# NJ 73 *Corridor Study*





DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

**MAY 2010**

The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region—leading the way to a better future.

The symbol in 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.

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# Executive Summary

Improving the linkage between land use and transportation is essential for the future of the NJ 73 corridor in Burlington and Camden Counties. Inappropriate land uses coupled with inadequate transportation access can have negative impacts on the entire road network and quality of life for the residents, businesses, and users of the corridor. This study addresses land use and transportation impacts on the corridor and identifies improvement options.

The study area encompasses all of the municipalities of Berlin Township and Berlin Borough, and parts of the municipalities of Cherry Hill Township, Evesham Township, and Voorhees Township. The New Jersey Department of Transportation (NJDOT) is encouraging municipalities to work cooperatively along key transportation corridors to evaluate and plan for future growth and infrastructure improvements. Working with the stakeholders, who include the Camden County Improvement Authority, the Burlington County Department of Economic Development and Regional Planning, and the corridor municipalities, the Delaware Valley Regional Planning Commission (DVRPC) conducted a thorough analysis of the NJ 73 corridor to assess land use, environmental policies and impacts, and transportation issues. The goals of the study include: preserving the operating performance of the current transportation facilities, promoting multi-modal transportation solutions to help alleviate current and forecasted travel growth, coordinating land use and transportation planning along multi-municipal corridors, determining and providing a policy rationale for future transportation improvements, and encouraging municipal actions to achieve a land use pattern that is reflective of Smart Growth principles.

According to DVRPC estimates, the current population of the study area municipalities is almost 160,000. While the corridor is virtually built-out, population and employment growth will continue within the study area municipalities and the road network along NJ 73 will continue to experience congestion.

The corridor is primarily big-box commercial and retail surrounded by residential neighborhoods of single-family detached and multi-family housing units. Similar to the land use analysis for the corridor, the zoning along the NJ 73 study area can be generalized as commercial zoning surrounded by residential. Many of the commercial zones permit only one type of use and the residential zones support low-medium density housing. The study recommends that commercial uses along NJ 73 should be mixed with residential and office. The zoning codes, where applicable, should be revised to allow for mixed uses within larger commercial sites and residential areas to provide for multiple housing types. Infill development opportunities should be prioritized within the commercial district while the area near Atco station should be rezoned for transit-oriented development (TOD).

The environmental resources along the NJ 73 corridor and adjacent areas were documented and analyzed. One of the most crucial environmental priorities in the NJ 73 study area is the protection and enhancement of the local green infrastructure, the term used to describe an interconnected network of open spaces and natural areas. A green infrastructure system provides important services, including stormwater management, flood risk minimization, air and water quality improvement, temperature regulation, and habitat conservation. Previous and ongoing planning efforts by the Pinelands Commission, NJDEP, DVRPC, and other organizations in the corridor were documented.

The study recommends that communities in the study area ensure that their zoning ordinances and building codes protect against groundwater contamination and that effective enforcement of these provisions be instituted.

Thorough examination of current circulation and mobility was conducted examining access, safety, public transportation, and bicycle and pedestrian infrastructure.

Arterial segments comprising adjacent intersections within the study area were analyzed as single elements due to their close proximity, shared context, and common issues. Each segment was analyzed for a common set of problems, and provided context-sensitive recommendations. Particular effort was given toward accommodation of anticipated future development at the site-specific level, as well as at the sub-corridor level.

Specific intersections were analyzed, such as those that carry substantial volumes of daily traffic, experience elevated crash rates, or provide direct access to major trip generators, such as shopping centers, regional institutions, and transit stations. Utilizing 2009 traffic data, vehicular delay and levels of service were quantified for each of these intersections. Recommendations include improvements to vehicular operations and pedestrian connectivity. The recommended bus transit improvements include installation of bus stop shelters at all corridor bus stops, improving bus headways from Berlin Township, especially in the AM peak, improving crosswalks and sidewalks near bus stops to increase access and safety for bus riders, and exploring the feasibility of park and ride lots at shopping centers along NJ 73.

The corridor is served by two rail lines, NJ Transit's Atlantic City Rail Line, which can be accessed from the Atco rail station in Waterford Township, and PATCO rail line, which, while outside the corridor, can be reached via Route 30 and other significant roadways. The major issues limiting rail transit use in the corridor are the infrequent hourly headways on the Atlantic City Rail Line at the Atco Station and accessibility. In addition, there is difficulty accessing the Atco Station from southbound NJ 73. Transit recommendations included erecting wayfinding signs to direct motorists to the Atco Station, providing access to and from the rail station from both sides of the tracks, and improving the frequency of service to and from Philadelphia and Atlantic City.

An implementation chapter is included that identifies recommended projects, lead agencies, and estimated project cost. A list of possible funding sources is included.

CHAPTER 1

# Introduction

With the support of the Camden County Improvement Authority, Burlington County Office of Economic Development and Regional Planning, and New Jersey Department of Transportation (NJDOT), the DVRPC worked with study area municipalities and pertinent public agencies to assess current transportation facilities, environmental factors, and land use practices along a portion of NJ 73. This study seeks to provide recommendations to help alleviate current and forecasted travel growth, further the goals of coordinated land use, and provide a policy rationale for future transportation improvements. This report recommends reducing congestion and improving mobility and safety in the corridor, with potential breakout projects for the NJDOT pipeline. DVRPC encourages municipalities to work cooperatively along key transportation corridors to evaluate and plan for future growth and infrastructure improvements. The NJ 73 corridor study is intended to accomplish the following:

- Increase the operating performance of current transportation facilities;
- Promote multi-modal transportation solutions;
- Determine future improvement priority areas;
- Support and maintain the overall quality of life; and
- Encourage municipal actions based on recommendations within this study.

## Study Area

The location of the study area is shown in Figure 1. The NJ 73 corridor is approximately eight miles in length and runs from the Winslow Township border to NJ 70 in Evesham Township. To the east, it is bound by Kettle Run Road. To the west, it follows Evesham Road, Copper Road, Centennial Boulevard, and the Gibbsboro and Berlin Borough municipal boundary.

## Previous Studies

Previous efforts preceded this NJ 73 corridor study. In 2000, DVRPC conducted a corridor study of NJ 73 through Burlington and Camden Counties. The boundaries of the study area included the entire roadway from the Tacony Palmyra Bridge to Route 30. DVRPC worked with NJDOT to address issues that affect transportation and mobility along the corridor. The report concluded that 26 intersections needed improvements and identified specific recommendations for each. This NJ 73 corridor study is also compatible with the local comprehensive plans and DVRPC's long-range plan, *Connections – The Regional Plan for a Sustainable Future.* The recommendations within this study are compliant with the New Jersey Municipal Land Use Law (MLUL).

## Planning Process

The NJ 73 corridor study was conducted by DVRPC through fiscal year 2009. A steering committee was formed to help guide the direction of the study. The committee consisted of representatives from the study area municipalities, Camden County, Burlington County, NJ Transit, and New Jersey Department of Transportation (NJDOT). A thorough review of all municipal and county comprehensive plans and zoning was conducted. Steering committee meetings were held throughout the fiscal year to introduce participants to the study tasks.

## Linking Land Use and Transportation

Corridor planning recognizes the linkages between land use and transportation and allows for the creation of integrated, comprehensive plans that cross municipal and county boundaries. Transportation corridors are appropriate planning areas because they provide important connections between local jurisdictions and the region. Corridor plans focus on a multi-modal transportation network, such as highways, transit, bicycles, and pedestrians. Below are several benefits to corridor plans.

- They detail the long-range framework for needed transportation and land use changes;
- Projects occur as part of an overall framework, not in isolation;
- Alternatives to increased vehicle capacity are examined, such as access management, transit, and development patterns; and
- Local jurisdictions are provided with the opportunity to coordinate and collaborate on future improvements.

# Congestion Management Process

The Congestion Management Process (CMP) advances the goals of the DVRPC long-range plan and provides strategies to mitigate congestion throughout the region. Regularly updated, it provides information on transportation system performance and identifies strategies to enhance the mobility of people and goods. In keeping with federal regulations and DVRPC policy, it first seeks to address problems through strategies other than building new Single Occupancy Vehicle (SOV) capacity. Where additions to SOV capacity are appropriate, the CMP includes supplemental strategies to attain the most long-term value from the investment. Projects that add SOV capacity must be consistent with the CMP to be eligible for federal transportation funding.

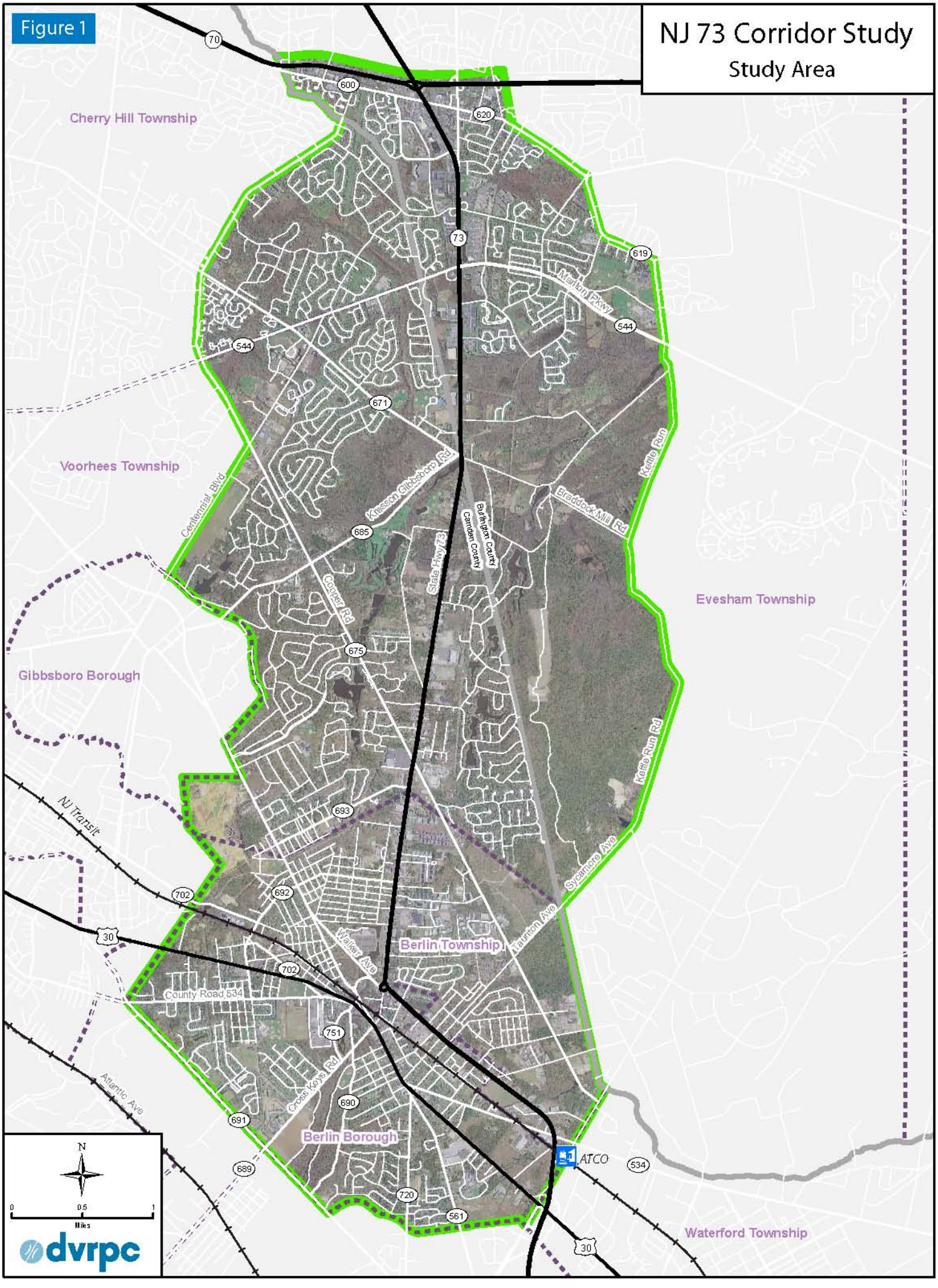
Figure 1
NJ 73 Corridor Study
Study Area
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
ATCO
NJ Transit
Atlantic Ave
County Road 534
Marlton Pkwy
Kresson Gibbsboro Rd
Centennial Blvd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
Walker Ave
Cross Keys Rd
70
600
620
73
619
544
671
685
675
693
692
702
30
751
690
691
689
720
561
534
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## Subcorridor Principles

The CMP identifies a set of congested corridors for the region. Each is divided into subcorridors where, at a regional planning scale, similar strategies are appropriate. With input from the regional CMP Advisory Committee, the CMP has identified a unique set of strategies for each subcorridor. These strategies take into consideration the Transportation Improvement Program (TIP) and other long-range plans or projects, as well as reflect the goals of relevant studies. Thus, the CMP serves as an educational resource for planners, engineers, and others, as it provides a tool to evaluate various means of reducing congestion for as long a term as possible, while being aware of budgetary constraints.

### NJ 73 CMP Corridors

As shown in Figure 2, the NJ 73 corridor extends from the Tacony Palmyra Bridge southward to US 30 in Waterford Township. The NJ 73 corridor has been divided into two subcorridors within the limits of the NJ 73 study area.

#### Tacony-Palmyra Bridge to CR 544

This section of NJ 73 is urban and intersects with I-295, NJ 70, and NJ 38. The corridor and surrounding subcorridors have two or more times the average regional density of households and employment. NJ 73's configuration varies from four to eight lanes through the study area. The land use is commercial, retail, and office, with an infrequent mix of housing units.

Peak period congestion is a common problem at many of the intersections along NJ 73. The primary need is to address mobility and safety issues while retaining the quality of life for local residents. Projects that will be adding SOV capacity in this section of NJ 73 include the NJ 73/70 Marlton Circle Elimination and Fox Meadow Road/Fellowship Road improvements.

#### South of CR 544 to US 30

This section of NJ 73 is less dense than its northern section. Approximately 50 percent of the subcorridor is environmentally sensitive due to its location within the NJ Pinelands Reserve. This subcorridor contains a majority of the NJ 73 study area - Voorhees Township, Berlin Township, Berlin Borough, and Waterford Township. NJ 73 is two lanes in each direction with a grass median from CR 544 to the former Berlin Circle area. South of this area, NJ 73 is three lanes in each direction until Jackson Avenue, where it returns to a four lane cross-section. Shoulders are provided on each side of the roadway. The land use is commercial, retail, and office space. Recent development has brought additional big-box retail stores and the construction of a new Virtua Hospital Medical complex.

Peak period congestion, high crash rates, and access management problems are major issues along this subcorridor. The primary need is to address mobility and safety issues while retaining the quality of life for local residents. The majority of commercial properties have their own driveway access to NJ 73.

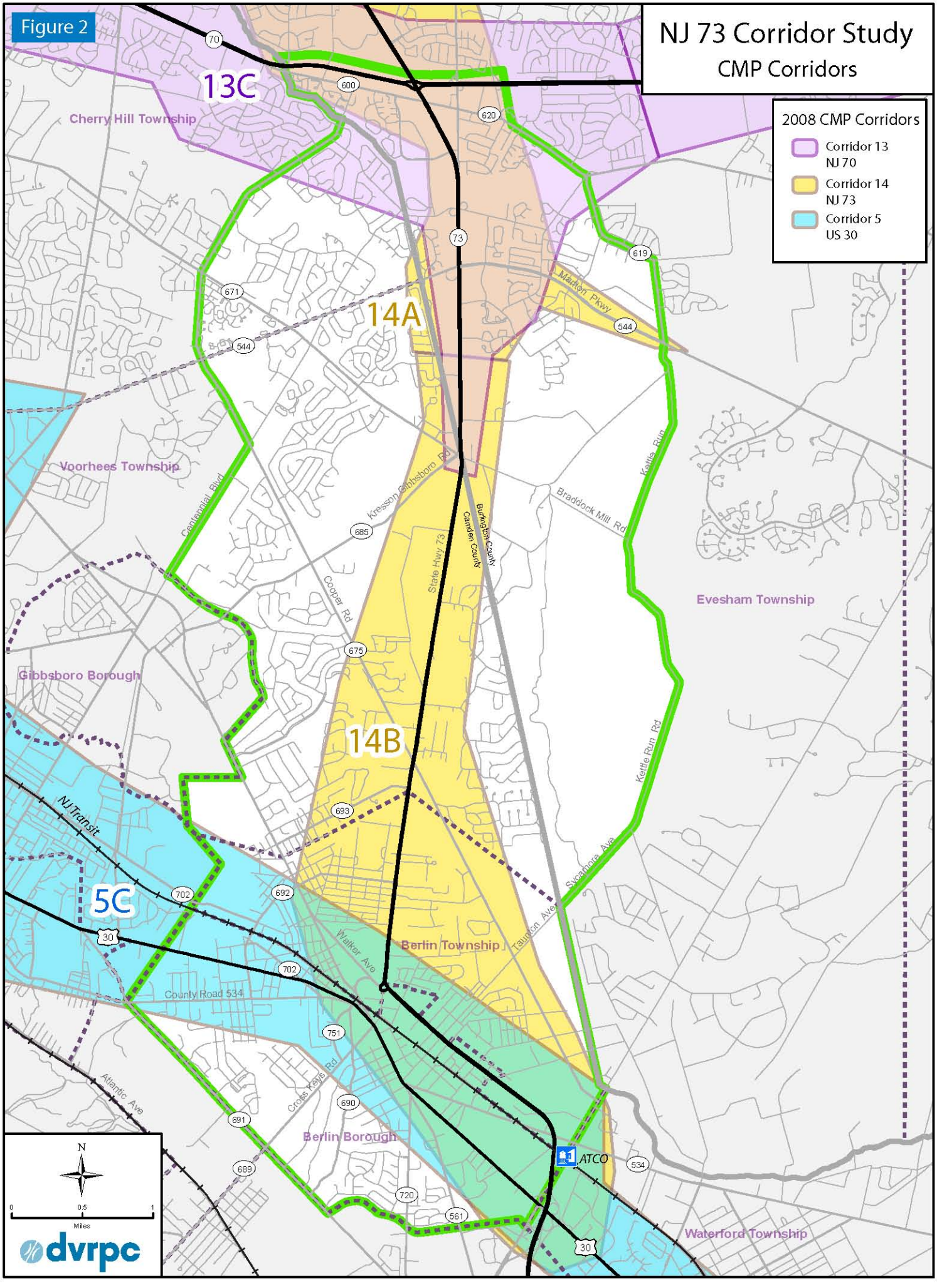
Figure 2
NJ 73 Corridor Study
CMP Corridors
2008 CMP Corridors
Corridor 13
NJ 70
Corridor 14
NJ 73
Corridor 5
US 30
13C
14A
14B
5C
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
Centennial Blvd
Kresson Gibbsboro Rd
Cooper Rd
State Hwy 73
Camden County
Burlington County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Marlton Pkwy
Sycamore Ave
Taunton Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
ATCO
70
600
620
73
619
671
544
685
675
693
702
692
30
751
690
691
689
720
561
534
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CHAPTER 2

# Corridor Demographics

## Population and Employment

According to DVRPC estimates, the current population of the study area municipalities is almost 160,000. While the NJ 73 corridor is virtually built-out, population and employment growth will continue within the study area municipalities. Population and employment are forecast to grow by approximately five percent by the year 2035. Table 1 outlines projected population change from 2005 to 2035, with the largest increase estimated in Evesham Township, and virtually no growth in Cherry Hill Township. Table 2 outlines expected employment change from 2005 to 2035, showing a similar pattern to population with growth expected in Evesham Township (highest) and Cherry Hill Township (lowest).

