and scenic resources must be recognized for their continued importance to the corridor. Understanding the correlation between these resources and quality of life is essential for guiding future development. Any land use strategy should take into consideration the identification and location of environmental constraints as well as opportunities. This will allow communities to develop future recommendations that are sensitive to potential impacts to some of the area's most valuable resources, and to ensure the greatest preservation of these resources possible. This section focuses on six specific areas: geology, hydrology, soils, farmland, woodland resources, and slope.

Geology

Geology is critical when considering the importance of natural resources located in a region. **Map 4** shows the geology of the Route 202 corridor. According to the best evidence available, the corridor was never subjected to glaciation, and the primary tools of weathering have been the continual freeze-thaw cycle and the erosive effects of rainfall. The varied resistance of different rock formations to weathering and erosion has created the current hilly landscape of low ridges and narrow valleys. Harder rocks more resistant to weathering have remained intact, leaving behind ridgelines and rolling upland areas, while softer minerals have weathered more easily, forming level valleys and gently rolling lowlands. In the northwestern two-thirds of Delaware County, as well as in 85% of Chester County, the hills formed by this process blend into the nearby Appalachian Mountains, forming part of the Piedmont Lowlands, while the southeastern third of the county is located in the Atlantic Coastal Plain. The Atlantic Coastal Plain has gently undulating topography that is more subdued than that of the Piedmont Lowlands, and consists of unconsolidated to poorly consolidated layers of sand, gravel and clay.

The Route 202 corridor is primarily underlain with bedrock formations of old, hard crystalline rocks such as schist, quartzite, slate, marble, granite, gneiss, and rare serpentite. Although it is not actively mined today, serpentite deposits in the area contribute to the natural resource situation along the corridor in a number of ways. Created deep under the earth's crust under extreme temperatures and pressure, serpentite is the catalyst of perhaps the most unusual natural ecosystems in the area. Because of the chemistry of serpentite and the texture of the soil that lies on top of it, only a highly specialized, anomalous community of plants can survive. Contrasting sharply with the predominant types of forest environments that surround them, serpentite barrens occur as scattered islands in a discontinuous strip from Nova Scotia to Georgia – nowhere more extensively than in Chester County. Ecosystems living on serpentite barrens include species of plants that are not found anywhere else in the world, or only in vastly different climatic regions. The remarkable presence of serpentite and more common minerals in the area has had significant impacts on many factors of development, including the soils that exist above the bedrock.

Many minerals in the corridor, such as marble, serpentite, and black granite, continue to have widespread use locally, nationally and internationally. Other minerals in the area such as iron, lead, zinc, chromium, and graphite, once an integral part of the regional economy, are no longer available in sufficient amounts to be commercially advantageous.

Soils

Another important natural resource in the corridor is the distribution of soils, as they help to dictate land use patterns. **Map 5** highlights the soils found in the corridor. The manner in which soils are distributed along the corridor reflects the underlying bedrock geology and physiography of the area. For instance, certain types of soil are more conducive to different types of natural plant and animal communities, while other types of soil are better suited to residential development. According to the Pittsburgh Geological Society in the *Geology of Pennsylvania,* it appears that most soil found in the corridor is of the Chester-Glenelg soil association. This soil type is fairly deep, with well-developed mineral levels, and good water holding capacity. Chester soils are more often present on the gently rolling uplands due to their more strongly developed profile, while the Glenelg soils are typically found on steep slopes.

Collectively, the Chester-Glenelg soil association is characterized by silty and channery soils on grayish-brown schist and gneiss. Although the quality of the soil in the study area varies, the U.S. Department of Agriculture's Soil Conservation Service ranks the majority of Chester soils in the highest classification or Capability Class I. A classification of soil with only 0 to 3 percent slope, minimal stoniness, and low susceptibility to erosion create the ideal conditions for agriculture. This characteristic is reflected in historical development patterns found throughout the corridor. *However, many of the same features that make this soil ideal for farming also are conducive to residential and commercial development*. Because Chester-Glenelg soil associations are moderately deep and moderately well drained, they are generally suitable for on-lot sewage disposal systems. Since most residents in the corridor are dependent on individual on-lot disposal systems, and this dependence will likely continue, this factor is an important planning consideration.

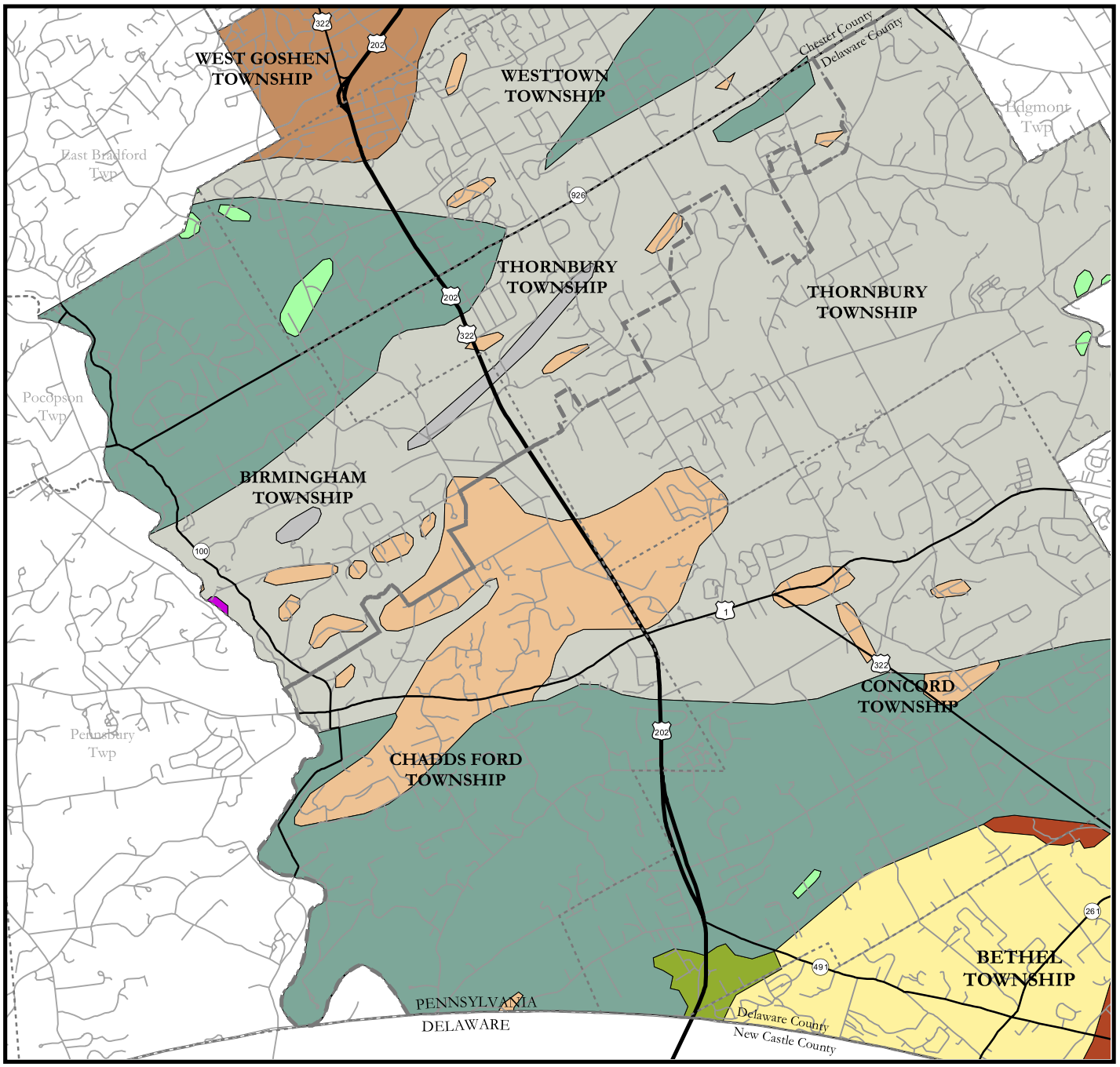
Slopes

Within Chester and Delaware Counties, the terrain varies widely. While much of the land is essentially level, there are occasional slopes of significant size. *Limiting development on these slopes is an important key to minimizing erosion of soils and the associated problems revolving around stormwater*. Sites containing a 15 percent slope, or those with a vertical increase in the ground level of 15 feet over a 100-foot length, are found in a fair amount of the gently sloping land along the corridor. These occasional slopes occur in practically every township within the corridor. Other areas of moderate (15-25 percent) slopes are found along the areas surrounding the western tributary of Chester Creek, nearby Harvey Run and Beaver Creek. Many of these steep slope areas directly intersect the corridor. In an area located north of Dilworthtown Road in Birmingham, an incline greater than 25 percent is present; similar slope conditions also exist north of Darlington's Corner in Westtown.

Clearly, the corridor is located in an area of gentle hills and valleys with the roadway spanning several areas of moderate to steep slopes. As such, any decision concerning the Route 202 corridor must take into account the advantages and disadvantages of building on this type of alternating gradient landscape. Carefully limiting development on moderate and steep slopes (those with an incline of more than 15 and 25 percent, respectively) also helps municipalities reduce erosion and limit infrastructure costs. Avoiding development on all slopes is not possible. However, development should conform as much as possible to the topography of the land and special care should be given to minimizing potential impacts associated with the development. Steep slopes are shown on **Map 7**, along with other constraints on development.

Route 202, Section 100

Map 4: Geology



Geology

- Anorthosite
- Bryn Mawr Fm
- Felsic Gneiss, Hornblende bearing
- Felsic Gneiss, Pyroxene bearing
- Franklin Marble
- Mafic Gneiss, Hornblende bearing
- Mafic Gneiss, Pyroxene bearing
- Pegmatite
- Serpentine
- Setters Quartzite
- Wissahickon Fm (Oligioclase Mica Schist)

N

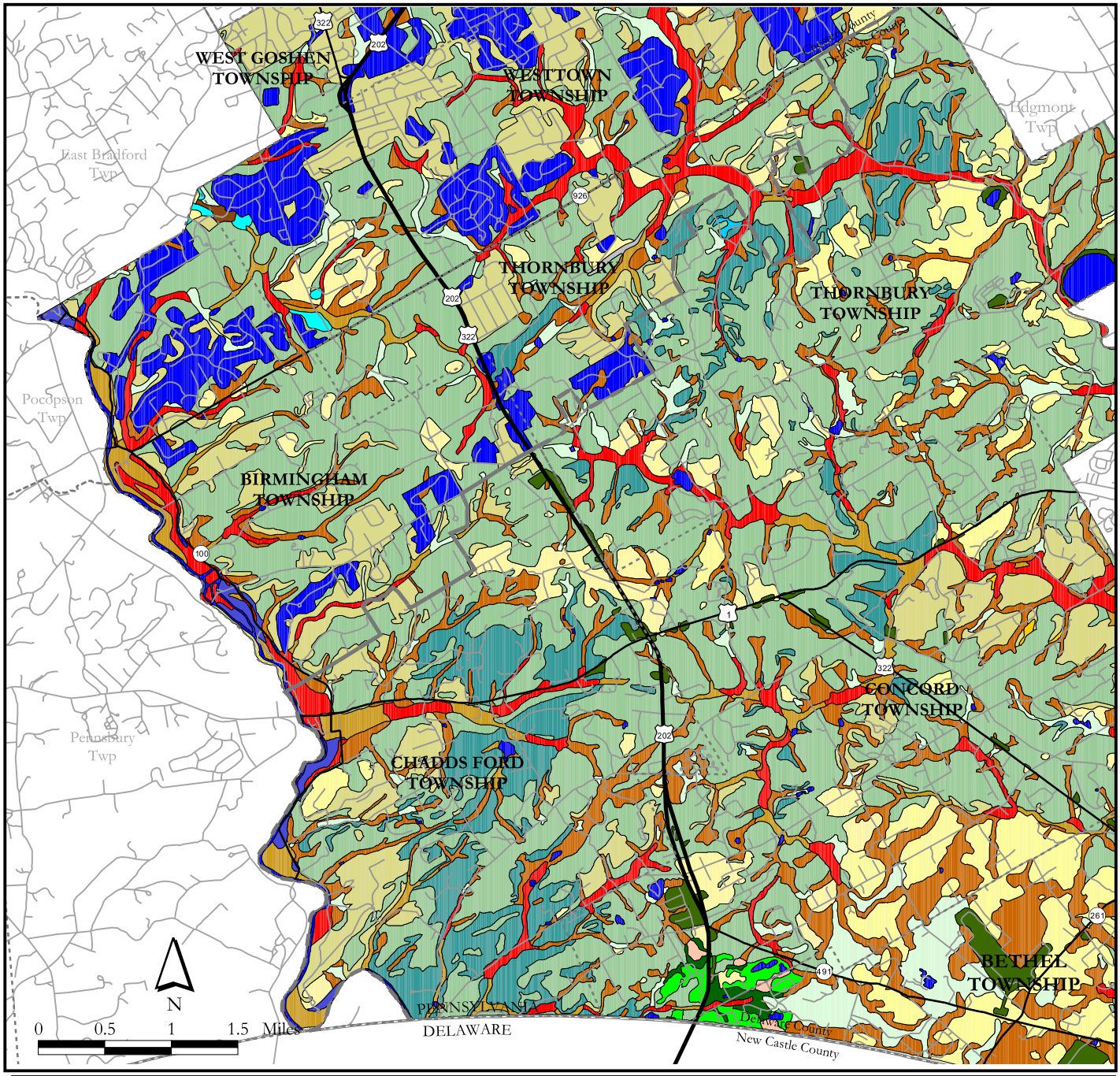
0 0.5 1 1.5 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission; ERRI, USGS, PA Department of Environmental Protection.

Route 202, Section 100

Map 5: Soils



Soil Type

- Beltsville silt loam
- Brandywine loam
- Chester silt loam
- Chewacla silt loam
- Chrome gravelly silty clay loam
- Conestoga silt loam
- Congaree silt loam
- Conowingo silt loam
- Glenelg channery silt loam
- Glenville silt loam
- Made Land
- Manor loam
- Melvin silt loam
- Neshaminy gravelly silt loam
- Othello silt loam
- Sassafras loam
- Unnamed-1
- Unnamed-2
- Wehadkee silt loam
- Woodstown loam
- Worsham silt loam

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission, U.S.Department of Agriculture, Natural Resources Conservation Service.

Hydrology

The hydrology of the corridor consists of three components - wetlands, ground water, and streams and creeks - and each segment serves a unique and important role. *Wetlands offer a great deal of biodiversity that cannot be completely replicated*. Bordering Route 202 along the Delaware/Chester County line in Thornbury Township, Delaware County, is the Brinton Lake Wetland, a moderately large, locally significant wetland on the northwest side of Brinton Lake and along the West Branch of the Chester Creek. Although some houses are situated along the creek valley, there appears to be relatively little human disturbance of the wetland. The marsh and shrub swamp provides an excellent habitat for frogs, turtles, birds, and deer. Also, the northwestern edge of the wetland supports a narrow band of moderately mature rich woodland. Many times, seasonal precipitation and groundwater aquifers recharge these wetlands.

Special consideration must be given to sources of ground water in the area as well. *The extent and nature of the ground water supply is an important planning variable because of the inherent importance placed on availability of water*. The primary area of interest regarding ground water supply exists in Thornbury and Westtown, Chester County. Here, a larger network of moderately productive (somewhere between 10 and 60 gallons per minute) ground water aquifers, extending to the middle and western boundary of the County, overlap the study area. For the most part, however, the majority of the bedrock in the area is hard and solid, allowing relatively little space for ground water storage, and necessitating reliance on surface water.

Over sixty percent of Chester County is drained by two stream systems. These systems, the Brandywine Creek and Schuylkill River, eventually drain into the Delaware River. Although the actual Brandywine Creek lies west of the study area, it does provide unique aesthetic qualities and a rural setting. Along with Ridley and Chester Creeks, the Brandywine is also important to the corridor because its floodplain does extend into the study area. All stream systems have an associated floodplain area of significant proportion. *Providing an important natural defense against occasional deluges of water that overflow riverbanks, the importance of floodplains is evident*. Previous development patterns in both Chester and Delaware counties have continued in these areas, however. In Delaware County, the importance of these floodplains cannot be overstated, as they are the natural protection for development placed along waterways during flooding events. Previous development patterns unfortunately disregarded the importance of these areas, and houses built on floodplains are regularly threatened. However, problems with flooding in Chester County along the corridor are less severe due to the relatively small drainage area of each waterway.

In Delaware County, two separate major streams (Ridley and Chester creeks) cross the County in the direction of their drainage point, the Delaware River. While Ridley's Creek itself is not in the immediate vicinity of the area, its watershed of 21.4 square miles is within the corridor. Closer to the highway is the 13.6-mile long Chester Creek, with its 45 square mile watershed. A western tributary of the creek, located in Concord and Thornbury (Delaware County) townships, overlaps the study area at several points, and must be considered. Moving north along the creek, decreasing amounts of development can be found along both the nearby banks of the creek as well as the watershed. While open expanses of land like these are becoming more difficult to locate, farmlands in the area still provide many examples of wide-open spaces along the corridor.

Farmlands

Farmland can be defined as land consisting of predominantly Class I, II, III and IV soils as identified in the Soil Capability Classification System of the United States Soil Conservation Service, and other lands which are suitable for farm use (based on soil fertility, suitability for grazing, climatic conditions, existing and future availability of water for farm irrigation purposes, existing land-use patterns or accepted farming practices). *In addition to the obvious benefit of food production, agricultural areas serve as major resources for conservation and environmental protection*. Various types of natural vegetation frequently found in these areas provide ideal conditions for groundwater recharge, water quality management, flood control, wildlife and forest preservation, and air quality management. Large expanses of agricultural areas provide relief from the congestion and the pressures associated with the growing urbanization of the area. For all of these reasons, agricultural land is an important land use. Farmland in the corridor is represented on **Map 6.**

Much of the land along the corridor was once considered prime farmland. However, with the growing suburbanization of the corridor, the number of acres still in active farmland has been greatly reduced. In 1996, Chester County still ranked second only to Lancaster County as Pennsylvania's leading agricultural county. In Chester County, large tracts of "Prime Farmlands," were identified in both Birmingham and Thornbury townships by the 1982 *Chester County Open Space and Recreation Study*. Most of this acreage has now been converted to either low or high-density residential uses. The Crebilly Farm, located in Westtown Township and situated west of the intersection of Routes 202 and 926, remains the only significant large tract of "prime farmland" still adjacent to the corridor in Chester County.

While Delaware County cannot be considered an agricultural county in the same manner as Chester County, several farms, greenhouses, and nurseries are located there. Along the corridor most agricultural land is located in either Chadds Ford or Concord Townships, in the vicinity of Route 1. Most farms in Delaware County are small, with 42 percent of all farms in the County under 10 acres, and 72 percent under 50 acres in size. The U.S. Department of Commerce reported that the County had lost 27 farms in the years between 1987 and 1992, leaving a total of 68 farms in 1992. Total area of farms in the Delaware County townships in the study area decreased by over seven square miles from 1970 through 1990. This decrease in the farmland of Delaware County illustrates the pressures placed on agriculture by residential and commercial development.

Urbanized areas in and around agricultural lands have grown in both Delaware County and Chester County. Between 1970 and 1990, the Delaware County corridor townships lost around seven square miles of farmland, and the Chester County corridor townships lost nearly two square miles. *These figures are a clear illustration that the factors that make land desirable for agricultural usage also make the same land ideal for development*. Accordingly, commercial and residential developers looking for accessible, level, and well-drained sites typically target farmlands. Along the corridor, growth in these types of developments has typically come at the expense of farmlands, eroding an important sector of the local community. While open spaces such as agricultural lands routinely are being converted to residential and commercial uses, other types of undeveloped land such as woodlands are also under development pressures in many places.

Route 202, Section 100

Map 6: Farmland

Farmland

Study Area

N

0 0.5 1 1.5 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission.

Woodlands

When William Penn arrived in Pennsylvania in 1682, virgin forests covered the terrain. While Penn was determined to conquer the wilderness, he directed that the settlers "Leave one acre in five in trees." To this day, many areas within the study area remain as sites of natural woodlands. *These areas not only are the environments for important plant and animal communities, they also contribute to the aesthetic value of the area by providing open spaces between tracts of developed land while also serving the functional purpose of flood and erosion control*. When found near stream valleys and on steep slopes where erosion potential is high, the natural protection of woodlots and hedgerows is made even more vital. The study area is situated within the eastern deciduous forest biome. This biome, which covers the entire eastern half of the United States is the most extensive and one of the most biologically diverse in the nation. Generally, this biome can be characterized as being dominated by trees that lose their leaves during the winter season mixed with the less predominant, but a still generous amount of evergreens. Today, very little virgin forest remains, as most woodlands are second and third growth timber. For the most part, only the soils least productive to agriculture, as well as steep slope areas, are still naturally wooded – the better crop and pasture lands were routinely cleared for use many years ago. There is little doubt, however, that the remaining woodlands are important natural resources.

Chester County has followed the instructions of William Penn, as it currently has about one fifth of its land occupied by wooded areas. The section of the corridor found in Chester County is home to several natural sites of significance. One such site, found near the convergence point of Business Route 322 and Route 202, is the R.B. Gordon Natural area, owned by West Chester University. This site of local significance, due to its numerous species of trees and shrubs and its large population of deer, is managed to protect the natural diversity of the woods. Another site of natural woodlands is Brintons Quarry, located in the vicinity of Street Road (PA Route 926) in Birmingham, Thornbury, and Westtown Townships. For many years, sand and gravel were quarried on at least two sides leaving behind a wet, sandy irregular surface that now provides a habitat for several rare species of Coastal Plain plants to live. A parcel of one of the quarried sections is now the site of a swimming club, leaving the top of the serpentite bedrock intact for only a few acres. This noteworthy presence of the extremely rare serpentite-based plant communities in this area has spurred Chester County into assigning the ecosystem a ranking of 3 out of 5 for the natural value provided.

Most of the woodlands found in Delaware County are second growth forests in the wake of wide-scale tree cutting for commercial purposes. The most common types of trees found in the county are red oak, yellow poplar, black ash, sugar maple, pitch pine, and Virginia pine. The largest concentrations of wooded areas in Delaware County can be found within the western and northern sections of the County, partially within our study area. For instance, in Chadds Ford Township is Quarry Woods, a locally significant site having a high priority for protection. The valley walls are lined with very large beech and oak trees, which stand in sharp contrast to the young trees that dominate most of the tract, as it had been heavily disturbed by past mining. To the west of the intersection of Routes 202 and 1, at Painters Crossroads, lies a small population of a rare state wildflower growing in a mature forest that cloaks a small valley adjacent to Harvey Run. Further south, Brinton Run Woods provides a locally significant rich woodlands on the north and south facing slopes along Brinton Run, a tributary of Brandywine Creek. Another wooded area, the Johnsons Corner Quarry/Woods, can be found near the state line in Bethel and Concord townships. There, the wooded quarry area supports five plant species of concern as well as another plant known to be rare in Pennsylvania. As growth continues in the corridor, the amount of pressure brought to bear on woodlands will also increase as the amount of available land diminishes.

Scenic Resources

The corridor includes a number of scenic resources, but also some visual intrusions. These resources can be defined as viewsheds, vista points, historic structures (in a scenic boundary), and visual accents. Visually significant lands can be documented with regards to their visual boundary. Vista points designate broad and expansive views. The historic structures identified are those structures interpreted to be historically significant based on observation. Visual accents are those manmade objects or structures (or natural habitats), which enhance or contribute to the landscape. Examples of accents are stone walls, ruins or villages. Visual intrusions, on the other hand, are those manmade objects which detract from the landscape. These include transformer facilities, silt fences, or roadside trash. Some of the more impressive scenic areas to be found in the corridor include: the Crebilly Farm in Westtown Township, the Faucett Farm in Birmingham Township and the Thatcher-Painter Farm in Thornbury Township, Delaware County.

Composite Constraints

The composite constraints to development in the Route 202 corridor are shown on **Map 7**. This map includes steep slopes, farmland, floodplains, wetlands, and developed areas, showing some of the most important constraints on development in the corridor. As it shows, although much of the land along Route 202 is already developed or is limited in its use by environmental conditions, a good deal of development could still take place in the corridor.

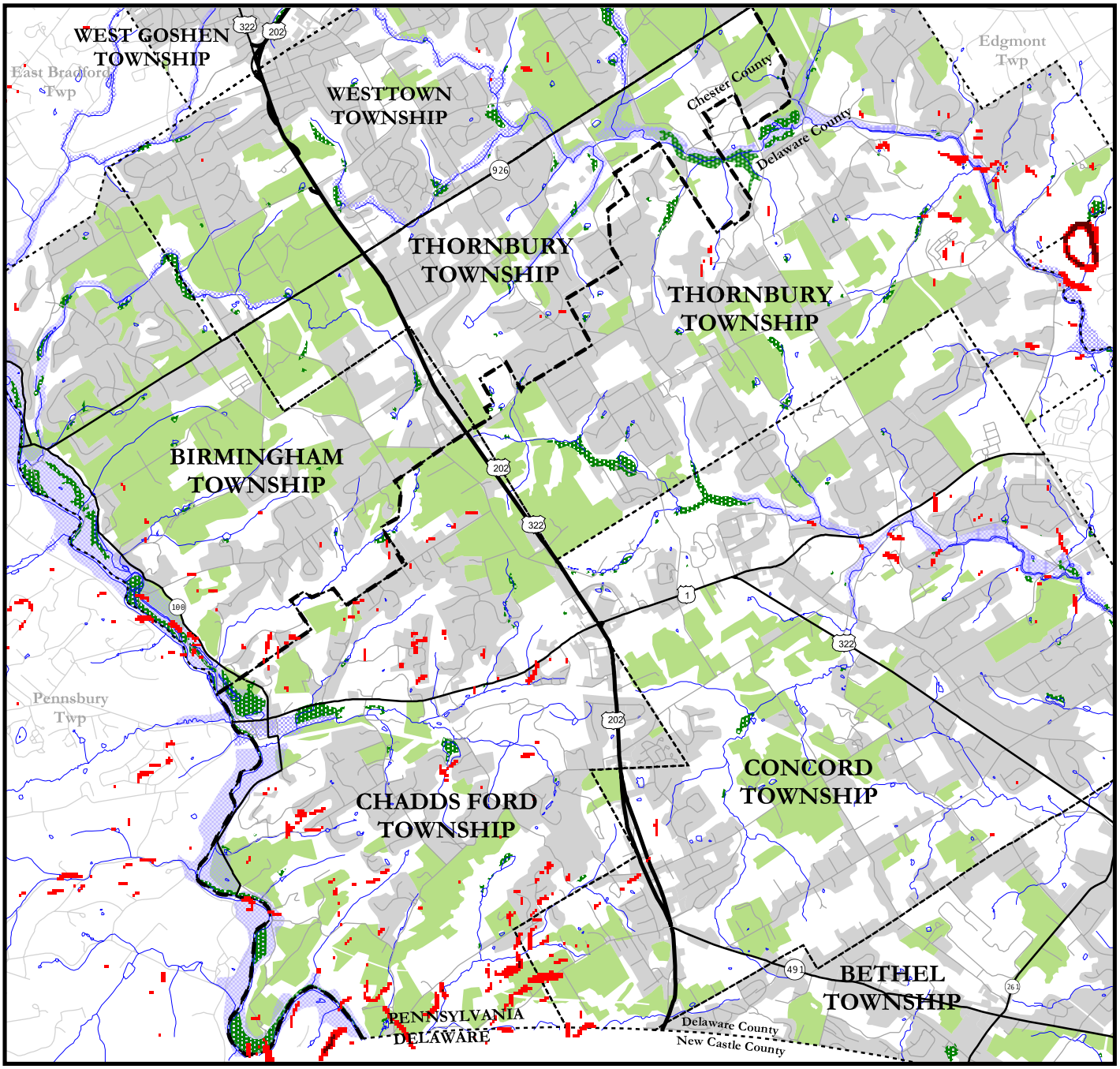
Planning Implications of Natural Resources Conditions

- The corridor contains many important natural resources that greatly influence the amount and type of development that can take place. The underlying geology, in particular, limits potable water in several areas, possibly restricting development. Municipalities need to ensure that natural resources and the ability of the land to sustain residential and commercial uses are taken into consideration when determining appropriate locations for new development.

- Soil conditions within the corridor pose several constraints on future land use. Future development should continue to be guided and designed to be responsive to these natural constraints.

- Some topographic conditions in the corridor also require stringent slope controls. As development continues in the corridor, the demand for development on steeply sloped land can be expected to escalate.

Route 202, Section 100 Map 7: Composite Constraints



Slopes
- 15% to 25%
- Over 25%
- Farmland

- Developed Areas
- Floodplains
- Wetlands
- Stream Corridor

N

0 0.5 1 1.5 Miles

Source: Delaware Valley Regional Planning Commission, U.S. Geological Survey, Pennsylvania Department of Environmental Protection.

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Cultural and Historic Resources

The history of the Route 202 corridor is reflected in its transportation and settlement patterns, the development of its land uses, and other aspects of its built environment. These origins can help to identify the area's sense of place, sense of community, and overall quality of life. How an area evolves historically often can be indicative of how it may evolve in the future. For the past several centuries, the Route 202 corridor has been a crossroads of settlement and transportation, rich with historical ties. Recognizing the role of history in community planning, identifying strategies to protect the remaining cultural and historical resources is an important part of any land use plan. The primary sources of this historic information are the 1982 *Chester County Open Space and Recreation Study*, the 1978 *Delaware County Open Space, Parks, and Recreation Study*, the 1989 *Brandywine Battlefield National Historic Landmark Cultural Resources Management Study*, and municipal comprehensive plans. Some of the important historic resources in the Route 202 corridor are shown on **Map 8**.

Early Settlement

Chester County began as a settlement of Swedish pioneers along the Delaware River in 1643. Englishman William Penn is responsible for its formal layout in 1682 as one of the three original counties of Pennsylvania. Many of the earliest settlers of the area were from Cheshire, England, and the county was eventually named after this town. Less than a century after Penn's establishment of the county in 1777, Chester County was the site of the historically significant Battle of Brandywine. In this battle, British General Howe met the army of General George Washington in a successful attempt to capture Philadelphia. Painters Crossroads was the location of the last-ditch attempt of General "Mad Anthony" Wayne's soldiers, in support of Washington and the Continental Army's retreat north to Philadelphia along Route 1.

In 1789, part of Chester County formed a separate local government, establishing what is now Delaware County. Despite the newly drawn county lines, the area along the corridor maintained its agricultural characteristics while other areas of the two counties pursued different types of industrial activity. Chester County focused on developing a broad manufacturing base reliant primarily on iron and steel. Delaware County first focused on textiles and stone quarrying, then later shifted to oil refining and shipbuilding. Today, the economy of Chester County is a combination of agriculture, services, manufacturing, and trade, while Delaware County's economy is more service oriented.

At the time Delaware County was created, residential development consisted of extended agricultural plots and occasional villages. These historic villages mixed relatively high density housing with stores and public uses. By building homes in close proximity to one another, a deep commitment to the community was fostered, and goods and services were easily acquired. Some of these original village designs remain today at the villages of Elam (located near the Route 202 split in Concord Township), Concordville, and Dilworthtown. The historic resources within the area reflect these patterns and events as well as the economic, social, and industrial development of the Brandywine Valley. While the surviving villages can be found only in selected areas, many historic resources from the Revolutionary War can be found in the area between Darlington Corners and Painter's Crossroads. In both Chester and Delaware counties, houses and barns were used as hospitals, dressing stations, and retreat staging points during the war.

Predating the arrival of English colonists in the area, Swedish and Dutch settlers claimed significant portions of the corridor. While there were no enduring communities created in the area by these groups, fur-trading routes between the Dutch and indigenous Native Americans were established. The Great Minquas Path was a trade artery to Chester and Philadelphia that

served as an alternative to canoe routes. The popularity of the path eventually resulted in the settlement of Thornbury Township in both Chester and Delaware counties. This path was integral in the conflict between Holland, Sweden and England for control of the Delaware River and to trade with the Minquas Indians who lived on the Susquehanna River. A sharp decline in fur trading, along with the defeat of the Minquas by the Iroquois sometime before 1700, limited the importance of this path. While the exact location of this path remains uncertain, the usage of this route near what is today Route 202, led to the rise of the area's road network.

Early Road Network

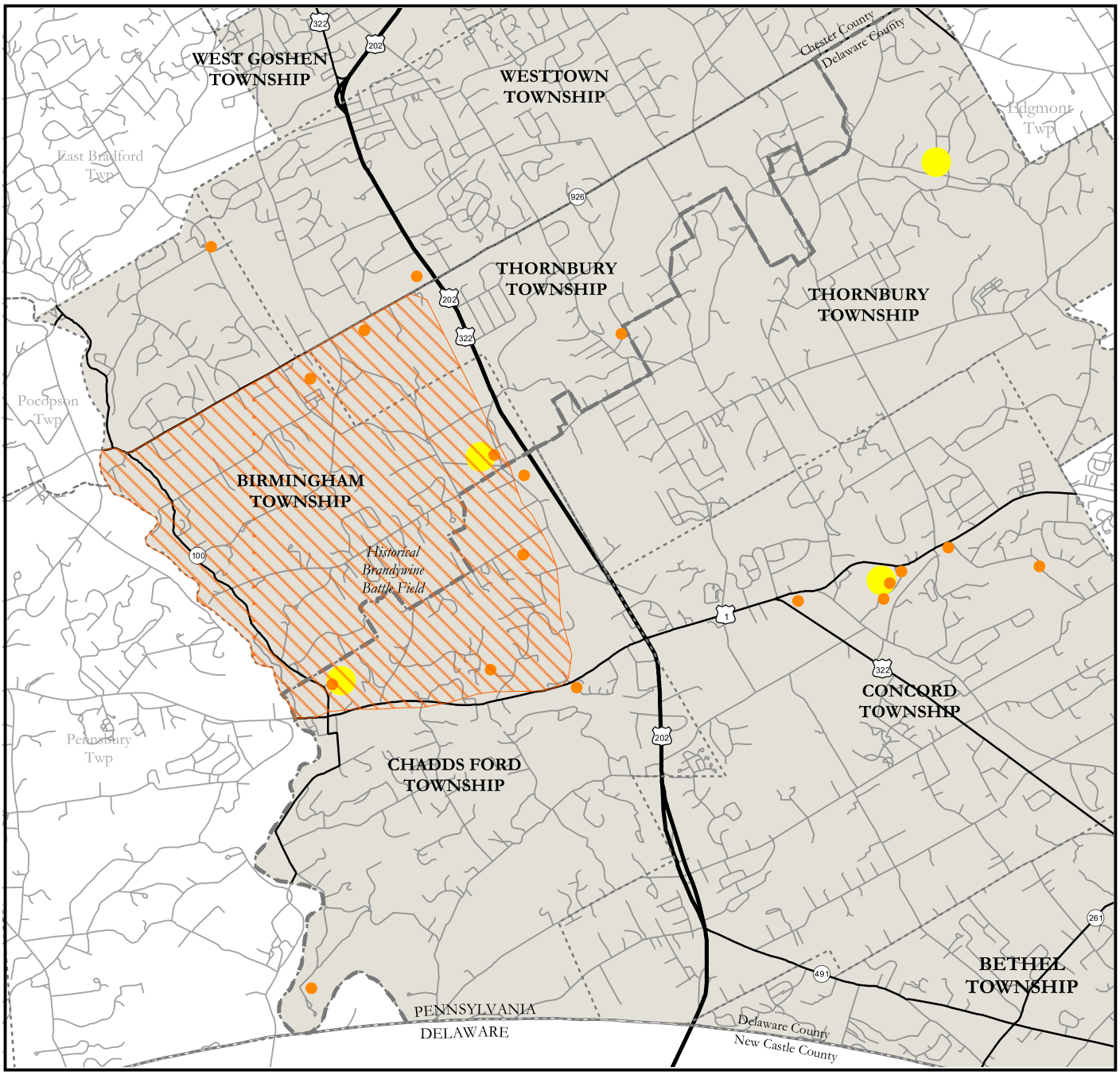
In the early seventeenth century, roads in the corridor carried goods and people between the farm country of southeastern Pennsylvania and the port of Wilmington. To this day, portions of the modern Route 202 still connect the sites of early commercial centers such as Dilworthtown and West Chester. Route 202's most significant single predecessor was the Wilmington and Great Valley Turnpike, chartered in 1811 to provide a link between Wilmington, West Chester, and the Great Valley of Pennsylvania. The pike and its immediate precursors (portions of Concord Pike along with early county roads) were key routes from the Delaware River area to the interior. By the early nineteenth century, both Delaware and Pennsylvania officially recognized the commercial usefulness of the route. In 1818, the Wilmington and Great Valley turnpike was opened in its entirety; in 1839, the Commonwealth of Pennsylvania rebuilt the West Chester to Delaware section. Curves were eliminated, a wooden surface was added, and the road widened in the most heavily traveled portions.

Documentation of Historic Resources

The Pennsylvania Historical and Museum Commission lists numerous historically valuable properties within the project area. Of these, there are several properties that are either listed or eligible to be listed in the National Register of Historic Places in Chester and Delaware counties. In Chester County, these include the Faucett Farm along Route 202, the Birmingham Friends Meetinghouse, and the School on Birmingham Road in Birmingham Township. In Westtown Township, the George Faucett House and the William Townsend House, both adjacent to Route 202, are further examples. Also, the historically important home of William J. Barnard on East Street Road can be found in Thornbury Township, Chester County.

Delaware County's historic sites include the Brinton House along Oakland Road near Route 202 (where British soldiers camped before the Battle of Brandywine), the Gilpin Homestead on Harvey Road, the Thomas Speakman House, and the William Painter Farm on Route 1 in Chadds Ford. Thornbury Township contains the historic Thatcher-Painter Farm adjacent to Route 202. In Concord Township, several important historical sites have been preserved due in part to zoning provisions that provide for adaptive reuse of historical sites. Several of these sites are on Beaver Valley Road, and include the Brandywine Summit Camp Meeting and the Newlin/Johnson House. Also in the Township, a number of historically significant homes are located within the Village of Elam.

Route 202, Section 100 — Map 8: Historical Resources



Brandywine Battlefield

Historic Sites

Local Historic District

Study Area

N

0 0.5 1 1.5 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission.

Current Preservation Measures

Through the creation of the Chadds Ford Historical District at the intersection of Routes 1 and 100, the Chadds Ford Township has been extremely active in historic preservation, particularly in regards to the large Brandywine Battlefield Park. In Thornbury Township, Delaware County, the Township has established the Chester Creek Historic District, which is located along the West Branch of the Chester Creek. In Chester County, the Dilworthtown Historic District in Birmingham Township is an area with a high concentration of historically significant sites, including the Dilworthtown Inn on Oakland Road.

Along the corridor, much attention and support for preservation has traditionally been given to many of these sites by both publicly and privately financed preservation groups. Public preservation agencies include the Delaware County Historical Society, the Pennsylvania Historical and Museum Commission, and Brandywine Battlefield Park Associates. Privately funded organizations include Preservation Pennsylvania and the Chadds Ford Historical Society. Many of these agencies have placed extremely high rankings for preservation on many of the resources found in the corridor.

Planning Implications of Cultural and Historic Resources Conditions

- A sizable number of cultural and historical resources currently exist within the corridor, both of National Register and local historic value. Without local regulations in effect to protect these resources, key resources could be lost as development in the corridor continues.

- When development occurs, rural historic resources are often lost. Encouraging the protection of historic resources through the site plan review process could result in the preservation and adaptive reuse of rural historic resources.

- Any cultural or historic protection effort on the part of municipalities within the corridor will have to address the comprehensive nature of not only structures, but the entire cultural landscape.

Circulation

The road network within the study area is the result of several centuries of settlement and trailblazing. While the corridor was once rural in character, much residential and strip commercial development has occurred in recent decades. Land use trends along the corridor have created growing populations, jobs, and homes in the area. This increase in development has also generated increased amounts of traffic and congestion. A thorough understanding of the existing transportation network is fundamental to examining the implications of any proposed highway modifications. Important aspects to be considered along the corridor include descriptions of the local roadway system layout, roadway land use, a level of service analysis (LOS), parking conditions, accident information, and the availability of alternative forms of transportation.

Composition of Roadway Network

Beyond the major arterials, the roadway network in the study area is primarily comprised of narrow, rural roads, generally one lane by direction with little or no shoulder area, with the exception of intersections with Route 202. The following are the key roadway corridors within the Route 202 Section 100 study area:

Route 202. This is a principal arterial highway running north-south, and is the focus of the study area. It has been designated by PennDOT as one of the two major southeast regional "Corridors of the 1990's", and also as an Intermodal Mobility Corridor, one of only three in the state. Section 100 of Route 202 is a 7.8-mile section extending from Matlack Street, in West Goshen Township, to the Pennsylvania/Delaware State Line. Section 100 is currently a divided four-lane highway with narrow shoulders, passing through a semi-rural but rapidly developing area. It also contains many intersections with roadways of various classifications as well as driveways onto Route 202.

Street Road (PA 926). This is an east-west minor arterial with two lanes and variable shoulder sizes, and intersects with Route 202 between Westtown and Thornbury Townships. It originates from Route 3 (West Chester Pike) in Willistown and continues west past Route 202 until it intersects Route 10 in Upper Oxford Township.

Baltimore Pike (US 1). This is an east-west four-lane divided principal arterial highway. Its lengthy route originates at the Baltimore Beltway (I-695) in Maryland and winds across southern Chester and northern Delaware counties, passing through Bucks County and continuing northeast.

Also of note is a parallel road structure to Route 202, consisting of Matlack Street, Concord Road, and Brinton Lake Road. Such a configuration could be useful in relieving some of the traffic burden (especially local) on Route 202.

Functional Classifications of the Route 202 Circulation Network

Highways have two functions – to provide mobility and to provide land access – yet there can be an incompatibility between these two objectives. Mobility requires high speeds for sustained travel, while land access mandates low speeds for frequent turning movements. Highways are classified by function by the Federal Highway Administration, in conjunction with PennD. This nationwide system is known as the National Highway Functional Classification, and is used in the planning and design of roadways. Four different classifications of roads, defined using DVRPC criteria, are shown on **Map 9**. These classifications are:

Principal Arterial. These roads serve statewide and interstate travel, linking major activity centers in the urbanized area yet bypassing the central city. In addition, this class of facilities serves significant intra-region travel, such as between central business districts and outlying residential areas or between major suburban centers. Along principal arterials, land access is subordinate to mobility. The Principal Arterials in the study area are US 202 (Wilmington-West Chester Pike), US 1 (Baltimore Pike), US 322 (Conchester Highway), and US 322 BUS. (High Street).

Minor Arterial. Minor arterials interconnect and augment the principal arterial system. These roads carry trips of moderate length, and place more emphasis on land access than the principal arterial and therefore carry less traffic. Roads of this classification accommodate intra-community travel but do not penetrate identifiable neighborhoods. The only minor arterial in the study area is PA 926 (Street Road), which transverses US 202 south of West Chester.

Collector. Collectors provide both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. The collector system may penetrate residential neighborhoods distributing trips from arterials to their ultimate destinations. Also, these roads collect traffic from local streets and channel it onto the arterial system. Collectors carry less traffic than arterials but may carry a minor amount of through traffic. The major area collectors are PA 100 (Creek Road), PA 491 (Naamans Creek Road), PA 926 (Street Road) west of US 202, Beaver Valley Road, and Smith Bridge Road. The minor study area collectors are Dilworthtown Road, Brintons Bridge Road, Birmingham Road, Matlack Street/Concord Road (Rosedale Avenue to PA 926), and New Street (Rosedale Avenue to PA 926).

Local. These roads primarily permit direct access to abutting land uses and connections to the other road classifications. They carry very low volumes and offer the lowest level of mobility, usually deliberately discouraging through traffic. Major local roads in the study area include Pyle Road, Ridge Road, Marshall Road/Spring Valley Road, Concord Road/Brinton Lake Road (PA 926 to Spring Valley Road), Oakland Road, Old Wilmington Pike, Pleasant Grove Road, and New Street (PA 926 to Birmingham Road).

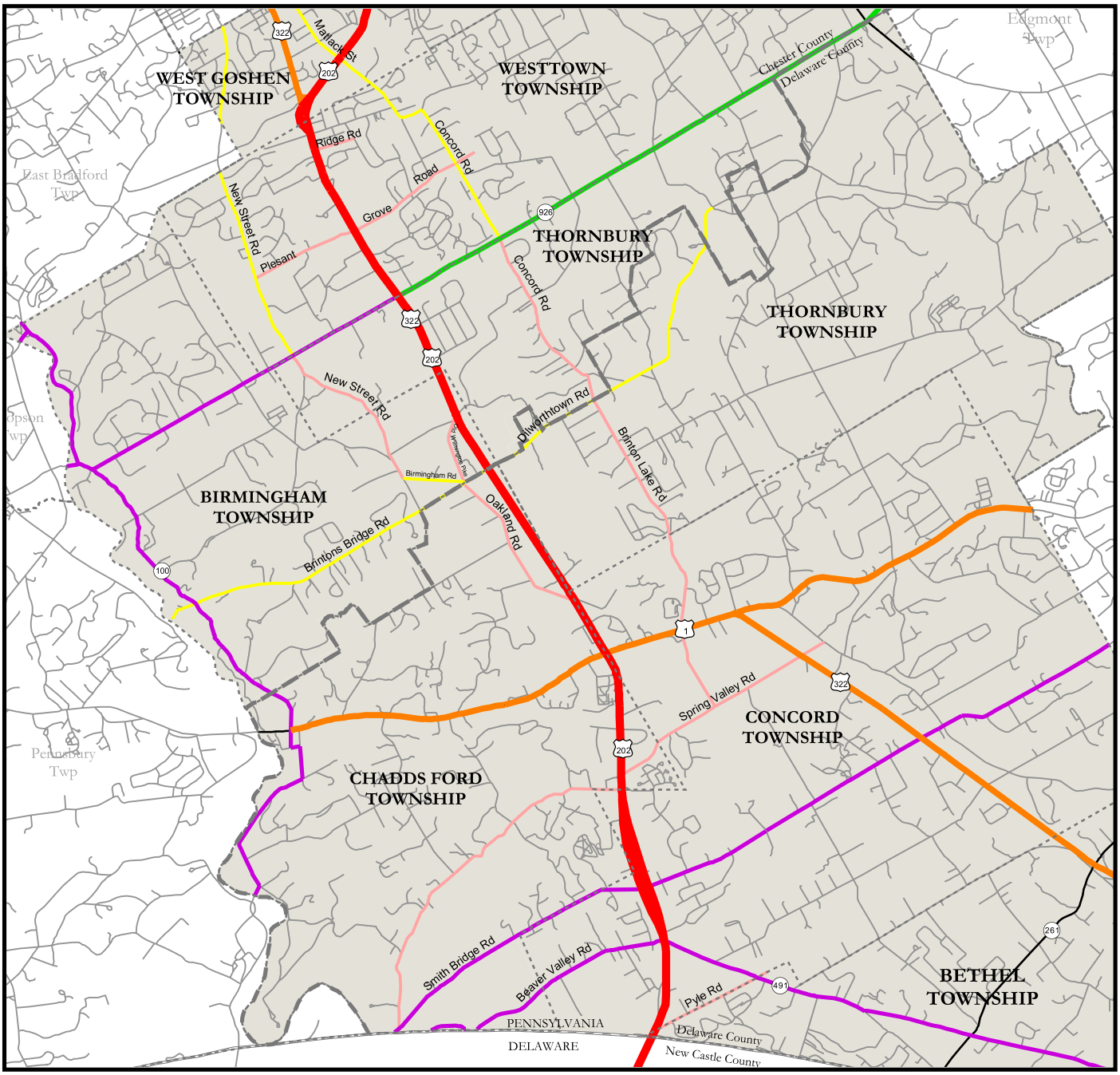
Existing Land Use and Traffic Conditions

Many of the corridor municipalities are still fairly undeveloped, as the Land Use section of this chapter has shown. West Goshen Township, located at the northern extreme of the study area, was by far the most developed municipality along the corridor in 1995. Westtown Township, directly south of West Goshen, and Bethel Township, at the extreme southern end of the corridor, also had high levels of the development. The least developed municipality in 1995 was Chadds Ford Township, with large areas of wooded and agricultural land.

In most of these townships, development is heavily clustered along Route 202, with nearly all high-density uses located immediately adjacent to the highway. Commercial uses are especially concentrated along Route 202. In some townships along the corridor, the only commercial development within the entire municipality is along this highway. In fact, although commercial uses only comprise a small percentage of the total area of the townships – just over 2% – about half the land directly adjacent to Route 202 is in commercial use.

Route 202, Section 100

Map 9: Highway Functional Classifications



Route 202
Principal Arterial
Minor Arterial
Major Collector
Minor Collector
Major Local

N

0 0.5 1 1.5 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission.

The largest concentration of high-intensity uses along the corridor occurs at Painter's Crossroads, at the junction of Route 202 and US 1. This area is a mixed use employment center, and is expected to continue to generate jobs in the near future. Along the rest of the roadway are retail and office centers of every size, which provide employment and attract customers.

Clearly, the concentration of intense land uses near Route 202 affects its multiple circulation functions. Although its designation as a primary arterial indicates that mobility is more important than land access, its neighboring land uses limit mobility. Because of the high number of nearby commercial uses, many of which have direct driveway access to Route 202, its use as a regional highway often must compete with its use as a local road.

Land use patterns within the Route 202 corridor force reliance on the automobile. The low density of development throughout the study area, the large distances between residential and commercial areas, and the design of retail and office centers along the highway make it necessary to drive to get anywhere. This sprawling, inefficient land use has contributed to consistently growing traffic volumes.

Traffic Volumes

Along Route 202, traffic was highest in the northern portion of the corridor, between PA 926 and Matlack Street. The southern portion of the corridor, between the Delaware state line and US 1, had the lowest traffic counts on Route 202, with the middle portion, between US 1 and PA 926, falling in between.

The highest traffic volumes on Route 202 within the study area have been recorded in the highway links shown in Table 21. Also shown are the predicted volumes on these links in 2026, assuming that no transportation improvements occur. As this shows, average annual daily traffic on US 202 is predicted to increase significantly by 2026, with an increase in average daily volume of over 30 percent between 2000 and 2026.

Table 21. Highest Traveled Links of Route 202 – Daily Volumes, Current to 2026

Route 202 Link Location	Current Volume	2026 Volume	Absolute Change	Change in Percent
Pleasant Grove Rd to 322 BUS	46,500	59,100	12,600	27%
PA 926 to Pleasant Grove Rd	45,500	58,500	13,000	29%
322 Business to Matlack St	44,400	57,500	13,100	30%
US 1 to Oakland Rd	43,700	56,300	12,600	29%
Green Tree Dr to PA 926	43,000	56,300	13,300	31%

Source: Delaware Valley Regional Planning Commission

Traffic conditions along Route 202 invariably impact other nearby roads. Among these roads, US 1 has the greatest traffic volume, especially to the east of Route 202. Other highly traveled roads include Route 322 Business, PA 926, Naamans Creek Road, and Matlack Street. Traffic volumes on these other highly-traveled roads are presented in Table 22. The change in daily volumes by 2006 on these nearby roads are even greater, percentage-wise, than the change in traffic volumes on Route 202.

Table 22. Highest Traveled Links of Nearby Roads – Daily Volumes, 2000 to 2026

Arterial Link Location	2000	2026	Absolute Change	Change in Percent
US 1 (E of Brinton Lake Rd)	41,800	53,900	12,100	29%
US 1 (between Rte 202 and Brinton Lake Rd)	39,600	52,500	12,900	33%
US 1 (W of Rte 202)	27,700	43,000	15,300	55%
Rte 322 Business	14,500	19,200	4,700	32%
Collector Link Location	**2000**	**2026**	**Absolute Change**	**Change in Percent**
Rte 926 (between New St and Rte 202)	11,300	15,900	4,600	41%
Rte 926 (W of New St)	10,900	15,100	4,200	39%
Naaman's Creek Rd (E of Pyle Rd)	10,500	15,200	4,700	45%

Source: Delaware Valley Regional Planning Commission

Levels of Service

Level of Service can be defined as a qualitative measure that characterizes operational conditions within a traffic stream and their perception by motorists and passengers. Individual levels of service describe speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with level of service (LOS) A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and are affected by factors such as roadway conditions, traffic conditions and control conditions.

Levels of service at a number of intersections along Route 202 are extremely poor. In the highly-traveled northern part of the corridor, intersections with Pleasant Grove Road and PA 926 have levels of service of F(F), meaning that during peak hours in mornings and evenings, level of service ranks in the lowest category possible. The same is true of the intersections with US 1, Marshall Road, and Pyle Road, all in the southern part of the corridor. In addition, the intersection of Route 202 and Matlack Street, at the far north end of the corridor, has level of service F(E), and the intersections of Brintons Bridge Road/Dilworthtown Road and Beaver Valley Road/Naamans Creek Road have levels of service E(F). In other words, at eight of the sixteen intersections in the study area, the level of service is F at some point during the day.

Roadway Conditions and Characteristics

One of the most serious problems confronting Route 202 has to do with access, because of its dual role as both a regional thruway and a locally used road. The combination of high-speed traffic in large volumes and numerous intersections and access points can lead to serious problems, such as congestion and safety concerns.

Access management has been identified as a concern throughout the study corridor. Access problems are severe throughout most of the portion of Route 202 in Delaware County, from Dilworthtown Road/Brintons Bridge Road to the Delaware border. South of the Smithbridge Road intersection in Concord and Bethel townships, parcels along the highway are extremely small, used for commercial or residential purposes, and front directly on the highway. Access problems in this area are especially serious. Farther north, between Smithbridge Road and US 1 in Concord and Chadds Ford townships, parcels are larger in size but are still accessed

directly from Route 202. The area near Painter's Crossroads is slightly better, thanks to a ring road constructed around the State Farm complex. Access will further improve once the remainder of the ring road is completed.

North of US 1, serious access problems persist in Chadds Ford and Birmingham Townships. In both of these municipalities, the Route 202 corridor is the only land zoned for commercial use, and strip development has enveloped both sides of the highway. Commercial uses along the highway are fairly dense, located on small lots with their own driveways, resulting in many access points. Thornbury Township (Delaware County) borders on only a small segment of Route 202, and is sufficiently undeveloped, so access has not become a problem. Farther north, Thornbury Township (Chester County) and Westtown Township have acted proactively to manage access, and problems are considerably fewer. Minor access problems are caused by driveways from a few houses entering directly onto Route 202 in the northern half of Westtown Township. Finally, West Goshen Township has few access problems, since it contains only a small segment of the corridor.

A few segments of Route 202 are particularly prone to accidents, including segments of Route 202 directly north and directly south of its intersection with US 1, and the segment between Business Route 322 and Matlack Street at the northern limit of the study area. Three intersections are also particularly unsafe, including Routes 202 and 926 and Route 202 and Beaver Valley Road / Naamans Creek and Route 202 and Route 322 Business (the most dangerous).

The speed limit along Route 202 is 45 miles per hour. However, many drivers, especially those coming from the faster speed zone to the north of the study area, regularly exceed the posted speed.

Other Transportation Modes

The transportation network along the Route 202 corridor is dominated by the car, with few alternative transportation modes available. Passenger rail service does not extend to any point along Route 202. The SEPTA-owned Octoraro rail line, unused east of Chadds Ford and used for freight service to the west, passes through Chadds Ford and Concord Townships just south of US 1. Also, the inactive West Chester rail spur runs from the northwest to the southeast in the eastern portion of the study area, from West Chester to Thornbury Township, Delaware County.

SEPTA bus service along the corridor is also limited. **Map 10** outlines current bus routes in the corridor. Discussion is underway between SEPTA and DART to re-establish bus service from West Chester to Wilmington, Delaware. The Delaware County Transportation Management Association (TMA) and the TMA of Chester County have developed shuttle bus services to supplement the SEPTA service in the corridor. Also, no park and rides currently exist in the study area, a problem that has been addressed in the concept plan for Route 202. Public transportation will become increasingly important in the corridor as the area grows and congestion worsens. The aging of the population also leads to a greater dependence on alternative modes of transportation.

Bicycling and walking are not viable along the Route 202 corridor. There are no bike lanes and the highway's use as a primary arterial with high-speed, through traffic, as well as its high level of congestion, would probably make biking unsafe. Walking is also impossible, for similar reasons; crossing or even walking beside Route 202 is inadvisable over much of its length, since there are few sidewalks. In addition, the low-density pattern of land use along the

highway creates distances too large to be conducive to pedestrian travel, and the high speed of automobiles creates a dangerous pedestrian environment.

Planning Implications of Circulation Conditions

- Transportation and land use are closely linked. They represent a regional issue, which must be addressed through cooperation with the states (Pennsylvania and Delaware), counties, neighboring municipalities and the private sector.

- Route 202 currently serves two conflicting functions, as it is used as a regional highway for long-distance travel and also as the commercial center for many of the municipalities through which it passes.

- Projected future growth in population and employment in the study area indicate that the use of the highway as a local road will continue and probably increase.

- Traffic volumes are predicted to increase by 40% over the next twenty-six years, with the largest projected increases on the segment of Route 202 between US 1 and PA 926.

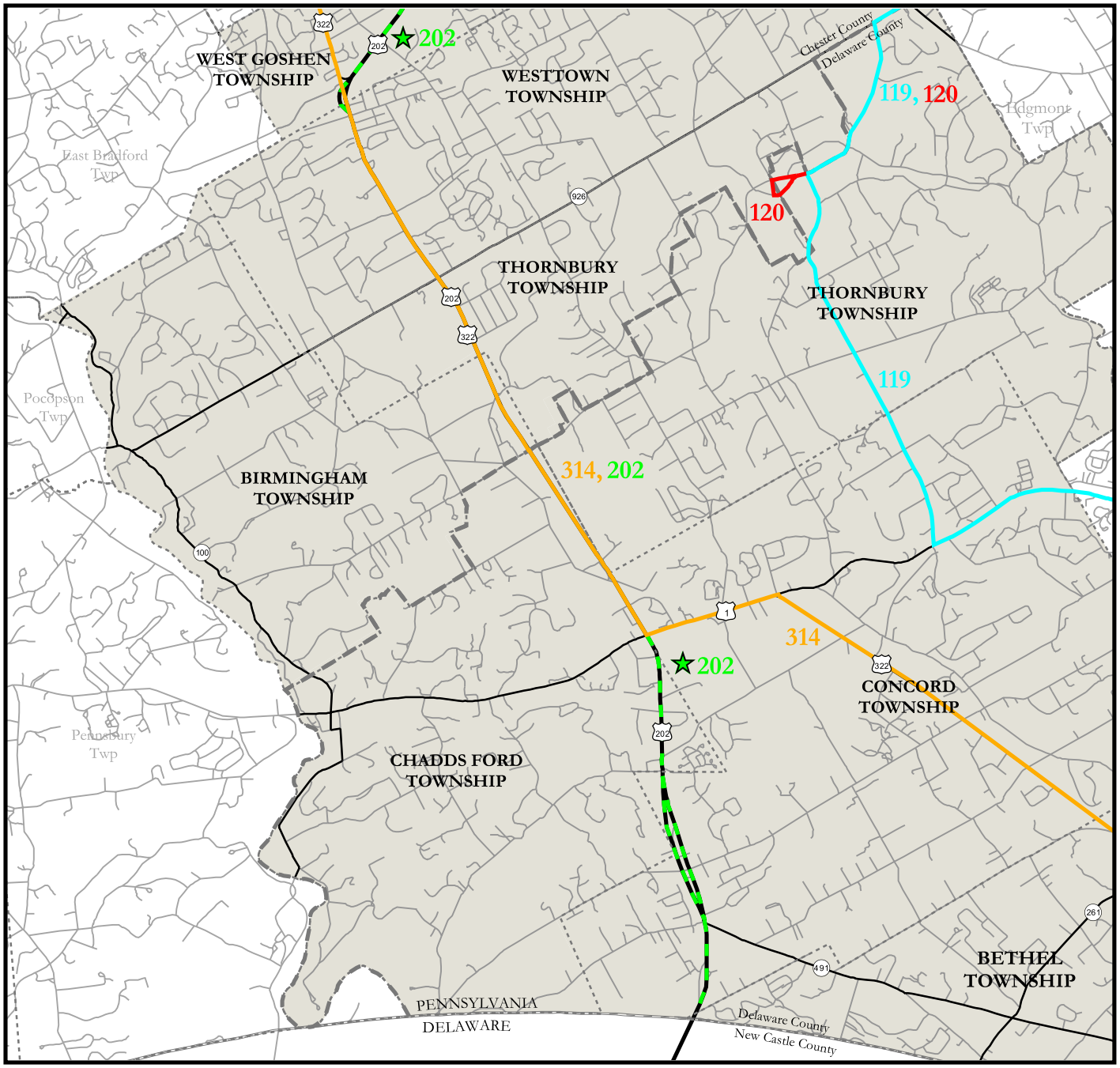
- Levels of service are extremely poor at a number of intersections along the highway, and will certainly not improve with increased traffic volume, absent any improvements.

- Because of land use patterns along Route 202, most transportation alternatives to the automobile are currently not viable, and recent development trends exacerbate this problem.

- Caution is needed to ensure that land use is not changed in such a way that the new capacity added by the widening project is eroded by new development along the highway.

Route 202, Section 100

Map 10: Bus Routes



SEPTA Bus Routes

- 119
- 120
- 314

Proposed Bus Route

- 202

N

0 0.5 1 1.5 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Source: Delaware Valley Regional Planning Commission.

Community Facilities and Infrastructure Systems

Community facilities and infrastructure systems are defined as public buildings and structures that house programs and activities essential to municipal government operations. Public services include activities ranging from sewer and water service to parks and recreation facilities. The extent to which facilities and services are available in any one municipality is dependent on many factors, including population, tax base, regional location and the circulation system. This section describes the community facilities and infrastructure systems as they presently exist in the corridor and identifies needs that may not be adequately addressed.

Municipal Buildings

Most municipalities within the corridor operate from municipal buildings located in various areas of their respective townships. These facilities contain municipal offices, meeting rooms and public safety facilities. A number of these buildings are also located in proximity to the corridor, although the Westtown Township Municipal Building is the only municipal building actually located on the corridor. As population growth continues in the corridor, the desire for more and better community facilities will require the expansion of existing buildings or the establishment of new municipal facilities. In terms of practicality and functionality, municipalities will need to evaluate utilization of the corridor for future expansion of municipal facilities.

Wastewater Facilities

Act 537, the Pennsylvania Sewage Facilities Act of 1966, as amended, requires that each municipality have an official Sewage Facilities Plan, typically referred to as the “537 Plan”. The purpose of the plan is to identify future sewage disposal needs in light of anticipated development and set forth policies for meeting those needs. **Map 11** reflects current sewer service areas in the corridor.

Different approaches are available for waste disposal. The method is dependent on a variety of factors including population, density of development and individual site characteristics. The ownership of facilities varies as well, and municipalities, municipal authorities or private entities including individuals, corporations or homeowners associations, can own and operate sewage disposal facilities. Sewage disposal facilities in Chester and Delaware counties can essentially be classified in several ways:

Public Systems are centralized systems for sewage collection and treatment. These are commonly referred to as public sewers and can be publicly or privately owned, with most public.

Package Plants are smaller facilities that usually serve only one development or commercial facility. Treatment takes place through a mechanical or chemical process with the final step dependent on stream discharge.

On-Lot Systems are individual systems that are built to accommodate a single dwelling unit. These systems vary, ranging from simple to highly engineered, based on the soil characteristics at the site. On-lot systems designed to accommodate one or more dwelling units are known as community on-lot disposal systems. These systems can serve multiple dwelling units (such as a mobile home park) or commercial or industrial type flows. Most on-lot systems are privately owned.

Most municipalities in the corridor rely on on-lot systems as the primary treatment method, according to their municipal sewage facilities plans. Although these systems are a highly

effective method for the disposal of sewage, municipalities will be challenged to evaluate anticipated growth, review current practices, and analyze future needs in an effort to manage potential growth within the corridor.

Water Facilities

The systems supplying water to the corridor vary significantly in size and can be publicly or privately owned and operated. The Philadelphia Suburban Water Company and the Chester Water Authority serve Chester and Delaware counties. As the corridor grows, service expansion may be necessary.

In both Chester and Delaware counties, water is supplied from both surface sources and from wells. As described in the previous Natural Resources Section, groundwater yields are sufficient to accommodate the low density development that has so far been typical of the corridor. Public water systems, outlined on **Map 12**, are defined as those that provide 15 connections or serve 25 persons for at least 60 days per year. Public water systems can be further classified as either community or non-community water systems. These are defined as follows:

Community Water Systems provide for 15 connections or serve 25 persons on a regular basis throughout the year. This can include water companies, authorities, multi-family complexes and certain institutions.

Non-community Water Systems are classified as non-transient, non-community systems serving 25 of the same persons at least six months per year. These include facilities such as schools and campgrounds. Those systems that provide services to restaurants, businesses and churches would also qualify as non-community water systems.

A majority of municipalities in the corridor are currently dependent on individual private wells as the source for potable water. Continual growth will impact the quantity and quality of groundwater, making preservation of private wells more difficult.