Table 1: Population Forecasts, 2005-2035

| | Population 2005-2035 | | | Change 2005-2035 | |
|---|---|---|---|---|---|
| | 2005 | 2015 | 2035 | Absolute | Percent |
| Berlin Borough | 7,395 | 7,480 | 7,622 | 227 | 3% |
| Berlin Township | 5,365 | 5,405 | 5,473 | 108 | 2% |
| Cherry Hill Township | 71,474 | 71,528 | 71,619 | 145 | 0% |
| Evesham Township | 46,558 | 48,914 | 52,867 | 6,309 | 14% |
| Voorhees Township | 28,854 | 29,346 | 30,171 | 1,317 | 5% |
| Study Area MCD Total | 159,646 | 162,673 | 167,752 | 8,106 | 5% |
| Burlington County | 446,866 | 482,153 | 541,203 | 94,337 | 21% |
| Camden County | 515,027 | 518,632 | 524,684 | 9,657 | 2% |

Source: DVRPC, Analytical Data Report, 14, August 2007

Table 2: Employment Change, 2005-2035

| | Employment 2005-2035 | | | Change 2005-2035 | |
|---|---|---|---|---|---|
| | 2005 | 2015 | 2035 | Absolute | Percent |
| Berlin Borough | 5,509 | 5,576 | 5,689 | 180 | 3% |
| Berlin Township | 5,399 | 5,533 | 5,810 | 411 | 8% |
| Cherry Hill Township | 48,276 | 48,248 | 48,202 | -74 | 0% |
| Evesham Township | 23,128 | 25,028 | 28,218 | 5,090 | 22% |
| Voorhees Township | 21,562 | 21,956 | 22,619 | 1,057 | 5% |
| Study Area MCD Total | 103,874 | 106,341 | 110,538 | 6,664 | 6% |
| Burlington County | 214,621 | 231,760 | 260,529 | 45,908 | 21% |
| Camden County | 222,721 | 224,200 | 226,682 | 3,961 | 2% |

Source: DVRPC, Analytical Data Report, 14, August 2007

## Employment Centers and Major Employers

Employment centers are integrated, concentrated areas of nonresidential developed land that share transportation and/or land use linkages, have at least 500 employees, and have employment density of at least 0.5 employees per acre.

Based on 2000 employment and land use data, there are 48 employment centers in DVRPC's four New Jersey counties. There are three employment centers within or near the defined study area. One is located in Burlington County and classified as the NJ 73/Evesham Center. The other two are located in Camden County south of the study area and classified as the White Horse Pike/NJ 73 center and the Evesham Road/Voorhees center. Employment centers and major employers are shown in Figure 3.

### NJ 73/Evesham

Located in the northern part of the study area, this center includes segments of Mount Laurel and Evesham townships. There are three major employers in this center: Wiechert South Jersey, Fluor Daniel, and West Jersey Hospital, Marlton. Service and retail are the largest sectors in this employment area, as evidenced by the major shopping centers along NJ 73 and NJ 70.

### NJ 73/White Horse Pike

This center is located in the southern portion of the study area. It includes portions of Voorhees, Berlin, Winslow, and Waterford townships and Berlin and Lindenwold boroughs. This center includes the Atco station. There are two major employers in this center: Virtua West Jersey Hospital in Berlin and the Virtua Health and Rehabilitation Center at Berlin.

### Evesham Road/Voorhees

This center is located to the west of the NJ 73 corridor. It includes portions of Voorhees Township and Gibbsboro Borough. There are three major employers in this center: Alliance Data Systems, American Water Works, and Virtua West Jersey Hospital.

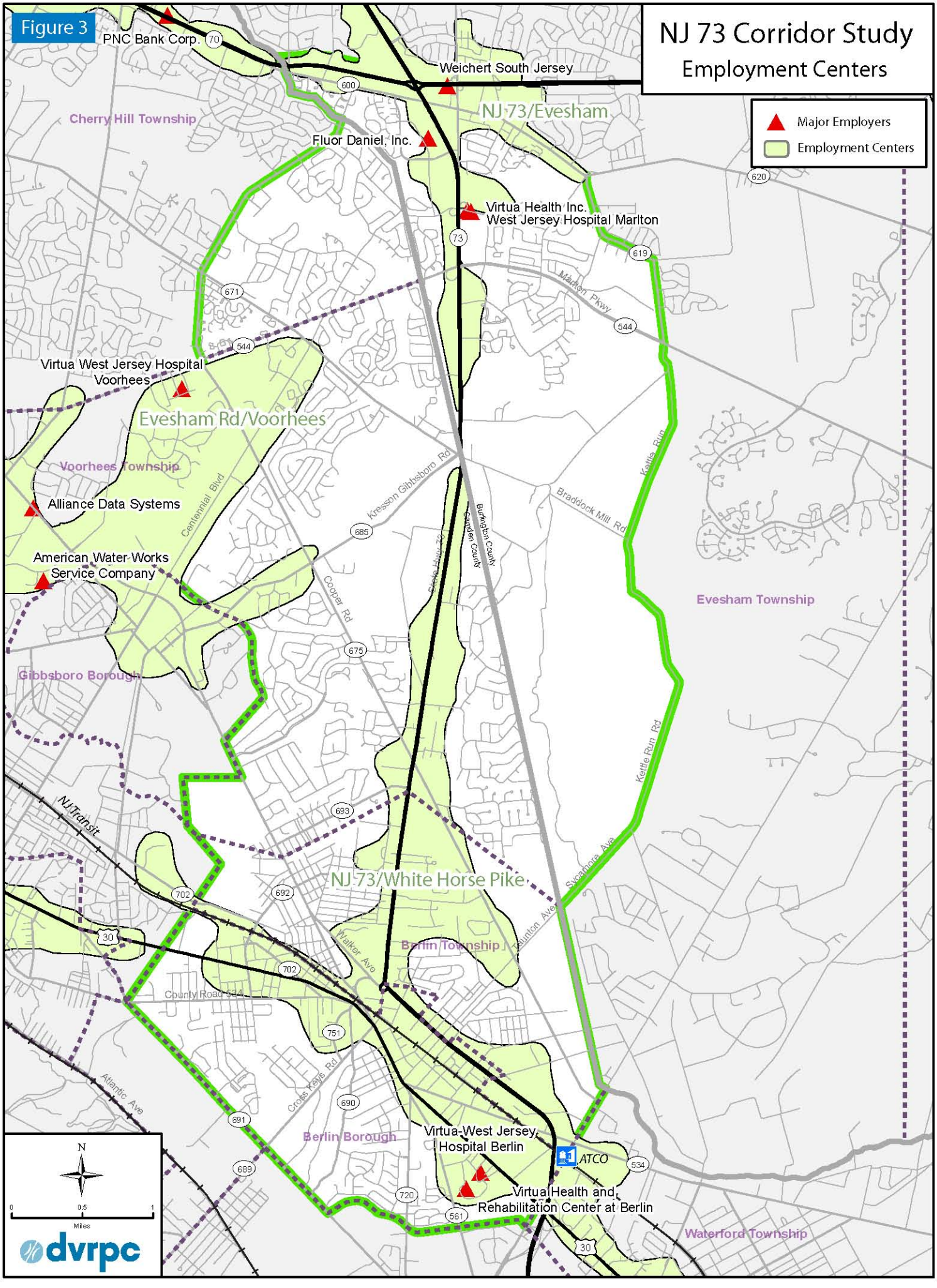
Figure 3
NJ 73 Corridor Study
Employment Centers
Major Employers
Employment Centers
PNC Bank Corp.
Weichert South Jersey
NJ 73/Evesham
Cherry Hill Township
Fluor Daniel, Inc.
Virtua Health Inc.
West Jersey Hospital Marlton
Marlton Pkwy
Virtua West Jersey Hospital
Voorhees
Evesham Rd/Voorhees
Voorhees Township
Centennial Blvd
Alliance Data Systems
American Water Works
Service Company
Kresson Gibbsboro Rd
Cooper Rd
Burlington County
Camden County
Braddock Mill Rd
Kettle Run
Evesham Township
Gibbsboro Borough
NJ Transit
NJ 73/White Horse Pike
Sycamore Ave
Taunton Ave
Walker Ave
Berlin Township
County Road 534
Cross Keys Rd
Atlantic Ave
Berlin Borough
Virtua-West Jersey
Hospital Berlin
ATCO
Virtua Health and
Rehabilitation Center at Berlin
Waterford Township
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## Environmental Justice

As part of Title VI of the Civil Rights Act of 1964 and the 1994 President's Executive Order on Environmental Justice (EJ), DVRPC adopted guidelines to mitigate potential direct and indirect impacts of transportation projects on historically disadvantaged populations. DVRPC employs an environmental justice methodology that quantifies levels of disadvantage within the nine-county region. Using 2000 census tract data, categories of eight potential disadvantaged groups were analyzed. They include female head of household with child, non-Hispanic minority, Hispanic, carless households, poverty level, elderly over 75 years of age, physically disabled, and limited English proficiency. Each category is analyzed for the total concentration in the region, generating a baseline number. If a specific census tract contains a concentration higher than the baseline threshold, it is considered disadvantaged. Census tracts can therefore contain zero to eight degrees of disadvantage (DOD).

The Environmental Justice (EJ) analysis provides an indication for a particular area if there are special populations that must be accounted for with any transportation improvements to the NJ 73 corridor. Table 3 lists the population group by census tract. Fifteen census tracts are wholly or partially located within the NJ 73 study area and are shown in Figure 4. The overall occurrence of degrees of disadvantage along NJ 73 is relatively low: seven census tracts contain one or two DODs and seven census tracts contain zero DODs. Most notable among these results is that there were no carless households identified in the analysis and only one census tract with high concentrations of population over 85. There is only one census tract with a high concentration of elderly located just outside the study area; however, this should be considered when recommending transportation improvements to the area. Elderly populations should be provided for through special transit service or longer pedestrian timed crossings. The highest occurrence of disadvantage is with physically disabled persons. At a minimum, municipalities should ensure that all improvements meet ADA requirements.

Table 3: Environmental Justice

| Census Tract | DOD Population Group |
|---|---|
| 607502 | Elderly over 75 years of age |
| 607503 | Limited English proficiency |
| 607504 | No degrees of disadvantage |
| 607701 | Non-Hispanic population, poverty, physically disabled, Hispanic, limited English |
| 607600 | No degrees of disadvantage |
| 608502 | No degrees of disadvantage |
| 608600 | Poverty, physically disabled, female head of household with child |
| 608700 | No degrees of disadvantage |
| 608800 | Physically disabled |
| 608901 | Physically disabled |
| 704006 | Limited English proficiency |
| 704008 | No degrees of disadvantage |
| 704009 | Female head of household with child |
| 704011 | Physically disabled |
| 704012 | No degrees of disadvantage |

Source: DVRPC 2009

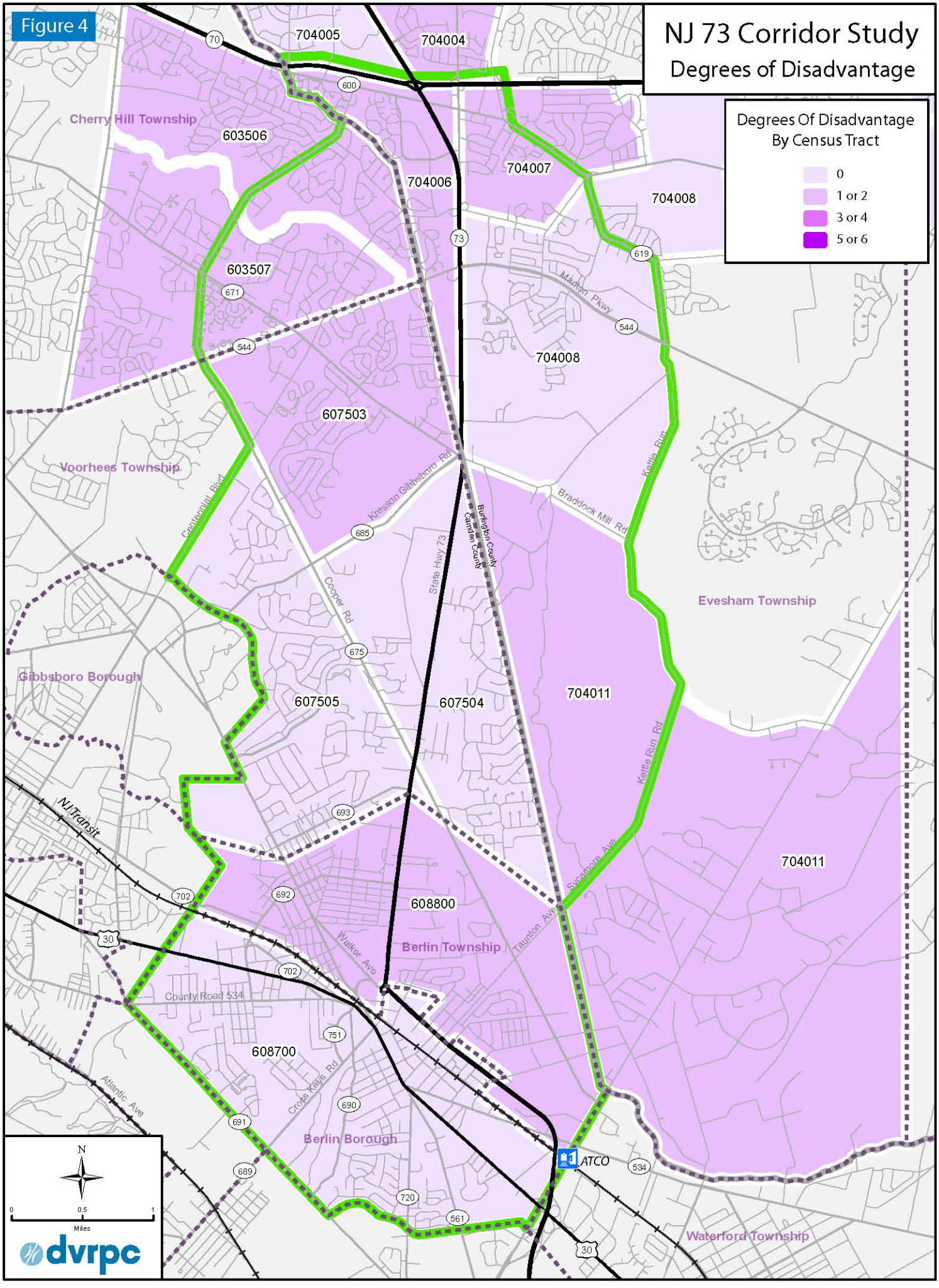
Figure 4
NJ 73 Corridor Study
Degrees of Disadvantage
Degrees Of Disadvantage By Census Tract
0
1 or 2
3 or 4
5 or 6
704005
704004
Cherry Hill Township
603506
704006
704007
704008
603507
704008
607503
Voorhees Township
Centennial Blvd
Kresson Gibbsboro Rd
Burlington County
Camden County
State Hwy 73
Braddock Mill Rd
Kettle Run
Evesham Township
Cooper Rd
Gibbsboro Borough
607505
607504
704011
Kettle Run Rd
NJ Transit
704011
608800
Berlin Township
Walker Ave
Taunton Ave
Sycamore Ave
County Road 534
608700
Cross Keys Rd
Atlantic Ave
Berlin Borough
ATCO
Waterford Township
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CHAPTER 3

# Land Use and Zoning

The municipal comprehensive plan guides the decision-making process for physical and social development of a community. It provides the vision and rationale for the municipal zoning ordinance and guides future growth. Understanding each comprehensive plan and zoning ordinance for the study area communities is critical to ensuring that future transportation and infrastructure improvements are linked to an overall vision that supports each community in the county. In addition to local plans, regional, county, and state plans that pertain to the corridor are also important for consistency. This chapter outlines the development patterns of the NJ 73 corridor.

## Regional Policy

### *Connections – The Regional Plan for a Sustainable Future*

The region's long-range transportation and land use plan, *Connections – The Regional Plan for a Sustainable Future,* was adopted by DVRPC to provide an integrated transportation and land use vision and policies for the region's growth and development. The transportation element of the Plan presents a specific set of transportation policies and strategies to achieve the region's overall vision. *Connections* includes future study projects in which a problem can be anticipated or final project or service improvements have been determined. Two of the key tenets of the future vision are to "support land use goals by transportation decisions" and to "advance economic development through transportation." The Plan seeks to achieve this vision by supporting projects and improvements within the growth areas and centers identified in the Plan. The land use element of the Plan focuses on building a future that responds to the region's identified challenges and leads to the creation of sound communities, a healthy environment, and a stable foundation for economic development and essential infrastructure.

The Plan divides the 353 municipalities of the region into Core Cities, Developed/Mature Communities, Growing Suburbs, and Rural Areas. In addition, specific future growth areas and a hierarchy of seven center types and six metropolitan subcenters are also identified, based on their role and activities within the region. Identified centers are dense, compact, mixed-use areas that often include a central business district, office core, major academic and medical institutions, and major tourist and entertainment destinations. Metropolitan subcenters are identified based on their magnitude of jobs and commercial activities. The NJ 73 corridor includes the Cherry Hill/Mount Laurel/Marlton Metropolitan subcenter.

The NJ 73 study area municipalities are identified as Developed/Mature communities on the *Connections* planning area map. Developed/Mature communities have already experienced most of their population and employment growth. They are often stable and thriving, with affordable housing opportunities for young families, access to transit, bicycle, and pedestrian environments, and a strong community identity. Others, however, are experiencing population and employment losses, have deteriorating infrastructure, aging populations demanding additional services, and declining tax bases. Developed/Mature communities are poised for redevelopment and revitalization that will reinforce their location advantages.

## Camden County Economic Development Strategy Plan

The Camden County Improvement Authority developed a county-wide economic development strategy focusing on resources and needs, goal development, strategies and action plans, and a marketing plan for implementation. The Plan divided Camden County into four subregions. They include: 1) Delaware River Waterfront Region – Pennsauken Township, Camden City, Gloucester City, and Brooklawn Borough; 2) Inner Ring Region – all municipalities surrounding the City of Camden; 3) Growth Region – Cherry Hill Township, Voorhees Township, Gloucester Township, Berlin Borough, and Berlin Township; and 4) Restricted Growth Region – Winslow Township, Waterford Township, and Chesilhurst Borough.

The NJ 73 corridor is generally contained within the Growth Region of Camden County, representing communities that are developed but have land available with few growth restrictions. This subregion is mostly built out, particularly along NJ 73. A majority of the growth in this area has resulted in increased traffic congestion, and highway access has become a priority for the municipalities looking to develop the corridor further with retail and commercial. The Virtua Hospital Development in Voorhees Township is the only major development project within the study area. Construction of this new medical campus on NJ 73 at Dutchtown Road is underway. This new medical complex requires extension of sewer lines and a new pumping station for the project. Because of the construction, additional infrastructure improvements are required for NJ 73, such as new access roads and the expansion of several intersections. This is addressed in Chapter 7.

## New Jersey State Development and Redevelopment Plan (SDRP)

In 1985, the NJ State Legislature adopted the State Planning Act, which called for integrated statewide planning. The State Development and Redevelopment Plan (SDRP) established statewide objectives pertaining to land use, housing, economic development, recreation, redevelopment, preservation, and infrastructure. It focused on the planning process, as well as planning outcomes that support the eight statewide planning goals and overarching policies. Since the SDRP is, only a policy guide for state, regional, and local agencies, facilitating implementation and compliance with all of New Jersey's municipalities is done through a process called cross acceptance. Cross acceptance requires all local municipal plans be reviewed for consistency with the State Development and Redevelopment Plan and map.

The State Plan seeks to promote future development and redevelopment in places where the state is already developed and has adequate infrastructure capacity by integrating two critical concepts—Centers and Planning Areas. The SDRP designates five general planning areas with two sub-planning categories. Planning area designations are intended to encourage where development should occur as well as to guide the character, intensity, and nature of the development. Factors such as existing land uses, infrastructure capacity, geographic location, environmental conditions, and the availability of resources necessary to support growth were considered in establishing these designations. The five planning areas are explained below.

The metropolitan planning area (planning area 1) and the suburban planning area (planning area 2) are targeted for significant redevelopment. These areas are virtually built out and have delineated centers with proper infrastructure to support new growth. The remaining areas fall into four planning areas, the fringe planning area (planning area 3), rural planning area (planning area 4), the environmentally sensitive rural planning area (planning area 4B), and the environmentally sensitive planning area (planning area 5). These areas have

centers surrounded by sensitive environments where growth outside the center is discouraged. Each municipality in the study area provides land use goals and objectives within their Master Plans that meet the intent of the SDRP's planning areas. The study area contains planning areas 1 through 3.

## New Jersey Pinelands Comprehensive Management Plan

Created by Congress in 1978, the Pinelands National Reserve (PNR) is the first National Reserve in the nation and encompasses approximately 1.1 million acres throughout seven counties and all or parts of 56 municipalities in South Jersey. It occupies 22 percent of New Jersey's entire land area and is home to over 700,000 residents. Population densities range from 10 persons per square mile to 4,000 persons per square mile in the more developed communities of the region.

In order to protect and maintain this area, the Pinelands Commission was created to manage and protect the ecological character and value of the Pinelands. Its regulatory document, *The Comprehensive Management Plan*, serves two functions: it is a general guide for local authorities preparing master plans and land use ordinances for certification by the Pinelands Commission and is a planning and regulatory mechanism that can be adopted and certified. The *Pinelands Comprehensive Management Plan* and Land Capability Map establish nine land-use management areas with accompanying goals, development intensities, and permitted uses. They are implemented through individual municipality's zoning codes, which must conform to Pinelands land use standards. The NJ 73 study area includes four municipalities that are partially or wholly located within the Pinelands Area: Berlin Borough and Berlin, Evesham, and Waterford townships. Table 4 outlines the study area municipalities in relation to the state planning areas and Pinelands areas. Figure 5 illustrates the New Jersey State Planning Areas and Pinelands Management Areas within the corridor.

Table 4: Municipal Planning Areas

| Municipality (s) | Pinelands Management Areas | State Planning Areas | Description |
|---|---|---|---|
| Not in study area | Preservation Area District | Rural (PA 4) | Most critical ecological environment in the Pinelands. Limited residential and commercial development is allowed, except for one-acre lots in areas aimed for infill. |
| Not in study area | Special Agricultural Production | Environmentally Sensitive - Barrier Islands (PA-5) | Primarily used for berry agriculture and horticulture. Only farm-related residential uses are permitted. (40-acre lots) |
| Evesham Twp. | Forest Area | Rural Environmentally Sensitive (PA-4B) | Largely undeveloped areas and contains high quality water resources and wetlands. Residential densities average 1 home per 28 acres. |
| Not in study area | Agricultural Production | Environmentally Sensitive (PA 5) | Active agricultural uses. Farm-related residential uses are permitted (10-acres). Non-residential uses of agricultural commercial and roadside retail uses are permitted. |
| Berlin Twp.<br>Evesham Twp.<br>Waterford Twp. | Rural Development | Fringe (PA 3) | Transitional area between conservation and growth areas. Limited, low-density residential and roadside retail is permitted. (5-acre lots) |
| Not in study area | Pinelands Village | Designated Centers | 47 small areas for infill residential, commercial, and industrial uses. (1-acre lots) |
| Not in study area | Pinelands Town | Suburban (PA 2) | 6 small areas for residential, commercial, and industrial uses. (1-acre lots with no sewer connections and 2-4 homes per acre with sewer connections) |
| Berlin Borough<br>Berlin Twp.<br>Evesham Twp. | Regional Growth | Metropolitan (PA 1) | Existing targeted growth areas. Residential, commercial, and industrial uses are permitted. |

Source: DVRPC 2009

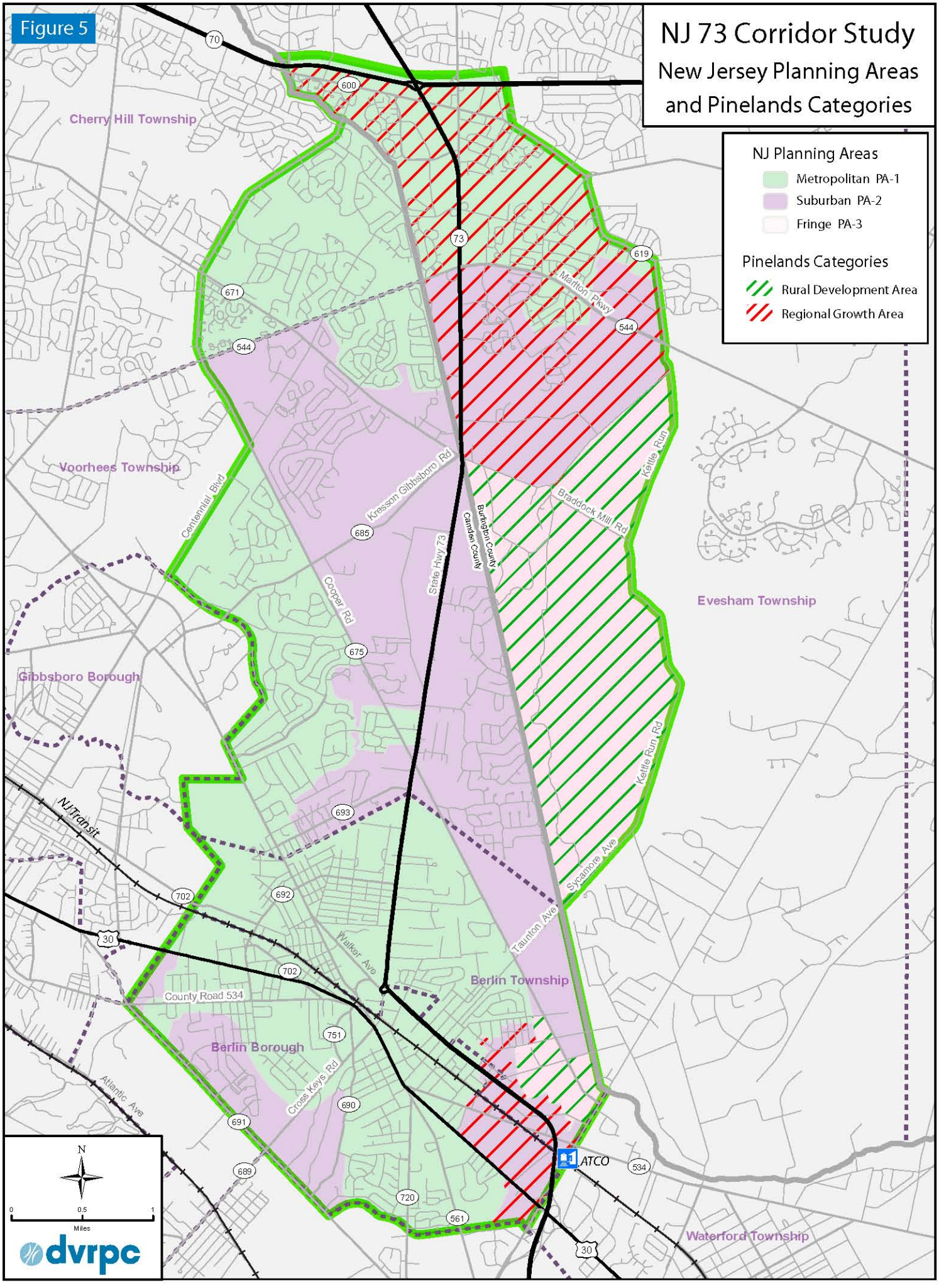
Figure 5
NJ 73 Corridor Study
New Jersey Planning Areas
and Pinelands Categories
NJ Planning Areas
Metropolitan PA-1
Suburban PA-2
Fringe PA-3
Pinelands Categories
Rural Development Area
Regional Growth Area
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Berlin Township
Berlin Borough
Evesham Township
Waterford Township
ATCO
Marlton Pkwy
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
Kresson Gibbsboro Rd
Centennial Blvd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
70
600
73
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671
544
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# Municipal Master Plans and Visions

The master plans of each of the study area municipalities are important elements for the future of the NJ 73 corridor. The development patterns that have taken place have been independent of each and continue to support a sprawling land use pattern. By understanding the vision of each municipality, a corridor-wide vision can be designed that will fit into the context of future transportation and access management improvements. Below is a brief description of each municipal master plan.

## Berlin Borough

Berlin Borough's Reexamination report was adopted in 2008. It established new goals for the borough that include a mix of housing types, providing infill development that fits within the neighborhood context, preserving and protecting natural resources, improving the bicycle and pedestrian network, and promoting the conversion of houses along NJ 73 (Central Avenue) to more appropriate uses. A majority of Berlin Borough is located within Metropolitan Planning Area (PA 1), where redevelopment is encouraged. Approximately 225 acres of Berlin Borough are located within the Pinelands Regional Growth Area. The NJ 73 study area is located within the Regional Growth Area and provides allowances for mixed-use. Only 2 percent of Berlin Borough's population lives within the Pinelands Area, accounting for 64 dwelling units.

## Berlin Township

Berlin Township adopted a Municipal Reexamination report to the Master Plan in 2006. The goals and objectives of the plan were reprioritized to address new zoning provisions for additional commercial growth within the Pinelands Regional Growth Area along NJ 73. Additional goals include amenities for their aging population, improving traffic circulation along NJ 73, providing for multi-modal transportation options, and updating development regulations within residential zoning districts.

The developed portions of Berlin Township are located within the Metropolitan Planning Area (PA 1). Portions of land near Cooper Road and NJ 73 are located in the Suburban Planning Area (PA 2). Approximately 337 acres of Berlin Township is located within the Pinelands area, which accounts for 16 percent of the township's land area. The Pinelands Area is 51 percent Rural Development and 49 percent Regional Growth Area. The NJ 73 corridor is within the Regional Growth Area of the Pinelands. The township has requested an additional area of the Rural Development Area to be re-designated as Regional Growth Area, which will provide extended water and sewer service.

## Cherry Hill Township

Cherry Hill Township adopted its most recent Master Plan Reexamination report in 2007. The goals and objectives of the plan have been updated, as well as new elements that cover demographic information, transportation, economic development, and sustainability. While the NJ 73 corridor does not travel through Cherry Hill Township, the study area includes several parallel roads, including Cooper Road, Kresson Road, and Old Marlton Pike. Cherry Hill Township is located within the Metropolitan Planning Area (PA 1), which encourages revitalization and redevelopment. Cherry Hill Township is not located within the Pinelands Management Area.

### Evesham Township

Evesham Township's most recent updated master plan was adopted in 2006. The plan updated the goals and objectives, which include enhancing the quality of life for residents, making the community attractive and safe, providing senior housing options, ensuring that land is appropriately zoned, providing an efficient circulation network, and protecting the township's natural features and open spaces. Approximately 10,377 acres within Evesham are located in the Pinelands Area. The NJ 73 corridor is within the regional growth area of Evesham Township, which allows for development. Approximately 27 percent of the population lives within the Pinelands Area. Areas of Evesham Township that are not located within the Pinelands Management Area are within the Metropolitan Planning Area (PA 1), Suburban Planning Area (PA 2), and the Fringe Planning Area (PA 3). Historic Marlton is located within the Metropolitan Planning Area (PA 1).

### Voorhees Township

Voorhees Township's most recent updated Master Plan Reexamination report was adopted in 2005. The Township conducted an analysis of the shift in population and revised the goals and objectives. Specific highway corridors were evaluated, including NJ 73. The Township outlined the need for simplifying land use regulations and including traffic impact fees for future development affecting any roadway. Approximately three-quarters of Voorhees Township are located within the Metropolitan Planning Area (PA 1) while the eastern portion of the township abutting NJ 73 is located in the Suburban Planning Area (PA 2). Compact, mixed-use developments are encouraged in this area. Voorhees Township is not located within the Pinelands Management Area.

## Density

NJ 73 is an established corridor with surrounding neighborhoods. Zoning and land use patterns have resulted in medium residential densities in most of the study area municipalities. Higher residential density is a benefit to a community as it can reduce vehicle trips and enables alternative transportation options such as biking, walking, and transit service. In addition, a denser community with options such as biking and walking offers health benefits.

Residential densities within the corridor area considered medium density are those having between 2 - 4 housing units per acre (hu/acre). Within the study area, Cherry Hill Township has the highest residential density at 3.2 hu/acre, followed by Voorhees Township with 3.1 hu/acre. This is due to the multi-family units within the study corridor in Cherry Hill Township and units behind the Promenade at Sagemore. Berlin Borough's residential density is 2.4 hu/acre and Berlin Township's residential density is 2.7 hu/acre. The residential neighborhoods within Berlin Borough and Berlin Township consist of single-family houses on smaller parcels.

## Land Use

DVRPC uses aerial photographs to assist with a regional land use inventory. Updated in 2005, the land use inventory was confirmed through site visits. For this analysis, all land within the study area boundaries was included. If there were any buildings with more than one use, such as commercial and residential, the first floor or most prominent use of the building determined the type. The compiled land uses are displayed in Figure 6. The study area encompasses over 14,000 acres of land and has been developed with primarily big-box commercial and retail surrounded by grid-designed neighborhoods of single-family detached and multi-family housing units. Located in front of the commercial buildings, surface level parking is the dominant feature of the commercial and retail along NJ 73. Smaller type commercial activity has developed on the parallel roads within the study area--Cooper Road and Haddonfield-Berlin Road. Within Berlin Township and Berlin Borough, there are industrial sites with large tracts of land that have been abandoned. Portions of the corridor fall within the Pinelands Management Area, where commercial and retail development is allowed, but at lesser densities. Table 5 outlines the land use within the study area.

Table 5: Land Use by Acres

| | Berlin Borough | Berlin Township | Cherry Hill (Part) | Evesham (Part) | Voorhees (Part) | Study Area Total |
|---|---|---|---|---|---|---|
| Single-Family Residential | 992.2 | 731.4 | 591.9 | 758.1 | 2,149.7 | 5,223.3 |
| Multi-Family Residential | 63.4 | 6.8 | 99.4 | 194.5 | 186.9 | 551.0 |
| Commercial/Retail | 205.3 | 356.6 | 0.9 | 291.5 | 240.1 | 1,094.5 |
| Agriculture | 140.3 | 36.2 | 0.0 | 153.6 | 0.2 | 330.3 |
| Community Services | 72.1 | 19.3 | 12.9 | 88.4 | 25.7 | 218.4 |
| Industrial (Light and Heavy) | 21.7 | 39.1 | 0 | 0 | 0 | 60.9 |
| Mining | 0 | 38.5 | 0 | 0 | 105.0 | 143.5 |
| Parking/Transportation | 141.2 | 141.5 | 17.9 | 273.2 | 98.3 | 672.2 |
| Recreation | 51.3 | 30.9 | 3.1 | 115.4 | 181.4 | 382.1 |
| Utility | 7.0 | 7.8 | 17.4 | 27.1 | 31.0 | 90.3 |
| Vacant | 84.1 | 134.9 | 50.4 | 220.8 | 223.8 | 714.0 |
| Water | 5.2 | 9.2 | 0.6 | 41.3 | 94.7 | 151.1 |
| Wooded | 531.1 | 557.6 | 204.8 | 2,299.5 | 1,144.1 | 4,737.1 |
| Municipal Total | 2,315 | 2,110.1 | 999.3 | 4,463.4 | 4,481.0 | 14,368.7 |

Source: DVRPC 2009

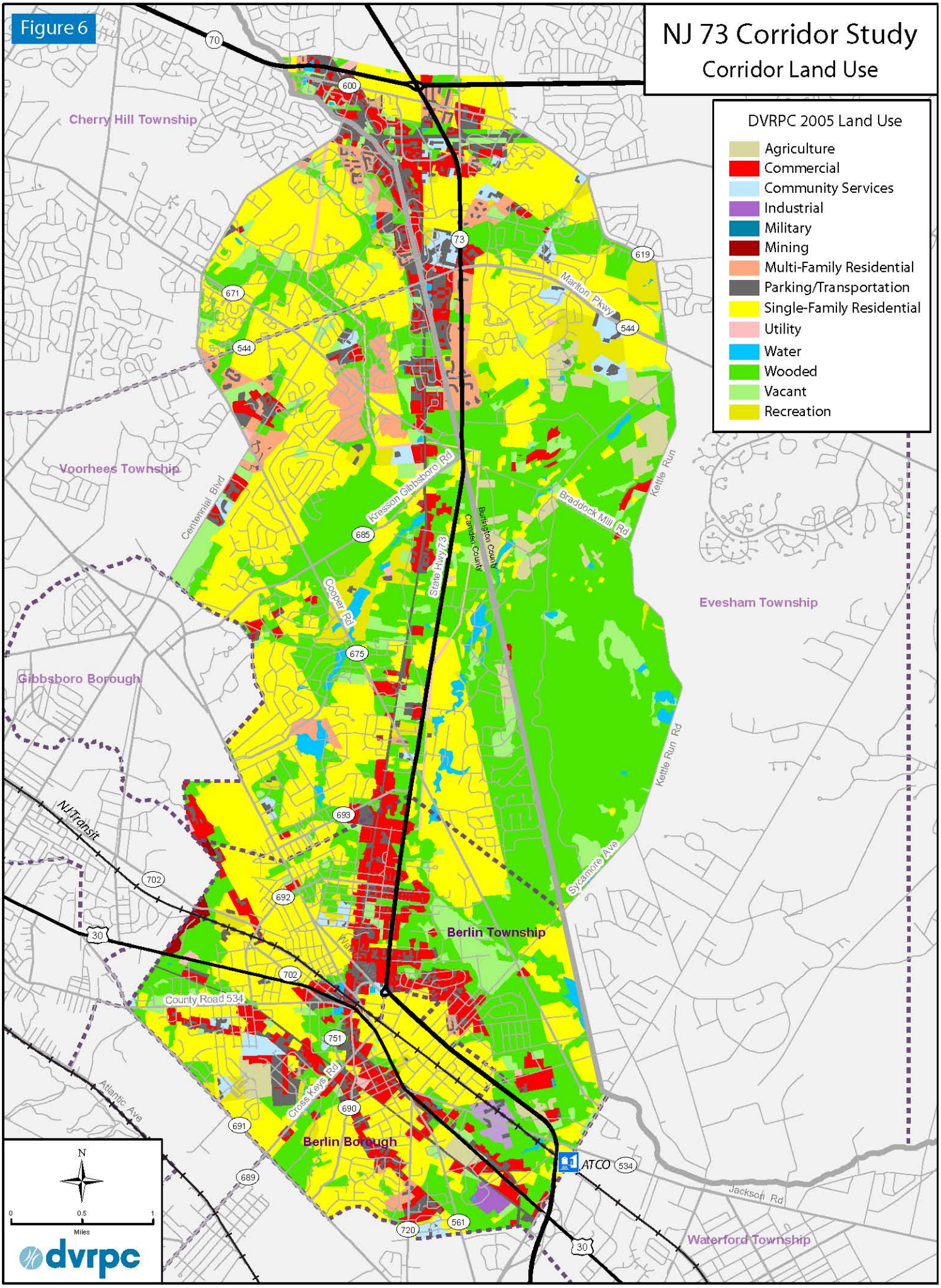
Figure 6
NJ 73 Corridor Study
Corridor Land Use
DVRPC 2005 Land Use
Agriculture
Commercial
Community Services
Industrial
Military
Mining
Multi-Family Residential
Parking/Transportation
Single-Family Residential
Utility
Water
Wooded
Vacant
Recreation
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
Centennial Blvd
Kresson Gibbsboro Rd
Cooper Rd
State Hwy 73
Camden County
Burlington County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Marlton Pkwy
NJ Transit
County Road 534
Cross Keys Rd
Atlantic Ave
Jackson Rd
ATCO
70
600
73
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## Zoning Districts

Municipal zoning dictates what may be built in terms of bulk and use. In New Jersey, each municipality has local zoning control through the New Jersey Municipal Land Use Law (MLUL). As such, the study area corridor includes five municipalities totaling 62 separate zoning districts within one mile of NJ 73, not including overlay districts. Individually, each municipality has between 8 -15 different zoning districts. In many instances, there may be three zones for commercial and up to five different zones for residential. Five of the study municipalities have designated commercial zoning along parcels that front on NJ 73. Each of the study area municipalities has duplicative zoning categorized within their own municipalities that only permit single uses. Figure 7 illustrates generalized zoning for the study area.