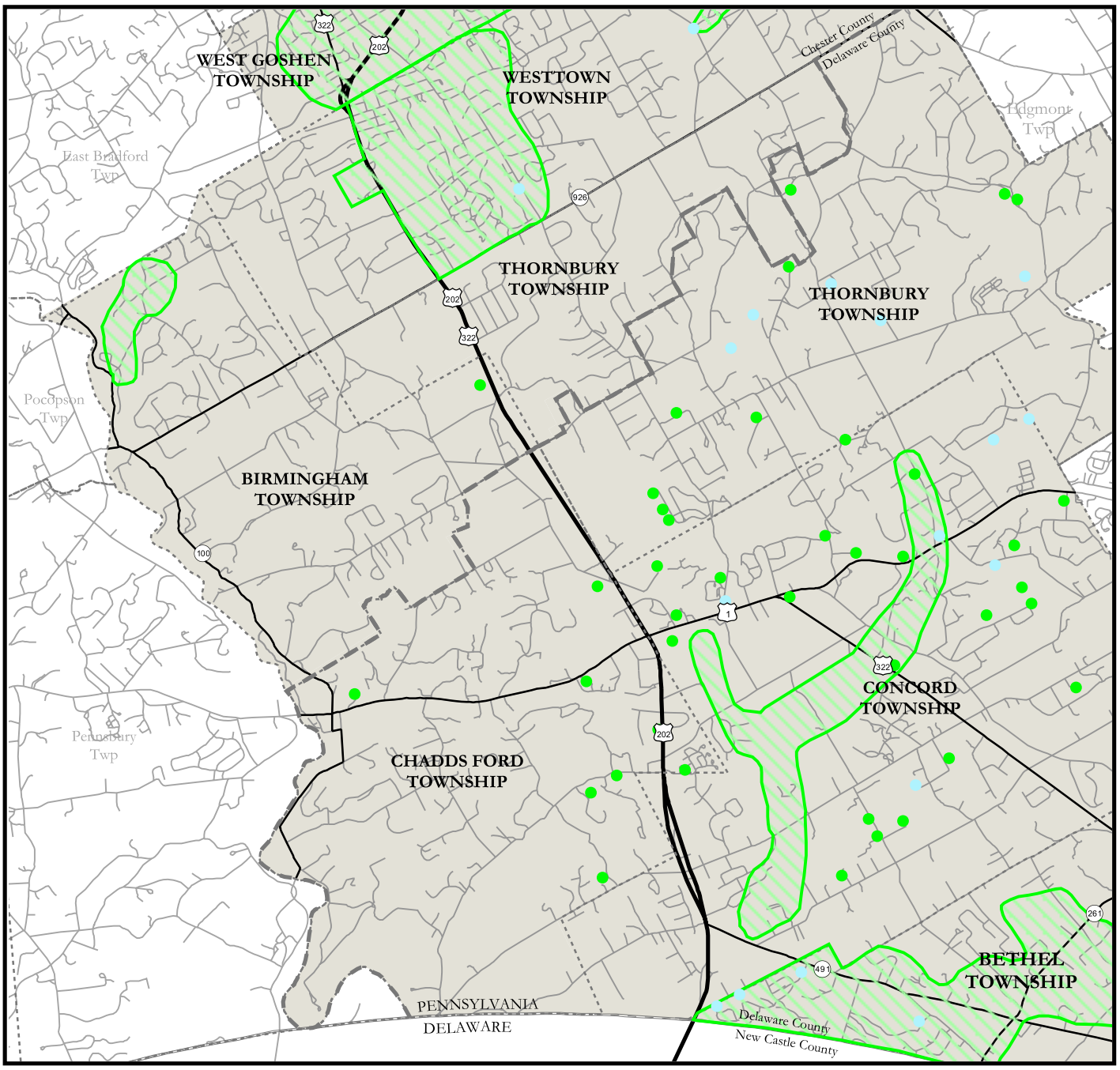
Stormwater Management

Stormwater management practices are governed by Act 167, the Pennsylvania Stormwater Management Act of 1978. This Act requires the adoption of ordinances and other measures to regulate development in municipalities in a manner consistent with watershed management provisions established by the State. In both Chester and Delaware counties, municipalities are encouraged, as interim measures, to integrate Best Management Practices into municipal ordinances.

General objectives for best management practices include: requiring unimpeded flow of natural water courses; draining low points along streets; intercepting stormwater run-off at appropriate points; and accommodating expected volumes of stormwater run-off within subdivisions and other land developments. Along with these provisions, performance standards and construction standards should be outlined.

Route 202, Section 100

Map 11: Sewer Service Area



Pump Station

Sewer Plant

Sewer Service Boundary

Study Area

N

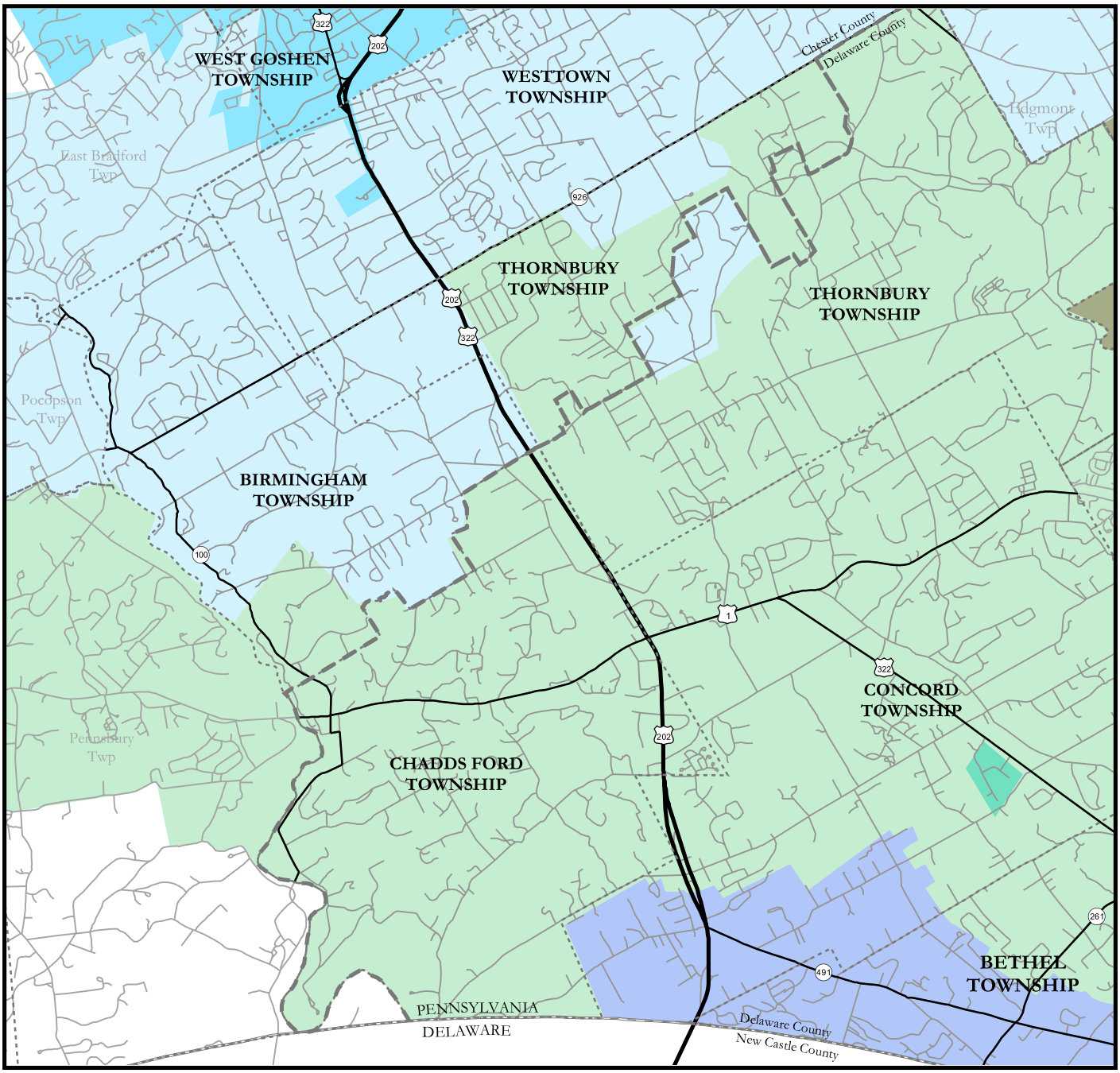
0 0.5 1 1.5 Miles

Source: Delaware Valley Regional Planning Commission, Delaware County Sewer Service Map, Chester County Sewage Facilities Inventory.

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Route 202, Section 100

Map 12: Water Service Area



Water Service Areas

- Bethel Water Co
- Chester Water Authority
- Media Water Co
- Philadelphia Suburban Water Co
- West Mattson Co
- West Chester Area Municipal Authority

N

0 0.5 1 1.5 Miles

Source: DVRPC; Delaware County Water Supply Map; Chester County Water Facilities Inventory; Philadelphia Suburban Water Company.

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Although municipalities within the corridor have some stormwater management measures in place, these standards require the traditional method of addressing stormwater runoff. Therefore, stormwater management will continue to be a challenge if new construction takes place on single lots in small subdivisions, which are generally not subject to the same level of review in terms of stormwater runoff as the larger development proposals.

Parks and Recreation

The 1982 *Chester County Open Space and Recreation Study* and the 1978 *Delaware County Open Space, Parks, and Recreation Study* provide a full analysis of park and recreational facilities available to corridor residents. More information concerning these facilities, including a description of each facility, can be found in these documents.

Regional Parks are large scale parks that usually extend beyond municipal boundaries to serve regional populations. These include federal and state parks and recreational land that promote passive use. Examples of regional parks in proximity to the corridor are the Brandywine Battlefield Park in Chadds Ford, Marsh Creek State Park in Upper Uwchlan Township, and Ridley Creek State Park in Edgmont Township.

Sub-regional Parks are large tracts of open space intended to fill gaps between regional and community parks. These are usually parks provided by a county government. They can provide both active and passive recreational uses. Hibernia County Park in West Caln Township, Chester County and Clayton County Park in Bethel and Concord townships, Delaware County are examples of sub-regional parks.

Community Parks are municipal parks accommodating both active and passive recreational uses. They often have specialized facilities such as tot lots, handicapped trails or event structures.

The municipalities within the corridor appear to have access to recreation areas that meet the basic needs of their residents. However, anticipated growth and new development will create a need for additional park and recreation facilities. Municipal park and recreation facilities include:

<u>West Goshen Township</u>
West Goshen Community Park
Coopersmith Park
Barker Park

<u>Westtown Township</u>
Oakbourne Park
Pennwood Park
Tyson Park
Larchbourne Park
Edgewood Chase Park

<u>Thornbury Township (Chester County)</u>
Goose Creek Park
Sandy Hollow Park
Squire Cheyney Park
Thornbury Soccer Park

<u>Thornbury Township (Delaware County)</u>

Martin Park
Thornbury Park

Concord Township
Kids' Dream Playground
Leopard Run
Pole Cat Road House

Birmingham, Chadds Ford and Bethel townships have no municipal parks.

Planning Implications of Community Facilities and Infrastructure Conditions

- The majority of corridor residents rely on on-lot sewage disposal systems, which if not properly maintained could contaminate groundwater supplies and pose other environmental concerns.

- Groundwater is the main source of potable water for many of the corridor's residents, and as new development occurs supplies may be impacted in quantity and quality.

- Erosion remains a concern in some areas of the corridor, such that stormwater management will continue to be an issue as development occurs.

- The demand for park and recreation areas will increase as the corridor's population grows.

Conclusion

This assessment of existing conditions in the U.S. Route 202, Section 100 corridor reflects an area that is rapidly transitioning from a rural and semi-rural environment to a more suburban landscape. Associated with this transformation will be new growth, development, traffic and demands for municipal services and facilities. The general strategies and specific recommendations that follow in Chapter III and Chapter IV are oriented to maintaining the area's quality of life, while accommodating expected growth and change.

CHAPTER III

GOALS, OBJECTIVES, AND PLANNING STRATEGIES

Using the analysis of existing study area conditions, the Route 202 Section 100 Land Use Steering Committee identified multiple goals and objectives to create the foundation for this strategy study. The goals summarize the vision of municipalities in the corridor, as well as those of Chester and Delaware counties, in terms of land use, transportation and future development, and serve to guide the implementation of the recommendations and strategies in this study.

The goals and objectives were formulated following a review of those contained in municipal comprehensive plans (as amended), open space, recreation and environmental resources plans (municipal and county), as well as municipal zoning ordinances (as amended). The realization of these goals and objectives will require a serious effort on the part of municipal officials, committees and individual citizens. While the identification of these goals and objectives has been an important step, it does little good without their implementation. Thus, this chapter also includes recommended strategies by which the municipalities in the corridor can realize these goals and objectives.

The strategy matrix on the following pages divides goals, objectives, and strategies into the following elements:

- Community Development
- Housing
- Natural and Scenic Resources
- Cultural and Historic Resources
- Circulation
- Community Facilities and Services
- Economic Development
- Municipal Planning

In the matrix, each goal and objective is presented, followed by an appropriate implementation strategy. The goals are presented in bold text, the objectives in plain text, and the recommended strategies in bullet points. Each strategy is followed by a page number, referencing a brief description of the strategy found in Appendix A. The descriptions vary in length and complexity, but prioritize the strategy, identify the entities responsible for implementation, and note which planning or regulatory documents would be most affected by its adoption.

For the most part, the strategies found in this chapter are generic planning techniques that may or may not be appropriate for particular municipalities to adopt. Thus, they should be treated by the municipalities in the corridor as a *list of options*, rather than a comprehensive set of recommendations. More specific recommendations, directed to individual townships, can be found in Chapter IV.

Community Development

Goal: Achieve a future overall development pattern that is responsive to the economic, social and cultural needs of corridor residents and businesses, in view of regional trends, while preserving the future capacity, maximizing safety and minimizing congestion on Route 202.

Goal: Preserve and enhance the physical and environmental characteristics that make the Brandywine Valley a distinctive and identifiable place, while at the same time provide for the needs of existing and prospective residents.

Goal: Ensure that development occurs in an efficient manner, compatible with existing conditions, and in ways that minimize short- and long-term costs to the public and private sectors, minimize degradation of natural, historic and cultural environments, and meet both local and regional objectives.

Goal: Ensure that community input is included in development activities, and that the opinions of corridor residents and business owners are respected.

Objective: Direct residential, commercial, industrial, and institutional development to designated areas where sewer, water, and transportation networks are already in place.

- Growth Boundaries (p. A-5)
- Suburban Center Zoning (p. A-10)
- Planned Residential Development (p. A-8)
- Transfer of Development Rights (p. A-11)

Objective: Encourage mixed-use development, incorporating retail, office, hotel, and higher-density residential uses, especially near the interchanges of arterial roadways and transit stops.

- Transit Oriented Development (p. A-11)
- Planned Residential Development (p. A-8)

Objective: Relate land use to the ability of the tract to support development in terms of natural resources and accessibility to the road network.

- Open Space / Cluster Development (p. A-7)

Objective: Establish performance standards to reduce incompatibility between land uses through the use of buffering.

- Performance Zoning (p. A-8)

Objective: Coordinate developments with state highway officials to assure optimum levels of service and ease of access from specific sites, and in particular, the use of shared access onto arterial roads.

- Official Map (p. A-6)
- Access Management Provisions (p. A-2)
- Capital Improvement Plan (p. A-3)

Objective: Encourage sketch plan review prior to preliminary plan submittal and require a site analysis as the basis for development proposals.

- Site Analysis Plan (p. A-9)

Housing

Goal: Provide an appropriate supply of diverse and affordable housing, in harmony with the existing and historic character of the region and its natural environment, and sustained by adequate support facilities.

Objective: Facilitate a range of housing types, sizes and price levels, to respond to changing housing needs and to provide housing for various stages of the life cycle, household configurations and income levels.

- Fair Share Analysis (p. A-4)

Objective: Protect the viability of the existing housing stock and the character of existing neighborhoods.

- Historic Resources Design Standards (p. A-5)

Objective: Accommodate alternative housing types through the use of planned or unified developments and within sensitively designed developments.

- Open Space / Cluster Development (p. A-7)
- Planned Residential Development (p. A-8)
- Suburban Center Zoning (p. A-10)
- Transit Oriented Development (p. A-11)
- Traditional Neighborhood Development (p. A-10)

Objective: Maintain residential neighborhoods and expand housing opportunities near existing employment centers.

- Suburban Center Zoning (p. A-10)
- Transit Oriented Development (p. A-11)
- Traditional Neighborhood Development (p. A-10)

Natural and Scenic Resources

Goal: Protect, preserve, manage and enhance the natural and scenic resources of the corridor (in particular the water resources, steep slopes and biotic resources, to prevent soil erosion and conserve important vegetative resources and the scenic landscape).

Objective: Require the placement of lots and buildings, roads, and other structures to occur in ways that preserve natural resources and scenic vistas.

- Site Analysis Plan (p. A-8)
- Open Space/Cluster Development (p. A-6)
- Performance Zoning (p. A-7)

Objective: Maintain and retain the existing character of floodplain and wetland areas within the corridor, limiting disturbance and avoiding negative impacts on adjacent properties.

- Floodplain Management (p. A-4)

Objective: Incorporate performance standards which promote conservation of existing vegetation and scenic vistas.

- Vegetation Management (p. A-11)

Objective: Create design guidelines for berming, natural landscaping, and increased building setbacks along the corridor to preserve and enhance visual amenities.

- Vegetation Management (p. A-11)
- Riparian Buffers (p. A-8)
- Greenways (p. A-4)

Objective: Minimize alterations to existing topography with particular attention given to protecting steep slope areas (i.e., in excess of 15%) from indiscriminate disturbance.

- Slope Management (p. A-9)

Objective: Require subdivision and land developments to set aside open space which is contiguous to other open space, to create and enhance greenways and wildlife passageways, and provide design flexibility to developments that do this.

- Open Space/Cluster Development (p. A-6)
- Performance Zoning (p. A-7)

Objective: Use creativity and innovation to overcome fiscal and maintenance restraints to preserving open space, possibly by implementing mandatory dedication of open space, or requiring fees to purchase open space elsewhere.

- Conservation Easements and Local Land Trusts (p. A-3)
- Parkland Dedication/Fee-In-Lieu Provisions (p. A-7)

Cultural and Historical Resources

Goal: Preserve the cultural and historic character of the corridor by protecting cultural and historic features that contribute to the unique character and local quality of life in the Brandywine Valley.

Objective: Identify and evaluate historic and archaeological resources for local, regional and national significance.

- Historic Preservation Planning (p. A-5)

Objective: Investigate methods of encouraging the preservation of significant resources through both public and private means.

- Local Historic Districts (p. A-5)

Objective: Incorporate historic patterns of development when considering future land uses, and retain historic landscapes whenever possible.

- Village Protection Program (p. A-11)

Objective: Evaluate the effectiveness of measures currently in place to protect historical features and consider new alternatives such as the development of historic preservation standards.

- Historic Resources Design Standards (p. A-5)

Objective: Support the preservation and protection of sensitive portions of the Brandywine Battlefield.

- Historic Preservation Planning (p. A-5)
- Historic Resources Design Standards (p. A-5)

Objective: Emphasize community preservation in the land use decision-making process

- Historic Preservation Planning (p. A-5)

Objective: Establish a firm identity for the Brandywine Valley in the minds of its residents, and make tourists and other visitors aware of their presence in the Brandywine Valley.

- Historic Preservation Planning (p. A-5)
- Economic Development Planning (p. A-4)

Objective: Preserve the distinctive aesthetics of the Brandywine Valley and enhance the image of the community.

- Historic Preservation Planning (p. A-5)

Circulation

Goal: Maintain a safe and efficient multi-modal circulation system throughout the corridor, while safeguarding the current function of the transportation network, preserving capacity and establishing a beneficial relationship between land use and both regional and local circulation patterns.

Objective: Improve safety and efficiency for intra-corridor and through-corridor vehicular trips.
- Corridor Access Management Overlay District (p. A-4)

Objective: Establish a balance between the function of the road network and land use.
- Official Map (p. A-6)

Objective: Encourage traffic flow improvements and the implementation of design standards that are based on a functional classification of roadways.
- Residential Street Design (p. A-8)
- Right-of-way Preservation (p. A-9)

Objective: Improve access management on arterial and collector roads.
- Access Management Provisions (p. A-2)
- Corridor Access Management Overlay District (p. A-4)

Objective: Identify and generally set priorities for projects which are appropriate for inclusion on DVRPC's Transportation Improvement Program and PennDOT's Twelve-Year Transportation Program.
- Capital Improvement Plan (p. A-3)

Objective: Identify Transportation Systems Management (TSM) activities that can be implemented to improve efficiency and safety.
- Traffic Signal Systems (p. A-10)
- Traffic Impact Fee Ordinance (p. A-10)
- Parking Management Program (p. A-7)

Objective: Encourage ride-sharing among local residents and identify areas that might be used for long distance and commuter parking areas.
- Trip Reduction Ordinance (p. A-10)
- Park and Ride Program (p. A-6)

Objective: Establish criteria upon which the need to establish future mass transit opportunities might be established.
- Transit Oriented Development (p. A-11)
- Transit Design Standards (p. A-11)

Objective: Promote the development of a network of pedestrian and bicycle facilities linking residential, employment, shopping, school, open space and recreation sites, and transit stops.
- Pedestrian / Bikeway Facilities Design (p. A-8)

Objective: Preserve the character of existing neighborhoods by directing regional through traffic to arterial highways, rather than to local roads.

- Residential Street Design (p. A-8)
- Corridor Access Management Overlay District (p. A-4)

Community Facilities and Services

Goal: Provide public services, facilities and utilities in the most efficient, cost-effective manner, taking into account community needs and environmental factors.

Goal: Ensure that current sewage disposal methods are adequate, maximizing efficiency and reducing the potential for contamination.

Goal: Ensure that corridor residents are provided with a high quality water supply in sufficient quantities to meet present as well as future needs.

Objective: Provide high quality, cost effective community facilities and services, with an emphasis on planning for public facility improvements needed to serve future growth and community needs.

- Capital Improvement Plan and Program (p. A-3)

Objective: Support efforts of water supply and wastewater treatment companies and authorities in planning ahead for the expansion of capacities and extensions of the defined service areas in accordance with growth projections and municipal plans.

- Capital Improvement Plan and Program (p. A-3)

Objective: Review and update Master Wastewater Facilities Plan (Act 537), which contains the provisions for adequate sewage collection, treatment and disposal facilities.

- Community Sewage Treatment and Disposal Options (p. A-3)

Objective: Assure that all current and prospective users of land, including residents, businesses, and visitors, have access to a water supply of sufficient quantity and quality to meet projected needs of all development proposals.

- Water Resources Sustainability Assessment (p. A-12)

Objective: Prevent detrimental off-site impacts resulting from improperly controlled stormwater run-off through the use of on-site management and best management practices.

- Stormwater Management Best Practices (p. A-9)

Objective: Encourage the development of an adequate supply and mix of parks, playgrounds, open space and other recreation facilities, both activie and passive, to serve the existing and projected populations of the corridor.

- Open Space / Cluster Development (p. A-7)
- Parkland Dedication / Fee-In-Lieu Provisions (p. A-7)

Economic Resources

Goal: Expand and diversify the corridor's economic base in order to provide additional municipal services, maintain and develop community facilities, and offer a broad range of job opportunities for corridor residents.

Objective: Develop the potential for tourism in the Brandywine Valley as an economic resource.

- Economic Development Planning (p. A-4)

Objective: Locate new employment centers close to major transportation corridors, interchanges and transit routes in order to maximize accessibility for potential employees and clients and for goods movement.

- Transit Oriented Development (p. A-11)

Objective: Promote new business and industries that will tap the skills of corridor residents who commute to jobs outside the corridor.

- Economic Development Planning (p. A-4)

Objective: Coordinate the provision of new or improved transportation facilities and the establishment of centers of economic development.

- Transit Oriented Development (p. A-11)

Objective: Encourage investment in existing business districts, compatible with the historic/architectural character of the particular community, and discourage random or scattered commercial and industrial development patterns, such as strip development.

- Suburban Center Zoning (p. A-10)
- Economic Development Planning (p. A-4)
- Access Management Provisions (p. A-2)
- Transit Oriented Development (p. A-11)
- Economic Development Incentives (p. A-4)

Municipal Planning

Goal: Establish a variety of approaches, mechanisms and tools appropriate for dealing with the challenges faced by corridor communities.

Objective: Coordinate planning and development efforts among the local governments and institutions, school districts, County governments, and state and federal agencies, including SEPTA and DVRPC.

- Update to Comprehensive Plans (not described in Appendix A)

Objective: Continue to review, evaluate and update local comprehensive plans in relation to the County Comprehensive Plan at least every ten years, or more frequently as conditions warrant.

- Update to Comprehensive Plans (not described in Appendix A)
- Update to Act 537 Plans (not described in Appendix A)

Objective: Prepare and enact new and improved development regulations to ensure consistency with local or County comprehensive plans.

- Updates to Zoning Ordinances and Subdivision Land Development Ordinances (not described in Appendix A)

Objective: Promote joint municipal cooperative agreements and other tools derived from the Municipal Planning Code.

- Multi-Municipal Comprehensive Planning (p. A-6)

CHAPTER IV

RECOMMENDATIONS

This chapter contains specific recommendations for the adoption of planning strategies in the Route 202, Section 100 corridor. While Chapter III provided a generic list of options for the municipalities in the study area to consider, this chapter is considerably more specific, giving recommendations for planning strategies to be considered in particular locations along the corridor.

General Recommendations

Some recommendations apply to all of the municipalities in the study area. These include:

- All municipalities in the Route 202 Section 100 corridor should adopt the **Corridor Access Management Overlay District** (described on p. A-4, with a sample ordinance featured in Appendix B), in whole or in part, to plan for better access management along Route 202.

- All municipalities in the corridor should work with the Southeastern Pennsylvania Transportation Authority (SEPTA) to identify appropriate areas for a **Transit Oriented Development District** (described on p. A-11, with a sample ordinance in Appendix C), and should consider adopting this district, in whole or in part, to encourage transit use and transit-supportive development in selected locations.

- All municipalities in the corridor should consider adopting **capital improvements plans and programs** (p. A-3) to ensure that adequate infrastructure is available to support new development.

- All municipalities in the corridor should encourage **traditional neighborhood development** (p. A-10), which will replace strip commercial development and random suburban sprawl with centered, community-based development.

- All municipalities in the corridor should consider adopting **traffic impact fee ordinances** (p. A-10) to mitigate the adverse traffic effects of unmanaged growth.

- All municipalities in the corridor should consider adopting an **official map** (described on p. A-6, with a sample ordinance in Appendix D) in areas where new roads may be necessary in the future.

- All municipalities in the corridor should cooperate with each other to the fullest extent possible. This will provide additional leverage when requesting that PennDOT or other agencies respond to local concerns, and will also result in more coordination in shaping development patterns in the corridor. **Multi-municipal comprehensive plans** (p. A-5) or similar joint ordinances can lead to improved coordination.

Some of these recommendations are reiterated for specific municipalities later in this chapter. However, they are useful tools for all of the townships in the study area to consider. In addition, while the main focus of this report has been providing recommendations to municipalities, several recommendations are directed to other actors in the region. These include:

- PennDOT should be responsive to local concerns in the widening of Route 202. This study directs a number of recommendations to the municipalities in the corridor, and many of these require cooperation from PennDOT. Also, the recommendations contained in this report are not designed to be comprehensive, and additional local requests for pedestrian facilities, bus shelters, noise walls, and landscaping, among other improvements, should be met where feasible.

- In the split in the highway near the Village of Elam, PennDOT should select a widening alternative that shifts all lanes of traffic to the lanes currently used for northbound traffic. Specific recommendations to the townships in this area can be found in the description of Recommendation Area 5 (p. 123), and a vision of what this proposed alignment would look like can be found on pages 128 and 129.

- Bus service on Route 202 Section 100 should be reestablished. This will require coordination between SEPTA, the Delaware County Transportation Management Association, the Delaware Transit Corporation, PennDOT, Delaware and Chester counties, and local municipalities. A recent report on countywide transit improvements for Delaware County, prepared by Gannett Fleming, Inc., a transportation planning firm, recommends the extension of DART service to Painter's Crossroads. In addition, the Delaware Transit Corporation is currently proposing to extend service from Delaware to the Great Valley area, although SEPTA has not yet commented on this proposal. Adequate bus service is necessary for many of the recommendations of this study to be useful.

- SEPTA should consider an extension of Bus Route 314. This bus route currently runs to West Chester from Larkin's Corner in Upper Chichester Township, and passes through all eight of the townships in the study area. According to a Gannett Fleming, Inc., report, ridership on this bus route would be increased by extending its terminus to the Chester Transportation Center. This will require coordination between SEPTA, Delaware and Chester counties, and the Transportation Management Authorities of Delaware and Chester counties. SEPTA plans to study this option as part of its FY 2003 Annual Service Plan process.

- Chester and Delaware counties should continue to take an active role in helping the municipalities in the study area to create and implement plans for future growth. The participation of these counties is extremely important in achieving the recommendations provided in this study. Knowledge of activities in New Castle County, Delaware, will also be helpful for future planning and implementation activities.

Municipal Recommendations

Other recommendations are more location-specific. As **Map 13** shows, the study area has been divided into five geographic areas. The townships in the study area are divided among these five areas as follows:

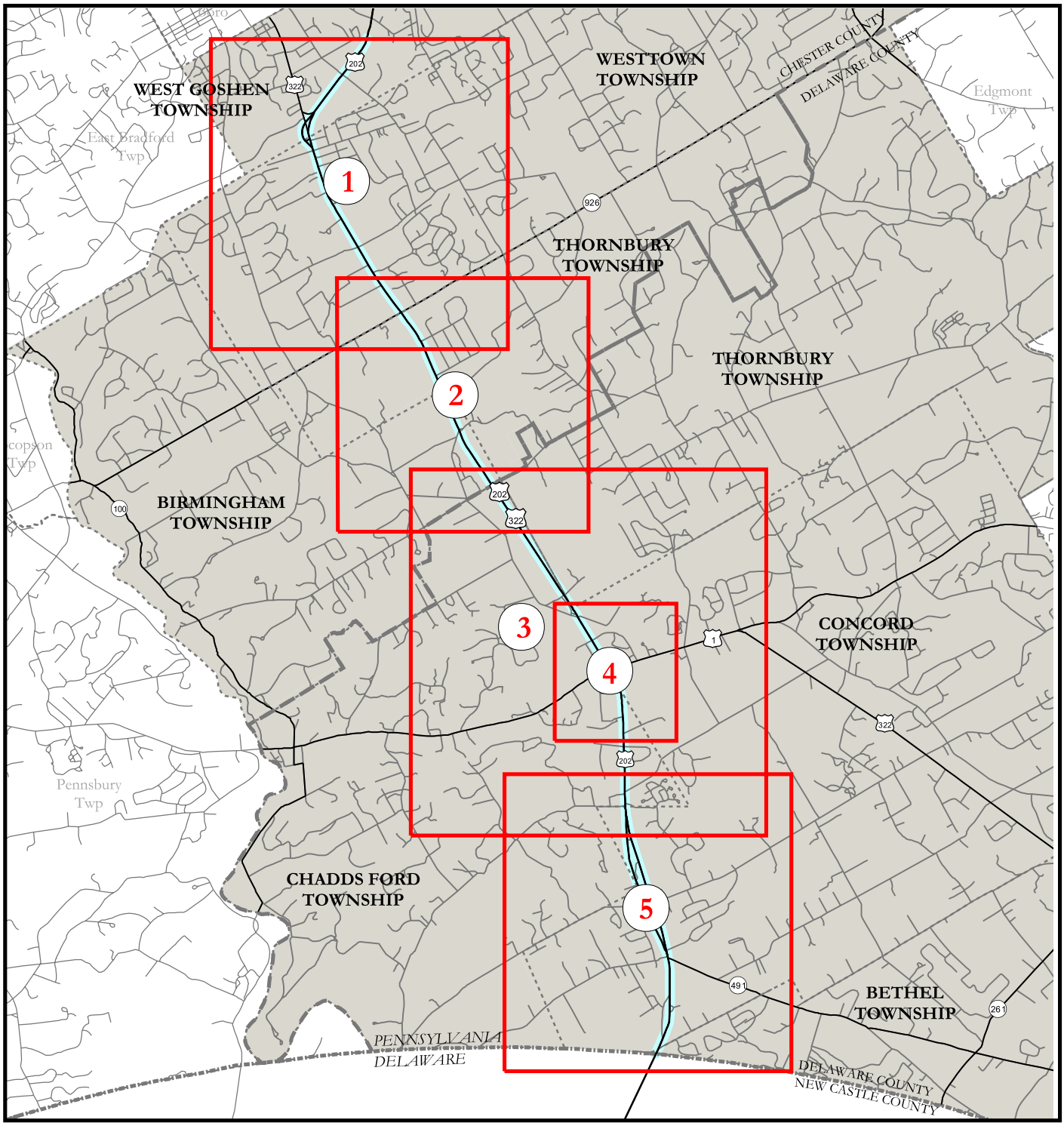
Township	Recommendation Area Number
West Goshen Township	1
Westtown Township	1
Thornbury Township (Chester County)	2
Birmingham Township	2
Thornbury Township (Delaware County)	3
Chadds Ford Township	3, 4, and 5
Concord Township	3, 4, and 5
Bethel Township	5

This chapter is divided into five sections, corresponding to these Recommendation Areas. Each section contains a Recommendations Area Map, showing all of the recommendations that are proposed. On the pages leading to this map, more details concerning each recommendation are given. Each description presents a brief overview of the justification for each recommendation, followed by specific actions that should be taken and specific planning strategies that should be adopted.