Berlin Township has the highest permitted residential densities for single-family dwellings, with four units per acre in the R-2 zone. Areas zoned as R-2 within the Pinelands Management Area permit one housing unit per acre. Areas zoned as R-3 include multi-family dwelling units and permit 12 units per acre. Residential zones only permit accessory (garages, antennae) uses and do not specifically allow commercial or retail. The Township has four commercial districts -- C-1, C-2, C-2RD, and C-3. Permitted uses in each commercial district are identical. Residential dwellings are not allowed as principal or conditional uses in these commercial zones. There are no residential zones located immediately along the NJ 73 corridor. Residential zones within the Township do not permit commercial/retail as a principal use.

Berlin Borough has five commercial zones. The C-1 Central Business District includes the Berlin Borough Historic District and encourages a pedestrian-oriented district to serve as a town center. Retail, office, and services are allowed as well as residential apartments on the upper floors of buildings with ground floor businesses. Other residential uses are prohibited. The C-2 and PC-2 neighborhood commercial districts permit neighborhood-scale office and existing residential dwellings. New residential uses are not permitted in this zone. The C-3 and PC-3 highway commercial district provides for commercial, office, and service along major roadways such as NJ 73. This zone also permits retail within buildings fewer than 25,000 square feet. There are no residential zones located along the NJ 73 corridor. However, the R-2 High-Residential District is located one block from NJ 73. Maximum densities area not listed by townhouses and single-family detached homes are permitted. The zoning code permits a mix of residential types within the Planned Adult Residential Community (PARC) zone.

Evesham Township has three commercial zones, two included in the study area. The C-1 Commercial zone is primarily for properties along NJ 73 and NJ 70. This district has a wide array of allowable uses to provide development flexibility. In general, large commercial and shopping centers, medical, office, and personal business uses are permitted. Residential is not a permitted use in the C-1 zone. To provide for retail and service uses in Historic Marlton, the C-3 zone permits a mix of retail, office, and single-family detached dwellings. Retail must be appropriate for the compact nature of the historic area. The C-2 Commercial area is zoned in areas with significant residential populations to provide convenience-type shopping opportunities.

Voorhees Township has four commercial/retail zones along NJ 73. They include the Business (B), General Business (BB 2), Major Business (MB), and Office, Retail, and Business (ORB) zones. The Business District allows commercial uses in areas serviced by controlled access roads. The General Business (GB-2) and Major Business (MB) zones provide for a mix of retail, office, and residential. Development within the GB-2 zone is

considered a planned unit development (PUD). The Major Business (MB) district specifically encourages mixed-use development. The MB District permits higher residential densities (above three persons per acre) with a contribution to the open space fund in Voorhees Township. Also located along NJ 73 in Voorhees Township is a small area zoned for medium density residential (MDR). This zone permits single-family dwellings with medium density (2 - 4 hu/acre). Commercial/retail uses are not permitted.

Cherry Hill Township does not have any commercially zoned land within the NJ 73 study area. The study area boundaries include three zones: Planned Community (RAPC), institutional, and single-family. The RAPC and single-family zones shown on the map permit no more than two housing units per acre. No more than one shopping area is permitted within this zone and its maximum size is eight acres. The institutional zone is for offices, hospitals, or recreation. Retail and commercial uses are not permitted.

The entire study area portion of Waterford Township is zoned for Planned Highway Business (PHB). This zone permits commercial, retail, wholesale, office, conference centers, warehousing and only pre-existing residential units. The minimum land area for any development is ten acres. Also located within this zone is NJ Transit's Atco station. Zoning regulations will play a pivotal role in the station's future development. The Township should consider revising the zoning to explicitly encourage mixed-use transit-oriented development that includes a housing element near the station.

The zoning along the corridor has resulted in strip commercial development and is known as a shopping destination for residents. Parcels have been developed with big-box stores, each containing their own access points. The commercial/retail sites do not contain more than one use, further encouraging additional vehicular trips. The size of the buildings and uses are appropriate for NJ 73, but the lack of design standards is evident. The study area municipalities should focus on better site design that incorporates shared access, architectural and sign standards, improved landscaping, and better pedestrian access.

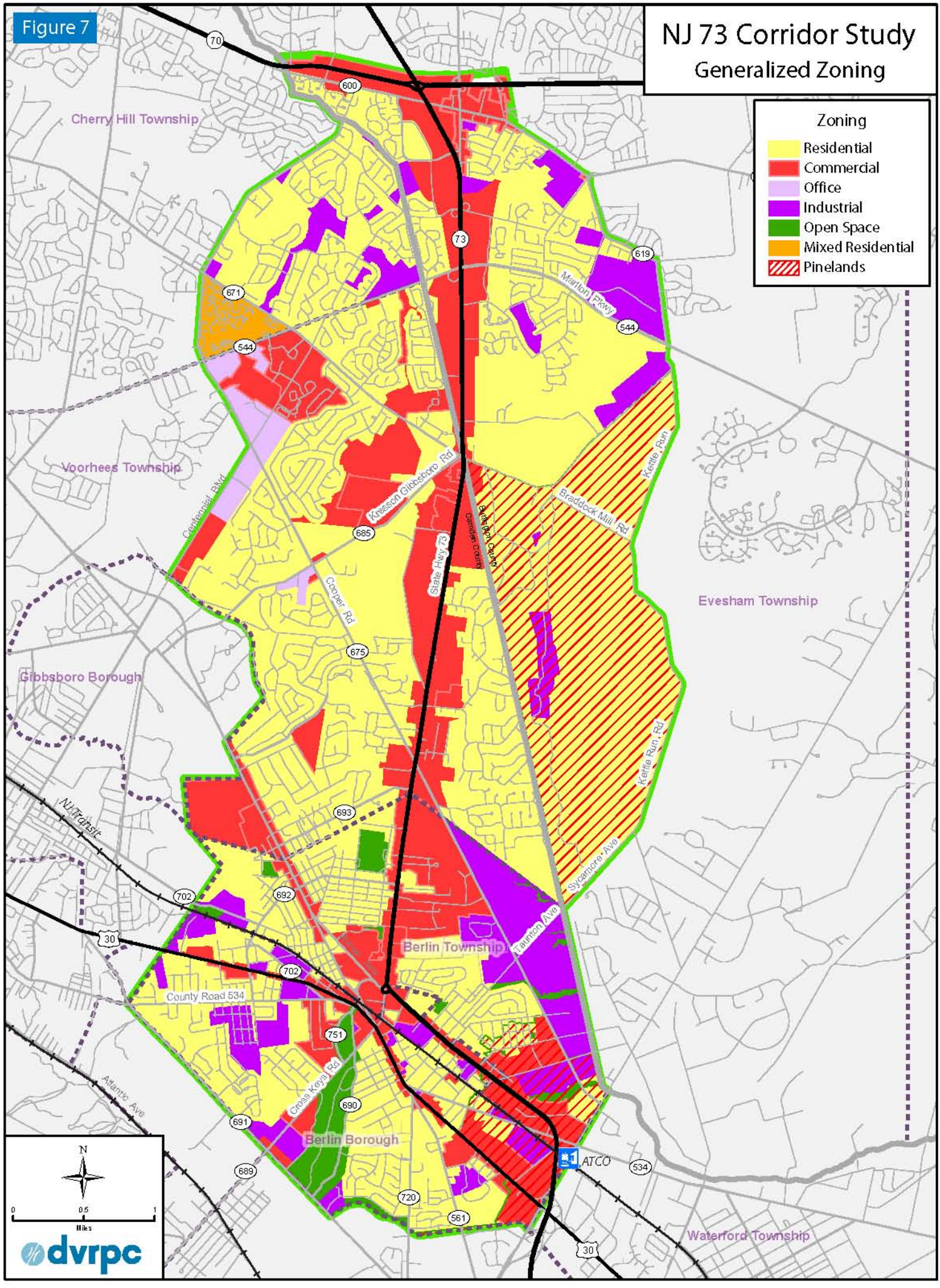
Figure 7
NJ 73 Corridor Study
Generalized Zoning
Zoning
Residential
Commercial
Office
Industrial
Open Space
Mixed Residential
Pinelands
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
70
600
73
619
671
544
Marlton Pkwy
Kresson Gibbsboro Rd
Centennial Blvd
685
State Hwy 73
Camden County
Burlington County
Braddock Mill Rd
Kettle Run
Cooper Rd
675
Kettle Run Rd
693
NJ Transit
702
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Taunton Ave
Sycamore Ave
County Road 534
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CHAPTER 4

# Smart Growth

Understanding the land use context of the NJ 73 corridor is critical. Roadway design and intersection improvements must be made within the context of existing land uses and elements such as residential density, natural environmental features, topography, and architectural design.

Below is an evaluation of the assets, constraints, and opportunities within the NJ 73 corridor. The smart growth recommendations provided in this chapter are based on these assumptions.

### Assets

- Historic districts
- Large employment centers
- Retail centers
- Low degree of disadvantage
- Commuter rail at Atco station
- Bus service provided by NJ Transit

### Constraints

- Slow population growth
- Discontinuous pedestrian environment
- Confusing signage
- Single-use zoning
- Uncontrolled access onto NJ 73
- Stormwater issues

### Opportunities

- Potential to improve traffic circulation through intersection improvements;
- Develop shared access points;
- Improve the pedestrian and bicycle network;
- Create a corridor identity through better design controls;
- Implement a transit-oriented district at the Atco train station;
- Reinforce mixed-use centers for future large-scale development; and
- Potential for redevelopment through key abandoned sites.

Smart growth is an approach to land use planning that promotes a concentration of development within a mix of uses. It embraces a number of planning concepts to counteract single-use zoning, suburban sprawl, separation of residential and commercial uses, and an auto-dependent lifestyle. The community benefits of smart growth include lower infrastructure and utility costs, preservation of open space and environmentally-friendly areas, increased densities that support transit, and enhancement of the pedestrian environment. Through smart growth strategies, the NJ 73 municipalities can reduce sprawl and encourage infill development in existing historic downtowns or established centers that promote an identifiable center-oriented corridor.

The study area includes two existing historic areas: the Marlton Historic District and the Berlin Borough Historic District. Both areas have a unique historic character within a walkable neighborhood that focuses on smaller-scale retail and commercial uses. The Walker Avenue District in Berlin Township is a business improvement district that includes residential, retail, and municipal buildings. Outside these areas, development has occurred in a sprawling pattern emphasizing single-use buildings providing for the automobile over the pedestrian. This suburban sprawl has been permitted through existing zoning. While commercial and retail development can increase the tax base of a municipality, it directly competes with downtown business areas and the historic areas' ability to attract and retain residents and businesses.

## Centers of Activity

The goals and objectives outlined in municipal plans indicate that the NJ 73 study area municipalities place strong emphasis on revitalization as well as encouraging new economic development along NJ 73 and commercial/retail-zoned adjacent areas. To concentrate development within these specific areas, new and infill development should be prioritized and focused around existing centers of activity. Below are six areas considered centers of activity along NJ 73. They are shown on Figure 8.

### 1. Marlton Historic District

Marlton's historic district center is located at Maple Street and Main Street. It includes portions of Blue Anchor Street, Cottage Street, Cooper Avenue, Locust Avenue, Community Avenue, Oak Lane, and Oak Avenue. This district is an established historic district and has development controls that ensure its preservation and continued use as a downtown area. Streetscaping features in the downtown include brick sidewalks, benches, and historical lamps. Appropriately-sized commercial and retail are encouraged in the downtown that provide for the reuse of historic homes.

### 2. Promenade at Sagemore, Marlton

The Promenade at Sagemore is a large lifestyle center located on northbound NJ 73 between Marlton Parkway and Brick Road. To the rear, Sagemore Drive connects the lifestyle center to a multi- and single-family residential neighborhood. Directly across NJ 73 is a shopping center (Bryn Mawr Stereo), also with a single-family residential neighborhood to the rear of the property. Traffic calming features-designated bike path and landscaped medians–are present along Marlton Parkway. This area has potential for future mixed-use development as infill occurs. Pedestrian, bicycle, and transit connections can be incorporated into this area to make it more pedestrian-friendly. Additional underused properties–Virtua Hospital and the shopping center on southbound NJ 73-around the Promenade offer opportunity for additional center-type development in the future.

### 3. Virtua Medical Complex, Voorhees

The new mixed-use medical complex is located on southbound NJ 73 between Dutchtown Road and William Feather Drive in Voorhees Township. This area is the new main hospital facility for Virtua Hospital and will include a mix of medical offices and retail. Along the northbound side of NJ 73 is Cedar Hill Shopping Center, which contains big-box commercial stores. Adjacent vacant property offers opportunity for a hotel and conference center, which could become a destination creating additional vehicular trips. By ensuring increased

residential and commercial densities, NJ Transit bus service may be increased. Additional pedestrian-friendly amenities can be added, such as an overhead pedestrian crossing to keep pedestrians and vehicular traffic separate.

## 4. Berlin Borough Historic District

South of the NJ 73 corridor is the Berlin Borough Historic District. It includes Washington, Taunton, and Haines avenues as well as portions of the White Horse Pike, Jackson Road, and Jefferson Road. This area is listed on the New Jersey State and National Register of Historic Places (1995). The Berlin Historic Area is sprinkled with vacant retail and commercial buildings and small service-type establishments. A 1950s style diner and a Wawa convenience store appear to anchor the district. The historic area recently received streetscape treatments that include a new brick sidewalk, striped pedestrian crossings, and new trees.

This area should be considered as a prime retail/commercial activity area for the corridor. Proper signage and wayfinding will enable visitors to find the historic area via NJ 73. New zoning should be considered to encourage service-type commercial appropriate for smaller building footprints.

## 5. Walker Avenue Business District, Berlin Township

Walker Avenue connects NJ 73 with Haddonfield-Berlin Road. Along Walker Avenue are single-family homes. At the intersection of Haddonfield-Berlin Road is an area that includes small retail and commercial buildings as well as professional offices and services. Walker Avenue also provides access to the Berlin Circle Plaza and other large shopping centers on NJ 73. With several vacant lots, this area has the potential for targeted redevelopment to create a downtown business district for residents. Approximately one block from this intersection is the Township municipal building. Walker Avenue currently has sidewalks for residents and signage that distinguishes the area. Pedestrian connections should be made to the Camden County Park on the White Horse Pike, which is approximately one mile to the south.

## 6. Atco Train Station, Waterford Township

Located at the southern edge of the study area, the Atco station in Waterford Township offers an opportunity for transit-oriented development. The Atco station serves NJ Transit's Atlantic City Line, connecting Philadelphia's 30th Street Station with Atlantic City. Connections to PATCO can be made at the Lindenwold station. Property adjacent to the station is zoned for commercial uses, permitting office as well. To enhance this area as a center of activity, additional higher-density residential uses should be permitted (the highest allowed by Pinelands Management regulations). Pedestrian and vehicular access to the station should be improved with a pedestrian tunnel under the rail line's embankment, and an additional vehicular exit from the southbound lanes of NJ 73. Creating a critical mass of well-designed and integrated uses in proximity to the Atco station will allow for increased bus and rail service to be supported.

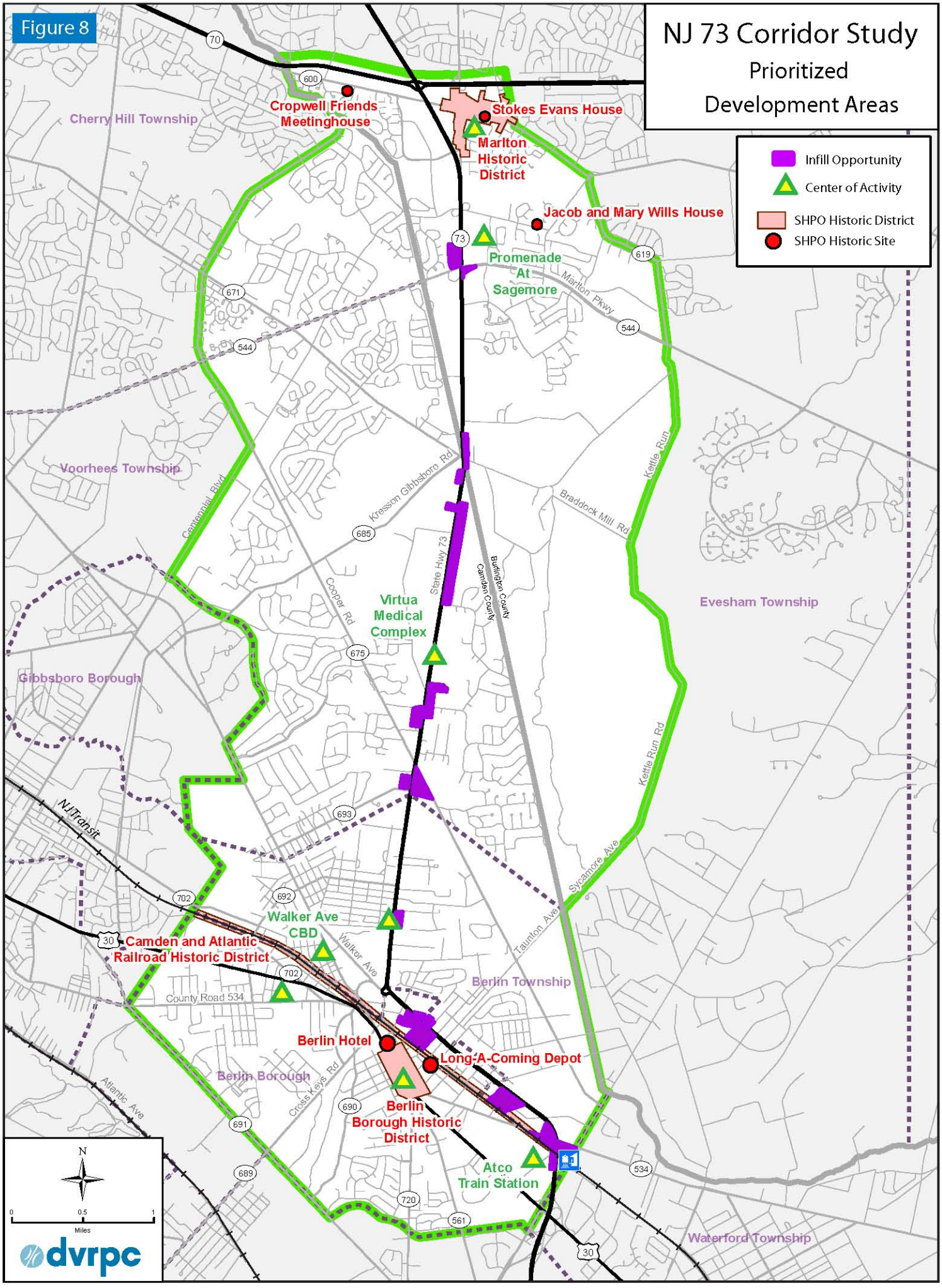
Figure 8
NJ 73 Corridor Study
Prioritized
Development Areas
Infill Opportunity
Center of Activity
SHPO Historic District
SHPO Historic Site
Cherry Hill Township
Cropwell Friends Meetinghouse
Stokes Evans House
Marlton Historic District
Jacob and Mary Wills House
Promenade At Sagemore
Marlton Pkwy
Voorhees Township
Centennial Blvd
Kresson Gibbsboro Rd
Braddock Mill Rd
Kettle Run
Kettle Run Rd
State Hwy 73
Burlington County
Camden County
Cooper Rd
Virtua Medical Complex
Evesham Township
Gibbsboro Borough
NJ Transit
Sycamore Ave
Taunton Ave
Walker Ave CBD
Walker Ave
Camden and Atlantic Railroad Historic District
County Road 534
Berlin Township
Berlin Hotel
Long-A-Coming Depot
Berlin Borough
Cross Keys Rd
Atlantic Ave
Berlin Borough Historic District
Atco Train Station
Waterford Township
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## Smart Growth Zoning

The growth pattern along NJ 73 has resulted in an auto-centric corridor with commercial development flanking either side of the highway. Most shoppers drive from store to store and pedestrian traffic is discouraged. This is the result of commercial/retail zoning within each of the study area municipalities.

To help create a more efficient corridor, municipalities should consider zoning districts that encourage town center zoning where new and infill growth is compact, a mix of commercial, residential, and office uses are present, parcels provide shared access points, and the design of buildings is aesthetically pleasing and blends with the surrounding character of the neighborhood. It would provide for uniform zoning of parcels along NJ 73 and for better access management. Town center zoning can permit higher residential densities, encourage mixed-use, be pedestrian-friendly, and be aesthetically pleasing. This can be done using form-based zoning.

### Form-Based Zoning

Traditional zoning regulates use, whereas form-based zoning focuses on the form of buildings and structures (architecture, setbacks, heights, and proportions). Illustrations and diagrams are used to show the type of design guidelines that the code regulates. Form-based zoning can be incorporated into an entire zoning code or utilized as an overlay. Form-based zoning can be applied to any of the recommended centers along NJ 73.

### Incentives

Revitalization and infill development can be enhanced through municipal incentive programs. By providing financial benefits on key infill sites, municipalities can encourage abandoned parcels with infrastructure already in place to be redeveloped before greenfields.

Another financial incentive for municipalities is special assessment districts. Special assessment districts, or business improvement districts, can enable municipalities to limit extra fees as an incentive to redevelop key infill parcels. Special districts can be provided as an overlay and within the municipal zoning code. The Walker Avenue Central Business District in Berlin Township is identified as a special district.

### Impact Fees

As the costs of development and sprawl become overwhelming, the NJ 73 study area municipalities should consider adopting impact fees. Impact fees are financial payments made to a municipality by a developer to provide some or all of the physical improvements needed by a proposed development and its impact on the surrounding communities. Fees may be levied for capital improvements such as sewers, streets, water infrastructure, parks, and schools. These direct contributions can come in the form of dedications of land, construction of certain facilities, or payment in lieu of. Impact fees are often provided for through municipal ordinances, as they must be directly related to a public purpose. Adopting impact fees can lessen the burden on taxpayers.

## Wayfinding

Structuring and providing destination information is an effective way to ensure visitors find their destination. Municipalities use different types and sizes of signs to bring people to their destination, whether it is a shopping center, park, or a transit station.

There are many different types of signs for retails stores, hospitals, restaurants, traffic intersections, parking areas, street names, and temporary signs. Due to the highway classification of NJ 73, highway signs along NJ 73 have maximum heights of 25 or 30 feet. Signs within historic districts are lower, with maximum heights of 7 - 8 feet. While sign requirements in each municipality have uniform standards, the corridor municipalities should consider adopting sign standards specifically for NJ 73 businesses and destinations. Sign clutter can often cause drivers to miss their destination or confuse information a sign is conveying.

By adopting a wayfinding program, municipalities can improve access and connectivity from NJ 73 to neighborhoods, shopping centers, transit stops, and parking areas, as well as better indicate pedestrian crossings. Wayfinding can be designed for first-time visitors, residents, pedestrians, and transit users. Wayfinding each area can be designed to have a distinctive color so motorists know to follow a specific set of signs for areas such as shopping areas, historic downtowns, or parks.

As part of a wayfinding program, gateway treatments along municipal boundaries should be included. This can include a large sign with the municipality name or other information to inform motorists that they have entered into a new location. The Marlton Historic District provides a gateway sign alerting motorists that they have entered the historic district. The wayfinding program can provide uniform details such as color, font, and height.

The proposed centers within the NJ 73 study area can be included as part of the wayfinding program. They include the Berlin Borough Historic District, Walker Avenue Business District in Berlin Township and the Atco train station in Waterford Township. Access to Voorhees Main Street and Towne Center (not included in the study area), and municipal boundaries should be included.

## Parking

Approximately 30 percent of land within the study area is devoted to parking. Properties along NJ 73 were developed to accommodate the motorist. In most cases, it appears that the commercial uses have an overabundant number of surface parking spaces. The number and size of the commercial/retail buildings dictates the number of spaces needed. This often translates to between 3 - 6 spaces per 1,000 square feet of gross land area (GLA). In most instances, there is more supply than demand. The Berlin Borough Historic District has on-street parking. Evesham Township has also developed an off-street parking network for commercial/retail stores in Historic Marlton.

Retail and commercial sites along NJ 73 have included surface parking in front of the building, making asphalt the dominant visual. To help municipalities maximize space and create an aesthetically pleasing environment that will attract visitors, new parking strategies should be explored. Municipalities can reevaluate the parking allocation within their local zoning code to ensure that they are not providing for more parking than necessary. There also are individual parking lots and access points for separate shopping centers. To improve access management along NJ 73, shared parking arrangements should be explored. This could include shared surface

lots, but also parking garages. By providing a parking garage for two or more shopping areas, additional space is created for residential uses on the top floors of the parking garage and shopping center.

- Within the proposed centers and historic areas, parking should be located in the back or on the sides of the properties. This will help create a more pedestrian-friendly environment, while still accommodating vehicles. Directions and visuals to parking areas can be part of a wayfinding program.

### Pedestrian Environment

The attractiveness and character of the street is important for bringing residents and visitors to a specific destination. The corridor communities should invest in the streetscape in order to transform sprawling commercial development into walkable town centers. These places should be aesthetically pleasing and have distinct pedestrian elements. These can include sidewalks (at least five feet wide), landscape buffers to separate pedestrians and vehicles, placemaking and wayfinding signage, and consistent design elements such as building smaller setbacks.

Investing in the pedestrian environment is vital to revive older centers and create a livelier destination. Investments may include realignment of intersections with wider sidewalks, traffic calming measures such as mid-block crossing or raised pedestrian islands, or striping of intersections. Special measures can be taken in areas where there is a population of individuals with mobility limitations, such as longer timing at pedestrian signal crossings and the addition of street furniture. Crosswalks should be well-marked and intersections should be installed with pedestrian signal crossings.

Voorhees Township has recently adopted new streetscape standards for the NJ 73 corridor to enhance the new Medical Complex and to make the shopping centers along the corridor more pedestrian-friendly. Multi-purpose paths are to be provided along both sides of NJ 73 as well as landscaping within 50 feet of NJ 73 right-of-way.

## Historic Preservation

An important element towards creating and maintaining a sense of place is historic preservation. Historic buildings, streets, and structures are the basic elements that set older town centers apart and give them the ability to attract residents and visitors for their unique sense of place.

Historic preservation can be achieved through the creation of historic districts or providing building inventories. Historic districts are created by ordinance as enabled by New Jersey Municipal Land Use Law (MLUL). Historic structures are discovered through surveys done by municipalities, but if not identified properly, their history and uniqueness may be lost.

When transportation improvements will be done to an area with historic structures, it is important to ascertain the impact it will have on specific structures or areas. Specifically, when federal dollars will be used to construct transportation improvements, an environmental impact statement (EIS) prompts a State Historic Preservation Officer (SHPO) opinion to be issued. The SHPO opinion will determine the value of a historic property or area. It can result in recognizing possible threats to certain historic sites and identifying those sites as eligible for the State Register of Historic Places, as well as those that do not have any historic significance.

The NJ 73 study area has two historic areas and several properties that may have an impact on any future transportation improvements. Historic areas are important to the quality of life and character of these communities and will be fundamental to implementing the corridor vision. Future transportation improvements and growth must be sensitive to the location of historic buildings and areas along the NJ 73 corridor.

## Evesham Township

Evesham Township has several sites on the National and State Registers of Historic Places as well as a historic district, the Marlton Historic District. The township formed the Evesham Township Historic Preservation Committee to oversee activities within the Marlton Historic District. Evesham requires that archaeological surveys be completed before significant development is built and has published guidelines to help owners and tenants comply with historic preservation guidelines. In addition to the historic district and structures, Evesham Township is a Historic Preservation Certified Local Government (CLG), which makes federal and state funding available for program implementation and rehabilitation. Below are the historic areas within the NJ 73 corridor study area.

### Marlton Historic District

Marlton's historic district is centered on the intersection of Maple Street and Main Street. It includes portions of Blue Anchor Street, Cottage Street, Cooper Avenue, Locust Avenue, Community Avenue, Oak Lane, and Oak Avenue. All buildings within the district are regulated by the Historic Commission. Any changes to facades, signage, or building structure must obtain a "certificate of appropriateness."

#### Cropwell Friends Meetinghouse

Located on Cropwell Road, the Cropwell Friends Meetinghouse is an example of a traditional rural Quaker meeting house, typical of those built in the Philadelphia and southern New Jersey region. This structure and its setting is the only tangible non-residential link to the original colonial Quaker settlements in Evesham Township.

#### Jacob Wills House

Located on Brick Road, the Wills House is an example of a local eighteenth-century Flemish checkerboard farm house. The house has retained its architectural integrity and is one of the few surviving farmhouses in Evesham.

#### Stokes-Evans House

The Stokes-Evans House is an outstanding example of a vernacular Federal/Greek Revival style house. This building is located on East Main Street and reflects Marlton's history from the nineteenth to the twentieth centuries. The Stokes-Evans House was previously the site of the township library.

## Berlin Borough

#### Berlin Historic District

Located between Washington, Taunton, and Haines Avenues as well as parts of South White Horse Pike, Jackson Road, and Jefferson Avenue, this district covers 283 acres and includes 65 buildings and one object. This district was entered in the New Jersey and National Registers of Historic Places in 1995. The Berlin Historic District allows for retail and commercial uses, religious uses, restaurants, and single-family dwellings.

### Long-a-Coming Depot

Located between Washington and East Taunton Avenues, the Long-a-Coming Depot was constructed in 1856. The Depot is significant because it is the oldest surviving train station in New Jersey.

### Berlin Hotel

The Berlin Hotel was a stagecoach stop in the Village of Long-a-Coming on the White Horse Pike, which ran between Camden and the Atlantic Coast. The frame building is from 1826 and took its Gothic Revival appearance after the Civil War. This is the most significant building in the Berlin Historic District and believed to be the oldest building on the White Horse Pike. It is directly linked to the town's roots in the stagecoach business.

### Camden and Atlantic Railroad Historic District

The Camden and Atlantic Railroad was the first railroad to cross through the New Jersey Pinelands to the Jersey shore. It was also the first and last continuously operated line associated with the Camden and Atlantic cities. This railroad line spurred the development and growth of villages and lead to the expansion of agriculture in South Jersey.

CHAPTER 5

# Access Management

With the increasing cost and lack of funding availability to build new roads or reconstruct existing arterials, the need for effective access management strategies is stronger than ever. With fewer new roadways being built, the need for effective management of the current transportation network is even more pronounced. Access management is one of many strategies that a municipality can use to improve the function of its roadways. The methods employed in access management seek to optimize and maintain the existing transportation system while preparing for its future growth. Access management is a relatively inexpensive strategy to increase public safety, extend the life of major roadways, reduce congestion, and support alternative transportation modes.

Access management entails the careful planning of the location, design, and operations of driveways, median openings, interchanges, and street connections. Its purpose is to provide access to land development in a manner that preserves the safety and efficiency of the transportation system while promoting orderly development. Roadway safety and efficiency decrease as conflicts between the provision of property access and vehicular movement increase. The addition of intersections or driveways intensifies this situation by creating more conflict points and, frequently, more crashes. Access control can serve to decrease total travel time by increasing average travel speed and lessening delay. Access control can also increase highway capacity and fuel efficiency.

## Principles of Access Management

Without the use of access management techniques to control the flow of traffic on a roadway, additional drastic measures, such as roadway widening, may be needed to reduce congestion. Yet, the continuous cycle of widening roadways to manage traffic frequently results in unsightly commercial strip development, degrades scenic landscapes and community character, and creates an unstable business environment. Often these overburdened arterials cause a spillover of cut-through traffic into residential neighborhoods, exacerbating the initial problem.

The Transportation Research Board (*Access Management Manual*. *Transportation Research Board.* 2003) identifies ten main principles of access management that help municipalities arrive at the goal of a safe and efficient roadway corridor. These are:

Provide a Specialized Roadway System: It is important to design and manage roadways according to their primary functions that they are expected to serve. NJ 73 was designed to function as a regional highway.

Limit Direct Access: Roadways that carry higher volumes of regional traffic function best with controlled access. Frequent and direct property access is more compatible with the function of local and collector roadways, not regional road, such as NJ 73.

Promote Intersection Hierarchy: An efficient transportation network provides appropriate transitions from one classification of roadway to another. For example, freeways connect to arterials through an interchange that is designed for the transition. This concept can be used on NJ 73 through a series of intersection types that range from the junction of two major arterial roadways to transition interchanges for local and collector roadways.

Locate Signals to Favor through Movements: Uniform spacing of intersections and signals on roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed. Failure to carefully locate access connections or median openings can cause substantial increases in travel time.

Preserve the Functional Area of Intersections and Interchanges: Access connections too close to intersections or interchange ramps can cause serious traffic conflicts that result in congestion or crashes.

Limit the Number of Conflict Points: Collisions are more likely to happen when motorists are presented with complex driving situations created by numerous conflict points. A less complex driving environment is accomplished by limiting the number and type of conflict points.

Separate Conflict Areas: Separating conflict areas helps simplify driving and contributes to improved traffic operations and safety. The necessary spacing between conflict areas increases as travel speed increases, to allow for perception and reaction time.

Remove Turning Vehicles from Through Traffic Lanes: Turning lanes allow gradual deceleration out of the through lane and queuing in a protected area for an opportunity to complete a turn. This reduces the severity and duration of conflicts between turning vehicles and through traffic, and improves the safety and efficiency of roadway intersections.

Use Non-Traversable Medians to Manage Left-Turn Movements: Channel left-turning movements on major roadways to controlled locations. Non-traversable medians and other techniques that minimize left turns or reduce the driver workload can be especially effective in improving roadway safety.

Provide a Supporting Circulation System: Well-planned communities provide a supporting network of local and collector streets to accommodate development, as well as unified property access and circulation systems. Interconnected street and circulation systems support alternative modes of transportation and provide alternative routes for bicyclists, pedestrians, and drivers. Alternatively, commercial strip development with separate driveways for each business forces even short trips onto arterial roadways.

## Retrofit Strategies for Developed Areas

Retrofitting access is a long-term commitment that takes continuous effort. However, with access management strategies in place, each opportunity that arises can be taken advantage of to improve the community landscape and provide safe and efficient travel within the transportation network.

### General Recommendations

- Work with property owners to obtain permission for driveway closures, consolidation, or relocation during roadway projects, sidewalk maintenance, or additions;
- Purchase strategically located vacant or abandoned properties and resell them with access restrictions;
- Place planter boxes along unnecessarily wide access points to help define the driveway break;
- Require access consolidation where adjacent parcels come under common ownership;
- Redesign internal road and parking systems; and
- Eliminate closely spaced or offset intersections.

## Access Management along NJ 73

NJ 73 serves a dual purpose as a regional highway and a local commercial corridor. Much of the roadway is zoned for highway commercial uses with individual driveways and numerous conflict points. Access to businesses and residential neighborhoods is provided predominately at major signalized intersections. On both sides of NJ 73, an extensive internal street network allows residents to travel throughout the neighborhoods.

### Recommendations

After discussions with local officials and multiple field visits to NJ 73, several access management techniques are recommended to improve the safety and efficiency within the study area.

#### 1. Plan and construct service roads for commercial strip malls.

Providing a service road is preferred over a frontage road for NJ 73. Service roads are often less costly and easier to retrofit in developed areas. The suggested service road will provide for better internal traffic at major shopping centers, as well as provide rear access for local residents. Currently, many of the commercial parcels along the corridor can only be accessed from NJ 73, which causes significant levels of local traffic onto the highway. By creating other options, local traffic can be funneled onto less congested, slower-speed streets. Communities should provide for service roads that place an emphasis on accessibility rather than mobility. Additional individual parcels can then be developed along the service road without compromising the safety and efficiency along NJ 73.

#### 2. Realign offset intersections.

One of the key recommendations of this report is realigning offset intersections along NJ 73, such as Kresson Road and Braddock Mill Road (explained further in Chapter 7). Existing conditions exacerbate conflict points by

severely reducing sight distance for turning vehicles. The offset also prevents through movements from traversing the intersection in a straight and direct alignment. In addition to increasing driver safety, reducing a signalized intersection's offset will increase the efficiency of its signal timing. The all-red phase may be reduced, and entire phases may be eliminated.

### 3. Consolidate driveways.

One of the simplest ways to improve efficiency and safety along NJ 73 is to consolidate business driveways to create joint access points. This access management technique is used in many corridors as a stand-alone strategy but has greater success with the cooperation of business owners. The consolidation of individual access points will decrease the number of potential conflict points along NJ 73 and contribute to improved safety. Joint driveway access ways also increase efficiency of the roadways by limiting the frequency of turning vehicles.

### 4. Link to the parallel road network.

To ensure efficient movement of vehicles and pedestrians, it is important to link regional highways to a parallel road network. The existing street network adjacent to NJ 73 provides a number of options to access certain parcels and shopping centers without access from NJ 73. Communities should explore additional access from the rear of shopping areas and business parks.

### 5. Construct traffic calming devices on residential streets.

Local traffic along NJ 73 will use the grid network to access business and retail. To minimize the impact to the residential neighborhoods, traffic calming devices can be installed to control speeds and traffic volume. Figure 9 illustrates the installation of a speed bump and bike lane along the residential streets that connect to NJ 73. This will allow local residents to access NJ 73 without negatively affecting the neighborhood.