Each planning strategy mentioned in this chapter has already been listed in Chapter III. In addition, each of these planning strategies is described in greater detail in Appendix A, as referenced by the page number listed after each of the strategies.

At the end of each section is an illustration of one of the recommendations contained in that section. Each illustration contains a photograph of the current conditions of the site, a description of what is shown in the illustration, and a drawing showing a vision for how the recommendations given in this chapter could transform the site.

Route 202 Section 100 Map 13: Recommendation Areas



Recommendation Areas

Route 202

Corridor Access Management Overlay District

N

0 1 2 Miles

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Recommendation Area 1: West Goshen and Westtown**

** Note: In addition to these specific recommendations, general recommendations, directed to all municipalities in the corridor, can be found on pages 87 and 88.

A. Transit and Pedestrian Improvements at Matlack Street

Transit and pedestrian improvements on Matlack Street, near its intersection with Route 202, would provide improved transit access to employers in this area, such as Electronics Boutique and Microtel Inn. Bus shelters along Matlack Street, together with a park and ride facility based in the parking lot of a nearby business, could encourage the use of transit in the corridor, reducing congestion. In addition, pedestrian facilities in this area, running along Matlack Street and connecting local businesses, would allow more foot traffic and also serve to increase the use of transit.

- West Goshen Township should coordinate with SEPTA and Chester County to explore transit options that best fit the needs of the community and of local employers.

- The Township also may wish to establish a **park and ride program** (p. A-7) to encourage local residents to use mass transit for their trips to work. This may involve discussions with SEPTA, and also with local business owners.

- West Goshen Township should encourage businesses to provide **pedestrian facilities** (p. A-8) to connect employers along Matlack Street and Route 202 with nearby uses.

- In addition, the Township should coordinate with PennDOT to provide better pedestrian access to uses in this area, and to provide further pedestrian improvements including crosswalks across Matlack Street south of Route 202, which is not currently usable by pedestrians or bicyclists.

B. Corridor Access Management Overlay District

This overlay district restricts access points onto the highway, especially near major intersections. A sample ordinance of this type can be found in Appendix B of this report.

- West Goshen and Westtown townships should consider adopting the **Corridor Access Management Overlay District** (p. A-4), in whole or in part, to plan for better access management along Route 202.

C. Transit and Pedestrian Improvements at Stetson School Drive

Transit and pedestrian improvements near the intersection of Route 202 and Stetson School Drive, located near the middle school, the Jefferson Apartment Complex, and Sunrise Assisted Living, would serve the multiple transit users in this area. In addition, a park and ride facility, based in an excess parking lot owned by the school along Route 202, would further encourage transit use. Bicycle and pedestrian improvements, including a pedestrian overpass over Route 202, are also necessary here. Pedestrian access is especially critical because of the large numbers of children and elderly.

- Westtown Township should coordinate with SEPTA and Chester County to explore transit options that best fit the needs of the community, taking into special consideration the needs of the elderly and of students in Stetson Middle School and their families.

- In addition, the Township may wish to establish a **park and ride program** (p. A-7), taking advantage of excess parking owned by the school, to encourage local residents to use mass transit for their trips to work. This will involve cooperation between the Township, the School District, and local residents.

- Also, Westtown Township should encourage Stetson Middle School and the managers of Jefferson Apartments and Sunrise Assisted Living to provide **pedestrian facilities** (p. A-8) in the highlighted areas on the map.

- The Township should also coordinate with PennDOT and the County to construct bicycle and pedestrian facilities along roads such as Stetson School Drive, which intersect with Route 202 and which may be affected by its widening. A pedestrian overpass in this area may be especially important, and Westtown Township and PennDOT should collaborate to ensure that the needs of the community are met.

D. Bicycle Facilities on New Street

A bicycle lane on New Street paralleling Route 202 would provide a safer and more pleasant biking experience than is possible on the highway itself. This route is shown on the Recommended Bikeway Network for Chester County as part of the regional bicycle network.

- To implement this, West Goshen and Westtown townships should first collaborate with neighboring townships, such as Birmingham and East Bradford townships, to provide a consistent bicycle route. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements. Without cooperation and consistency, the bicycle route may be planned and constructed in a piecemeal way, and would not serve its function as part of the County and regional bicycle network.

- In addition, West Goshen and Westtown townships should adopt an **official map** (p. A-6) that shows the future locations of proposed roads and bicycle improvements. Also, local landowners, residents, and businesses should be consulted on any proposed bicycle improvements.

E. Crebilly Farm Development

In recent months, Westtown Township has been developing a vision for the future use of Crebilly Farm. The Township's ideas now include: an office park along Route 202, designed in a historically sensitive way and served by a reverse frontage access road; a golf course on the west side of this access road, which preserves open space and eliminates the need for sewer service to the office park; and natural areas on the western part of the farm, conserving sensitive environmental resources and preserving natural space.

A photo of the current conditions of the Crebilly Farm site, a more detailed description of the envisioned development, and an illustration of the possible future layout of this office development are shown in Illustration 1, on pages 98 and 99.

- To realize this vision, Westtown Township should continue to develop ideas for the development of the Crebilly Farm as an office park, golf course, and open space conservation area.

- The Township should consider using **open space or cluster development** (p. A-7) techniques to encourage the grouping of buildings and preservation of open space on the Crebilly Farm.

- To conserve existing historic structures on the Crebilly Farm, **historic preservation planning** (p. A-5) may be an effective technique. In addition, the Township may wish to adopt **historic resources design standards** (p. A-5) to ensure that the future office park is developed in a historically appropriate way.

- Another important aspect of the vision for the Crebilly Farm development involves access management. A possibility for access management involves the planning and construction of a corridor collector and reverse frontage access road, which would both provide access to the office space and golf course and provide local traffic with an alternative route to Route 202. For more details and implementation suggestions, see Recommendation F, immediately following.

F. Corridor Collector and Reverse Frontage Access Road between Route 926 and Stetson School Drive

A corridor collector, running parallel to Route 202 between Route 926 with Stetson School Drive, would serve several functions. It would allow local traffic, such as school-based traffic coming from the south and west, to avoid traveling on Route 202. This would increase safety and decrease congestion on this segment of the highway. Also, by concentrating traffic into the signalized intersection at Stetson School Drive, and the proposed grade-separated interchange at Route 926, the collector would reduce traffic entering the highway at uncontrolled access points. Finally, this road would also provide access to the office uses envisioned for Crebilly Farm (see recommendation E).

- Westtown Township should continue to develop its vision for the development of the Crebilly Farm as an office park, golf course, and open space conservation area.

- To encourage the construction of parallel access road, Westtown Township should adopt an **official map** (p. A-6) that formally shows the future locations of proposed roads. In addition, the Township may wish to begin coordinating with PennDOT or with the County on the planning and construction of this parallel access road.

- Westtown Township should require new uses in the envisioned Crebilly Farm development to provide **pedestrian and bicycle facilities** (p. A-8) along this access road and throughout the development.

- In addition, the Township should consider constructing these pedestrian and bicycle facilities in other areas along the road. This would provide alternative, non-automobile access to Stetson School, while connecting the proposed future office park and golf course with the surrounding community.

G. Corridor Collector at Dalmally Road

This corridor collector would be an extension of Dalmally Road, which currently connects Piedmont Road with Route 926 and the Westtown Village Shopping Center. This road is already used by some nearby residents for local trips, as it is a lower-speed, safer, and less congested alternative to Route 202. Connecting this road to Jefferson Apartments and the Sunrise Assisted Living Center, and enabling it to accommodate more traffic, would allow

more of Westtown's residents to make local trips without braving Route 202, and would reduce congestion on the highway. The designation of Dalmally Road as a corridor collector, and its extension to a high-density residential area, would have the effect of increasing traffic, and probably speeds, on this local road. Thus, the Township should carefully consider the costs and benefits of following this recommendation.

- If Westtown Township is interested in implementing this recommendation, the Township should adopt an **official map** (p. A-6) that shows the locations of proposed roads, and coordinate with PennDOT or the County on the planning and construction of this road.

- In addition, the Township should consider **pedestrian and bicycle facilities** (p. A-8) along this road, to provide pedestrians and bicyclists with an alternative route to the highly traveled Route 202, and to create a pedestrian-friendly connection between the Westtown Village Shopping Center and residential areas.

H. Transit and Pedestrian Improvements near Route 926

Transit and pedestrian improvements along Route 202 near its intersection with Route 926 would improve access to nearby businesses and would increase transit use in the corridor. The nearby Westtown Village Shopping Center and the envisioned future office park on the Crebilly Farm would benefit from greater transit access for their employees and patrons. In addition, a park-and-ride facility based in the parking lot of the shopping center would further encourage transit use. Pedestrian improvements, connecting the bus stops with the shopping center and the office park, would also allow more foot traffic in this area.

- Westtown Township should coordinate with SEPTA and Chester County to explore transit options that best fit the needs of the community, including the Westtown Village Shopping Center and the future office uses proposed for the Crebilly Farm.

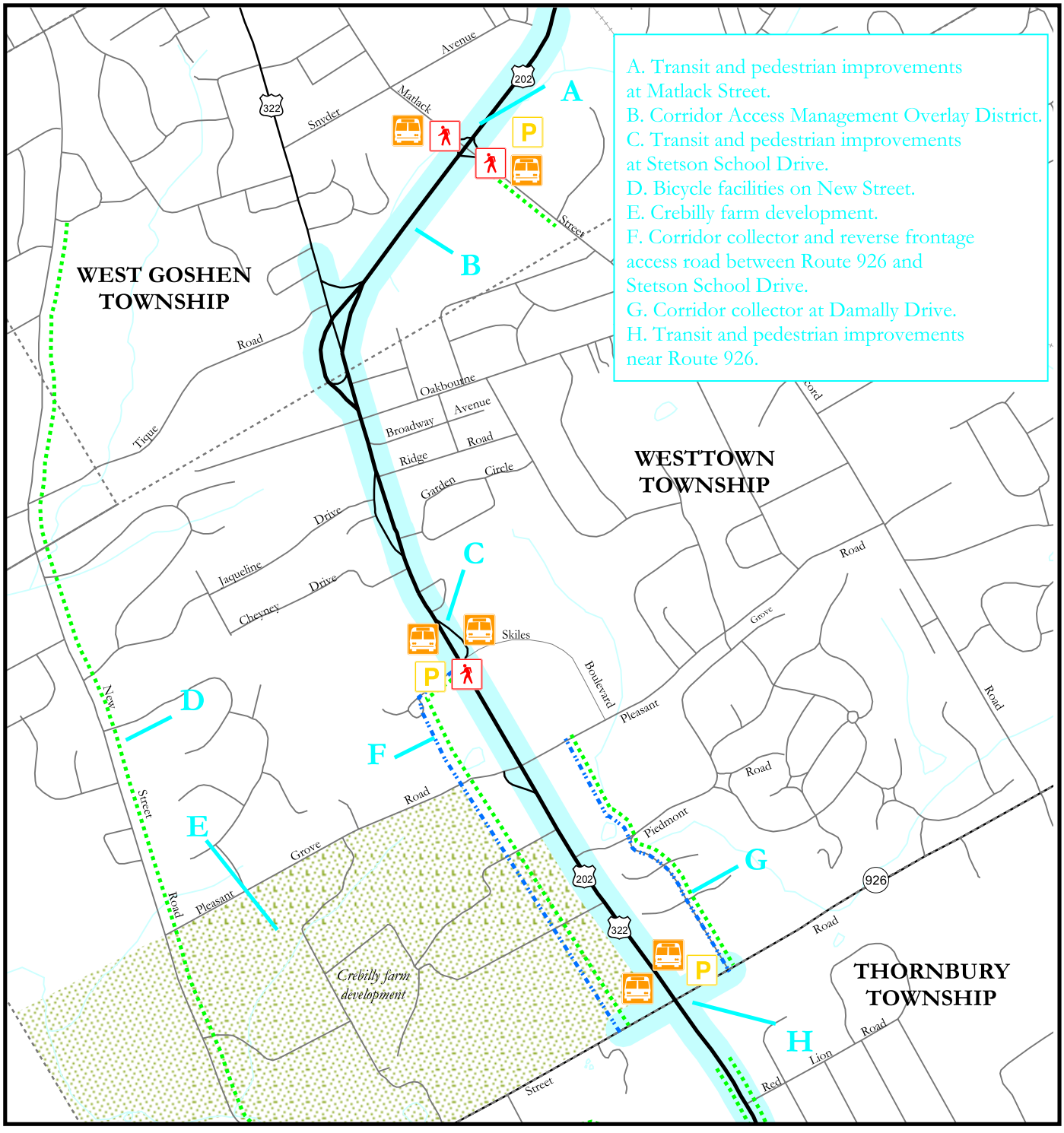
- The Township should also work with SEPTA and the shopping center to establish a **park and ride program** (p. A-7) to encourage residents to use public transit for trips to work.

- Westtown Township should require new uses in the envisioned Crebilly Farm development to provide **pedestrian facilities** (p. A-8) connecting these offices with the bus stop on Route 202, and should also encourage businesses in the shopping center to extend their sidewalks to the bus stop.

- Also, if the Township believes pedestrian access to be an important issue, it should work with PennDOT to develop solutions to enable pedestrians to cross Route 202 at this location.

Route 202 Section 100

Map 14: Area 1



Corridor Collector

Ring Road Collector

Service Road

Pedestrian and Bicycle Improvements

Pedestrian Access/Overpass

Bus Turnouts/Shelters

P Possible Park and Ride

N

0 400 800 1200 Feet

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Crebilly Farm Development

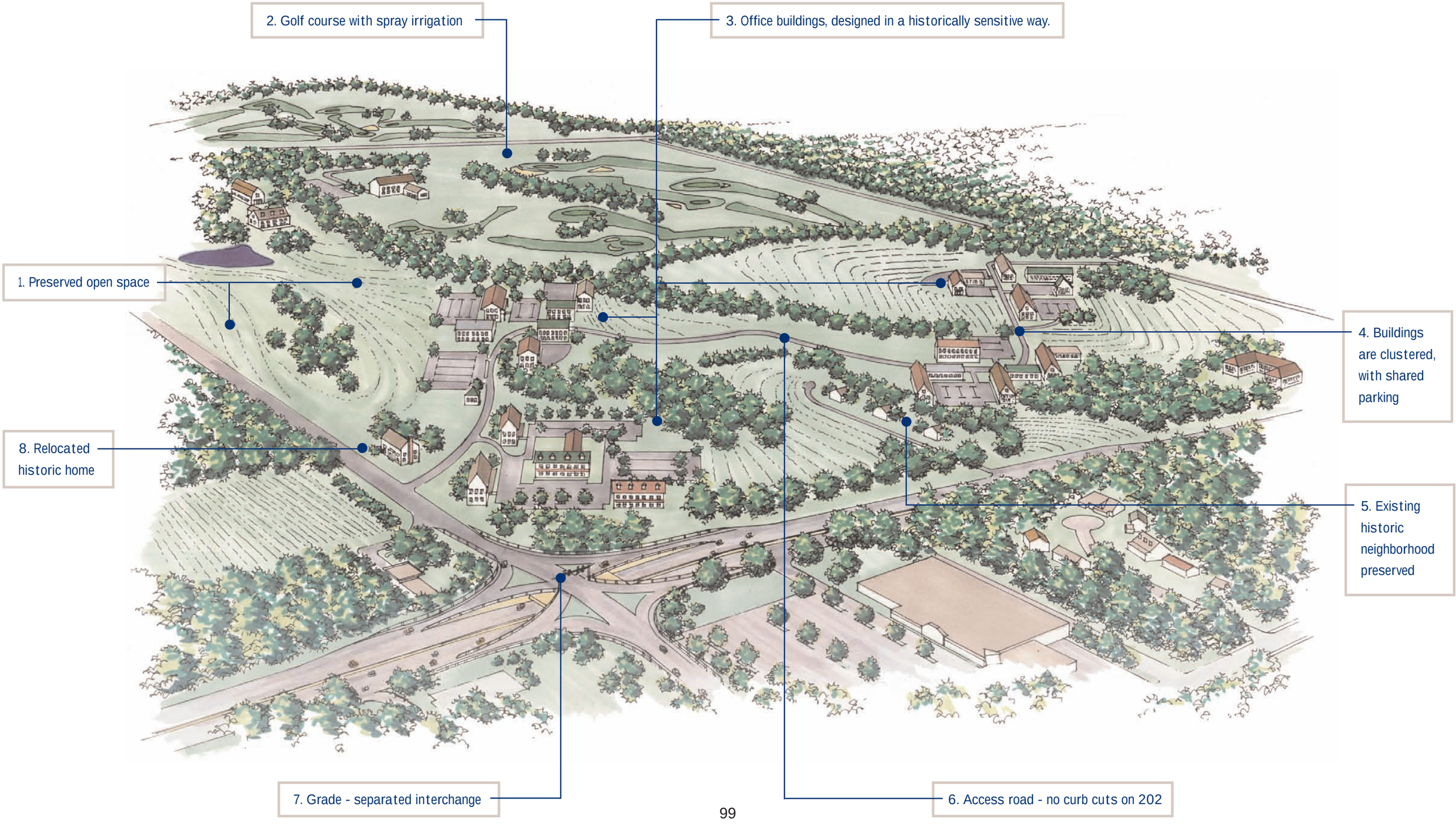
Existing Conditions

N

Illustration 1 shows several development concepts for the Crebilly Farm, located at the intersection of Routes 202 and 926 (soon to be a grade-separated interchange). It shows an office park along Route 202, designed in a historically sensitive way, reflecting the architecture of Chester County farms. This office park is served by a reverse frontage access road, which also provides a connection between Route 926 and Stetson School Drive, allowing local traffic to avoid travelling on Route 202. Also, a golf course on the west side of this access road preserves open space, and if used for spray or drip irrigation, eliminates the need for sewer service to the office park. Beyond the golf course, natural areas on the western part of the farm are left untouched, conserving sensitive environmental resources and preserving open space. Another important aspect of this illustration is the historic serpentine house, now on the corner of Routes 202 and 926, which may have to be relocated when the grade-separated interchange in constructed here.

Illustration 1

Development Concepts



Recommendation Area 2: Thornbury (Chester County) and Birmingham**

** Note: In addition to these specific recommendations, general recommendations, directed to all municipalities in the corridor, can be found on pages 87 and 88.

A. Transit and Pedestrian Improvements at Green Tree Drive

Transit and pedestrian improvements on both sides of Route 202, north of its intersection with Green Tree Drive and Bridlewood Boulevard, would primarily serve the transit needs of the Brandywine-at-Thornbury residential development, which has a relatively high density and is relatively affordable. Bus stops on both sides of Route 202 in this location could serve both this development and some lower-density neighborhoods across the street. In addition, pedestrian and bicycle improvements, including a crosswalk at the signalized intersection at Green Tree Drive and Bridlewood Boulevard, would enable bicycle and pedestrian networks on both sides of the highway to be linked.

- Thornbury Township (Chester County) should coordinate with SEPTA and Chester County to explore transit options that best fit the needs of the community, especially taking into account the needs of residents of the Brandywine-at-Thornbury development. In addition, the Township should work with PennDOT to ensure that needed facilities, such as pedestrian-friendly intersections, can be provided.

- To provide linkages to the pedestrian and bicycle network, Thornbury Township (Chester County) should encourage the developers of the Brandywine-at-Thornbury development to provide **pedestrian and bicycle facilities** (p. A-8) to link the residences with the proposed bus stops.

- Also, the Township should work with PennDOT to acquire a crosswalk at the signalized intersection at Green Tree Drive, and to provide further pedestrian improvements in the area of the bus stops.

B. Corridor Access Management Overlay District

This overlay district restricts access points onto the highway, especially near major intersections. A sample ordinance of this type can be found in Appendix B of this document.

- Thornbury and Birmingham townships should consider adopting the **Corridor Access Management Overlay District** (p. A-4), in whole or in part, to plan for better access management along Route 202.

C. Corridor Collector at Bridlewood Boulevard

This collector road, Bridlewood Boulevard, currently provides access to Route 202 from the Brandywine-at-Thornbury residential development. It limits access from the development to Route 202, directing traffic to a signalized intersection. There is currently conflict between PennDOT and the developer of Brandywine-at-Thornbury concerning the responsibility for this road.

- Thornbury Township (Chester County) should coordinate with PennDOT and the developer of Brandywine-at-Thornbury to attempt to resolve the current problem.

- Once the responsibility for this road is solved, Thornbury Township (Chester County) should encourage the responsible party – whether it is PennDOT, the developer, or the Township itself – to provide **pedestrian and bicycle facilities** (p. A-8) to link the residences with the crosswalk on Route 202 and the nearby bus stops.

D. Parallel Access Road between Penn Oaks Drive and Dilworthtown Road

This proposed access road would run from Penn Oaks Drive to Dilworthtown Road, parallel to Route 202. This service road would serve several purposes. It would connect the Penn Oaks apartment complex directly with the Shoppes at Dilworthtown, currently under construction, allowing traffic making this short trip to avoid Route 202. In addition, it would provide access to businesses along the east side of Route 202, in Birmingham Township. These businesses, which include an equipment supply business, a boat and trailer supply business, and several office-type uses, may have reduced access to Route 202 after the widening takes place.

This parallel access road could take the form of a reverse frontage access road, involving the construction of a road behind the businesses on the east side of Route 202. A simpler solution would involve connecting the parking lots of the existing businesses on the east side of the highway, which would function as a marginal access road without requiring additional construction. A photo of the current conditions of this area and a drawing of the possible future layout of a reverse frontage access road are shown in Illustration 2, on pages 106 and 107. This illustration is meant to show possibilities for access management techniques in general, rather than recommend a specific road alignment for this site.

- Birmingham and Thornbury townships should work collaboratively to address access management problems on the east side of Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements. The townships should also involve PennDOT and the County in the design and timing of this parallel access road.

- Thornbury Township (Chester County) should adopt an **official map** (p. A-6) that shows the future location of this proposed road.

- In addition, Thornbury Township (Chester County) should encourage the construction of **pedestrian and bicycle facilities** (p. A-8) along this access road to improve the connection between the Penn Oaks apartment complex and the Shoppes at Dilworthtown.

- Both Birmingham and Thornbury townships may wish to consider requiring aesthetic improvements along this access road, such as landscaping along the sides or in the median of this road. This could increase its use by pedestrians and bicyclists, improving the connection between the shopping center and nearby residential areas.

E. Parallel Access Road along Faucett Drive

This reverse frontage access road, named Faucett Drive, would provide access to businesses along the west side of Route 202, which are mostly car dealerships, motels, and offices. The use of this service road would reduce access points onto Route 202, improving safety and efficiency along the highway in Birmingham Township. However, it is important that additional traffic on this road not damage the character of the adjacent neighborhood, the nearby historic village of Dilworthtown, or the Brandywine Battlefield.

- Birmingham Township should communicate with business owners along the west side of Route 202, to discuss access management problems that may accompany the expansion of the highway, and to jointly find solutions to these problems.

- Birmingham Township should adopt an **official map** (p. A-6) that shows the future locations of proposed roads, and should coordinate with PennDOT and the County on planning and construction.

- To buffer nearby residential uses from the effects of this access road, Birmingham Township should consider adopting **performance zoning** (p. A-8) standards for the businesses that will be served by the access road.

F. Transit and Pedestrian Improvements at Dilworthtown Road

Transit and pedestrian improvements near the intersection of Route 202 and Dilworthtown/ Brintons Bridge Road would improve transit access to the Shoppes at Dilworthtown shopping center, the historic village of Dilworthtown, and other nearby uses. Also, pedestrian and bicycle improvements will provide a safe way to cross Route 202, enabling bicycle and pedestrian networks on both sides of the highway to be linked. While the recommendations listed below are geared to Birmingham and Thornbury (Chester County) townships, cooperation with Thornbury (Delaware County) and Chadds Ford townships is necessary for pedestrian and bicycle improvements along this road to be successful.

- Birmingham and Thornbury (Chester County) townships should work collaboratively to address issues of transit accessibility along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- These townships should coordinate with SEPTA and Chester County to explore transit options that best fit the needs of the community, including nearby businesses, and should work with PennDOT to ensure that needed facilities are provided.

- To provide linkages to the pedestrian and bicycle network, Birmingham, Thornbury (Chester County), Thornbury (Delaware County), and Chadds Ford townships should encourage **pedestrian and bicycle facilities** (p. A-8) along Route 202 between Dilworthtown Road and the bus stops on both sides of the highway, and also along Dilworthtown and Brintons Bridge Road.

- Birmingham and Thornbury (Chester County) townships should ensure that the site of the future Shoppes at Dilworthtown will be accessible from a bus stop along Route 202. This may require the construction of **pedestrian facilities** (p. A-8) by the developer.

- Birmingham, Thornbury (Chester County), Thornbury (Delaware County), and Chadds Ford townships should coordinate with PennDOT to provide better pedestrian access to residences and businesses along Route 202, at the intersection of Route 202 and Dilworthtown/Brintons Bridge Road. A crosswalk and pedestrian-friendly signal timing would improve the intersection for pedestrians and bicyclists.

G. Village Preservation at Dilworthtown

The preservation of the historic village of Dilworthtown is an integral part of the unique character of the Brandywine Valley. The village of Dilworthtown is a National Register Historic District and is currently protected by a historic overlay zoning district, and is also zoned specifically for historic commercial uses. However, the widening of Route 202 may affect this village and other local areas by increasing traffic and speeds on local roads such as Old Wilmington Pike. Steps should be taken to mitigate potential traffic impacts.

- Birmingham Township (with involvement from neighboring Chadds Ford Township) should consider traffic calming measures (such as raised crosswalks, pavement treatments, eyebrows, and others) in the area near the historic center of Dilworthtown, to prevent the increase of traffic on the nearby Route 202 from affecting this village. A way to achieve this may be to adopt **residential street design** (p. A-8) standards. The Township also should consider other techniques to limit traffic in the village, such as directing through traffic to other routes, by the use of signs, for example.

- During the construction phase of the Route 202 improvements, Birmingham Township should work with PennDOT to avoid redirecting traffic through the village of Dilworthtown. Also, maintaining adequate capacity on Route 202 in the future would ensure that all through traffic remains on the highway, rather than using local roads.

H. Bicycle Facilities

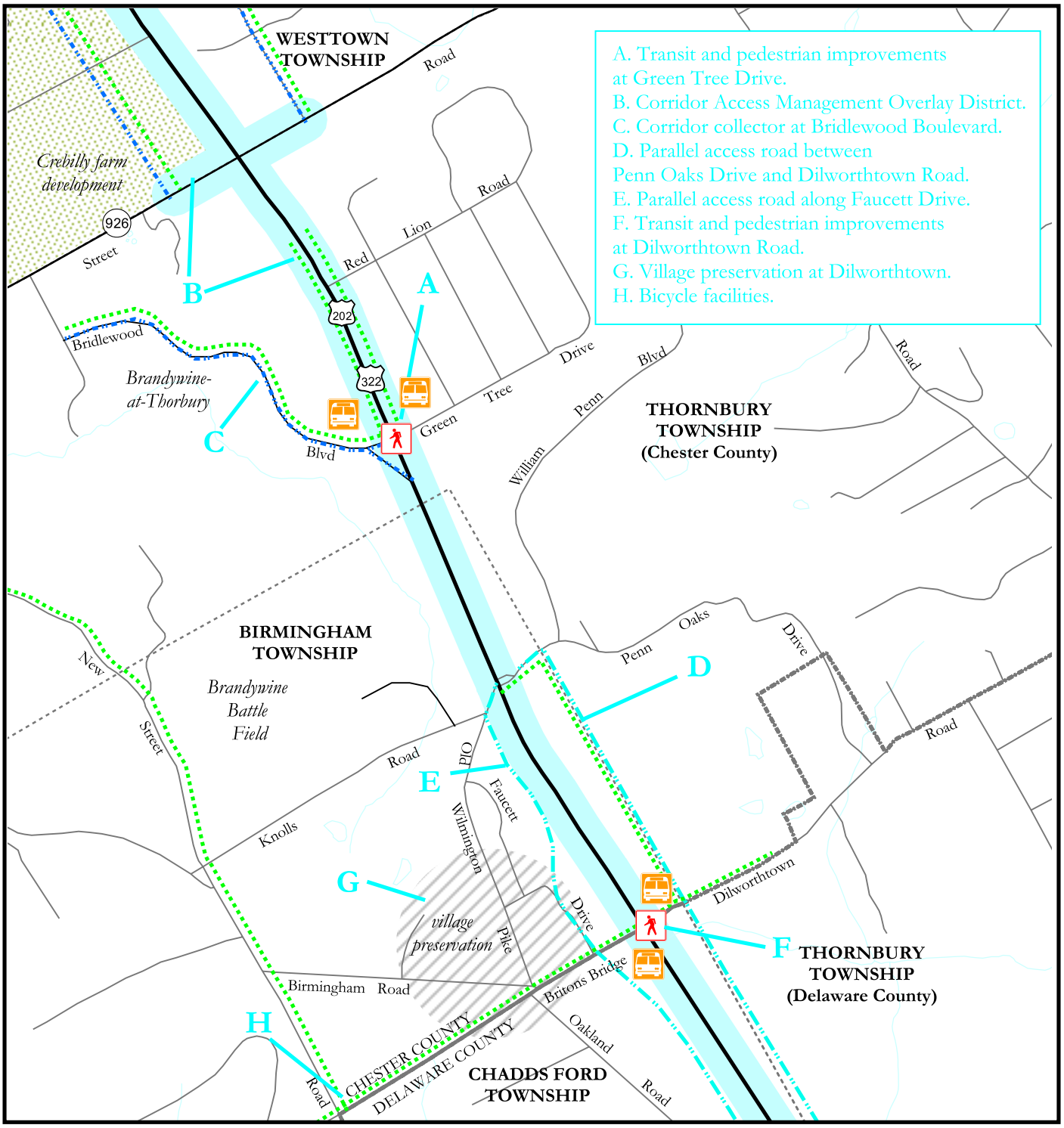
A bicycle lane on New Street, which parallels Route 202, would provide a safer and more pleasant biking experience than on the highway. This route is shown on the Chester County Bicycle Plan as part of the regional bicycle network, and Brintons Bridge/ Dilworthtown Road is shown on DVRPC's Bicycle and Pedestrian Mobility Plan, and on the Delaware County draft Bicycle Plan, as a proposed route for bicycle improvements. Route 100, which parallels New Street to the west, may be a better location for major bicycle improvements, and options for improvements along this road should also be explored.

- Thornbury (Chester County) and Birmingham townships should first collaborate with neighboring townships, such as Westtown, Chadds Ford, and Thornbury (Delaware County) townships, to provide a consistent bicycle route. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements. Without these, the bicycle route may be planned and constructed in a piecemeal way, and would not serve its function as part of the County and regional bicycle network.

- In addition, each township should adopt an **official map** (p. A-6) that shows the future locations of proposed roads and bicycle improvements. Also, local landowners, residents, and businesses should be consulted on any proposed bicycle improvements.