Figure 9: Installation of Traffic Calming Devices

Before | After Improvements

Source: DVRPC 2009

## 6. Increase roadway frontage.

Current development along NJ 73 is staggered. Several individual commercial properties are too close to the road to provide correct traffic flow in parking lots. As infill occurs, municipalities should increase frontage in order to provide for proper internal traffic circulation. This would also provide a uniform façade to all commercial businesses along NJ 73.

## 7. Revise municipal ordinance(s) to support access management.

In addition to the physical access management elements recommended, the study area municipalities will need to revise municipal regulations to allow for these improvements. Additional ordinance revisions will provide the legal support for changes to the roadway network and access management plan along NJ 73. Appendix A includes a sample ordinance for access management controls.

CHAPTER 6

# Environmental Resources

## Green Infrastructure

One of the most crucial environmental priorities in the NJ 73 study area is the protection and enhancement of the local green infrastructure. Used to describe an interconnected network of open spaces and natural areas, green infrastructure may include greenways, wetlands, parks, forests, native vegetation, and naturalized stormwater infrastructure. A greenway is a contiguous open space corridor that links natural, cultural, and recreational resources. Greenways are often implemented along creeks and streams because they help preserve environmental features and provide natural protection from flooding, improve water quality, and provide wildlife migration corridors, while enhancing a community's quality of life.

A green infrastructure system provides important services, including stormwater management, flood risk minimization, air and water quality improvement, temperature regulation, and habitat conservation. Additionally, green infrastructure costs far less to install and maintain than traditional forms of infrastructure, sometimes referred to as grey infrastructure.

The study area has a large swath of critical green infrastructure within its boundaries. Much of the Evesham portion of the study area consists of undeveloped woodland located in the Pinelands. In *A Sub-Regional Resource Protection Plan for Southern Medford/Evesham Townships* report published by the New Jersey Pinelands Commission, this area is referred to as "Black Run South" after the river that runs through the area. The Black Run South area, located roughly between Tomlinson Mill Road and Kettle Run Road south of Braddock Mill Road, provides natural habitat for many plant and animal species, including the barred owl, a threatened species. However, this land–unpreserved and zoned for residential development–is threatened by the sprawling suburban development patterns that have replaced natural woodland in much of the surrounding area.

Because this area is directly adjacent to the NJ 73 corridor, any changes to the highway that could make development in Evesham more attractive may further threaten this intact natural habitat in the high-value Pinelands ecosystem. Acquisition of land in the Black Run South area of Evesham Township should be a high priority for the county and municipality due to the area's critical value as green infrastructure in the face of intensifying development pressure.

### Water Resources

The exceptional water resources in the Black Run South area of Evesham Township merit particular attention. Not only does this area overlie the Kirkwood-Cohansey aquifer, it is also the headwaters of Black Run, which flows into Barton Run and eventually Rancocas Creek.

## Groundwater

Groundwater is drawn from aquifers, which are layers of porous, water-bearing rock, gravel, sand, silt, or clay. Groundwater quality and quantity is constrained by the underlying geology in an area. The primary geologic formation in the study area is the Cohansey formation, a part of the Kirkwood-Cohansey aquifer system and shown in Figure 10. It is one of the most important aquifers in New Jersey and is threatened by pollution, as it is an unconfined aquifer. Unconfined aquifers are often shallow, frequently overlie one or more confined aquifers, and are easily recharged by precipitation, and therefore more easily contaminated. Because of this, land uses in the study area have a direct relationship to the quality of groundwater. Stormwater runoff carrying pollutants and fertilizers, underground storage tanks, septic systems, sanitary landfills, leaking drums, road salt piles, industrial lagoons, and surface impoundments are major sources of groundwater contamination in New Jersey.

Most communities in the study area rely upon public agencies for sewer service. The Evesham Municipal Utilities Authority (MUA) provides sewer service for most of the northern area of Evesham Township. The entire Camden County side of the study area is served by the Camden County Municipal Utilities Authority (CCMUA). Evesham Township south of Braddock Mill Road, Kenilworth Road, and Egret Road is not served by public sewers and relies upon on-site septic. Within the study area, most of Cherry Hill and Berlin townships, all of Berlin Borough, the northern part of Evesham Township, and a small part of Voorhees Township are served by public water. Other areas rely upon on-site wells for drinking water, and so protecting the groundwater from contamination is a serious public health issue.

## Streams

The Black Run South area contains the headwaters of its namesake waterway, Black Run. On the western side of Tomlinson Mill Road is Burton Run. Within the study area, these two streams are designated as Pinelands Waters by NJDEP. NJDEP considers Pinelands Waters (PL-1) to be outstanding natural resource waters and mandates that PL waters be maintained in their natural state. Of the 33 miles of streams within the entire study area, the seven miles of streams located in the state-designated Pinelands area are categorized as PL. The designation of the Black Run as Pinelands Waters denotes its outstanding value as a natural resource worthy of protection.

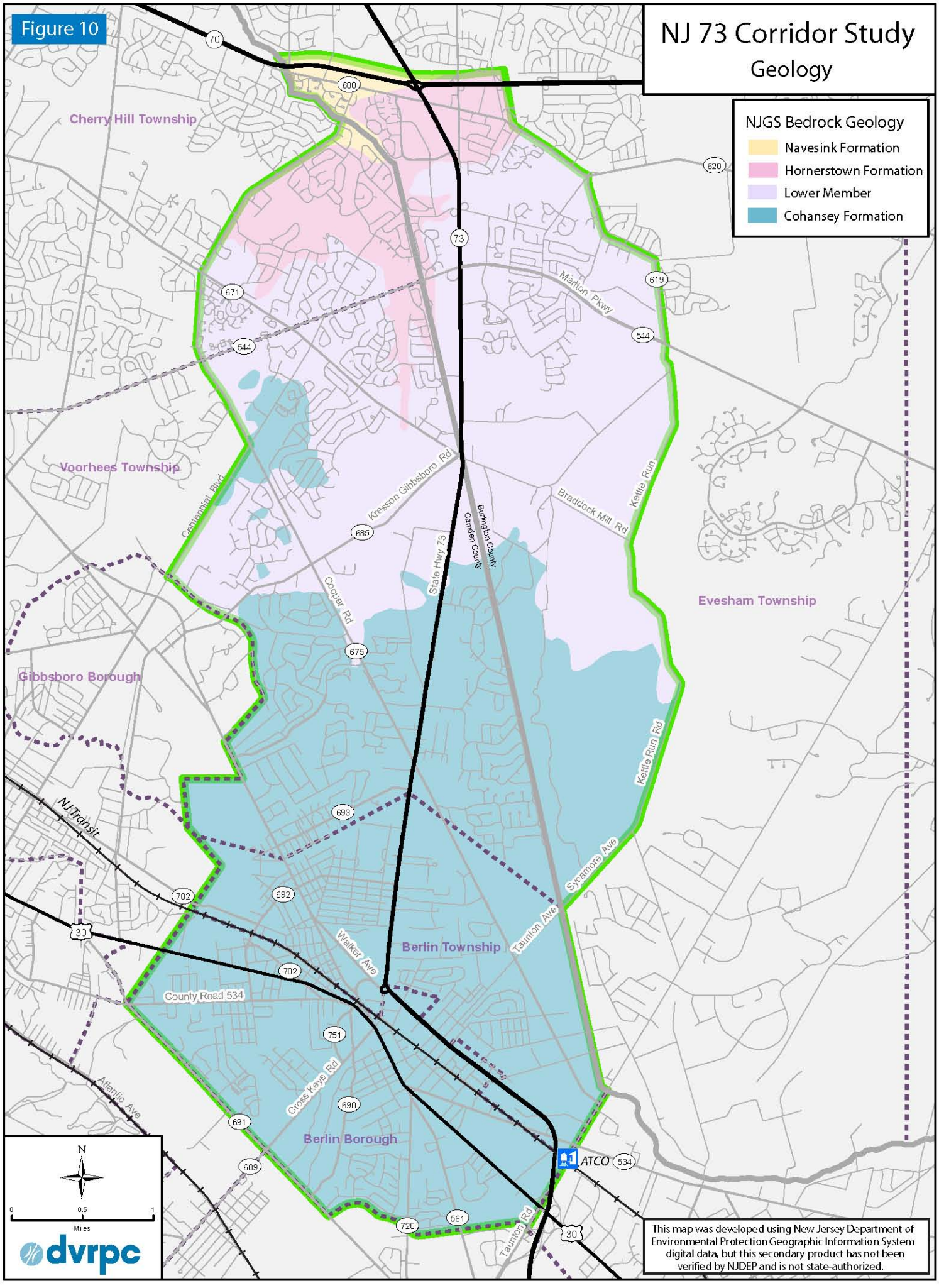
Figure 10
NJ 73 Corridor Study
Geology
NJGS Bedrock Geology
Navesink Formation
Hornerstown Formation
Lower Member
Cohansey Formation
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Berlin Township
Berlin Borough
Evesham Township
Centennial Blvd
Kresson Gibbsboro Rd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Marlton Pkwy
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
ATCO
Taunton Rd
70
600
620
73
671
544
619
685
675
693
692
702
30
751
690
691
689
720
561
534
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1
Miles
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

## Stormwater Management

Although the water resources, including the Kirkwood-Cohansey aquifer system, in the study area are of crucial importance, they are increasingly threatened by development patterns with inadequate stormwater management. Stormwater runoff is affected by many factors, including land use, geology and soils, surface and ground water, riparian buffers, woodlands, floodplains, wetlands, slope, and impervious coverage. In the study area, sprawling development patterns have contributed to high levels of impervious surface coverage. Impervious surfaces disrupt natural absorption, filtration, and recharge processes, and allow polluted water to flow rapidly into bodies of water, increasing erosion and stream bank degradation as well. Water quality impairment can occur when a watershed has just 10 -20 percent of its land covered by impervious surfaces. When impervious coverage reaches 25 -30 percent, streams will often be severely degraded. The entire study area has 21.5 percent impervious coverage, although this is much higher in some areas. The installation of storm sewer pipes, which efficiently collect and discharge runoff, also prevent the natural infiltration of rainwater into the soil and underlying groundwater aquifers. Stormwater runoff leads to impaired water quality and increased flooding, which can seriously threaten a community's health, safety, and quality of life.

Within the study area, there are two main areas of concern for stormwater management: (1) impaired areas of the Cooper River watershed in Cherry Hill and Voorhees; and (2) flood-prone areas of the NJ 73 corridor in Berlin Township.

### Cooper River Watershed Stormwater Management

Within the study area, portions of the townships of Cherry Hill, Evesham, and Voorhees, as well as two issue areas (numbers 4 and 5 on Figure 15), lie within the Cooper River watershed. The proposed improvements at these issue areas, including additional sidewalks, will increase impervious coverage, which may further affect the water quality of streams in the watershed. However, improvements to basins, outfalls, and stream corridors could address existing stream impairment and mitigate for additional impacts.

The Cooper River Regional Stormwater Management Plan (RSWMP), prepared by the Camden County Soil Conservation District, addresses locations within the study area and identifies solutions to stormwater problems that can be managed on a regional basis. The Cooper River watershed is significantly impacted by stormwater and faces many causes of impairment, including erosion, excessive siltation, inadequate stormwater management capacity, failing stormwater structures, diminished stream base flows, pollution, degraded habitat, and flooding.

The Cooper River RSWMP identified over 80 stormwater basins in need of improvements, 11 of which are located within the study area; four of these 11 are publicly owned. Two of those four located in Cherry Hill Township have received grant money from NJDEP for improvements. The grant money will be used for vegetation planting and the construction of berms and other improvements as well as conservation education. The Cooper River RSWMP also identified 11 degraded stormwater outfalls as the highest priority for retrofits; three are located within the study area.

According to the Cooper River RSWMP, the majority of stream corridors in the watershed are impaired due to the extent of development and impervious coverage. The Cherry Hill portion of the study area has 29.1 percent impervious coverage even though it does not contain any major commercial sites. The plan identifies three

stream segments in the Cherry Hill portion of the study area with high priority for stream restoration. Recommended improvements to stream corridors include buffer and vegetative enhancement, downstream sediment trap, grade control, and streambank stabilization. Streams in Cherry Hill and Voorhees townships are protected through Stream Buffer Conservation Zones that extend for a minimum of 75 feet measured from both defined edges of a watercourse, or is equal to the 100-year floodplain (whichever is greater).

## Berlin Township Stormwater Management

Proposed improvements to areas in Berlin Township (Issue Area C in Figure 15) could affect existing problems of flooding and water quality impairment. The proposed improvements include a potential new road, which will increase impervious coverage. However, best management practices addressing stormwater runoff, including basin retrofits, could improve the existing water quality and mitigate for additional impacts.

Better stormwater management design along the NJ 73 corridor could help eliminate some of the chronic flooding experienced in areas with high percentages of impervious surfaces, shown in Figure 11. In Berlin Township, for example, there is inadequate capacity of the existing storm drainage in several areas along NJ 73, resulting in periodic flooding of the highway and adjacent properties. This is especially evident in commercial areas near Katherine Avenue and Minck Avenue. The main culprit of the flooding problem is excessive impervious coverage, which exceeds 60 percent in both areas. In fact, the impervious coverage of many commercial properties in Berlin Township ranges from 75 - 95 percent. With such high percentages of impervious coverage, a minor rain event can cause not just flooding and property damage, but also surface water pollution as water runs rapidly across the paved surfaces and absorbs pollutants before entering sewer infrastructure.

The NJ 73 corridor in Berlin Township mostly lies within two sub-watersheds: Great Egg Harbor River (above New Freedom Road) and Barton Run (above Kettle Run Road). Both of these are impaired for aquatic life, meaning they do not support aquatic organisms.

This commercial area does have a number of stormwater management facilities, such as large retention basins in front of the Shop Rite and behind the Walmart and Pet Smart. Stormwater basins were constructed to control peak flows from very heavy storm events and were not constructed to control smaller events. However, local flooding that causes streambank erosion and water quality impairment is predominantly due to small storms. In addition to their typical lack of effectiveness in dealing with small storms, most basins were designed strictly for flood control and do not improve water quality. Moreover, stormwater basins are not typically very attractive in character and can degrade the economic and aesthetic value of surrounding land uses.

Ecological functionality can be incorporated into stormwater basins to improve water quality, increase stormwater -holding capacity from small storms, provide wetland or riparian habitat functions, and improve the area's economic and aesthetic value while at the same time reducing maintenance costs. Existing retention ponds can be retrofitted with shoreline plantings of native vegetation, emergent wetland shelves (also known as littoral shelves), and/or floating islands. By adding wetlands functionality to an existing retention pond, stormwater runoff slowly moves through the system over the course of a few days. Sediment and other matter is retained in the pond rather than entering streams, and the indigenous wetlands vegetation and soils remove harmful nutrients through biological uptake and other natural processes.

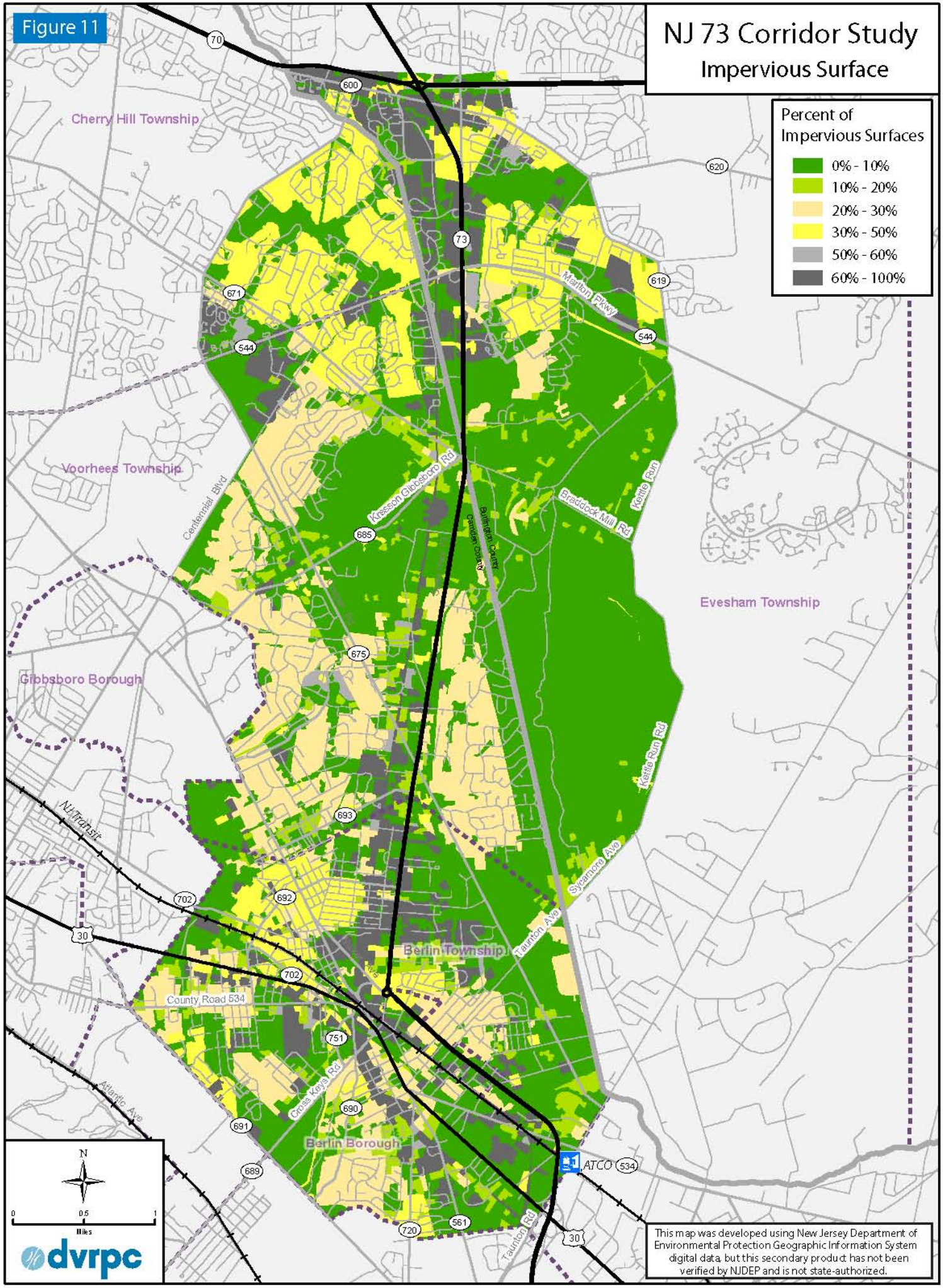
Figure 11
NJ 73 Corridor Study
Impervious Surface
Percent of Impervious Surfaces
0% - 10%
10% - 20%
20% - 30%
30% - 50%
50% - 60%
60% - 100%
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Centennial Blvd
Kresson Gibbsboro Rd
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Marlton Pkwy
Camden County
Burlington County
Sycamore Ave
Taunton Ave
Taunton Rd
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
ATCO
70
600
620
73
671
619
544
685
675
693
692
702
30
751
690
691
689
720
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534
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

## Natural Resource Protection Planning

Previous and ongoing planning efforts by the Pinelands Commission, the Delaware Valley Regional Planning Commission (DVRPC), and other organizations have highlighted the importance of conservation in and around the Black Run South area. They are described below.