Route 202 Section 100

Map 15: Area 2



Corridor Collector

Ring Road Collector

Service Road

Pedestrian and Bicycle Improvements

Pedestrian Access/Overpass

Bus Turnouts/Shelters

P Possible Park and Ride

N

0 400 800 1200 Feet

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Reverse Frontage Road

Existing Conditions

N

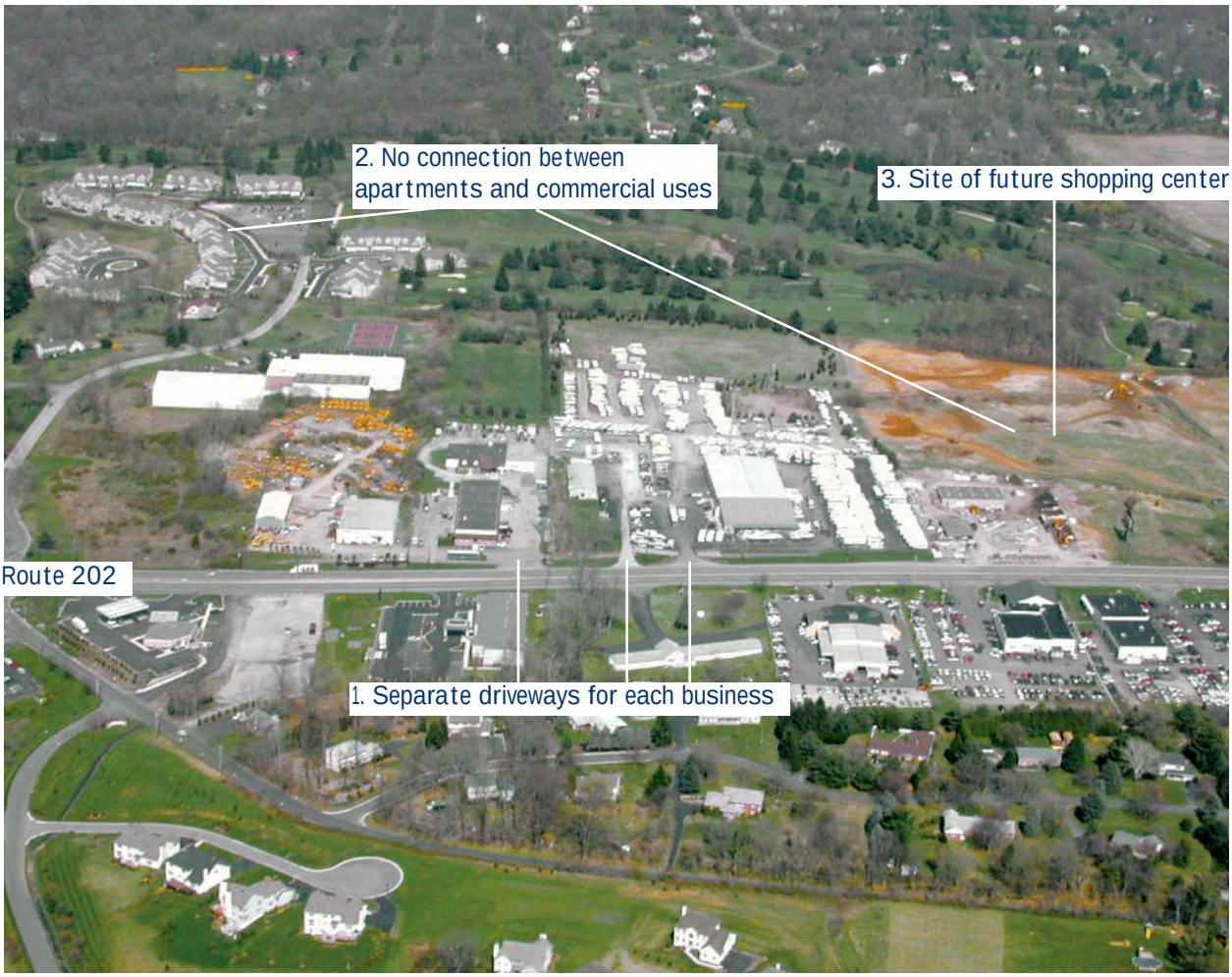


Illustration 2 shows a parallel access road running from Penn Oaks Drive to Dilworthtown Road, parallel to Route 202. The purpose of this illustration is to show possibilities for access management techniques in general, rather than recommend a road alignment for this particular site. In this specific case, a simpler solution would involve connecting the parking lots of the existing businesses on the east side of the highway, which would serve the purpose of a marginal access road without requiring additional construction.

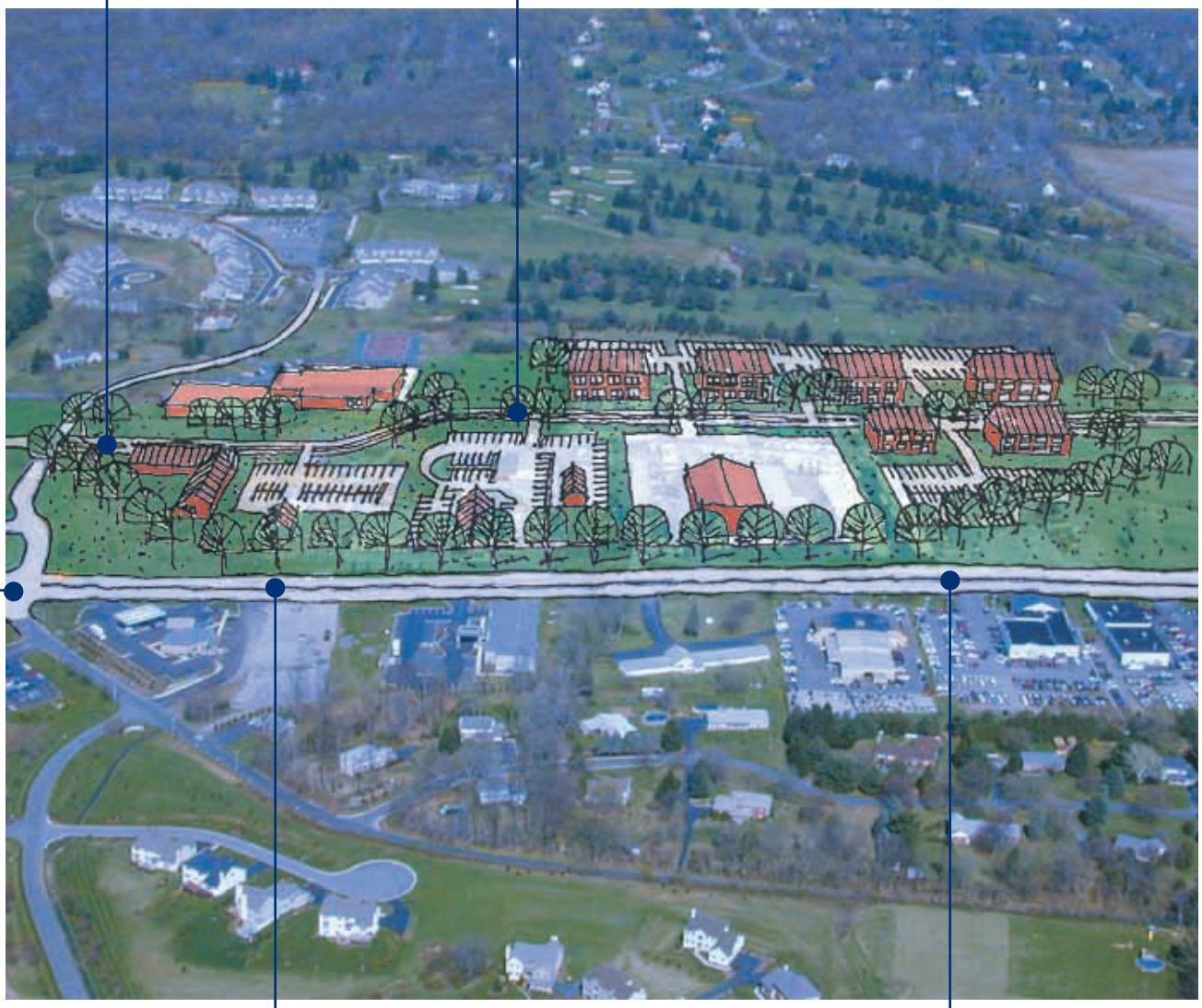
As the illustration on the facing page indicates, a reverse frontage access road provides reverse frontage access to businesses on the east side of Route 202, in Birmingham Township. These businesses, which include an equipment supply business, a boat and trailer supply business, and several office-type uses, may no longer be able to have access directly from Route 202 after the widening takes place. Also, this access road connects the Penn Oaks apartment complex directly with the Shoppes at Dilworthtown, currently under construction, allowing traffic making this short trip to avoid Route 202.

Illustration 2

Development Concepts

4. Landscaping hides uses, preserves sight lines

1. Reverse frontage road provides connection between apartments and shops



3. Reduced access points

2. Traffic is channeled to signalized intersection

Recommendation Area 3: Chadds Ford, Thornbury (Delaware County), and Concord**

** Note: In addition to these specific recommendations, general recommendations, directed to all municipalities in the corridor, can be found on pages 87 and 88.

A. Parallel Access Roads

Parallel access roads on both sides of Route 202 would provide reverse frontage access to future businesses in this area. While much of the land between the highway and the proposed parallel access road is currently undeveloped, the expansion of Route 202 will provide access to this land and increase development pressure. In particular, Thornbury Township (Delaware County) should consider the possibility that the widening of Route 202 may increase its highway frontage considerably, which may greatly accelerate development along the highway.

- Chadds Ford and Thornbury (Delaware County) townships should work collaboratively to address issues of access and land use along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Chadds Ford Township should communicate with business owners along Route 202, to discuss access management problems that may accompany the expansion of the highway, and to jointly find solutions to these problems.

- Chadds Ford and Thornbury townships should adopt an **official map** (p. A-6) that shows the future locations of proposed roads, and should coordinate with PennDOT and the County on the planning and construction of this new access road.

B. Corridor Access Management Overlay District

This overlay district restricts access points onto the highway, especially near major intersections. A sample ordinance of this type can be found in Appendix B of this document. Adopting this overlay district may cause major adjustments in access patterns. Possible future access patterns in the area around the intersection of Route 202 and Dilworthtown Road are shown in Illustration 3, on pages 112 and 113.

- Chadds Ford, Thornbury (Delaware County), and Concord townships should consider adopting the **Corridor Access Management Overlay District** (p. A-4), in whole or in part, to plan for better access management along Route 202.

C. Transit and Pedestrian Improvements at Ridge Road

Transit and pedestrian improvements near the intersection of Route 202 and Ridge Road will provide improved transit access to nearby businesses, especially the Glen Eagle Shopping Center, and nearby residents. Bus shelters in this area, in addition to a park and ride facility in the lot of the Glen Eagle Shopping Center, would encourage the use of transit in the corridor. In addition, pedestrian facilities in the area would serve to connect the shopping center with other nearby uses, and would also encourage the use of transit.

- Chadds Ford and Concord townships should work collaboratively to address issues of access and land use along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- These townships should coordinate with SEPTA and Delaware County to explore transit options that best fit the needs of their communities, and should work with PennDOT to ensure that needed facilities can be provided.

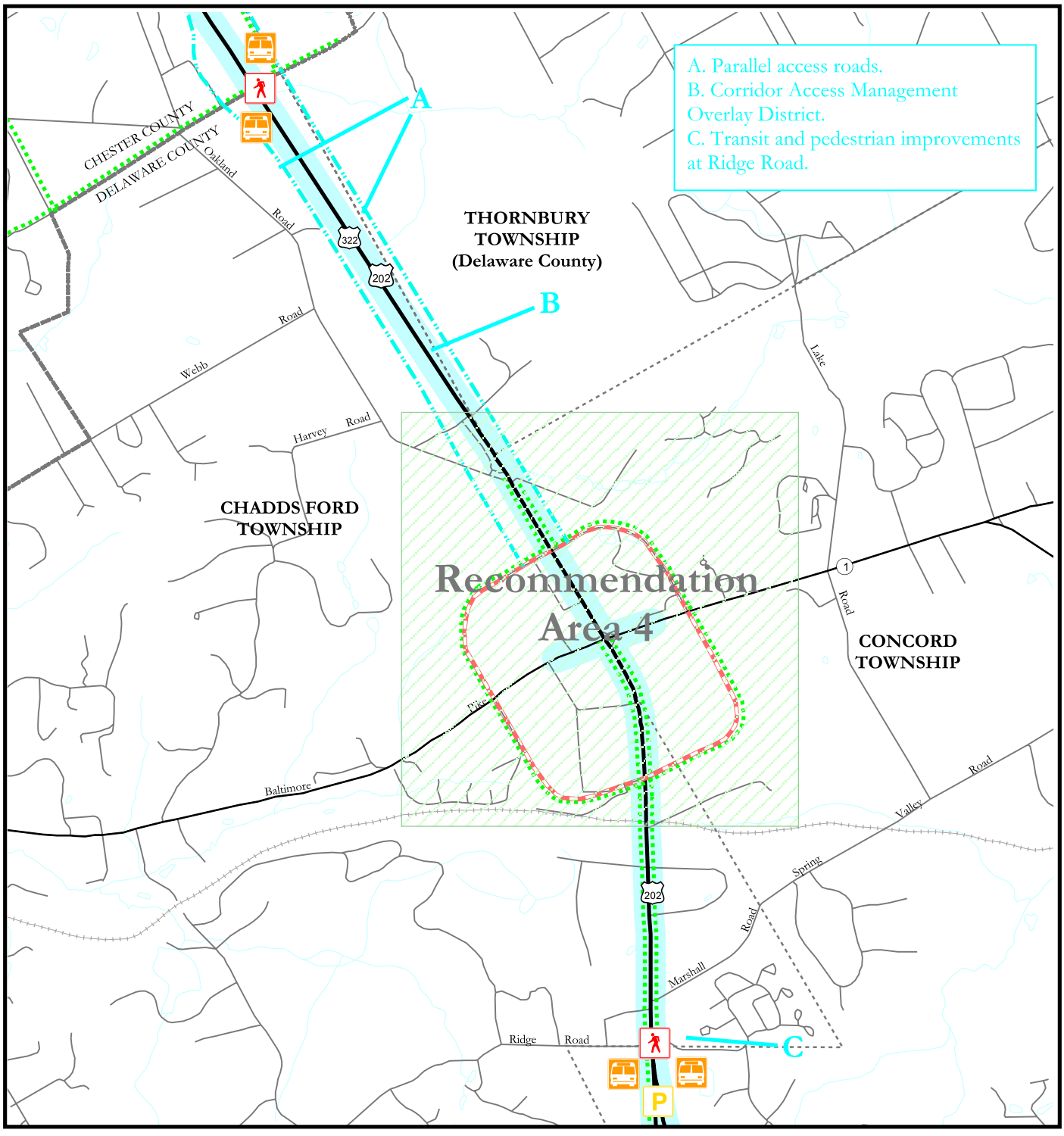
- Chadds Ford and Concord townships also may wish to establish a **park and ride program** (p. A-7) to encourage local residents to use mass transit for their trips to work. This may involve discussions with SEPTA, and also with local business owners.

- To provide linkages to the pedestrian and bicycle network, Chadds Ford and Concord townships should encourage Glen Eagle shopping center to provide **pedestrian facilities** (p. A-8) between the highway bus stops and stores.

- In addition, the townships should coordinate with PennDOT to provide better pedestrian access to uses in this area, including a crosswalk across Route 202 at the signalized intersection at Oakland Road. In densely developed areas of Route 202 such as this, **pedestrian facilities** (p. A-8) along both sides of the highway, connecting bus stops, crosswalks, and trip destinations, should be provided.

Route 202 Section 100

Map 16: Area 3



- Corridor Collector
- Ring Road Collector
- Service Road
- Pedestrian and Bicycle Improvements
- Pedestrian Access/Overpass
- Bus Turnouts/Shelters
- P — Possible Park and Ride

N

0 600 1200 1800 Feet

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Access Management

Existing Conditions

N

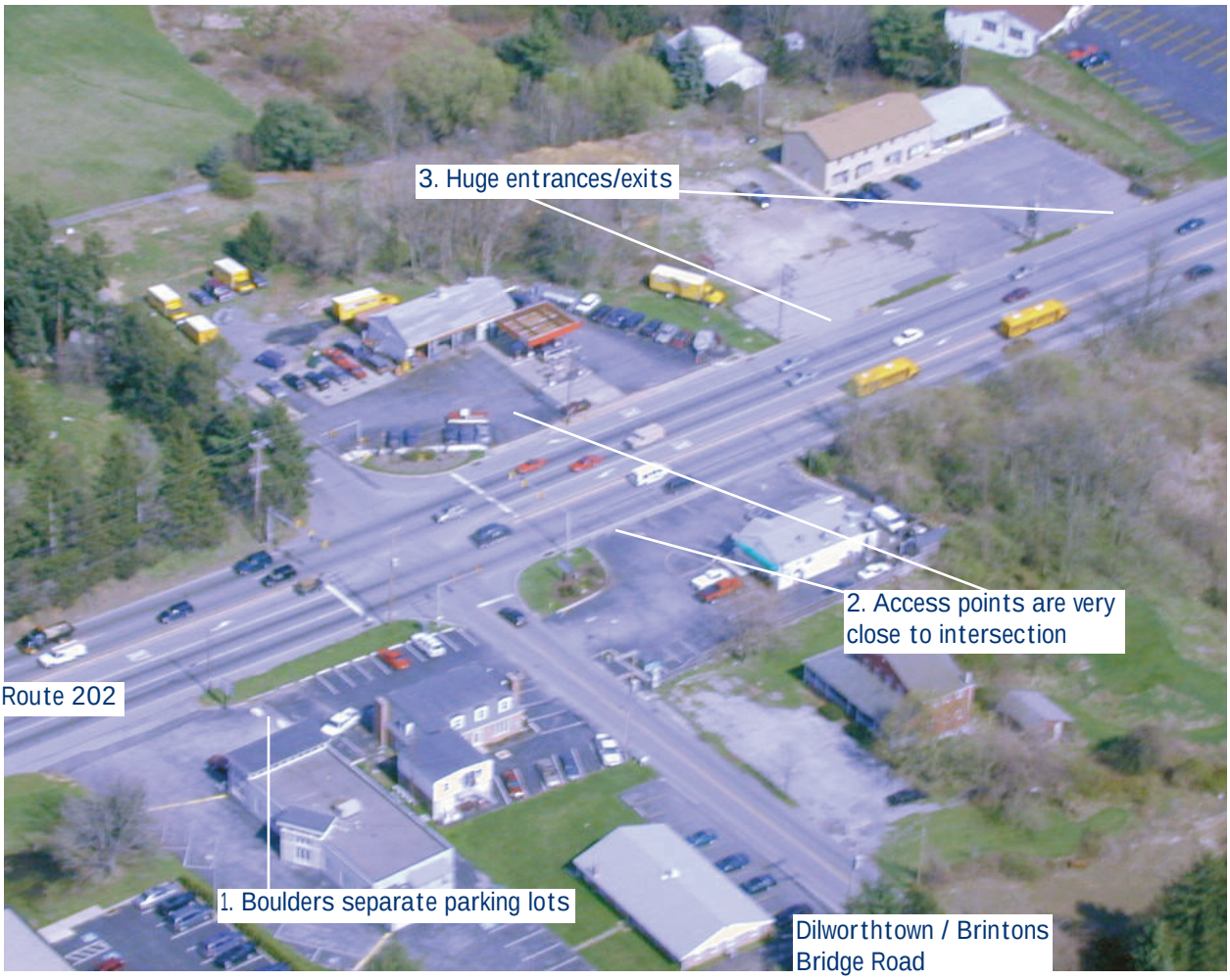
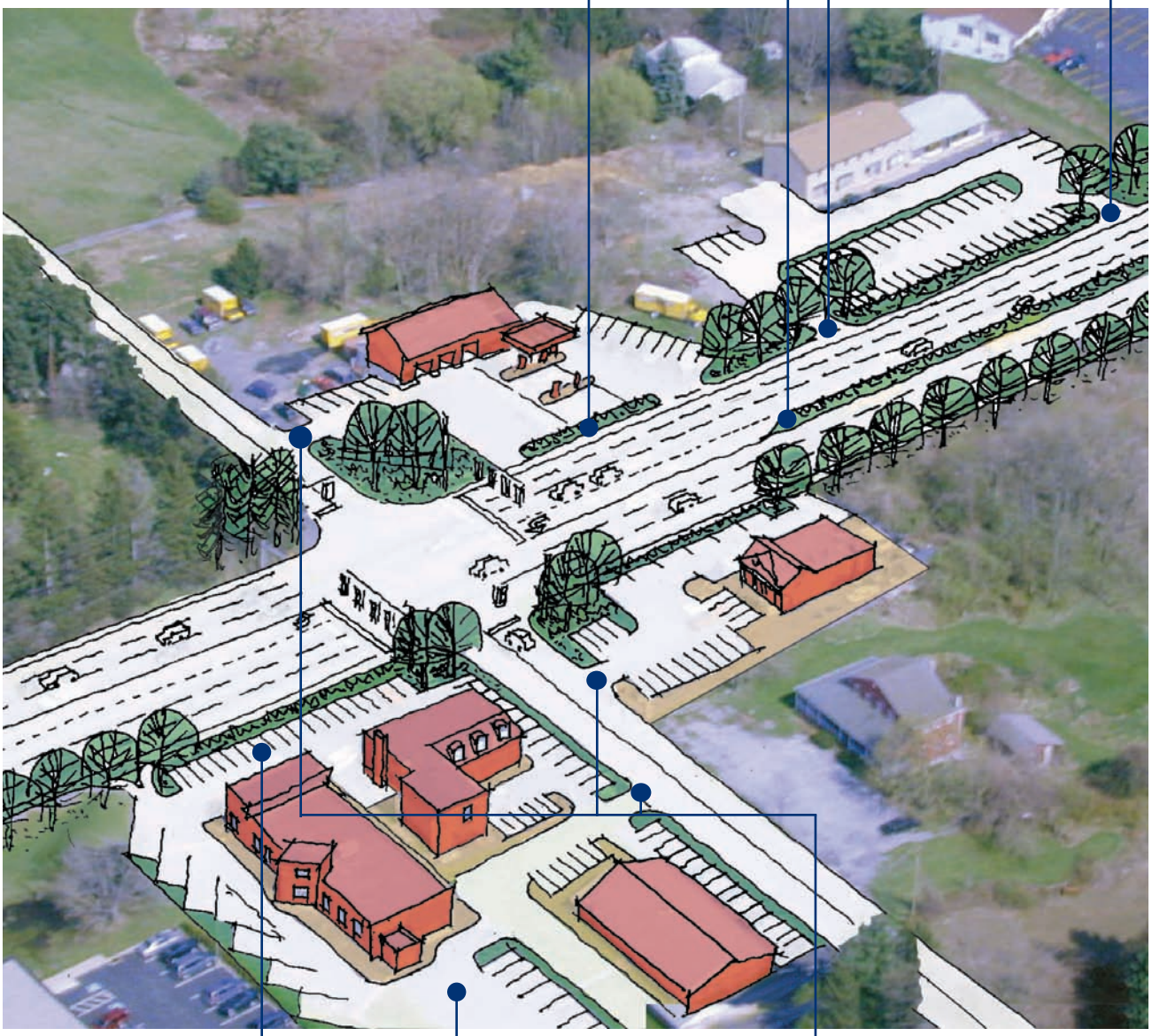


Illustration 3 shows some access management problems and appropriate solutions near the intersection of Route 202 with Dilworthtown / Brintons Bridge Road. The purpose of this illustration is to show possibilities for access management techniques in general, rather than recommend particular alignments for this specific site. As the photograph shows, existing access conditions in the area are poor, with no shared parking and large, undefined entrance and exit points to the highway. The drawing on the facing page shows several access management techniques, such as shared parking lots, entrances from side roads, and controlled entrances and exits, that could improve traffic flow in this area.

Illustration 3

Development Concepts



Recommendation Area 4: Ring Road - Chadds Ford and Concord**

** Note: In addition to these specific recommendations, general recommendations, directed to all municipalities in the corridor, can be found on pages 87 and 88.

A. Transit and Pedestrian Improvements at Oakland Road

Transit and pedestrian improvements on both sides of Route 202 near Oakland Road will increase transit access to nearby residents and businesses. Pedestrian improvements, which may include a crosswalk at the light at Oakland Road, would provide pedestrians with a safe way to cross Route 202.

- Chadds Ford and Concord townships should work collaboratively to address issues of public transportation along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- To create linkages between quadrants of the ring road, Chadds Ford and Concord townships should coordinate with PennDOT to provide **pedestrian facilities** (p. A-8) between the bus stops on both sides of the highway and nearby businesses and other trip destinations.

- These townships should also coordinate with PennDOT to provide further pedestrian improvements, such as a crosswalk or other measures, at the intersection on Route 202 and Oakland Road.

B. Transit and Pedestrian Improvements at State Farm Drive

Transit and pedestrian improvements on both sides of Route 202 near State Farm Drive will increase transit access to nearby businesses, including State Farm Insurance, one of the major employers in the Route 202 corridor. A park-and-ride facility located in the State Farm parking lot could further encourage transit use. In addition, pedestrian improvements in this area would provide pedestrians with a safe way to cross Route 202. In particular, this would provide employees of State Farm Insurance with pedestrian access to Village at Painters Crossing shopping center, in the northwest quadrant of the ring road area, which contains commercial uses such as restaurants, stores, banks, and entertainment centers.

- Chadds Ford and Concord townships should work collaboratively to address issues of public transportation along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Chadds Ford and Concord townships should coordinate with SEPTA and Delaware County to explore transit options that best fit the needs of the nearby communities, taking the needs of major employers, such as State Farm Insurance, the Chadds Ford Business Center, and Applied Card Systems, into special consideration.

- The townships also may wish to develop a **park-and-ride program** (p. A-7), based in the parking lot of the State Farm building, to further encourage transit use. This will involve coordination with State Farm Insurance and SEPTA.

- To create linkages between quadrants of the ring road, Chadds Ford and Concord townships should coordinate with State Farm Insurance and the commercial uses in the

northwestern quadrant of the ring road to provide **pedestrian facilities** (p. A-8) between the bus stops on both sides of the highway and nearby businesses.

- These townships should also coordinate with PennDOT to provide further pedestrian improvements, such as a crosswalk or other measures, at the intersection on Route 202 and State Farm Drive, which is not currently usable by pedestrians or bicyclists.

C. Ring Road Collector

A corridor collector, taking the form of a ring road around the intersection of Route 202 and Route 1, would remove traffic from this overcrowded intersection, and also would provide reverse-frontage access to businesses along the ring road. This ring road would include State Farm Drive, as well as partially completed segments in the northwest and southwest quadrants of the intersection. Also, Applied Card Systems, which will be locating in the southeast quadrant of the intersection, has received approval for their site plans, which include the southeast segment of the ring road.

If properly designed, the ring road could allow large vehicles such as trucks to use it, thus avoiding the congested intersection of Route 202 and Route 1. It also could provide a pedestrian- and bicycle-friendly environment, promoting connections between the different quadrants of the ring road and also to nearby residences and businesses.

A photo of current conditions in the ring road area, a more detailed description of the recommended ring road, and an illustration of its possible future layout are shown in Illustration 4, on pages 120 and 121.

- Chadds Ford and Concord townships should work collaboratively to address issues of access and land use along Route 202 and the future ring road. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Concord and Chadds Ford townships should coordinate with nearby businesses, PennDOT, and the County to construct and maintain the ring road, which should be able to handle both local traffic and large vehicles that wish to avoid the intersection of Route 202 and Route 1.

- Each of these townships should each adopt an **official map** (p. A-6) that includes the future location of the proposed ring road.

- Concord and Chadds Ford townships should coordinate with PennDOT to provide pedestrian improvements, such as crosswalks, at all four signalized intersections of the ring road and Route 202 or Route 1.

- These townships should also consider requiring **pedestrian and bicycle facilities** (p. A-8) to be provided by businesses along the ring road, to foster connections between compatible uses.

D. Pedestrian Improvements near the State Farm Insurance Complex

A pedestrian overpass over Route 202 in the area of the State Farm building would provide better connections between the four corners of the intersection of Route 1 and Route 202, currently not accessible by pedestrians. PennDOT has already agreed to provide one pedestrian overpass in this area, and due to the large number of employees and difficulty of crossing either Route 202 or Route 1 on foot, more than one overpass may be appropriate.

- Chadds Ford and Concord townships should work collaboratively to address issues of access and land use along Route 202. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Also, Chadds Ford and Concord townships should coordinate with PennDOT to ensure that the pedestrian overpass over Route 202 best serves the needs of local businesses and employees. These townships also may wish to require nearby businesses to provide **pedestrian facilities** (p. A-8) linking the pedestrian overpass with stores and other businesses.

E. Transit and Pedestrian Improvements near Hillman Drive

Transit and pedestrian improvements on both sides of Route 202 near Hillman Drive (which will eventually serve as part of the ring road in the southwestern quadrant of the intersection) will increase transit access to nearby businesses and residences. In addition, pedestrian improvements in this area, crossing Route 202 and connecting local businesses, would allow more foot traffic and also increase the use of transit.

- Chadds Ford Township should coordinate with SEPTA and Delaware County to explore transit options that best fit the needs of the communities, and should communicate with PennDOT to ensure that needed facilities can be provided.

- To provide linkages from the bus stops to local businesses, Chadds Ford Township should encourage businesses to provide **pedestrian facilities** (p. A-8) in appropriate areas.

- In addition, the Township should coordinate with PennDOT to provide better pedestrian access to uses along Route 202 and the ring road, and to provide further pedestrian improvements, such as a crosswalk, at the intersection of Route 202 and Hillman Drive.

F. Future Rail Station

Just south of Hillman Drive, Route 202 crosses the Octoraro rail line, which last carried passengers in the 1950s. In the future, SEPTA may resume service on a portion of this line, and a new station may be constructed near the highway. This will happen in the long-term, if at all, and while this possibility should be planned for, it is not of immediate importance.

- Chadds Ford Township should communicate with SEPTA and Delaware County periodically to determine its future plans for the Octoraro line.

- In the event that service is resumed, the Township should coordinate with SEPTA to connect the rail service with bus transit and pedestrian networks. Also, a **park and ride program** (p. A-7) may be appropriate in this area.

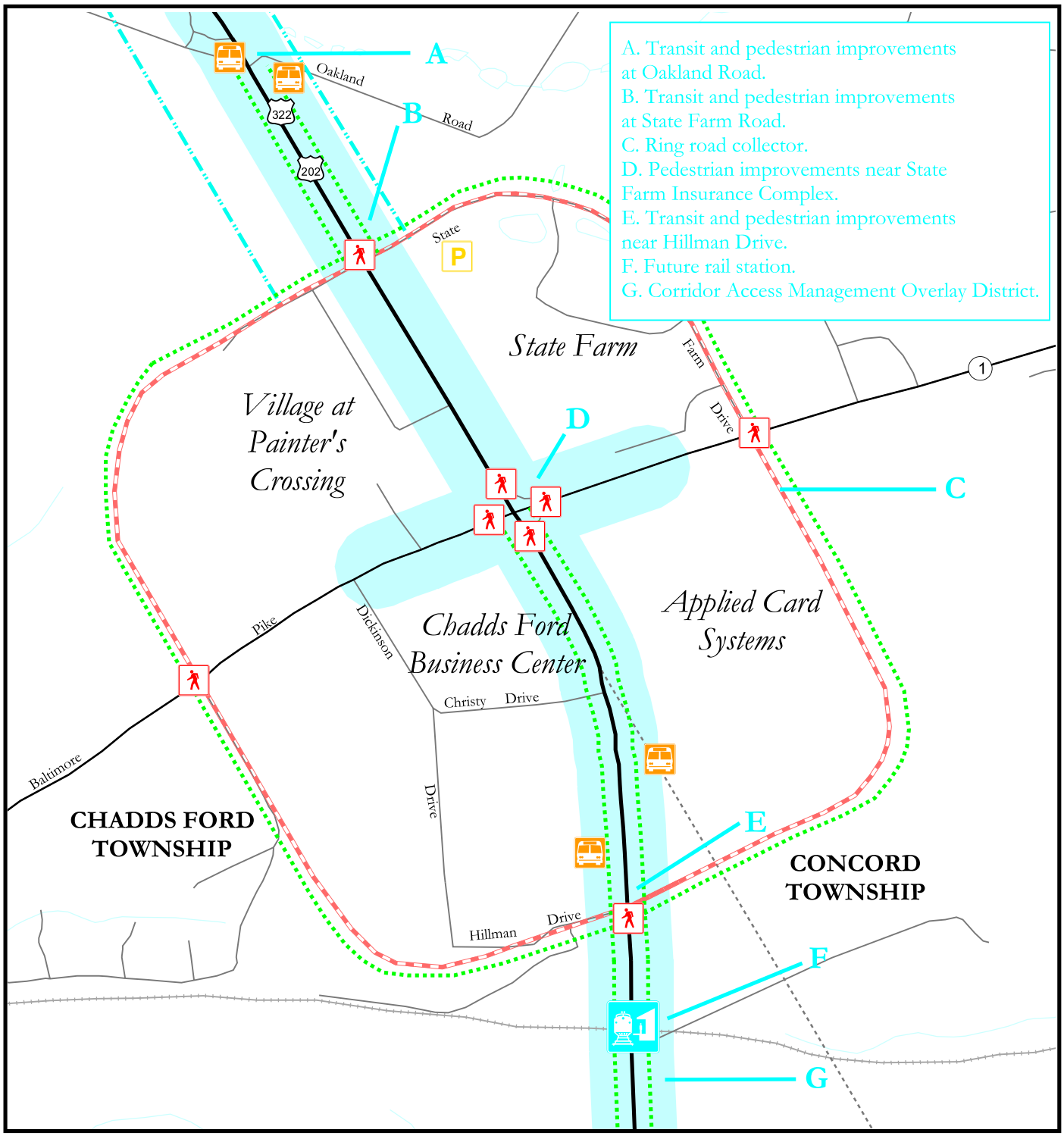
G. Corridor Access Management Overlay District

This overlay district restricts access points onto the highway, especially near to major intersections. A sample ordinance of this type can be found in Appendix B of this report.