### The Landscape Project

The Landscape Project, part of the Endangered and Non-Game Species Program of the NJ Department of Environmental Protection (NJDEP) Division of Fish and Wildlife, was created in response to the state's loss of valuable habitat to development. The Landscape Project maps areas that are either critical or suitable habitat for imperiled wildlife species.

Nearly the entire Black Run South area south of Braddock Mill Road between Tomlinson Mill Road and Kettle Run Road has been designated critical habitat. Figure 12 shows sensitive areas, including the high-priority areas identified by the Landscape Project.

The barred owl, a threatened species, is located throughout the contiguous forest and forested wetlands area in much of Evesham and portions of Voorhees and Berlin townships. The Eastern box turtle, a species of special concern, is located in small forested areas throughout every township in the study area. Cooper's hawk, a threatened species, is located in critical forested habitat in Voorhees Township. The broad-winged hawk is a species of special concern that is located in a large forest and forested wetlands area in Voorhees on both sides of Kresson-Gibbsboro Road.

Although a large portion of the study area–the Black Run South area, in particular–is classified by the Landscape Project as either critical or suitable habitat for threatened or endangered species, only a small percentage of that vital habitat has been preserved.

### New Jersey Pinelands Commission

The ecological communities and geological features of the Pinelands are internationally recognized as an important ecosystem. The Pinelands contains many notable and rare natural communities not found in such concentration, or not found at all, elsewhere on earth. The area contains unique range overlaps where northern and southern plant species reach their respective geographic limits. Another unusual aspect of the Pinelands is its thousands of acres of pygmy forest of mature trees that do not exceed eleven feet. The Pinelands National Reserve was designated by the United Nations as an International Biosphere Reserve and is the largest area of open space on the Eastern seaboard between Richmond and Boston. Strategically preserving land in the Pinelands is essential to preserve the water quality of the Kirkwood-Cohansey aquifer. It contains 17 trillion gallons and is one of the largest freshwater aquifers in the world. The exceptionally sandy soils of the Pinelands effectively filter out pollutants from entering the aquifer.

All of the Burlington County side of the study area lies within the boundaries of the Pinelands National Reserve. However, only the area south of Braddock Mill Road and Tomlinson Mill Road is within the New Jersey state-designated Pinelands area, which has somewhat stricter limitations on development.

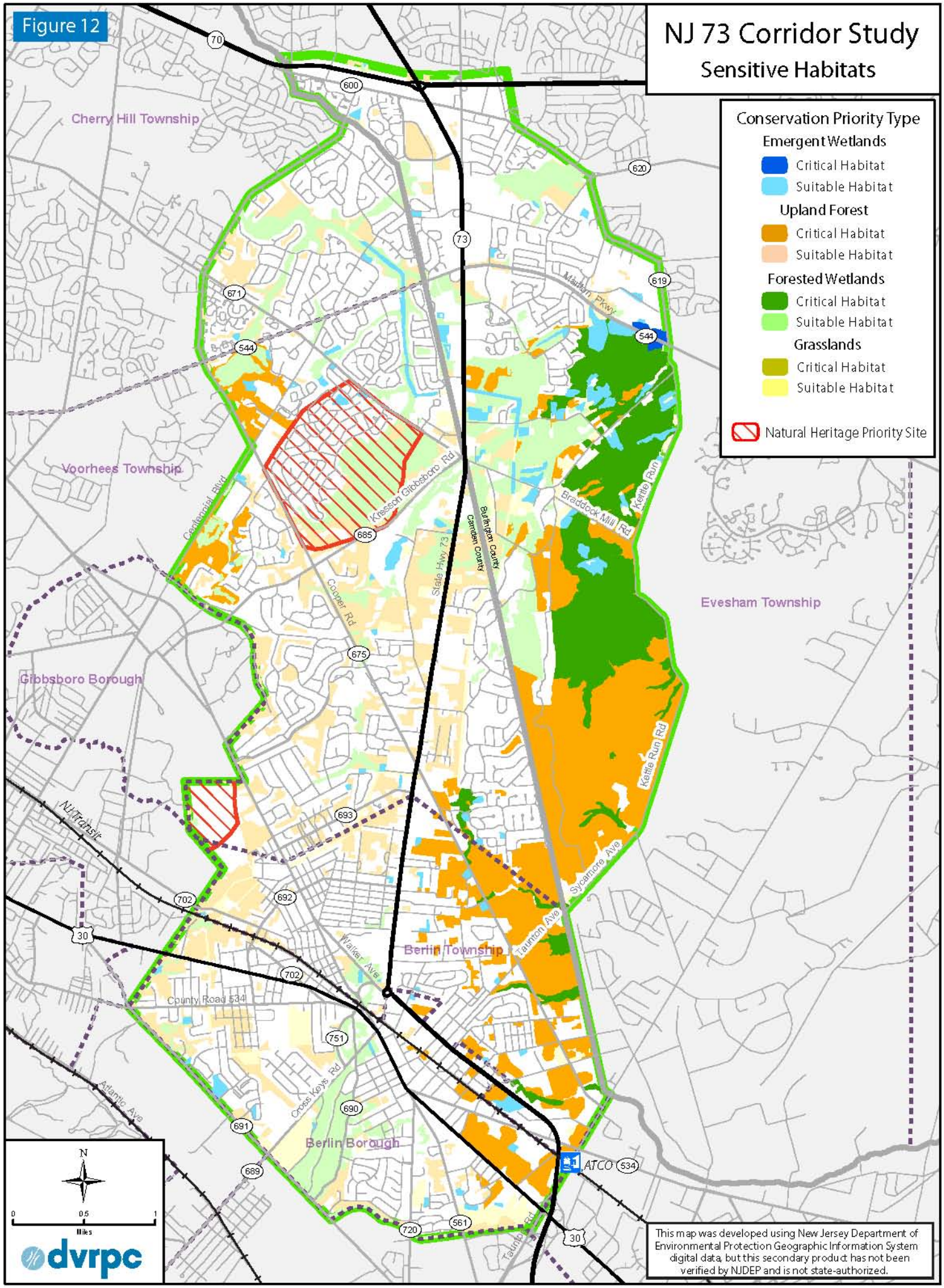
Figure 12
NJ 73 Corridor Study
Sensitive Habitats
Conservation Priority Type
Emergent Wetlands
Critical Habitat
Suitable Habitat
Upland Forest
Critical Habitat
Suitable Habitat
Forested Wetlands
Critical Habitat
Suitable Habitat
Grasslands
Critical Habitat
Suitable Habitat
Natural Heritage Priority Site
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Marlton Pkwy
Kresson Gibbsboro Rd
Centennial Blvd
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Sycamore Ave
Taunton Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
ATCO
70
600
620
73
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671
544
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693
692
702
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690
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

It is sometimes assumed that land in the Pinelands is protected from development. In fact, there has been a great deal of development in the Pinelands in recent years, leading to conflicts between development and conservation of natural areas. In an effort to manage growth, the Pinelands has been divided into nine land management areas with goals, objectives, development intensities, and permitted uses for each. Land in the Pinelands portion of the study area is located within either a Rural Development Area or a Regional Growth Area, which both allow for different types of development.

The area in Evesham Township north of Braddock Mill Road and Tomlinson Mill Road is within a designated Regional Growth Area. These areas allow the most intensive development in the Pinelands and are intended to accommodate regional growth while preserving the character and environment of the Pinelands. Regional Growth Areas allow sewer service and permit commercial and industrial uses, as well as residential development averaging three homes per acre.

Land in Evesham Township south of Braddock Mill Road and Tomlinson Mill Road–which includes the Black Run South area–is within a designated Rural Development Area, which is an area intended to have a balance of conservation and growth. Rural Development Areas permit roadside retail and a limited amount of residential development with an average density of one home for every five acres.

The Permit Extension Act of 2008 was passed by the State of New Jersey to extend development permits and prevent the abandonment of approved projects in the face of the economic downturn of 2008. However, the act does not apply to areas designated as Environmentally Sensitive Areas. These areas include many areas in the Pinelands, including the Black Run South area.

## *Connections* Greenspace Network

A regional vision for restoring and preserving green infrastructure throughout the Delaware Valley region is embodied by the Greenspace Network in DVRPC's long-range plan, *Connections*. The Greenspace Network is a unified system linking park and open space, high-value natural resource areas, and population centers to enhance the recreational, ecological, scenic, and economic vitality of the region. This network consists of 100 individually named greenspace corridors throughout the Philadelphia metropolitan region.

Figure 13 shows the DVRPC Greenspace Network within the study area. There are five greenways pictured on the Greenspace Network that are within the study area: River-to-Bay, Southwest Branch Rancocas Creek, Pinelands Conservation Areas, Cooper River, and Great Egg Harbor River. These greenways can provide recreation and open space benefits while also protecting water quality. The Black Run South area of Evesham Township is located within two different greenways: the Southwest Branch Rancocas Creek and the Pinelands Conservation Areas. Therefore, land preservation in this area would not only protect sensitive ecological resources, but would further regional recreation and open space goals as well.

*Connections* identifies Conservation Focus Areas throughout the Delaware Valley, which are large areas containing a combination of unique physiographic, vegetative, and land use characteristics that should be protected. One such area, called the Pinelands Rural and Preservation Areas, covers much of the Evesham Township portion of the study area, including the entire Black Run South area.

## Evesham Township

*A Sub-Regional Resource Protection Plan for Southern Medford/Evesham Township* was a joint effort by Evesham Township, Medford Township, the NJDEP, and the New Jersey Pinelands Commission published in 2006. This report identified areas with the highest natural resource values in the two townships, taking into account undeveloped and unaltered lands, wetlands, water quality, and rare plant and animal sightings. This plan identified areas with the greatest landscape, wetlands, watershed, and overall landscape integrity. For each of the four measures of integrity, portions of the study area ranked as one of the three highest value areas in the subregion.

The aforementioned Black Run South area was one of three areas identified as having the greatest overall landscape integrity. This area is adjacent to high-density residential developments in Voorhees and faces a great deal of development pressure, particularly because it is composed of upland soils highly suitable for development. The plan recommended that zoning in this area be re-designated from Rural Development (RD-3) to Rural Development-Cluster (RD-C) to maximize contiguous open space and minimize water quality impacts. The area's current RD-3 zoning allows for 3.2 acres per dwelling unit, while the proposed RD-C zoning would require cluster-style development at 10 acres per dwelling unit. In addition to rezoning, the Black Run South area was identified as a high priority for acquisition. Although rezoning can lessen the scale of future development, land acquisition is the most effective way to protect natural habitat and improve water quality.

### Environmental Recommendations

- The Black Run South area should be a high priority for protection due to its high-value ecological integrity. A combination of preservation tools could be used, including rezoning and acquisition;
- A more comprehensive approach to stormwater management that addresses reducing impervious coverage and maximizing infiltration and vegetative uptake of stormwater is recommended; and
- Communities in the study area must ensure that their zoning ordinances and building codes protect against groundwater contamination and that effective enforcement of these provisions is in place.

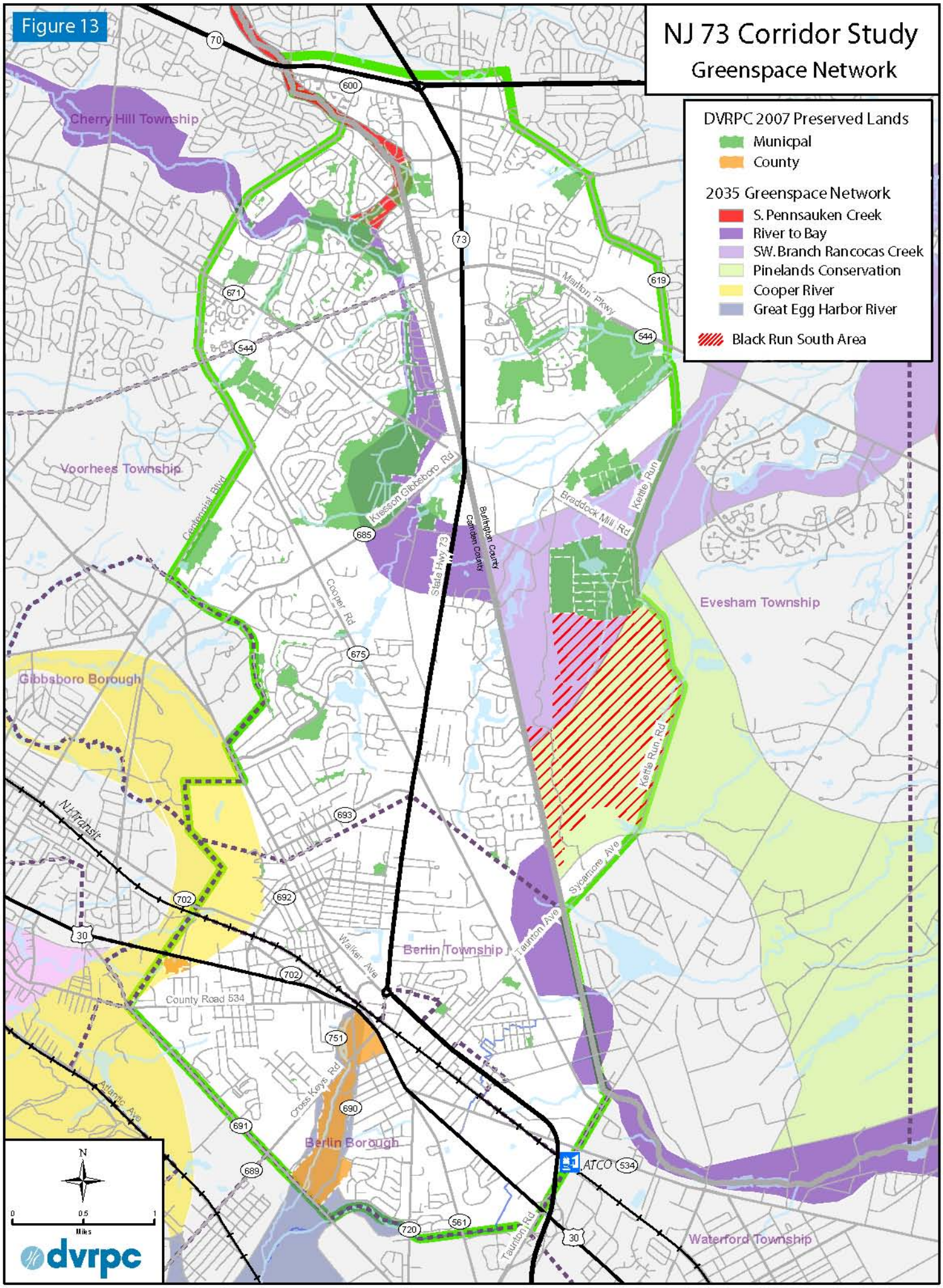
Figure 13
NJ 73 Corridor Study
Greenspace Network
DVRPC 2007 Preserved Lands
Municpal
County
2035 Greenspace Network
S. Pennsauken Creek
River to Bay
SW. Branch Rancocas Creek
Pinelands Conservation
Cooper River
Great Egg Harbor River
Black Run South Area
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
Centennial Blvd
Kresson Gibbsboro Rd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
Taunton Rd
Marlton Pkwy
NJ Transit
ATCO
70
600
73
671
544
619
685
675
693
692
702
30
751
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CHAPTER 7

# Transportation Network and Access

The study area is served by a combination of state, county, and local roads that provide mobility and access to vehicular, bicycle, and pedestrian traffic. The primary routes are listed below and shown in Figure 14.

### NJ 73

NJ 73 is an Urban Principal Arterial with an average of two lanes in each direction. Within the study area, it extends from the south at Waterford Township, Camden County to the north at NJ 70 in Evesham Township, Burlington County. The posted speed limit is generally 55 MPH. While traffic volumes fluctuate by location, in general, Average Annual Daily Traffic (AADT) along the corridor is around 40,000 vehicles.

### Cooper Road (CR 675)

Cooper Road is an Urban Minor Arterial that intersects with NJ 73 in Voorhees Township, Camden County. It provides access to NJ 73 from Cherry Hill Township to the north and Berlin Township to the south. It generally is a two-lane road, having one travel lane in each direction. Its speed limit ranges from 25 to 45 MPH. In 2005, AADT between Victor Boulevard and NJ 73 in the eastbound direction was 6,123 and in the westbound direction was 4,312.

### Kresson Road (CR 671)

Kresson Road, an Urban Minor Arterial, traverses NJ 73 from northwest of the study area in Camden County to the southeast in Burlington County, where it becomes Braddock Mill Road. The speed limit is 40 MPH prior to the junction with NJ 73. The study area portion of this road is generally two travel lanes with a recorded AADT of 8,113 in 2006.

### US 30 (White Horse Pike)

The White Horse Pike is an Urban Principal Arterial throughout the study area. It is predominantly a four-lane road, though it carries two total travel lanes through Berlin Borough's central business district. The posted speed limit ranges from 45 to 50 MPH traveling west to east. The AADT was 8,084 eastbound and 7,322 westbound between Townsend Avenue and NJ 73 in 2005.

### Kresson-Gibbsboro Road (CR 685)

Kresson-Gibbsboro Road is an Urban Collector with two total travel lanes. It lies within the southwestern portion of the study area in Voorhees Township, Camden County and terminates at CR 671 just 75 feet northwest of NJ 73.

### Evesham Road (CR 544)

West of NJ 73, Evesham Road is a four-lane Urban Principal Arterial, whereas east of NJ 73, its name changes to Marlton Parkway and becomes a divided two-lane Urban Minor Arterial. Its AADT in 2006 was 24,863 for both directions. The posted speed limit is 45 MPH.