- Chadds Ford and Concord townships should consider adopting the **Corridor Access Management Overlay District** (p. A-4), in whole or in part, to plan for better access management along Route 202.

Route 202 Section 100

Map 17: Area 4



Corridor Collector

Ring Road Collector

Service Road

Pedestrian and Bicycle Improvements

Pedestrian Access/Overpass

Bus Turnouts/Shelters

P Possible Park and Ride

N

0 200 400 600 800 Feet

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

Ring Road

Existing Conditions

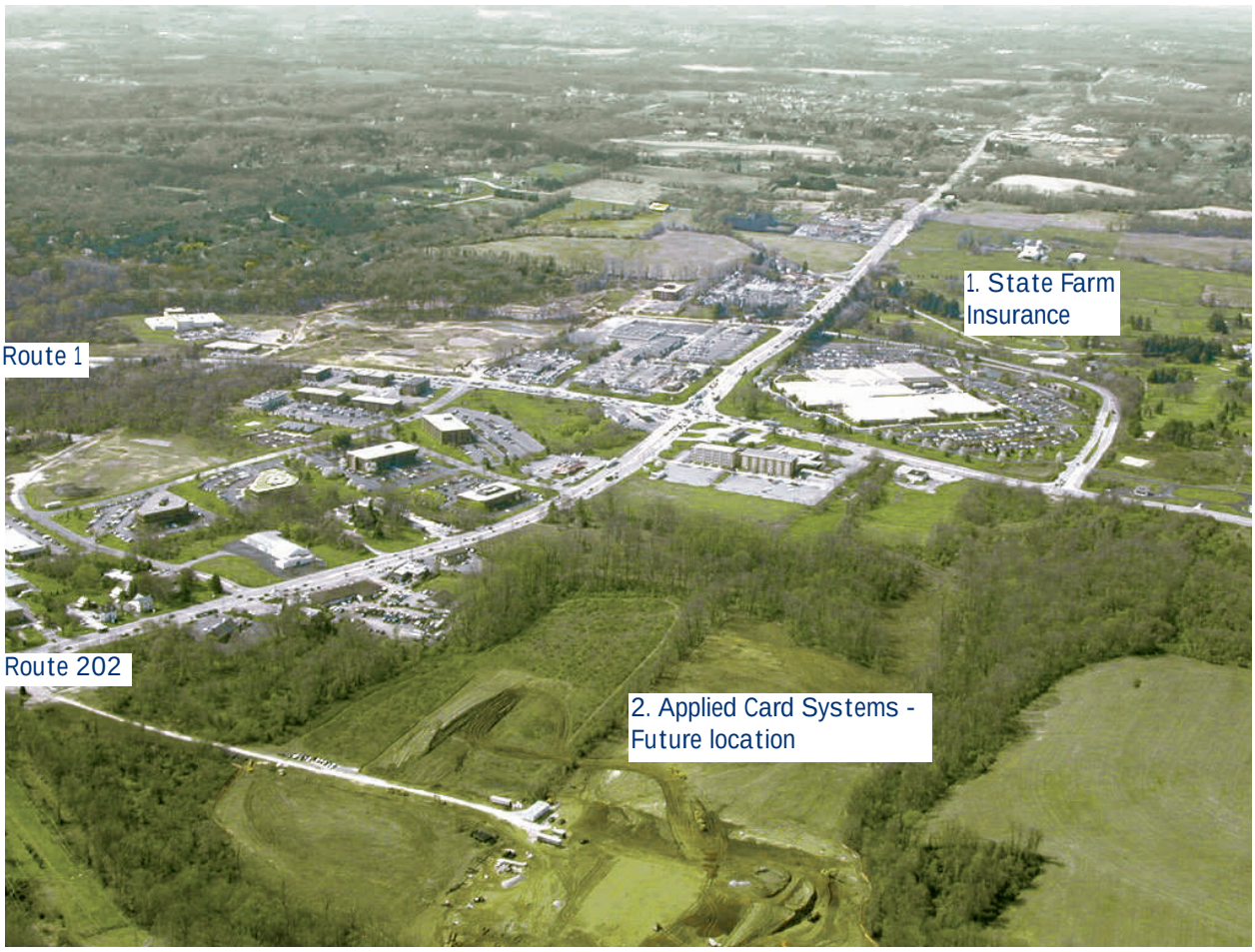


Illustration 4 shows the ring road that is proposed at the intersection of Routes 1 and 202. This ring road would remove traffic from this overcrowded intersection (soon to be a grade-separated interchange, as shown in the illustration on the facing page), and also provides reverse-frontage access to businesses along the ring road. This ring road includes State Farm Drive, as well as partially completed segments in the northwest and southwest quadrants of the intersection. If properly designed, the ring road could allow large vehicles such as trucks and buses to use it, thus avoiding the congested intersection of Route 202 and Route 1, and could also provide an ideal setting for bus stops. It also could provide a pedestrian- and bicycle-friendly environment, promoting connections between the different quadrants of the ring road and also to nearby residences and businesses.

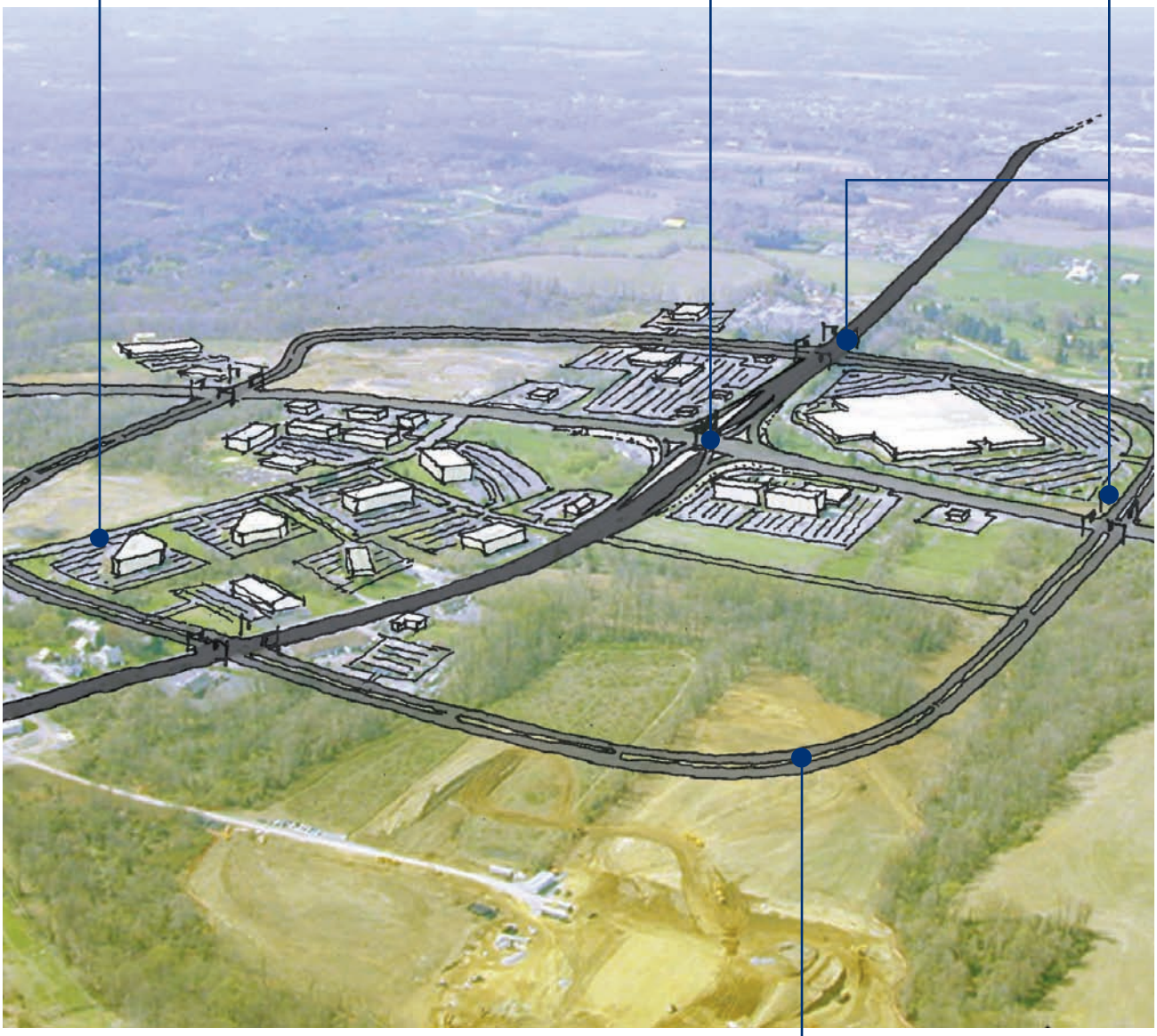
Illustration 4

Development Concepts

1. Continues to provide internal access

2. Grade - separated interchange

3. Traffic signals, pedestrian facilities and widened turning areas for trucks and buses



4. Wide enough to accommodate trucks & buses

Recommendation Area 5: Chadds Ford, Concord, and Bethel**

** Note: In addition to these specific recommendations, general recommendations, directed to all municipalities in the corridor, can be found on pages 87 and 88.

A. Local Access Road through Village of Elam

Currently, Route 202 splits in Concord Township, with southbound lanes and northbound lanes traveling on different alignments. One alternative under consideration for the improved Route 202 is to direct all traffic, both northbound and southbound, to the alignment currently used for northbound traffic. This would allow the southbound side, which passes through the historic village of Elam, to be converted to a low-speed, local road, serving only the residences and businesses in this immediate area. This road could serve as the "Main Street" of the historic village, preserving its small town character. In addition, this road could provide reverse-frontage access to businesses located on the west side of the current northbound lanes of Route 202.

A photo of the current condition of the highway in this area, a more detailed description of the proposed road alignments, and an illustration of the possible future layout of the highway and local road are shown in Illustration 5, on pages 128 and 129. In addition, community preservation options for the village of Elam are further discussed in recommendation D.

- While the local access road is contained entirely within Concord Township, it is very close to the boundary with Chadds Ford Township. Thus, these two townships should work collaboratively to develop ideas for this local road. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Concord Township, with cooperation from Chadds Ford Township, should communicate with PennDOT to ensure that the alignment chosen for this segment of Route 202 is the most beneficial for the nearby community. The townships, PennDOT, and the County should also discuss maintenance responsibilities for this segment of the highway after its conversion to a local access road.

- Concord Township should also adopt an **official map** (p. A-6) that shows the future location of all future proposed roads, including this local access road.

- To encourage pedestrian traffic along this local road, Concord and Chadds Ford should encourage businesses to provide **pedestrian and bicycle facilities** (p. A-8) connecting businesses, public spaces, and nearby transit facilities. In addition, bicycle lanes along the local road would fit into the regional bicycle network (see recommendation E).

- Also, this local road should use **residential street design** (p. A-8) standards and traffic calming measures to ensure that it remains a low-speed, local road.

- Throughout this process, the townships should hold periodic public discussions with residents and local businesses who will be affected by this shift in highway alignment. Also, to manage parking in the area of the village of Elam, ensuring there is neither an surplus nor an deficit of parking, Concord and Chadds Ford townships should consider adopting a **parking management program** (p. A-7).

B. Corridor Access Management Overlay District

This overlay district restricts access points onto the highway, especially near major intersections. A sample ordinance of this type can be found in Appendix B of this document.

- Chadds Ford, Concord, and Bethel townships should consider adopting the **Corridor Access Management Overlay District** (p. A-4), in whole or in part, to plan for better access management along Route 202.

C. Transit and Pedestrian Improvements near Smithbridge Road

Transit and pedestrian improvements near the intersection of Route 202 and Smithbridge Road would provide access to the village of Elam, businesses along Route 202, and the nearby Smithbridge Apartments (currently under construction, with 280 units planned). Bus stops along both sides of the highway would allow greater transit access in this area, reducing congestion in the corridor. In addition, pedestrian improvements, such as sidewalks along Smithbridge Road and Route 202, and crosswalks across the highway, would promote transit use and pedestrian and bicycle traffic in this area.

- Concord Township should communicate with SEPTA and Delaware County to explore transit options that fits the needs of businesses and residents in this area, as well as the future residents of Smithbridge Apartments.

- The Township should also encourage local businesses along Smithbridge Road, and along Route 202 in the immediate vicinity of the bus stops, to provide **pedestrian facilities** (p. A-8). The developers of Smithbridge Apartments should also be required to provide these types of facilities.

- Concord Township should coordinate with PennDOT to provide pedestrian improvements such as a crosswalk at the intersection of Route 202 and Smithbridge Road, to allow pedestrian access across the highway at this point.

D. Village of Elam Preservation District

As discussed in Recommendation A, the southbound lanes of Route 202 could be converted into a local road, serving as the central street of the intact village of Elam. Highway-oriented uses could locate close to Route 202, while more pedestrian-oriented businesses could locate on the new local road. Village preservation efforts would take advantage of existing densities and historic character of the village of Elam to make it a unique place, contributing to the overall character of the Brandywine Valley.

A photo of the current condition of the village of Elam, a more detailed description of the proposed road alignments, and a vision for the possible future of the village are shown in Illustration 5, on pages 128 and 129. In addition, the local access road that would serve the village of Elam is further discussed in recommendation A.

- Although the village of Elam is primarily in Concord Township, it is very close to the boundary with Chadds Ford Township. Thus, these two townships should work collaboratively to develop ideas for the village. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements.

- Concord and Chadds Ford townships should adopt **village protection programs** (p. A-12) to reinforce the character of the village of Elam, and should also consider encouraging **traditional neighborhood development** (p. A-10).

- If the village of Elam has sufficient historic integrity, each township may also wish to consider pursuing **historic preservation planning** (p. A-5), which may include adopting **historic design standards** (p. A-5) or designating Elam a **local historic district** (p. A-5). However, according to the Preservation Section of the Delaware County Planning Department, the village's historic integrity may not be sufficient to consider designating it a local historic district.

E. Bicycle Improvements on Smithbridge Road

A bicycle lane on Smithbridge Road west and east of Route 202 would fit into the regional bicycle network proposed in the Delaware County Bicycle Plan and DVRPC's Southeastern Pennsylvania Bicycle and Pedestrian Mobility Plan. This would provide bicycle access from the historic village of Elam to scenic landscapes in Chadds Ford Township.

- Chadds Ford and Concord townships should collaborate to provide a consistent bicycle route. This may involve **multi-municipal comprehensive plans** (p. A-6) or similar cooperative agreements. Without cooperation and consistency, the bicycle route may be planned and constructed in a piecemeal way, and would not serve its function as part of the County and regional bicycle network.

- In addition, each township should adopt an **official map** (p. A-6) that shows the future locations of proposed roads and bicycle improvements. Also, local landowners, residents, and businesses should be consulted on any proposed bicycle improvements.

F. Transit and Pedestrian Improvements near Beaver Valley Road

Transit and pedestrian improvements near the intersection of Route 202 and Beaver Valley Road would provide access to the Gateway Corporate Center, other businesses along Route 202, and the nearby Summit Valleybrook Apartments (currently under construction, with 352 units planned). In addition, the Brandywine Conference and Visitors Bureau is opening a tourist information center in this area, on the northwest corner of Route 202 and Beaver Valley Road. Bus stops along both sides of the highway would allow greater transit access in this area, reducing congestion in the corridor. In addition, pedestrian improvements, such as sidewalks along Beaver Valley Road and Route 202, and crosswalks across the highway, would promote transit use and pedestrian and bicycle traffic in this area.

- Concord Township should communicate with SEPTA and Delaware County to explore transit options that fit the needs of businesses and residents in this area, as well as the future residents of Summit Valleybrook Apartments.

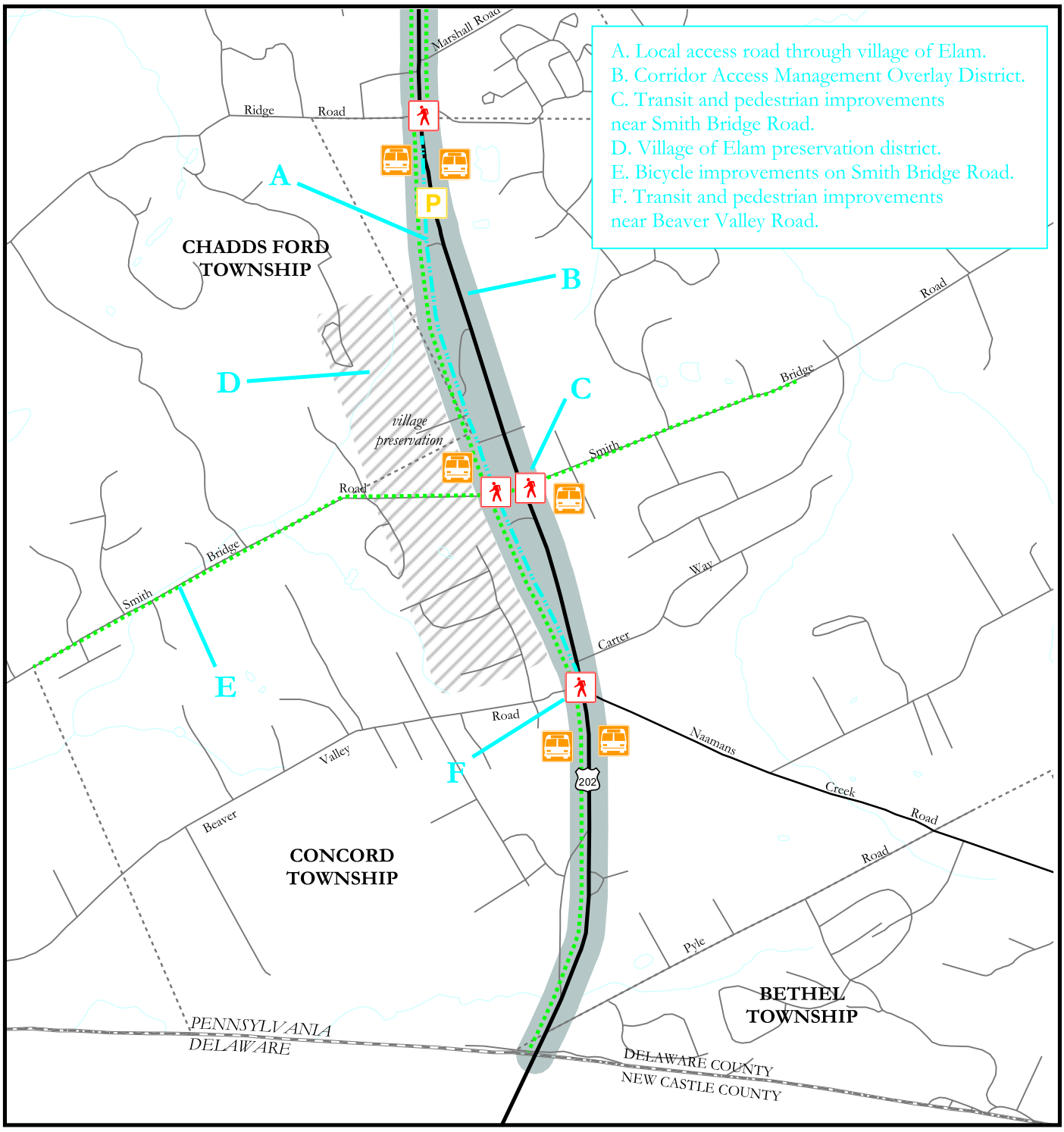
- The Township should also encourage local businesses along Beaver Valley Road, and along Route 202 in the immediate vicinity of the bus stops, to provide **pedestrian facilities** (p. A-8). The developers of Summit Valleybrook Apartments should also be required to provide these types of facilities to connect to nearby bus stops.

- Also, Concord Township should coordinate with PennDOT to provide pedestrian improvements such as a crosswalk at the signalized intersection of Route 202 and

Beaver Valley Road, to allow pedestrian access across the highway at this point. Concord Township's traffic consultant has developed ideas for the redesign of this intersection, and PennDOT should take these ideas into consideration when designing the future alignment of Route 202.

Route 202 Section 100

Map 18: Area 5



Corridor Collector

Ring Road Collector

Service Road

Pedestrian and Bicycle Improvements

Pedestrian Access/Overpass

Bus Turnouts/Shelters

P Possible Park and Ride

N

0 400 800 1200 Feet

DELAWARE VALLEY REGIONAL PLANNING COMMISSION
NOVEMBER 2001

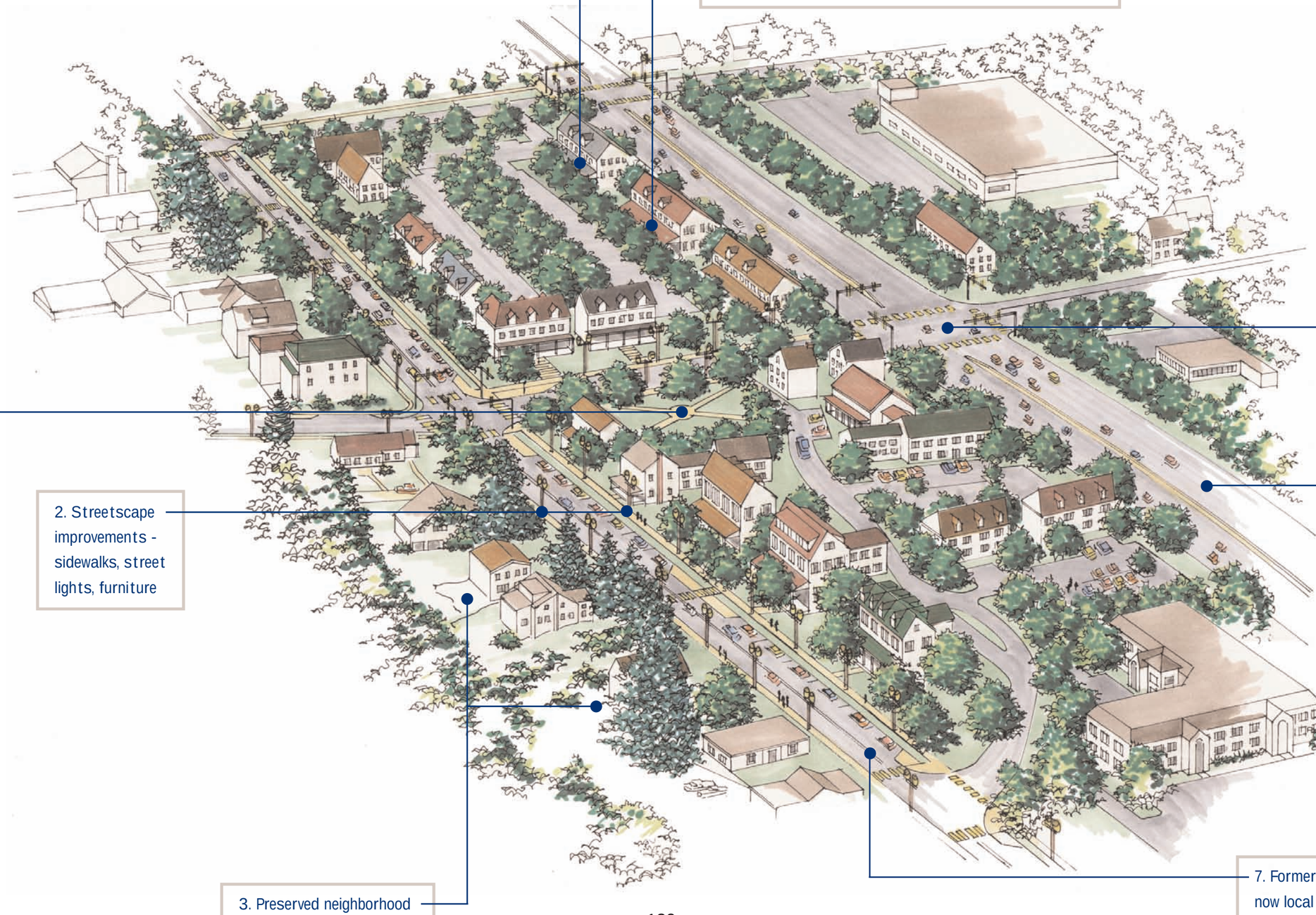
Village of Elam

Existing Conditions

Illustration 5 shows the village of Elam, at the intersection of Route 202 and Smithbridge Road. As the photograph above shows, Route 202 is split in this area, with southbound lanes and northbound lanes traveling on different alignments. The illustration on the facing page shows the effects of directing all traffic, both northbound and southbound, to the alignment currently used for northbound traffic. This allows the southbound side, which passes through the historic village of Elam, to be converted to a low-speed, local road, serving only the residences and businesses in this immediate area. This road could serve as the "Main Street" of the village, with sidewalks and other streetscape improvements, preserving its small town character.

Illustration 5

Development Concepts



Next Steps

This study has provided an overview of land use and transportation linkages in the U.S. Route 202, Section 100 corridor. By addressing the corridor as a whole, this study creates a framework that allows local projects to fit in as part of a larger land use and transportation strategy. However, without implementation at the local level, the recommendations provided in this chapter will have no effect, and the goals and objectives of the study will not be met.

To encourage local governments to take this study's recommendations, this study contains several appendices that are meant to aid in implementation:

- Appendix A contains brief descriptions of many planning tools that the corridor municipalities may wish to consider. More detail on some of these techniques is provided later, in Appendices B, C, and D.

- Appendix B contains a sample Corridor Access Management Overlay District, which all of the municipalities along Route 202 should consider adapting and adding to their zoning ordinances. This overlay district provides an additional means to regulate land use and access along the highway. Most municipalities in the corridor should be able to adopt it with few changes.

- Appendix C contains a sample Transit Oriented Development District, which may also be useful in some locations along Route 202. This district encourages denser, mixed-use development in areas near to transit stops. Adopting a Transit Oriented Development district is more of a long-range priority for most municipalities, and is less immediate in importance than the Corridor Access Management Overlay District.

- Appendix D contains a sample Official Map, a useful planning tool that most municipalities in the corridor may eventually wish to adopt. This particular Official Map was written for Concord Township in 1990, but was never adopted. The language in this ordinance is specific to Concord Township, but can be easily adapted to other municipalities.

These sample ordinances can provide the basis for important new local zoning districts, aiding the corridor municipalities in the implementation of this study's recommendations.

APPENDIX A

STRATEGY DESCRIPTIONS

This Appendix contains brief descriptions of the strategies identified in Chapters III and IV. These descriptions are not meant to be comprehensive "how-to" guides to adopting these planning strategies, but to provide a brief introduction to each one. Each description also refers to similar strategies or the sample ordinances contained in Appendices B, C, and D, if appropriate.

Each strategy is assigned a priority, depending on its importance and its ease of implementation. Immediate priorities are intended to address an issue of great concern and can reasonably be accomplished within a one to two year period. Short-term priorities, should be implemented within three to five years, and may require a higher degree of preliminary examination before an implementation process can begin. A long-term priority may be implemented within five to ten years of the plan adoption, and may require a significant amount of time to implement, or may not possess the same degree of urgency as other strategies. Finally, some strategies have already been adopted by townships in the study area, and will continue to be ongoing responsibilities.

Table A-1. Strategy Priorities

Immediate	
Access Management Provisions	Official Maps
Capital Improvement Plans and Programs	Planned Residential Developments
Conservation Easements and Local Land Trusts	Residential Street Design
	Site Analysis Plans
Corridor Access Management Overlay District	Slope Management
Floodplain Management	Traditional Neighborhood Development
Historic Preservation Planning	Transit Design Standards
Historic Resources Design Standards	Transit Oriented Development
Local Historic Districts	Vegetation Management
Multi-Municipal Comprehensive Plans	
Short-term	
Economic Development Incentives	Performance Zoning
Economic Development Planning	Right-of-Way Preservation
Fair Share Analyses	Riparian Buffers
Greenways	Stormwater Management Best Practices
Open Space/Cluster Development	Suburban Center Zoning
Park and Ride Programs	Traffic Signal Systems
Parkland Dedications/Fee-in-Lieu Provisions	Transfer of Development Rights
Pedestrian/Bikeway Facilities Design	Village Protection Programs
Long-term	
Community Sewage Treatment and Disposal Options	Traffic Impact Fee Ordinances
	Trip Reduction Ordinances
Growth Boundaries	Water Resources Sustainability Assessments
Parking Management Programs	

Source: Delaware Valley Regional Planning Commission

These strategies require action from a variety of local government bodies to be implemented. The Board of Supervisors of each township is responsible for the supervision of the adoption of each of these strategies. In addition, each township's Planning Commission must take an active role in implementation. Alternatively, municipalities could create a Planning Task Force to further investigate the use of any of these techniques. Aside from these bodies, various other entities, such as the Historic Preservation Commission or Zoning Hearing Board, may be responsible for some aspect of implementation. If this is the case, these entities are specified in the description of each recommendation.

The role of the planning staff of Delaware and Chester counties is not specifically identified in these descriptions. Programs are available in which planners at the county level can help to develop and guide these local land use planning strategies. Citizen involvement in implementation is also an important component of a successful planning program, but is not included in this matrix. However, implementation of each strategy should include a role for citizens to ensure that all views are addressed.

Many of the strategies must be implemented by amending or modifying municipal planning or regulatory documents. Each description notes which document or ordinance is primarily affected by a given strategy. Commonly cited documents include the Comprehensive Plan, the Zoning Ordinance, and the Subdivision and Land Development Ordinance. In order to implement some of the strategies, more than one document might need to be modified, and consistency among all regulatory documents must be maintained.

In most cases, a specific source that contains more detailed information is listed at the end of each description. By far the most useful source, for the purposes of this study, was the *Community Planning Handbook*, published by the Chester County Planning Commission as part of their award-winning *Landscapes* initiative. This handbook contains descriptions of most of the strategies listed in this chapter, in far greater detail, and also includes a number of sample ordinances that can be adopted by corridor townships with only minor modification.

Descriptions of Recommended Strategies

Access Management Provisions improve safety and efficiency on roadways by limiting and controlling access points. Access management tools are especially useful along Route 202, which experiences considerable conflict in its use as both a regional throughway and local road. Access management can reduce congestion and accidents without major capital improvements, by linking land use and transportation planning strategies. Access management tools may involve shared driveways for local businesses, improved signage, parallel access roads, or other similar techniques.

One specific access management tool is a **Corridor Access Management Overlay District** (p. A-4), a sample of which is found in Appendix B of this document. Townships may wish to consider adopting access management provisions immediately, as they are high priority. Access management provisions can be adopted as part of the township's Zoning Ordinance or Subdivision and Land Development Ordinance.

Source: Delaware Valley Regional Planning Commission – Linking Land Use and Transportation Planning: Case Studies of Successful Implementation, p. 71.

Capital Improvement Plans and Programs are official documents that set out a municipality's plans for future capital improvements, such as roads and other public facilities, and how the improvements will be financed. The range and scope of these can vary considerably, from one to 20 years, but most cover a five or six-year period. Also, successful capital improvement plans must include capital programs, with a schedule of implementation and a projected budget. If a capital improvement plan and program are consistent with the municipal Comprehensive Plan and Zoning Ordinance, they can be useful planning tools, allowing the municipality to plan ahead for future growth and improvements, lowering costs by predicting needs before demand arises. A capital improvement plan can also provide developers and the public with more certainty concerning future public improvements, thereby improving opportunities for participation and increasing accountability. The adoption or modification of a capital improvement plan and program is no small task, but should be considered by the townships in the corridor in the immediate future.

The Board of Supervisors is responsible for the decision to draft or modify a capital improvement plan and program. Development of the plan and program is the responsibility of township staff or an outside professional hired for this purpose. Capital improvement plans and programs are stand-alone documents, but are only effective if they are consistent with other municipal planning documents. Therefore, modifications to the municipal Comprehensive Plan and Township ordinances may be necessary.

Source: Delaware Valley Regional Planning Commission – Linking Land Use and Transportation Planning: Case Studies of Successful Implementation, p. 27.

Community Sewage Treatment and Disposal Options allow development to be served by sewer systems in areas where large public sewage treatment and disposal facilities are not available. Ownership and management options for community sewage systems should also be explored. Some of the townships in the study area have community sewage treatment options already; those that do not should consider them. The Act 537 plan can be used to set policies to allow community sewage system options.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.3.

Conservation Easements and Local Land Trusts can assist local governments in conserving natural areas and farmlands. Conservation easements are legal documents that restrict activity on the land and conserve specific natural features. Local land trusts, which are usually nonprofit organizations interested in the preservation of land, are often involved in the purchase of these easements. Conservation easements can be very effective ways to preserve land, as they limit development but are far less expensive that outright purchase. Many municipalities in the study area already have some experience with conservation easements. For those that do not, if preservation of farmland and natural lands is a priority, conservation easements should be investigated immediately.

The responsibility for implementing conservation easements, and for working with local land trusts, lies with the Board of Supervisors. Identification of land for easements can best be done in the municipal Comprehensive Plan or Open Space and Recreation Plan.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Corridor Access Management Overlay Districts provide additional access controls along major roadways, limiting land uses and access points in these areas. This is an effective way to improve road efficiency and safety, and should be considered by the townships in the corridor for adoption in the short term, within two to five years. These overlay districts require amendments to the municipal Zoning Ordinance and possibly also the Subdivision and Land Development Ordinance, and may also be strengthened by modifications to the Comprehensive Plan.

A sample Corridor Access Management Overlay district is contained in full in Appendix B of this document.

Source: Delaware Valley Regional Planning Commission.

Economic Development Incentives include a broad range of actions or processes designed to promote local business, and often take the form of grants or loans to facilitate business development. Many corridor townships already offer economic development incentives to businesses, and these efforts should continue. Public infrastructure can also be provided through the Capital Improvement Plan and Program, spurring further private investment, or specific grants or loans can also be offered by municipalities.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.6.

Economic Development Planning is the process of analyzing local business development and retention goals, and then defining strategies to meet these goals. Most municipalities already perform some degree of economic development planning already, and should continue, and possibly formalize, their efforts. Appropriate tools for economic development planning include the municipal Comprehensive Plan and Capital Improvements Plan.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.6.

Fair Share Analyses determine whether a municipality is providing its "fair share" of affordable or multi-family residential development. This allows the municipality to determine whether it is vulnerable to lawsuits for exclusionary zoning. A fair share analysis is more appropriate in some townships than others, but should be undertaken by most in the short term, or within two or five years. Changes to the Comprehensive Plan, Zoning Ordinance, and Subdivision and Land Development Ordinance can allow a municipality to meet its fair share of development.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.8.

Floodplain Management regulations apply additional recommendations to floodplain areas, preventing these areas from experiencing development that may result in property damage or dangerous situations such as floods. Most municipalities in the corridor already have floodplain management regulations, and should continue to enforce them; those that do not should adopt them immediately. Floodplain management can be accomplished through amendments to the municipal Zoning Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Greenways are linear networks of open space that protect the natural environment and also may provide recreation opportunities. They are important tools to improving quality of life, and municipalities should consider adopting these in the near future, within two to five years. In addition to the Board of Supervisors, Planning Commission, and Planning Task Force, the Park and Recreation Commission may be responsible for planning greenways. To implement these plans, they should be outlined in the municipal Comprehensive Plan or Open Space and Recreation Plan, and should be included in the Zoning Ordinance and Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Growth Boundaries are geographic boundaries which separate land into two categories: that in which growth is appropriate, such as in urban or suburban areas, and that in which growth is not appropriate, such as rural or natural areas. These are most effective on a regional level, and can be considered relatively low priority and long range, to be implemented within five to ten years if appropriate. Growth boundaries should be included in the municipal Comprehensive Plan, and the Zoning Ordinance should be used to help with implementation.

Sources: Chester County Planning Commission – Community Planning Handbook, section 3.1.

Historic Preservation Planning allows municipalities to identify goals, collect data, and formulate and implement strategies for historic preservation. Many corridor communities already have historic preservation planning; this should continue, and other municipalities may wish to consider planning for their historic resources. The responsibility for this falls to the Board of Supervisors, Planning Commission, and Historic Preservation Commission. Implementation may require modifications to the municipal Comprehensive Plan, amendments to the Zoning Ordinance and Subdivision and Land Development Ordinance, and the creation of a Historic Preservation Ordinance.

Sources: Chester County Planning Commission – Community Planning Handbook, section 3.5.

Historic Resources Design Standards help to ensure that the visual characteristics that make a historic district unique are conserved. They can be useful tools if adopted as part of a Historic Preservation Ordinance or in a **Local Historic District** (p. A-6), and municipalities

with important historic resources should consider these standards immediately. In addition to the Board of Supervisors, Planning Commission, and Planning Task Force, the entities responsible for implementing this technique include the Historic Preservation Commission and Zoning Hearing Board. Implementing historic resources design standards may require changes to the municipal Zoning Ordinance, Subdivision and Land Development Ordinance, and Historic Preservation Ordinance.

Sources: Chester County Planning Commission – Community Planning Handbook, section 3.5.

Local Historic Districts can be created by municipalities to preserve significant historic areas. Local historic districts, if accompanied by effective ordinances, can preserve character by regulating alterations to buildings, requiring architectural detailing on new structures, and promoting other sensitive design techniques. Several townships in the corridor have designated historic districts already; other townships with significant unprotected historic areas may wish to consider implementing this technique immediately. The responsibility for this is with the Board of Supervisors, Planning Commission, Planning Task Force, and Historic Preservation Commission. Local historic districts should be mentioned in the municipal Comprehensive Plan, and may be enforced by amending the Zoning Ordinance to allow overlay zones in this area, and modifying the Subdivision and Land Development Ordinance to include design standards. **Historic preservation planning** (p. A-5) is also an important step in the creation of local historic districts.

Sources: Chester County Planning Commission – Community Planning Handbook, section 3.5.

Multi-municipal Comprehensive Plans allow formalized cooperation between municipalities, usually adjacent to each other, to coordinate on various planning issues. Participating in multi-municipal comprehensive plans, according to recent changes in the Municipal Planning Code, can help to protect municipalities from curative amendments, provide funding incentives, require state agencies to consider local plans in decision-making, and other benefits. These multi-municipal plans are appropriate in a number of locations in the corridor, and represent a useful planning strategy for nearly any township. The implementation of these should begin as soon as possible, and is the responsibility of the Board of Supervisors, Planning Commission, Zoning Hearing Board, Planning Task Force, and Township staff. Changes to the municipal Comprehensive Plan will be necessary for these to be implemented.

Sources: Chester County Planning Commission – Community Planning Handbook, section 3.9; Delaware Valley Regional Planning Commission.

Official Maps legally establish the location of existing and proposed streets, parks, and other public lands and facilities. Creating an official map, and thereby planning the future locations of public facilities, notifies landowners and future developers of the location of future public improvements. The official map allows municipalities to have the option to purchase or obtain easements on land designated for future public facilities, in the event that development is proposed on this land. Official maps are also useful for establishing desired street patterns for future development.

In Chapter IV of this report, which details specific recommendations, a number of municipalities are advised to consider adopting official maps. Official maps are powerful planning tools that can greatly assist municipalities in shaping future development. This planning technique is of highest priority, and municipalities should consider adopting official maps immediately. An official map requires a separate ordinance, as it is not part of the municipal Comprehensive Plan or Zoning Ordinance.

A sample official map can be found in Appendix D of this report. In addition, another sample of an official map is located in the Chester County Planning Commission's Community Planning Handbook.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1; Delaware Valley Regional Planning Commission – Linking Land Use and Transportation Planning: Case Studies of Successful Implementation, p. 19.

Open Space/Cluster Development allows residential units to be concentrated on a small portion of a parcel, rather than spread evenly throughout. This type of development can preserve natural areas, farmland, and scenic views, and result in lower environmental impacts and infrastructure requirements. Other similar techniques, such as lot averaging, also provide more flexibility in subdivision design and can result in a more clustered development pattern. Many municipalities already have provisions for cluster development. In those that do not, cluster developments are a high priority, and efforts to encourage these should begin soon and be ongoing. Implementing cluster development requires modifications to the municipal Comprehensive Plan, amendments to the Zoning Ordinance, and possibly amendments to the Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1.

Park and Ride Programs encourage the use of transit, thus lowering congestion on roadways, by providing parking areas near to transit stops. Often, park and rides are located in the parking lots of businesses, schools, or other private or public institutions, and are based on negotiations between the municipality, the transit provider, and the landowner. Some municipalities in the corridor have already established park and ride programs; for the others, this will become a priority once bus service on Route 202 is reestablished. Park and ride programs may require modifications to the municipal Comprehensive Plan and Zoning Ordinance or other planning documents.

Source: Delaware Valley Regional Planning Commission.

Parking Management Programs manage parking within a municipality, ensuring that parking supply and demand are compatible. Inadequate parking supply near commercial uses and employment centers can cause a decline in business, while an oversupply of parking results in the inefficient use of land, unnecessary financial responsibilities, and an increase in the amount of impervious coverage. Parking management programs must be long-range in scope, and municipalities should consider beginning to implement them within five to ten years.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.7.

Parkland Dedications/Fee-In-Lieu Provisions require developers to provide public open space within their developments, or to contribute a fee-in-lieu of the land, to be used to improve parkland elsewhere. These are relatively high priority, and should be undertaken by municipalities within two to five years. The responsibility for implementing parkland dedications or fee-in-lieu provisions lies with the Board of Supervisors, Planning Commission, Planning Task Force, and Park and Recreation Commission. Implementation can be accomplished by changes to the municipal Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Pedestrian/Bikeway Facilities Design standards make local roadway more hospitable places for bicyclists and pedestrians, reducing reliance on motor vehicles. These are important standards, in both developed and less-developed areas, and local governments should consider adopting them in the short term, within two to five years. Implementation can usually be accomplished by amendments to the Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Circulation Handbook, chapter 4.

Performance Zoning provides a means of regulating development based on the specific impacts of the development on the site, rather than the specific types of uses. For example, performance zoning for an industrial development might consider impacts such as vehicle traffic, air pollution, noise, and lot coverage, but not regulate what types of industry could locate in the development. Performance zoning standards provide municipalities with more control over the impacts of development while giving developers more flexibility in types of permitted uses. This technique is relatively high priority, and municipalities may want to consider adopting performance zoning standards within two to five years. Performance zoning is mainly implemented through amending the Zoning Ordinance, but modifications to the Comprehensive Plan may also be necessary.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Planned Residential Developments can already be found in most municipalities in the study area. Typically, they provide developers with greater flexibility or higher densities if certain conditions are fulfilled, including open space preservation, provision of affordable housing, or pedestrian connections to other developments. Those municipalities that already have planned residential development zoning districts should consider expanding them, and those municipalities that do not may wish to adopt them. Implementation usually takes the form of modifications to the municipal Comprehensive Plan, accompanied by amendments to the Zoning Ordinance and Subdivision and Land Development Ordinance.

Source: Delaware Valley Regional Planning Commission.

Residential Street Design addresses issues of livability and community character by setting reasonable street design standards. Currently, many low-speed residential streets are designed using highway standards, which do not account for the function of the road and are often inappropriate. This is an important issue, which should be addressed immediately by all municipalities. Implementing residential street design will involve wholesale changes to the municipal Subdivision and Land Development Ordinance, and also may involve modifications to the Zoning Ordinance. In addition, the drafting of an **Official Map** (p. A-6) may also help to facilitate appropriate residential street design.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.7.

Right-of-way Preservation allows municipalities to reduce the future costs of transportation improvements by limiting development in the right-of-way of existing and future roads. Municipalities should consider adopting this strategy in the long term, within five to ten years. Implementing right-of-way preservation will probably require amendments to the Subdivision and Land Development Ordinance, as well as the adoption of an **Official Map** (p. A-6). Right-of-way preservation should also be consistent with the Comprehensive Plan.

Source: Delaware Valley Regional Planning Commission; Chester County Planning Commission – Circulation Handbook.

Riparian Buffers protect the sensitive natural areas around streams by limiting land use in these areas. The priority of implementing this planning technique varies, depending on the existing conditions of a stream and the potential of development in the future. Implementation can best occur through amendments to the municipal Zoning Ordinance and Subdivision and Land Development Ordinance.

Source: Delaware Valley Regional Planning Commission.

Site Analysis Plans require potential developers to inventory the natural resources of their site to determine whether a development meets a municipality's natural resource protection standards and other requirements. These are useful tools that allow municipalities to better evaluate the impacts of development, and should be implemented immediately. Site analysis plans are typically implemented through additions to the municipal Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Slope Management limits development on steep and moderate slopes, to prevent erosion, increased stormwater runoff, and downstream flooding, which may result in environmental or property damage. Most municipalities in the corridor already have slope management regulations, and should continue to enforce them; those that do not should adopt them immediately. Slope management can be accomplished through amendments to the municipal Zoning Ordinance or the Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Stormwater Management Best Practices control the quality and quantity of stormwater runoff, and often involve prioritizing management practices that retain stormwater on-site and maximize reuse, rather than temporarily detaining stormwater and later releasing it into streams. Adopting these best practices is relatively high-priority, and municipalities may wish to consider this within two to five years. These best practices can best be implemented through modifications to the Zoning Ordinance and Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.3.

Suburban Center Zoning directs growth into identified centers, which contain a mix of retail, office, residential, public, and recreation uses, thereby creating community focal points and centers of activity. Suburban center zoning is a fairly high priority, and should be implemented in the short term, or within two to five years. Implementing suburban center zoning requires modifications to the municipal Comprehensive Plan, amendments to the Zoning Ordinance, and possibly amendments to the Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1.

Traditional Neighborhood Development applies historic development patterns to new development projects, encouraging compactness and a mix of uses in a pedestrian-friendly, village type setting. Adopting traditional neighborhood development strategies is a high priority, and should be undertaken immediately. This can best be achieved through modifying the Comprehensive Plan, amending the municipal Zoning Ordinance, and adopting an **Official Map** (p. A-6) which identifies the layouts of streets, parks, and other public spaces.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1.

Traffic Impact Fee Ordinances allow local governments to levy fees on developers to pay for improvements to the transportation system made necessary by their new developments. According to law, there must be a "rational nexus" – or clear linkage between the new development and the need for transportation improvements – for traffic impact fees to be legally defensible. These are useful planning strategies that municipalities may wish to consider, but are not of immediate importance in most communities. Modifications to the Zoning Ordinance or Subdivision and Land Development Ordinance are the best way to implement these impact fees.

Source: Chester County Planning Commission – Circulation Handbook, chapter 5; Delaware Valley Regional Planning Commission – Linking Land Use and Transportation Planning: Case Studies of Successful Implementation, p. 47.

Traffic Signal Systems use timing and signal coordination to manage the flow of traffic volumes along a corridor. In municipalities where congestion is a serious concern, the possibility of implementing closed-loop traffic signal systems may be a relatively high priority, and should be considered within two to five years. Implementation should be explored in coordination with PennDOT District 6-0.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.7.

Transfer of Development Rights is a zoning option that directs growth into designated areas, allowing conservation of natural or rural areas. Under this option, the rights to develop land are separated from the title to the land itself, and these rights may be sold to landowners in "receiving areas," or areas designated for growth. This allows denser development in these "receiving areas," compensating for land conservation elsewhere through the sale of development rights. Transfer of development rights is an important planning technique, but can also be a complex one. Consideration of this technique should begin immediately, with implementation occurring in the short term, between two and five years. The process involves several steps, and will require a commitment for a number of years. Successful implementation may require modifications to the municipal Comprehensive Plan and amendments to the Zoning Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1.

Transit Design Standards can be used to influence the design of the physical environment near to existing or planned transit stations. These design standards may provide guidelines for pedestrian access, human-scaled building design, landscaping, parking requirements, or other general aspects of site planning. Transit design standards are often included as part of a **Transit Oriented Development** (p. A-11) district, which is an important planning tool which municipalities in the corridor should consider adopting immediately. Transit design standards can be included as part of the municipal Zoning Ordinance, as well as the Subdivision and Land Development Ordinance.

Source: Puget Sound Regional Council – Creating Transit Station Communities in the Puget Sound Region, p. 71; Delaware Valley Regional Planning Commission.

Transit Oriented Development (TOD) Districts encourage compact development patterns near transportation nodes like train stations or bus stops. Transit oriented development mixes residential and commercial uses, creating a village-like land use pattern that is pedestrian-friendly and encourages the use of public transit. These areas may become or reinforce town centers, encouraging interaction and a sense of community. In turn, commercial uses, offices, or higher-density homes near to a transit station can help to increase transit use, allowing more choice among transportation options.

This is an important land use technique, and municipalities should consider adopting transit oriented development standards immediately. To accomplish transit oriented development may require modifications to the municipal Comprehensive Plan, as well as amendments to the Zoning Ordinance and Subdivision and Land Development Ordinance.

Often, transit oriented development districts are adopted as overlays, rather than replacing the original zoning. A sample transit oriented development district can be found in Appendix C of this document.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.1; Delaware Valley Regional Planning Commission.

Trip Reduction Ordinances are used to manage transportation demand, and are typically designed to reduce traffic at peak hours by changing the driving habits of commuters. Trip reduction ordinances require businesses to reduce trips-to-work among their employees. To make this reduction, businesses may use tactics such as employee subsidies for the use of transit, parking fees for employees who drive alone, flex-time, and similar measures. These ordinances are low priority, and municipalities should consider adopting them in the long term, within five or ten years. Modifications to the municipal Comprehensive Plan and Township Code are necessary for trip reduction ordinances to be adopted.

Source: Delaware Valley Regional Planning Commission – Linking Land Use and Transportation Planning, Case Studies of Successful Implementation, p. 63.

Vegetation Management preserves and manages existing woodlands and other native vegetation throughout the development process. In townships where undeveloped land is still common, vegetation management is a high priority, and these townships may wish to consider pursuing this immediately. Implementing vegetation management will require amendments to the municipal Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.2.

Village Protection Programs can serve to preserve historic villages by ensuring that future development within them, as well as modifications to existing structures, are consistent with the historic context of the village. These are relatively high priority, and municipalities should consider implementing them within two to five years. In addition to the Board of Supervisors and the Planning Commission, the Historic Preservation Commission is responsible for implementing village protection programs. This can be accomplished by modifications to the municipal Comprehensive Plan, Zoning Ordinance, and Subdivision and Land Development Ordinance.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.5.

Water Resources Sustainability Assessments are the basis for water resources management practices, and can identify suitable development areas and types of development. Water resources assessments should be undertaken in the long-term, possibly within five or ten years.

Source: Chester County Planning Commission – Community Planning Handbook, section 3.3.

APPENDIX B

CORRIDOR ACCESS MANAGEMENT OVERLAY (CAMO) DISTRICT – SAMPLE ORDINANCE

Section 00: Declaration of Legislative Intent. In expansion of the Statement of Community Development Objectives contained in Article I, Section 101 of this Ordinance the overall intent of the CAMO – Corridor Access Management Overlay District shall be to control the use, development and highway access of lands located along the frontage of Route 202 located within the Township, in order to accomplish the following specific purposes:

00.1 To promote the orderly development of land along Route 202 located in the Township.

00.2 To minimize, to the maximum extent possible, hazardous traffic flow conditions and confusion for drivers along the Township's segment(s) of Route 202.

00.3 To enhance the overall function and appearance of the Township's segment(s) of Route 202, which serves as a "gateway" to the community.

00.4 To promote channelized and coordinated accessways along Route 202, in order to reduce existing conflicting turning movements and prevent new conflicting turning movements, traffic congestion and other potential vehicular hazards.

00.5 To make the transition between the high-speed, free-flowing driving experience of the Township's segment(s) of Route 202 and the lower-speed, more restrictive driving conditions encountered on the intersecting roads, access points and driveways as smooth as possible for highway users.

00.6 To provide for safe, understandable and convenient access to abutting uses without causing traffic flow problems.

00.7 To avoid the adverse effects of uncoordinated, lot-by-lot development on the flow of traffic along Route 202, and to increase the application of unified development plans with coordinated highway access as the preferred alternative within such areas, in order to minimize and prevent unnecessary accessways and conflicting turning movements.

00.8 To provide setbacks for both principal and accessory uses, including signs and off-street parking and loading areas, that may be located along Route 202, in order to facilitate the potential highway widening or related access improvements, should future traffic volumes warrant such improvements.

00.9 To require, where feasible, natural features preservation in conjunction with man-made buffering in order to preserve a spacious and scenic visual environment along Route 202.

00.10 To require, as part of the development plan review process, related traffic control improvements (acceleration/deceleration lanes, traffic signalization, marginal access roads, jug handles, turning or stacking lanes and similar low-capital intensive improvements) and public transit enhancements (bus laybys and stops) in order to minimize the effects of new development on traffic flow along Route 202.

00.11 To encourage reverse-frontage and other design techniques for those development plans proposed to be located along Route 202, in order to minimize the need for additional accessways or intersecting roads.

00.12 To combine with other zoning requirements, as an overlay, to place limitations and additional requirements upon the underlying zoning districts, in order to accomplish the specific purposes described in this Section, in furtherance of the general welfare of the residents of the Township and of the users of Route 202.

Section 01: Boundary Definition. The CAMO – Corridor Access Management Overlay District is defined and established as follows:

01.1 Primary Arterial Corridor Impact Area. The area extending for a distance of two hundred (200) linear feet from the centerline of the right-of-way, along each side of Route 202 located within the Township.

01.2 Secondary Highway Corridor Impact Area. Where the Primary Arterial Corridor Impact Area, as defined in subsection 01.1, is intersected by another highway of arterial classification that is not otherwise included in a CAMO District, the following Secondary Highway Corridor Impact Area shall be defined and added to the area of the Primary Arterial Corridor Impact Area:

a. From the centerline of the intersecting road, the area extending for a distance of two hundred (200) linear feet along each side of the intersecting road, for a distance of one-eighth mile (660 linear feet) along said road.

b. For regulatory purposes, where the component defined in subsection 01.2a. occurs, all those portions of the Secondary Highway Corridor Impact Area which extend beyond the boundaries of the Primary Arterial Corridor Impact Area shall be included within the boundaries of the CAMO District. In all cases, the distances and areas defined in this section shall be plotted so as to include the maximum possible area consistent with the boundary definition.

Section 02: District Mapping. The CAMO – Corridor Access Management Overlay District shall be delineated on the Zoning Map as follows:

02.1 Those areas referred to in Section 01 shall be plotted on the Zoning Map to indicate the boundaries of the CAMO District. The Zoning Map shall be available in the Township building for inspection by the public.

02.2 Any subsequent changes in the boundaries of the CAMO District, as a result of new construction, revisions to official plans or for any other reason, shall be plotted on the Zoning Map as amendments thereto, following consideration of the proposed revisions in the usual manner prescribed for amending the Zoning Ordinance.

Section 03: Corridor Access Management Overlay District Concept. The CAMO District shall be deemed to be an overlay on any zoning district(s) now or hereafter enacted to regulate the use of land in the township.

03.1 The CAMO District shall have no effect on the permitted uses in the underlying zoning district(s), except where said uses are intended to be located within the boundaries of

the CAMO District, as defined herein, and the uses are in conflict with the requirements and specific intent of this Article.

03.2 In those areas of the Township where the CAMO District applies, the requirements of the CAMO District shall supersede the requirements of the underlying zoning district(s), unless those requirements are more stringent than the requirements of this Article.

03.3 Should the CAMO District boundaries be revised as a result of legislative or administrative actions or judicial decision, the zoning requirements applicable to the area in question shall revert to the requirements of the underlying zoning district(s) without consideration of this Article.

03.4 Should the zoning classification(s) of any parcel or any part thereof on which the CAMO District applies be changed, as a result of legislative or administrative actions or judicial decision, such change(s) in classification shall not effect the boundaries of the CAMO District or its application to said parcel(s), unless an amendment to the boundaries or the effect of the District on said parcel(s) was part of the proceedings from which the changes originated.

Section 04: Boundary Interpretation and Appeals Procedure. An initial determination as to whether or not the requirements of the CAMO District apply to a given parcel shall be made by the Zoning Officer.

04.1 Any party aggrieved by the decision of the Zoning Officer, either because of interpretation of the exact location of the CAMO District boundaries, or because of the effect of the District on the development of the parcel(s) in question, may appeal said decision to the Zoning Hearing Board, as provided for in Section 14 of this Article.

04.2 The burden of proving the incorrectness of the Zoning Officer's decision shall be on the applicant.

Section 05: Uses Permitted in the Corridor Access Management Overlay District. The following uses shall be permitted in the CAMO District:

05.1 Any limited access or arterial highway located within the boundaries of the Interchange Corridor Overlay District, as defined in Section 01 of this Article, and the appurtenant rights-of-way, including the interchange access ramps, service roads and any informational or directional signs erected therein.

05.2 Those portions of existing roads of a lower classification than arterial, as defined on the Township's Ultimate Right-of-Way Map (a PennDOT-approved map of ultimate rights-of-way that is consistent with the municipal comprehensive plan), or existing access driveways which are located within the boundaries of the CAMO, as defined in Section 01 of this Article. Any improvements to these roads should comply with the requirements of this Article, to the maximum extent possible.

05.3 Cultivation and harvesting of crops according to recognized soil conservation practices.

05.4 Pasturing and grazing of animals according to recognized soil conservation practices.

05.5 Public and private open space and recreation areas, including biking, hiking, and equestrian trails, but excluding structural development, except that which is in accordance with Section 06.6 and 06.7 of this Article.

05.6 Outdoor plant nursery, orchard, woodland preserve, arboretum and similar conservation use, according to recognized soil conservation practices, but excluding structural development, except that which is in accordance with Section 06.6 and 06.7 of this Article.

05.7 Forestry, lumbering and reforestation, according to recognized natural resource conservation practices.

05.8 Those portions of a lot in combination with contiguous lands located beyond the boundaries of the CAMO District in order to meet the yard and area requirements of the underlying zoning district(s), when uses not permitted within the CAMO District are to be located on such contiguous lands.

05.9 Subsurface utility lines.

05.10 Fences of wood, wire and any other materials, provided they are located so as to maintain a clear sight triangle at any intersection or access point along Route 202 within the CAMO District.

05.11 Sidewalk, crosswalk, or passenger stop or shelter for public transportation.

05.12 Any other non-structural, principal or accessory use permitted in the underlying zoning district(s) but excluding any extractive uses, parking and loading areas and outdoor storage areas.

05.13 Those uses permitted by right in the underlying zoning district(s) and existing uses made non-conforming by the adoption of this Article.

Section 06: Restricted Uses Permitted by Special Exception. The following restricted uses shall be permitted only as a special exception in the Interchange Corridor Overlay District, except those uses expressly prohibited in Section 07 of this Article, subject to the requirements and procedures set forth in Sections 08 through 11 of this Article.

06.1 Above-ground utility lines.

06.2 Off-street parking areas associated with passenger stop or shelter or related public transportation facilities.

06.3 Proposed public and private roads or access driveways that are inconsistent with the development guidelines specified in Section 08, herein.

06.4 Parking and loading areas, including above-grade, structured parking facilities.

06.5 Temporary structures, including signs and buildings, whether principal or accessory.

06.6 Permanent, freestanding structures, including advertising devices or signs not exempted by subsection 05.1 with a surface of one hundred (100) square feet or less, and accessary building permitted in the underlying zoning district with a ground

coverage of no more than one hundred and fifty (150)square feet. No such uses located within the CAMO District shall exceed a height of thirty-five (35) feet.

06.7 Expansion of a use rendered non-conforming by the adoption of this Article in accordance with the requirements of Section 14 of this Article.

06.8 Any other use, not specifically listed herein, which may contribute to a hazardous traffic condition or visual intrusion along Route 202 or any intersecting road within the CAMO District.

06.9 Those uses permitted by special exception or as conditional uses in the underlying zoning district(s).

Section 07: Prohibited Uses. The following uses shall not be permitted within the boundaries of the CAMO District:

07.1 Permanent, freestanding structures permitted in the underlying zoning district(s) that do not qualify under Section 06.2, 5, 6, and 7 of this Article.

07.2 Junkyards, scrapyards or similar outdoor storage uses.

07.3 Billboards or similar advertising devices or signs that exceed a surface area of one hundred (100) square feet.

07.4 Flashing signs or other advertising devices of any type or configuration.

07.5 Subdivisions and land developments composed of uses permitted in accordance with the underlying zoning district(s) that do not comply with the development regulations specified in Section 08, herein.

07.6 Any use of the same general character as those uses listed in subsections 07.1 through 07.4 of this Section.

Section 08: Guidelines for Subdivisions, Land Developments and Individual Uses Within the Coridor Access Management Overlay District. For any subdivision, land development or individual uses proposed to be located within the CAMO District the following guidelines shall apply:

08.1 Access Controls. Direct residential or non-residential driveway access to Route 202 or intersecting roads within the CAMO District from either a subdivision or land development or an individual use shall not be permitted, unless the following alternative development techniques are demonstrated by the applicant to be infeasible on other than purely economic grounds. The application of these techniques shall be governed by the requirements of the Township's Subdivision and Land Development Ordinance. The following alternatives (a., b., and c.) are presented according to their priority in meeting the Declaration of Legislative Intent of this Article.

a. Marginal access road, where direct driveway access is to a residential or marginal access road parallel to Route 202 or an intersecting road within the CAMO District, and the only access to said roads is from one or more accessways from the marginal access road to Route 202. Every effort should be made to minimize the number of intersections from marginal access roads within the CAMO District.

b. Reverse-frontage development, where direct driveway access is to a residential or feeder road and the only access to Route 202 or an intersecting road within the CAMO District is from one or more of said residential or feeder roads (either existing or new construction.) Every effort should be made to minimize the number of intersections from new roads within the CAMO District.

c. Joint access, where direct driveway access from a lot or development to Route 202 or an intersecting road within the CAMO District is provided jointly with other lots or parcels created as part of the same subdivision or land development, or with adjacent lots or parcels not part of the same subdivision of land development. If this approach is to be used, a turnaround area or similar technique shall be provided on the lot.

d. The minimum spacing between the centerline of new and existing roads along Route 202 or an intersecting road within the CAMO District shall be no less than six hundred (600) feet. No new accessway to Route 202 shall be located closer than one hundred (100) feet to the point of intersection of an intersecting road.

e. Where direct driveway access to Route 202 or an intersecting road within the CAMO District is unavoidable, the minimum spacing between the centerline of such access driveways shall be no less than two hundred (200) feet.

08.2 Development Regulations.

a. The minimum setback for any proposed use within the CAMO District shall be one hundred (100) feet measured from the ultimate right-of-way line of Route 202 and seventy-five (75) feet from the ultimate right-of-way line of an intersecting road within the CAMO District.

b. The minimum lot width within the CAMO District shall be one hundred (100) feet.

c. No sign, except a traffic safety or directional sign, shall be located closer than twenty-five (25) feet to the ultimate right-of-way line of Route 202 or other intersecting road located within the CAMO District.

d. No parking, loading or other storage area shall be located closer than twenty-five (25) feet to the ultimate right-of-way line of Route 202 or other intersecting road located within the CAMO District.

Section 09: Application Requirements for Those Uses Permitted by Special Exception. An applicant proposing to locate a use or uses specified in Section 06 of this Article within the CAMO District shall submit the following additional information to the Zoning Hearing Board to accompany an application for a special exception.

09.1 A plan or plans delineating the necessary information to be shown on a preliminary plan in accordance with the pertinent requirements of the Township's Subdivision and Land Development Ordinance.

09.2 A written statement, in accordance with the requirements of Section 10 of this Article, justifying the need for the requested special exception(s).

09.3 A Landscaping Plan in accordance with the requirements of Section 13 of this Article; or

09.4 A plan showing those existing natural features, vegetation and topography, where pertinent, to justify a full or partial modification of the landscaping requirements of Section 13 of this Article.

Section 10: Justification Statement for Special Exception Use(s). An application for a special exception shall be accompanied by a written statement justifying the requested modifications from the requirements of this Article, the materials required by Section 13 of the Article, as well as any pertinent supplementary materials. The narrative description shall contain, as a minimum, the following information:

10.1 The relationship of the proposed actions(s) to the Declaration of Legislative Intent of this Article.

10.2 A general description and map of the proposed action(s), including any proposed modifications from the standards of this Article.

10.3 A description and map of the existing natural features, vegetation, and topography of the site and their relationship to the proposed action(s).

10.4 A general description of the alternatives considered by the applicant, prior to requesting the proposed course(s) of action and proposed modification(s).

Section 11: Procedures for Consideration of a Special Exception. The Zoning Hearing Board, in reviewing an application for a special exception, shall review the plan, justification statement and other materials submitted by the applicant. Furthermore, the Zoning Hearing Board shall:

11.1 Notify the Township and County planning commissions at least thirty (30) days prior to the hearing on the application, who may, at their discretion, become a party to the matter in question.

11.2 Notify the Harrisburg and District 6-0 offices of the Pennsylvania Department of Transportation at least thirty (30) days prior to the hearing on the application, who may, at their discretion, become a party to the matter in question.

11.3 Notify the Township Engineer at least thirty (30) days prior to the hearing on the application, who may, at the direction of the Board of Supervisors, submit his advisory opinion on the matter in question to the Board of Supervisors.

11.4 In addition to the guidelines specified in Section 12 of the Article, have the discretion to impose special measures or conditions, as deemed reasonably necessary and appropriate, to ensure that approval of a special exception will be consistent, to the maximum extent feasible, with the Declaration of Legislative Intent of this Article.

Section 12: Guidelines for Approval of Uses by Special Exception. In considering an application for a special exception, the Zoning Hearing Board shall use the following guidelines, as minimums:

12.1 The consistency of the proposed special exception with the Declaration of Legislative Intent of this Article.

12.2 The relationship of the proposed special exception to the possible functional effects on existing and proposed traffic flow, the number and location of curb cuts, and visual character of Route 202 and any intersecting roads located within the boundaries of the CAMO District.

12.3 The relationship of the proposed special exception to the existing topography, vegetation and other natural features, as well as the degree to which the applicant has incorporated such features in the overall development plan.

12.4 The degree to which the applicant's proposed mitigating actions, in accordance with the guidelines specified in Section 13 of this Article, will minimize visual intrusions, traffic flow disruptions and the number and spacing of curb cuts along Route 202 or intersecting road(s) located in the CAMO District.

Section 13: Guidelines for Mitigating Actions Within the Corridor Access Management Overlay District. The following mitigating actions shall be incorporated with the site development plan for a use proposed to be located within the CAMO District in order to minimize visual intrusions, traffic flow disruptions and the number and spacing of curb cuts along Route 202 or intersecting road(s) located in the CAMO District. These actions may be separate from or in combination with existing natural features, vegetation or topography on the site in question. However, applicants are encouraged to incorporate existing site features as part of any necessary mitigating actions, wherever such an approach is feasible, in order to retain the natural character of the landscape.

13.1 Landscaped Areas. The applicant shall submit a landscape plan with the application, showing all pertinent information, including the existing or proposed topography and the location, size and specie of those individual trees and shrubs to be preserved or planted, or alternatively, the general characteristics of existing vegetation masses which are to be preserved.

a. Planted Areas. Along the right-of-way of Route 202 and the intersecting roads located within the CAMO District the applicant shall provide a single row of deciduous trees, at least eight (8) feet in height when planted and at least twenty (20) feet in height at maturity, with a spacing of not more than forty (40) feet on-center, wherever necessary for adequate sight distance.

b. Mounding. Mounding is encouraged as a means of reducing visual encroachment along Route 202 or intersecting roads within the CAMO District, provided that such mounding shall not exceed a slope of three to one (3:1), or interfere with sight lines.

c. Shrubs and Grass. Coniferous and deciduous shrubs and grass shall be provided, as needed, to complete the landscaped area. The width of such area measured from the ultimate right-of-way line shall not be less than fifteen (15) feet.

d. Buffer Maintenance. All vegetation shall be permanently maintained and, in the event of death or other destruction, shall be replaced within one (1) year by the persons responsible for maintenance at the time death or destruction occurred.

e. Architecture and Site Design. The applicant may demonstrate, through the submission of pertinent plans, renderings or models, that the development of the proposed structures(s), building(s), parking area(s) or sign(s) will be

accomplished in a manner that will be compatible with Route 202 corridor and its surroundings and that will minimize the visual effects on both highway users and the users of the proposed development.

13.2 Traffic Flow and Access Study. For any non-residential use and for any residential use involving more than five (5) dwelling units, the applicant shall prepare a traffic flow and access study, unless the Township Engineer, with the concurring opinion of the Pennsylvania Department of Transportation, District 6-0, shall determine that such a study is not warranted based upon the submitted plan and proposed development. The study shall describe and map the present and projected traffic flow patterns both with and without the proposed development, based upon existing and 20-year projected traffic counts from the Pennsylvania Department of Transportation, the Delaware Valley Regional Planning Commission or the applicant's traffic engineer. Particular attention shall be placed upon the relationships of the proposed accessways to Route 202 or other intersecting roads located within the CAMO District. The source(s) for all traffic flow data, turning movements and projections shall be clearly labeled in the submitted study. The study shall include the rationale for the accessway(s) chosen as well as any alternatives rejected by the applicant.

13.2 Driveway Spacing. Driveways should be spaced a minimum of two hundred (200) feet apart or shared with an adjacent property, unless rigid adherence to this standard is determined to be either impractical or infeasible, upon the written request of their applicant with the concurrence of the Township Engineer. The minimum distance of fifty (50) feet shall be provided between an access driveway and the intersection of a public road with Route 202. However, any such minimum corner clearance accessways shall be restricted through their design to right turns in and out.

13.3 Sight Distance. Adequate sight distance shall be provided at every accessway and intersecting road, upon review and determination by the Township Engineer.

13.4 Other Traffic Flow Improvements. The applicant is encouraged to submit related traffic flow improvement proposals in conjunction with the Traffic Flow and Access Study required in subsection 13.2. Acceleration/deceleration lanes, traffic signalization, marginal access roads and curbing or stacking lanes are examples of low capital intensive improvements which would facilitate traffic flow in conjunction with new development. Any such proposed improvements shall be reviewed and approved by the Township Engineer, with the advice of Pennsylvania Department of Transportation District 6-0 staff, except on state maintained roads, where final approval shall be obtained from the Pennsylvania Department of Transportation.

Section 14: Uses or Structures Rendered Non-Conforming by the Adoption of this Article. Following the adoption of this Article, any use or structure which is situated within the boundaries of the CAMO District and which does not conform to the permitted uses specified in Section 05, herein, shall become a non-conforming use or structure, regardless of its conformance with the requirements of the District(s) in which it is located without consideration of this Article.

14.1 The expansion or continuance of a non-conforming use or structure which is non-conforming with respect to the other District(s) in which it is located without consideration of this Article, shall be governed by the requirements of Article ---, Section --- of this Ordinance. However, the Zoning Hearing Board shall ensure that the standards contained in Section 12, herein, are applied to the expansion or continuance of said non-conforming use or structure.

14.2 The expansion or continuance of a non-conforming use or structure which is rendered non-conforming due to the adoption of this Article shall be governed by the standards contained in Section 09, herein. The Zoning Hearing Board shall ensure that these standards are enforced with respect to said non-conforming use or structure.

Section 15: Appeals. A property owner of a lot of record, as of the date of enactment of this Article, who contends that the strict enforcement of this Article would create undue hardship, by denying a reasonable use of an existing lot situated wholly or partially within the CAMO District, or who contends that the Zoning Officer's interpretation of the effects or boundaries of the CAMO District on said lot are incorrect, may seek relief by applying for a variance from the Zoning Hearing Board.

15.1 The Zoning Hearing Board, after deciding upon the merits of the appeal, may permit the applicant to make some reasonable use of the property in question, while ensuring that such use will not violate the Declaration of Legislative Intent of this Article.

15.2 Any use(s) permitted by variance shall represent the minimum relief possible to overcome the proven hardship, and the location of said use(s) within the CAMO District shall be conditioned upon the incorporation of pertinent mitigating activities, as set forth in Section 13 of this Article, in order to minimize the effects of encroachment along Route 202.

APPENDIX C

TRANSIT ORIENTED DEVELOPMENT (TOD) DISTRICT – SAMPLE ORDINANCE

Section 00: Declaration of Legislative Intent. In expansion of the Declaration of Legislative Intent and Statement of Community Development Objectives contained in Article I, Section 101 of this Ordinance and in furtherance of the goals and policies of the adopted comprehensive plan, it is hereby declared to be the intent of this Article with respect to the TOD – Transit Oriented Development District to:

00.1 Encourage the development of land within and adjacent to planned transit service stops, corridors, and station areas for a variety of higher density and intensity, individual and mixed uses, so that these uses can serve to support a more transit-oriented development pattern at selected locations along the Route 202 corridor.

00.2 Encourage increased public transit ridership as an alternative to total reliance on the automobile for a variety of trip purposes.

00.3 Reduce traffic congestion and potential safety problems along the Route 202 corridor and at intersecting roads along the corridor.

00.4 Promote more compact development patterns and mixed uses to reduce unnecessary vehicular trips and to promote a more pedestrian-oriented scale of development.

00.5 Promote greater community identity among the growing municipalities along the Route 202 corridor.

00.6 Provide development incentives for those plans which include design features, support facilities, and/or amenities that reinforce implementation of the TOD District's goals and its relationship to the surrounding community.

Section 01: Establishment of District Boundaries. To implement the statement of intent defined in Section 00, the following criteria shall be used to establish the boundaries of the TOD District, as an overlay of existing zoning districts:

01.1 Bus Stop TOD: Where applicable, for an existing or proposed bus stop location along or adjacent to the Route 202 corridor, the TOD District boundaries shall include the stop location; any ancillary facilities; and those contiguous tracts of land within a one-quarter (1/4) mile radius (1,320 feet) of the bus stop location.

01.2 Bus Stop Corridor: Where two or more Bus Stop TOD's occur in a concentrated pattern along an arterial highway corridor, the Township may elect to establish a Bus Stop Corridor. The boundaries of the corridor shall include the boundaries of the individual Bus Stop TOD's and connecting lines between each Bus Stop TOD, parallel to each side of the arterial highway for a distance of one-quarter (1/4) mile (660 feet), yielding a corridor one-half (1/2) mile wide (2,640 feet).

01.3 Rail Station TOD: Where applicable, for an existing or proposed rail station area, the TOD District boundaries shall include the station site; all parking areas, accessways and

related ancillary facilities; and those contiguous tracts of land located within a one-quarter (1/4) mile radius (1,320 feet) of the station site.

01.4 A Rail Station TOD, Bus Stop Corridor and/or Bus Stop TOD may be combined into a single area at the discretion of the Township. The separate bus and rail standards of the District shall apply within the different components of the overall area created.

01.5 Where a tract of land held in single ownership is divided by the application of the overlay criteria described in subsections 01.1 and 01.2, only that portion within the overlay area shall be eligible for the incentives provided by the TOD District.

Section 02: Development Plan Modifications and Flexibility. It is the intent of the TOD District to provide for flexibility in the review and execution of the proposed subdivision and land development plans in order to accomplish the overall intent of the TOD District in the most expeditious manner possible. The Township, following the review and comments of the Township planning commission and the advisory review of the Delaware County Planning Department or Chester County Planning Commission, will work closely with the applicant to implement the proposed TOD development. Should waivers or modifications from the strict interpretation of the area, bulk and dimensional requirements of this Article and/or those of the underlying zoning district(s) be necessary or desirable to achieve the intent of the TOD District, the following procedure shall be followed:

02.1 Any such waivers or modifications shall be specifically shown and/or noted on the proposed development plan and in any accompanying documentation submitted with the proposed development plan.

02.2 The applicant shall specifically request the waivers and/or modifications sought in a letter to the Township, citing the benefits gained in terms of better meeting the specific intent of the TOD District, and any mitigation efforts to overcome or minimize possible impacts resulting from implementation of the requested waivers and/or modifications.

02.3 The Township shall act on the disposition of the request for waivers and/or modifications in conjunction with the approval or disapproval of the overall development plan for the proposed development.

02.4 Notwithstanding this procedural approach, an applicant may also seek relief from the Zoning Hearing Board from either a decision of the governing body or any provision of the TOD District.

Section 03: Permitted Uses. The permitted uses in the TOD District shall be as follows:

03.1 Those uses in the underlying zoning district(s) which are not inconsistent with the overall declaration of intent of this Article.

03.2 The following uses, by right, as pertinent to the Rail Station, Bus Stop and Bus Stop Corridor components of the overall TOD District:

a. Bus stop location, including a bus pull-off area, pad, shelter, surface or structured parking areas and similar uses.

b. Rail station and supporting facilities, including surface or structured parking areas, taxi stand, bus shelter and similar uses.

c. Single-family detached dwellings in only the Rail Station TOD and only through a cluster development plan with shared accessways to Route 202.

d. Attached dwelling units, in any configuration, not to exceed eight (8) units in a row.

e. Multifamily dwellings in a low-rise or mid-rise configuration, not to exceed six (6) stories in height for mid-rise developments.

f. Day care facilities, post office, information centers and similar facilities and uses.

g. Retail and office uses which are oriented to personal services and professional activities.

h. Financial institutions, medical/dental office and educational institution.

i. Telecommuting center and similar computer or communications technology facility, excluding transmission tower and relay stations.

j. High employment density office facilities, not to exceed four (4) stories in height.

k. Shopping centers, office parks and similar, mixed use concentrations of the above permitted uses in accordance with an overall development plan.

l. Active or passive recreational areas, including bicycle or hiking trail.

m. Any use or uses of the same general character as the above permitted uses, in accordance with an overall development plan.

n. Accessory uses located on the same tract with and customarily incidental to any permitted or conditional use as specified herein.

03.3 Prohibited Uses. The following uses are not permitted within the TOD District, regardless of the requirements of the underlying zoning district(s):

a. Single family detached dwellings in the Bus Stop or Bus Corridor TOD's only.

b. Low employment density uses, such as warehouses, truck distribution centers, research laboratories and similar uses.

c. Free-standing indoor recreation uses, entertainment centers and restaurants, when not developed in conjunction with a mixed use development project.

d. Hotel or motel, when not developed in conjunction with a mixed use development project.

03.4 Conditional Uses. The following conditional uses, when authorized by the Township following a review and recommendations by the Township planning commission and by the Delaware County Planning Department or Chester County Planning Commission.

a. Housing for the elderly, retirement community, or assisted living arrangement, especially if developed on a small scale.

b. Gasoline station and auto service center, including auto repair service.

c. Mixed use development involving an indoor recreation use, entertainment center, restaurant or hotel/motel, especially if developed on a small scale.

d. Any other use which does not qualify as a permitted use, but which can be demonstrated to further the overall declaration and intent of the TOD District.

Section 04: Development Requirements. In the TOD District the following development regulations shall apply:

04.1 Development Prerequisites. The following general development prerequisites must be met by any applicant desiring to develop land within a TOD District:

a. Ownership. The tract of land to be developed shall be in one ownership, or shall be the subject of an application filed jointly by the owners of the entire tract. It shall be agreed that the tract will be developed under single direction in accordance with an approved plan. Development of the tract shall commence in earnest within thirty-six (36) months of approval under this Article or the development requirement required in subsection 04.1d, herein, granted pursuant to said approval, shall be rendered void. Transfer of ownerships, except by mortgage, prior to the commencement of construction, shall necessitate the re-execution of the agreement between the new owners and the Township.

b. Sewer and Water Facilities. The tract of land shall be served by public sewer and centralized water facilities deemed acceptable by the Township, upon recommendation of the Township engineer.

c. Development Plan. The application for development shall be accompanied by a plan, or plans, showing the detailed use of each area in the entire tract, which plan or plans shall comply with all pertinent requirements of the Township Subdivision and Land Development Ordinance and other applicable ordinances.

d. Development Agreement. The development of a tract carried out in either a single phase or in stages, shall be executed in accordance with a development agreement. The owner, developer and the Township shall enter into said agreement embodying all details regarding compliance with this article to assure the binding nature thereof to the overall tract and its development, which agreement shall be recorded with the final development plan.

04.2 Development Regulations. In the TOD District the following development regulations shall apply, regardless of the regulations of the underlying zoning district(s):

a. Density. The following densities shall apply:

(1) The maximum permitted density in a Bus Stop TOD or Bus Stop Corridor shall not exceed eighteen (18) dwelling units per acre. The minimum density in a Bus Stop TOD or Bus Stop Corridor shall be no less than ten (10) dwelling units per acre.

(2) The maximum permitted density in a Rail Station TOD shall not exceed eighteen (18) dwelling units per acre. The minimum density in a Rail Station TOD shall be no less than ten (10) dwelling units per acre.

(3) All tract sizes and density calculations shall exclude rights-of-way of existing public roads.

(4) The maximum permitted floor area for any non-residential use in the TOD District shall be equal to the maximum permitted for the individual uses, as defined elsewhere in the Township Zoning Ordinance, or in the underlying zoning district(s), whichever is applicable.

b. Minimum Tract Size. The following minimum tract sizes shall apply:

(1) The minimum tract size for a single use in a Rail Station or Bus Stop TOD or Bus Stop Corridor shall be one (1) acre.

(2) The minimum tract size for a mixed use development, involving two or more of the permitted uses within the same building or multiple buildings on the same site, shall be one (1) acre.

c. Minimum Frontage. The minimum frontage in the TOD District shall be one hundred twenty-five (125) feet, measured along the street line.

d. Minimum Building Setbacks. There shall be no minimum building setbacks in the TOD District, but all development proposals in which buildings are closer than fifty (50) feet from the right-of-way or any adjoining property line shall be subject to design review. Where an agreement between adjoining land owners has been reached in accordance with subsection 4.2L(1)(A) to establish a zero-lot line development plan with shared parking and accessways along a side or rear property line, the adjoining property line setback may be waived by the Township.

e. Building and Development Plan Orientation. In order to interrelate the transit and other uses in the TOD District, the location of buildings shall be appropriately oriented toward the stop or station, transit customer parking areas and pedestrian ways and away from vehicular driveways, loading areas and employee parking areas. Wherever possible, buildings shall be clustered around station facilities to encourage convenience, pedestrian access and to minimize walking distances.

f. Minimum Parking Setback. Parking areas shall be located to the side or rear of the overall property, unless front yard parking is the only feasible alternative. Shared parking and accessways are encouraged whenever possible in a TOD District. No parking area shall be located closer than twenty-five (25) feet to any side or rear property line, unless there is a shared parking agreement with an adjacent landowner as specified in subsection 4.2d and 4.2L(1)(A).

g. Maximum Building Coverage. Building coverage shall not exceed thirty-five percent (35%) of the tract area for a single or mixed residential development and forty-five percent (45%) for a non-residential or mixed use development.

h. Maximum Impervious Coverage. The total paved area of a tract shall not exceed sixty-five percent (65%) for a single or mixed residential development and seventy-five percent (75%) for a non-residential or mixed use development.

i. Maximum Height. The maximum height for residential uses in the TOD District shall be sixty (60) feet or six (6) stories, whichever is lower. The maximum height for non-residential uses shall be forty (40) feet.

j. Minimum Public Space. The total area of the tract devoted to active or passive recreation areas, open space, pedestrian ways, trails and other areas for public use, excluding roads, access driveways and parking areas, shall be a minimum of twenty percent (20%).

k. Highway Access. Every effort shall be made to minimize the number of curb cuts and accessways serving the TOD District. Working closely with PennDOT District 6-0, the Delaware County Planning Department or the Chester County Planning Commission, and the Township engineer, the developer's access and circulation plan shall be reviewed and coordinated with existing and pending development within or adjacent to the TOD District, and provide for safe bus pulloff areas, where applicable.

L. Parking. For proposed developments in the TOD District, including transit customer parking, the following standards shall apply:

(1) For proposed developments not involving transit customer parking, the standards shall be those contained in the Township Zoning Ordinance and other pertinent ordinances, except as follows:

(A) Shared Parking. Arrangements between two or more property owners along a common lot line are encouraged. Development plans involving a shared parking arrangement shall show the parking layout, shared accessways and internal circulation pattern. Approval of a shared parking arrangement is subject to review by the Township planning commission and Township engineer.

(B) Parking Reserve Area. Within the TOD District a developer may construct up to seventy-five percent (75%) of the required parking spaces initially, while preserving the balance of the area usually required for parking in planted and landscaped green space. Within one (1) year from the completion of the project, the Township engineer shall certify whether or not the unbuilt spaces are needed. Should some or all of the spaces be required, the developer shall install such spaces within six (6) months. Should such spaces not be required, the reserved area shall remain as green space.

(2) For transit customer parking, the standards shall be the following: (1) A standard perpendicular (90 degrees) parking stall shall be eight and one half (8.5) by seventeen (17) feet with an accompanying twenty (20) foot standard aisle for two way traffic circulation, and be part of a fifty-four (54) foot parking module. Major access aisles shall be no more than twenty-four (24) feet wide and sufficient end of row turning radii shall be provided for bus and emergency vehicle maneuvering and shall be in accordance with the recommended standards of

the Township. An angled parking stall and aisle combination shall be as shown below:

Angle	Vehicle Projection (ft.)	Aisle Width (ft.)	Stall Width (ft.)
Forty-five (45) degrees	Eighteen (18)	Thirteen and one half (13.5)	Eight and one half (8.5)
Sixty (60) degrees	Nineteen and one half (19.5)	Eighteen (18)	Eight and one half (8.5)
Seventy (70) degrees	Nineteen (19)	Twenty-five (25)	Eight and one half (8.5)

(A) Handicap spaces shall be eight (8) feet by seventeen (17) feet with a five (5) foot access aisle. In cases where two or more handicap stalls adjoin, a five (5) foot shared aisle shall be used. Handicap stalls with all related accommodations shall be constructed and designated in accordance with the Uniform Federal Accessibility Standards, or applicable State or Township laws or regulations.

(B) Entrances and exits shall be designed and located in accordance with Township, Pennsylvania Department of Transportation and AASHTO standards. Single directional entrances and/or exits shall be no less than twelve (12) feet wide. Combined entrances and exits shall be no less than twenty-four (24) feet wide.

(C) Parking surfaces and approaches shall be paved with concrete, asphalt, or any dust-free, approved highway surface material and installed in accordance with American Concrete Institute Standards for concrete pavement and Asphalt Institute Standards for asphalt pavement. The surface shall be graded properly to insure proper drainage in accordance with Township standards. Pervious parking surfaces may be permitted in areas prone to flooding with the review and approval of the Township engineer.

m. Storm Drainage. Drainage design and stormwater management practices shall be in accordance with the applicable Townships ordinances and state law.

n. Lighting. Light fixtures shall be mounted on a minimum twenty-five (25) foot pole or a maximum thirty (30) foot pole and directed downward with no filaments exposed. The poles and fixtures shall be placed to achieve a minimum average illumination of two (2) foot candles. The lighting shall be configured to minimize the glare on adjacent properties.

o. Pedestrian Ways. Pedestrian sidewalks and walkways shall be provided, where necessary, to insure pedestrian safety. These walkways shall be of a five (5) foot maximum width, protected from vehicle overhang and movement by wheel stops, striping or other methods. Every effort should be made to provide a direct connection to the station/stop from the proposed development and to coordinate accessways and pedestrian paths with existing and planned pedestrian/bicycle facilities serving a broader area.

p. Signage. Signs shall be permitted as follows:

(1) On site directional arrows and traffic signs shall be provided as necessary for traffic control and shall be in accordance with PennDOT Pub 203 requirements.

(2) Each parking stall may be signed with freestanding signs for revenue collection purposes. Regulatory and identification signs shall be in accordance with Southeastern Pennsylvania Transportation Authority (SEPTA) Graphic Standards and the Pennsylvania Motor Vehicle Code.

q. Landscaping. Transit customer parking lots shall be landscaped with trees and shrubs to reduce the visual impact of glare and headlights, to delineate all driving lanes and to distinguish rows of parking, in accordance with pertinent Township standards and requirements.

(1) A ten (10) foot landscaped buffer area shall be provided between the parking lot, adjacent developed properties and street lines, except for adjoining residential zones, in which case a fifteen (15) foot landscaped buffer area shall be provided.

(2) Planters shall be used to separate access aisles and parking stalls. All end of row planters shall be a minimum of eight and one half (8.5) feet wide and a maximum of ten (10) feet wide. The depth of said planters shall be no less than seventeen (17) and no more than thirty-four (34) feet wide. Planters shall be underlain by soil, protected by curbing and contain one shade tree plus shrubs and/or groundcover to cover the entire surface area.

(3) Plantings shall be of a slow growth, low maintenance nature comprised primarily of shade trees, evergreens, shrubs and grasses, and be of appropriate caliper, density, and variety.

(4) The placement of light standards shall be coordinated with the plantings to avoid a conflict with the operation of light fixtures.

r. Other Development Standards. Any other development standards of the Township not specifically noted in the TOD District shall remain in effect and shall apply to the development of any land within or adjacent to the TOD District.

04.3 Development Initiatives. Proposed developments which provide rail or transit facilities, transit customer parking areas, bus pull-offs, pedestrian paths to a station or stop, shelters, bicycle lockers and racks, amenities and related services or facilities may be entitled to a development incentive of up to ten percent (10%) additional density or up to ten percent (10%) additional floor area above that permitted in the TOD District. The proposed transit-oriented amenities shall be specified in writing at the time of development approval, shown on the development plan and incorporated in the development agreement specified in Subsection 04.1d.

The adequacy and appropriateness of the proposed transit-oriented amenities shall be reviewed by the Township planning commission in conjunction with the staff of the Delaware County Planning Department or Chester County Planning Commission, representatives from SEPTA and the Delaware County Transportation Management Association (TMA). The outcome of the joint review shall be conveyed to the Township, prior to a decision on the overall development plan. The Township may approve the proposed development with the proposed transit incentives, without the proposed

incentives, or with modifications, including a commensurate reduction in the density or floor area additionally proposed by the applicant.

APPENDIX D

OFFICIAL MAP OF CONCORD TOWNSHIP – SAMPLE ORDINANCE

WHEREAS, the Township of Concord is a second class township of the Commonwealth of Pennsylvania; and

WHEREAS, Article IV of the Pennsylvania Municipalities Planning Code (Act 247 of 1968, as amended by Act 170 of 1988), grants Pennsylvania municipalities the power to adopt an official map for a portion of the municipality insofar as it is based on an adopted comprehensive plan; and

WHEREAS, the official map may include but is not limited to existing and proposed public street widenings, narrowings, openings and closings; existing and proposed public parks and open space reservations; and pedestrian ways and easements; and

WHEREAS, Painters Crossroads, located at the intersection of U.S. Routes 1 and 202 in Concord and Chadds Ford townships, Delaware County, Pennsylvania, has been identified as an area where adoption of an official map would facilitate upgrading and constructing portions of the Painters Crossroads' ring road which will provide access to developed sites and minimize the impact of local traffic on the arterial system; and

WHEREAS, the ring road concept is consistent with the Township's comprehensive plan; and

WHEREAS, the Board of Supervisors of Concord Township have reviewed the official map and desire to adopt same as the Official Map of the Township of Concord.

NOW, THEREFORE, be it ordained and enacted as follows:

1. The Township hereby adopts as the Official Map of the Township of Concord, Delaware County, Pennsylvania, the Official Map of Painters Crossroads prepared by the Delaware Valley Regional Planning Commission dated June, 1991 and all attachments.

2. Concord Township's official map of Painters Crossroads will include all roadways, properties and proposed roadways in the vicinity of Painters Crossroads in Concord Township, Delaware County.

3. The properties dedicated as proposed Township property shall be reserved for future taking or acquisition for public use in perpetuity until actually acquired by the Township.

4. The Township may initiate surveys of property locations for the purposes of taking action.

5. Whenever lands and easements are to be acquired pursuant to the official map, boundary descriptions by metes and bounds descriptions shall be made by a licensed surveyor.

6. The Township directs that under adoption of the ordinance, a copy of the Official Map of Painters Crossroads, verified by the Board of Supervisors, shall be submitted to the Recorder of Deeds of the County of Delaware to be recorded within sixty (60) days of the effective date hereof.

7. This Ordinance shall become effective in accordance with the provisions of the Second Class Township Code of the Commonwealth of Pennsylvania.

APPENDIX E

STUDY PARTICIPANTS

Name	Organization
Tom Shaffer, Manager, Transportation Planning	Delaware County Planning Department
Michael Farrell, Transportation Planning	Delaware County Planning Department
Eugene Briggs, Policy Planning	Delaware County Planning Department
Lee Whitmore, Section Chief, Transportation and Information	Chester County Planning Commission
Richard Craig	West Goshen Township
Sharon Lynn	West Goshen Township
Michael Cotter	Westtown Township
Don Verdiani	Westtown Township
Joe Napoletano	Birmingham Township
Barbara Iacovelli	Thornbury Township (Chester County)
Karen Mulligan	Thornbury Township (Chester County)
John Cornell	Concord Township
Robert Mench	Concord Township
Steve Miller	Concord Township
Harvey Kliman	Chadds Ford Township
Tim O'Brien, Project Management	PennDOT, District 6-0
Elaine Elbich, Project Manager	PennDOT, District 6-0
Brian Vitulli	SEPTA
Matthew Marquardt	Urban Engineers, Inc.
Al Federico	Pennoni Associates
Richard Bickel, Deputy Director, Regional Planning	Delaware Valley Regional Planning Commission
Robert Dean, Regional Planning	Delaware Valley Regional Planning Commission
Jeffrey Butler, Regional Planning	Delaware Valley Regional Planning Commission

Title of Report: **Route 202 Section 100 Land Use Strategies Study**

Publication No.: **01024**

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Geographic Area Covered: Birmingham, Thornbury, West Goshen, and Westtown townships, in Chester County; Bethel, Chadds Ford, Concord, and Thornbury townships, in Delaware County.

Key Words: land use, transportation, planning implementation tools, access management, bicycle and pedestrian planning, multi-municipal planning.

ABSTRACT

This report recommends local land use strategies to correspond with the proposed widening of U.S. Route 202, Section 100, by the Pennsylvania Department of Transportation. It encourages multi-municipal planning among the townships along the corridor, linking transportation and land use planning, and managing access to Route 202. The report recommends strategies for specific corridor municipalities, identifies and describes planning tools to implement these strategies, and provides some sample ordinances for local adoption.

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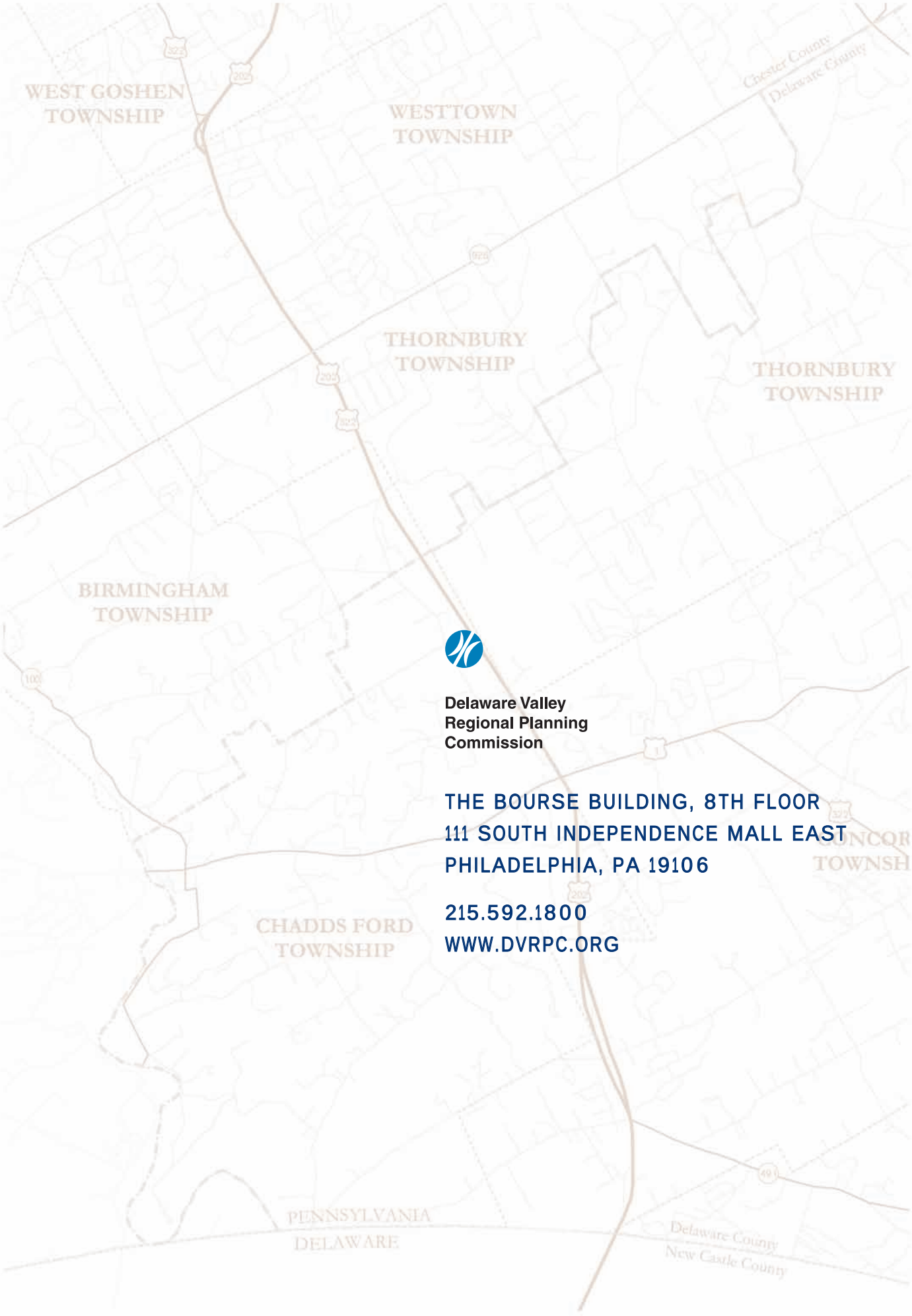

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