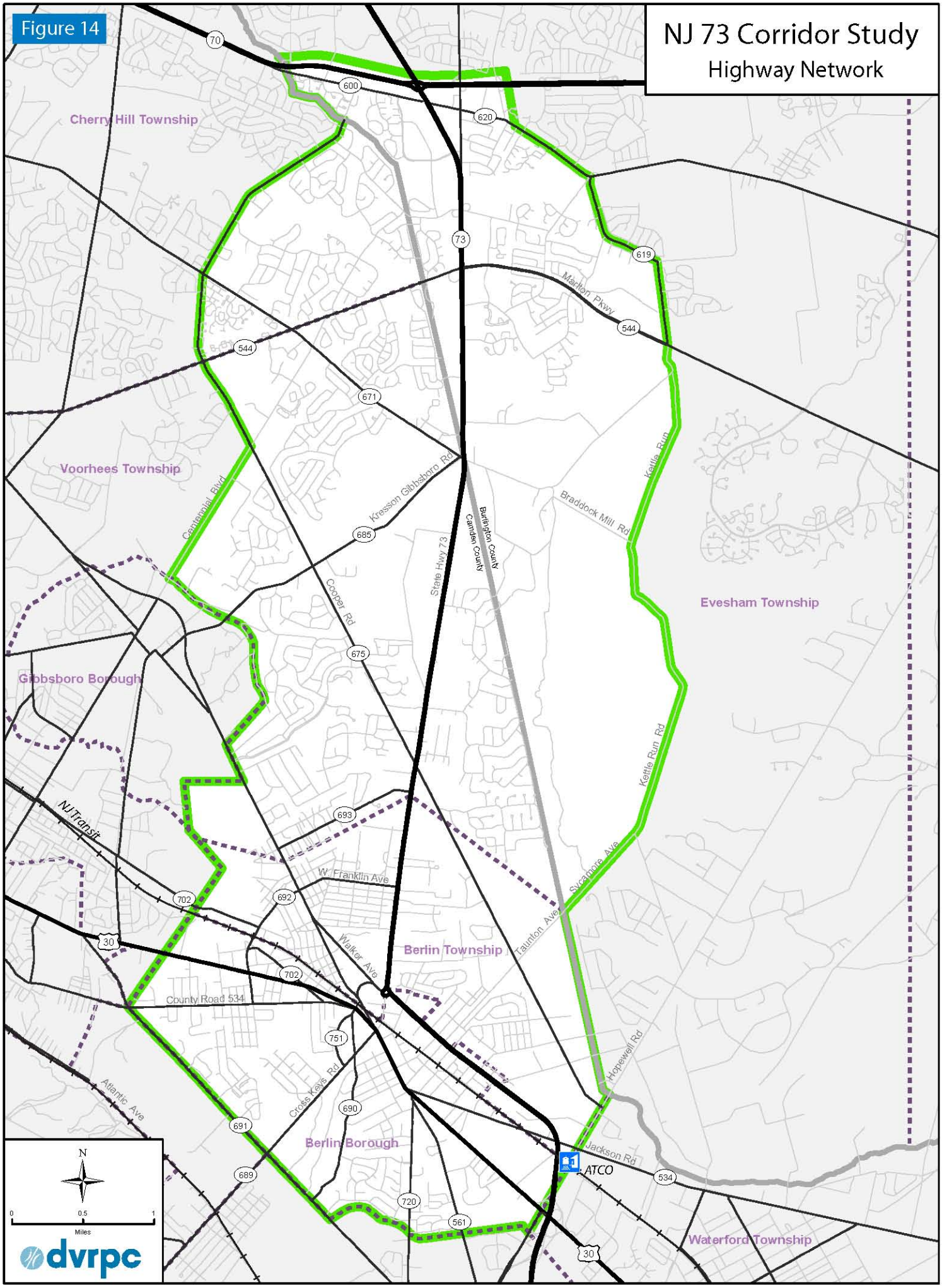
Figure 14
NJ 73 Corridor Study
Highway Network
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Berlin Township
Berlin Borough
Evesham Township
Waterford Township
70
600
620
73
619
544
671
685
675
693
692
702
30
751
690
691
689
720
561
534
Marlton Pkwy
Kresson Gibbsboro Rd
Centennial Blvd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
W Franklin Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
Hopewell Rd
Jackson Rd
NJ Transit
ATCO
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### Franklin Avenue (CR 692)

Franklin Avenue is a two-lane Urban Minor Arterial that only travels through Berlin Borough and Berlin Township. This arterial's eastern terminus is at NJ 73 and has a posted speed limit of 25 MPH.

### Old Marlton Pike (CR 600)

Within the study area, Old Marlton Pike connects Cherry Hill Township, Camden County with Evesham Township, Burlington County along an adjacent and parallel route to NJ 70. It is a two-lane Urban Minor Arterial with a posted speed limit of 35 MPH.

### Jackson Road (CR 534)

Jackson Road in Camden County intersects US 30 and NJ 73 in Berlin Borough and Berlin Township, respectively. It is an Urban Minor Arterial with two travel lanes and a posted speed limit of 35 MPH to 45 MPH. The AADT east of NJ 73 between Anderson Avenue to State Street in both directions was 12,589 in 2006.

### Main Street (CR 620)

Main Street is a two-lane Urban Minor Arterial with a posted speed limit that varies from 30 MPH to 35 MPH. It is the principal east-west road through historic Marlton.

### Hopewell Road

Hopewell Road is a two-lane urban local road that serves as the boundary between Berlin Township and Waterford Township. It terminates at Jackson Road (CR 534), though an unpaved portion continues south, to the raised embankment of NJ Transit's Atlantic City rail line.

## Traffic Volume Analysis

NJ 73 serves multiple purposes throughout the study area: summer shore route, commercial shopping destination, and weekday commuter route. As a result, the corridor carries a substantial volume of vehicles, with little variation within the study area as a whole. An AADT of 40,845 vehicles was recorded near D'Angelo Drive, within the southern portion of the study area. In the central section of the study area near Dutchtown Road, an AADT of 39,922 was recorded. Between Ardsley Drive and Commonwealth Drive, in the northern section, an AADT of 40,438 was recorded. During a typical weekday, traffic volumes vary along NJ 73 depending on the location, time of day, and direction of travel. During the AM weekday peak hour, northbound volumes range from approximately 1,600 to 2,200 vehicles per hour, whereas southbound volumes range from around 600 to 1,600 vehicles per hour. Conversely, during the weekday evening peak hour, southbound volumes range from approximately 1,100 to 2,400 vehicles per hour, whereas northbound volumes range from roughly 1,000 to 1,700 vehicles per hour. NJ 73 intersects with several major intersecting streets within the study area. During peak hours, the major intersecting streets contribute between roughly 300 and 850 vehicles per hour onto NJ 73 via left- and right-turning movements.

## Crash Analysis

Using the NJDOT crash database, crash clusters were identified at seven roadway intersections along NJ 73 study corridor for the years 2005 to 2007. Crashes were analyzed by crash type, lighting conditions, weather conditions, and crash severity. These are summarized in Table 6. The intersection locations described below are in order from highest to lowest total crashes for all three years and include the area of the intersection between the stop bars.

### NJ 73 and Evesham Road/Marlton Parkway (MP 22.79 – 22.81)

This intersection had the most crashes in the study area, with 50 total crashes for the period from 2005 to 2007. The majority of crashes, 58 percent, were rear-end crashes. This is well above the statewide crash statistics for rear-end crashes on the state road system (excluding toll roads and interstates) in 2007 (45 percent). Left-turn or U-turn crashes account for 16 percent of the crashes at this intersection. This is also well above the percentage for this crash type at the state level (3 percent). Right-angle crashes, however, are only four percent of crashes. These are below statewide levels.

### NJ 73 and Brick Rd. (MP 23.18 – 23.20)

At Brick Road, 37 crashes occurred from 2005 to 2007. Fifty-seven percent were rear-end crashes. The second highest crash type was right angle crashes at 14 percent. Forty-one percent of crashes took place at night, well above statewide data (26 percent), potentially due to poor lighting conditions, or a lack of clear signage. Approximately 32 percent of crashes were on wet pavement, which is high compared to a statewide figure of 20 percent.

### NJ 73 and Kresson Road (CR 671)/Braddock Mill Rd. (MP 21.42 – 21.44)

There were 31 crashes in total at this location. Like the previous intersections, rear-end crashes are the most numerous at this location. Fifty-five percent of crashes were of this type from 2005 to 2007. Same-direction side –swipe accidents are the second highest at 13 percent. Seventy-seven percent of crashes happened during the day and 74 percent of crashes are property damage only. These values are in line with statewide statistics.

### NJ 73 and Centre Blvd. (MP 23.97 – 23.99)

Overall, there were 27 crashes total from 2005 to 2007. The vast majority of crashes at this intersection, 89 percent, were rear-end crashes. Forty-one percent of crashes, 11 out of the total, were injury crashes. This is above the statewide level of 28 percent of crashes and presents a safety concern.

### NJ 73 and Cooper Rd. (MP 19.22 – 19.26)

At this intersection, 23 crashes occurred between 2005 and 2007. Sixty-one percent of these crashes were rear-end crashes. The second most were left-turn or U-turn crashes at 17 percent. For both of these crash types, these values are above the statewide levels at 45 and 3 percent, respectively. Finally, one fatality occurred at this intersection.

### NJ 73 and Prospect Rd. (MP 17.96 – 17.98)

Over the three-year period, 22 crashes occurred at this location. Forty-one percent of crashes were rear-end crashes and 36 percent were right-angle crashes. The rate for right-angle crash is very high compared to statewide levels. This location also presents significant safety concerns. Sixty-four percent of crashes were injury crashes compared to 28 percent statewide. Also, one pedacyclist (bicycle) crash occurred here during this period.

### NJ 73 and Ardsley Rd. (MP 22.27 – 22.29)

At Ardsley Road and NJ 73, 18 crashes were recorded from 2005 to 2007. Sixty-seven percent were rear-end crashes. Eighty-nine percent happened during the day and 67 percent were property-damage-only crashes.

Table 6: Intersection Crash Summary

| | Intersections | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Crash Characteristics | Evesham/Marlton Pkwy | Brick Rd. | Kresson /Braddock Mill Rd. | Centre Blvd. | Cooper Rd. | Prospect Rd. | Ardsley Rd. | Total | Percent |
| Rear-End (Same Direction) | 29 | 21 | 17 | 24 | 14 | 9 | 12 | 126 | 60.6% |
| Sideswipe (Same Direction) | 9 | 4 | 4 | 1 | 2 | 2 | 1 | 23 | 11.1% |
| Right-Angle | 2 | 5 | 2 | 0 | 2 | 8 | 2 | 21 | 10.1% |
| Opposite Direction | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 1.0% |
| Left-Turn/U-Turn | 8 | 1 | 3 | 0 | 4 | 1 | 1 | 18 | 8.7% |
| Pedestrian | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Pedacyclist | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 1.0% |
| Other | 2 | 5 | 5 | 1 | 1 | 0 | 2 | 16 | 7.7% |
| At Intersection | 24 | 13 | 16 | 6 | 9 | 15 | 7 | 90 | 43.3% |
| Not at Intersection | 26 | 24 | 15 | 21 | 14 | 7 | 11 | 118 | 56.7% |
| Day | 35 | 20 | 24 | 19 | 18 | 18 | 16 | 150 | 72.1% |
| Dusk | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 1.0% |
| Night | 13 | 15 | 7 | 8 | 5 | 4 | 2 | 54 | 26.0% |
| Dawn | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1.0% |
| Fatality | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0.5% |
| Injury | 13 | 11 | 8 | 11 | 7 | 14 | 6 | 70 | 33.7% |
| Property | 37 | 26 | 23 | 16 | 15 | 8 | 12 | 137 | 65.9% |
| Dry | 40 | 25 | 22 | 21 | 15 | 18 | 15 | 156 | 75.0% |
| Wet | 10 | 12 | 7 | 6 | 7 | 3 | 3 | 48 | 23.1% |
| Other | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 4 | 2.0% |
| Total | 50 | 37 | 31 | 27 | 23 | 22 | 18 | 208 | 100.0% |

Source: DVRPC 2009

# Segment Analysis

In order to identify the transportation issues along the corridor, DVRPC solicited guidance from the study advisory committee as to what issues and concerns there were along the corridor. Some of these can be addressed corridor-wide while others need to be more specifically addressed. Arterial segments composed of multiple adjacent intersections within the study area were analyzed as a single element due to their close proximity, shared context, and common issues. Each segment was analyzed for a common set of problems and provided context-sensitive recommendations. Particular effort was given towards accommodation of anticipated future development at the site-specific level, as well as at the sub-corridor level. The locations of issue areas along the corridor are shown in Figure 15.

## Segment A: Evesham Township

### South Maple Avenue

This section includes South Maple Avenue (CR 607), between Old Marlton Pike and Centre Boulevard in Evesham Township. It traverses historic downtown Marlton, a pedestrian-friendly, mixed-use area that meets a town/village neighborhood context. However, the heavy vehicular traffic volumes and high speeds within this segment are inappropriate for this context.

#### Recommendations

- Implement traffic calming techniques, such as narrower travel lanes and on-street parking along South Maple Avenue and Main Street to discourage excessive speeding and cut-through vehicles;
- Install wayfinding signage at appropriate upstream intersections and segments to direct visitors toward Historic Marlton;
- Provide pedestrian facilities at all intersections, including unsignalized intersections. Such facilities may include continental-striped crosswalks, ADA-compliant curb ramps, pedestrian-actuated count-down signal heads, and curb bump-outs; and
- This segment is parallel to and located immediately beyond the boundaries of the current Marlton Circle Elimination project. Completion of this project will have a strong impact upon this segment. For example, the anticipated improvement of north and southbound travel along NJ 73 may deter cut-through traffic along South Maple Avenue.

### NJ 73

- This segment includes the areas along NJ 73 between Centre Boulevard and Marlton Parkway/Evesham Road. There is a lack of pedestrian and internal vehicular connectivity between commercial areas despite the abundance of retail opportunities with proximity to residential neighborhoods.

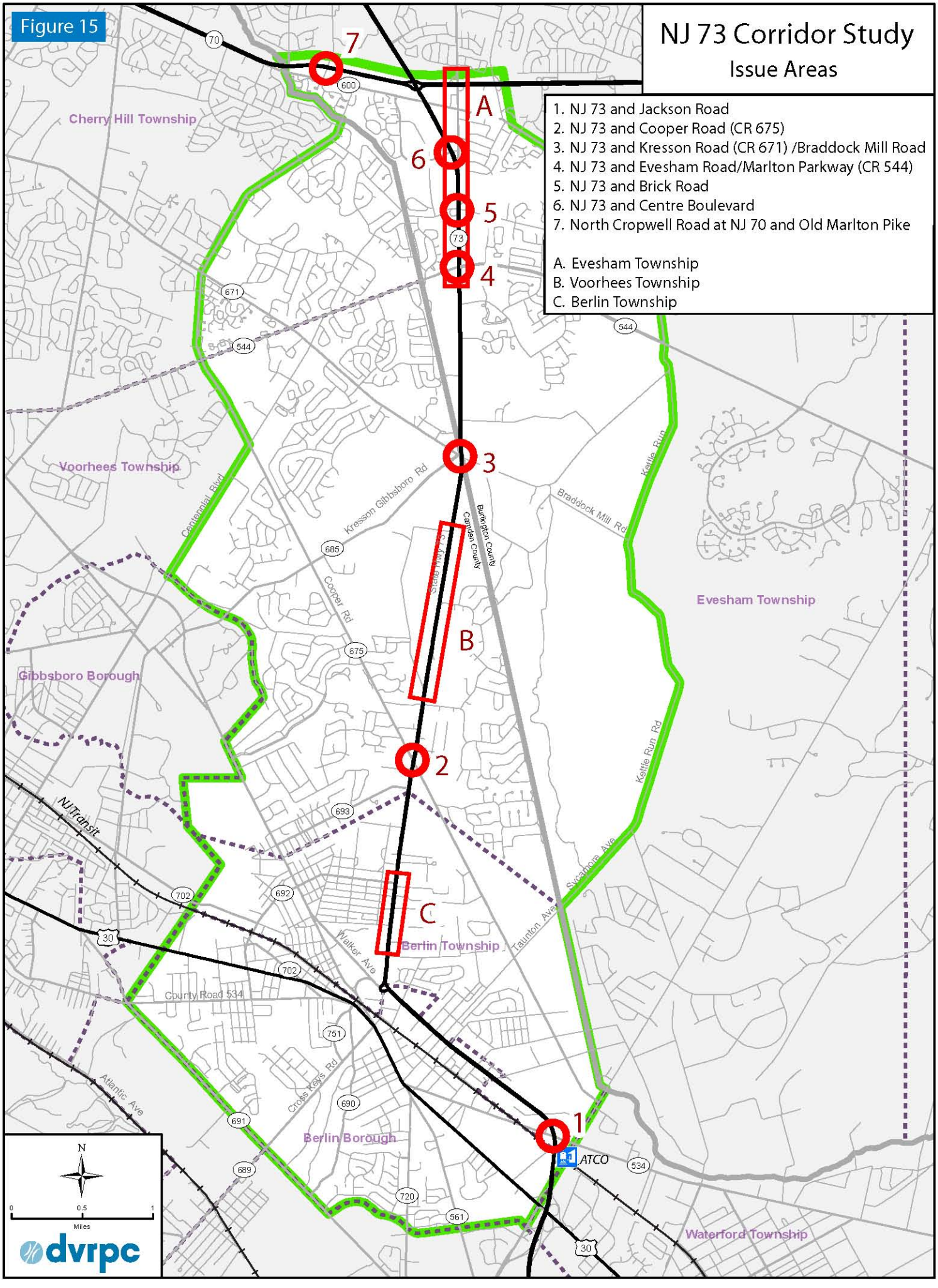
Figure 15
NJ 73 Corridor Study
Issue Areas
1. NJ 73 and Jackson Road
2. NJ 73 and Cooper Road (CR 675)
3. NJ 73 and Kresson Road (CR 671) /Braddock Mill Road
4. NJ 73 and Evesham Road/Marlton Parkway (CR 544)
5. NJ 73 and Brick Road
6. NJ 73 and Centre Boulevard
7. North Cropwell Road at NJ 70 and Old Marlton Pike
A. Evesham Township
B. Voorhees Township
C. Berlin Township
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Evesham Township
Berlin Township
Berlin Borough
Waterford Township
Kresson Gibbsboro Rd
Braddock Mill Rd
Cooper Rd
Centennial Blvd
Kettle Run
Kettle Run Rd
Sycamore Ave
Taunton Ave
Walker Ave
Cross Keys Rd
Atlantic Ave
County Road 534
NJ Transit
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Burlington County
Camden County
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### Recommendations

- Provide pedestrian treatments along NJ 73 to connect businesses and offices to the sidewalk network;
- At intersections, provide pedestrian facilities, such as continental-striped crosswalks, ADA-compliant curb ramps, and pedestrian-actuated count-down signal heads to increase safe pedestrian mobility;
- Between Centre Boulevard and Brick Road, construct internal roads similar to what exists between Brick Road and Evesham Road. This will connect adjacent commercial parcels that currently utilize multiple access points onto NJ 73 and Lippincott Drive. Thus, reducing the number of vehicle conflict points along NJ 73; and
- Add wayfinding signage for the internal road between Brick Road and Evesham Road. This signage will identify access points to the various interconnected commercial and office centers, such as the Town Place at Marlton and The Shops at Borders shopping centers.

## Segment B: Voorhees Township

#### NJ 73

This segment includes the area along NJ 73 between Dutchtown Road (north) and Signal Hill Road. This segment will experience new traffic patterns and volumes after the construction of the 100-acre Virtua Hospital complex. In addition to the hospital facilities, over 300,000 square feet of related offices will be constructed along southbound NJ 73. Direct vehicular access to the new hospital complex will be composed of two signalized intersections at Cedar Hill Drive and at Dutchtown Road (north).

### Recommendations

- Redesign and improve the immediate access points to accommodate the anticipated vehicular volumes. Evaluate the extent of further off-site improvements necessary to accommodate this development;
- Provide multi-modal amenities to encourage non-motorized vehicular travel to, from, and around the development. Such amenities may include transit (bus) stops and shelters, an interconnected sidewalk network, identifiable pedestrian facilities at intersections, wayfinding signs, and physical links to the surrounding bicycle network; and
- Consider additional road connections to the existing street network to more effectively disperse traffic volumes, potentially reducing severe congestion at the few adjacent intersections.

## Segment C: Berlin Township

#### NJ 73

This segment of NJ 73 is bounded by Franklin Avenue to the north and Prospect Avenue to the south. Adjacent parcels match a highway commercial context, with several shopping centers, including Berlin Circle Plaza and Walmart, and additional strip development. The Township submitted a problem statement to NJDOT in 2002, which began an exploration of the existing issues and potential short- and long-term solutions along this segment. McCormick Taylor was retained by NJDOT to develop a Concept Development study, which was released in August 2007. The study documented the various problems along this segment, many of which are the result of a large volume of left- and U-turning vehicles from the northbound NJ 73 approach at the

intersection with Franklin Avenue. Their resulting queues extend upstream beyond the provided storage lane and into the northbound NJ 73 through lanes, creating a hazardous situation. Unsafe conditions are also generated from high-speed weaving by northbound vehicles attempting to access the inner left-turn lane at the NJ 73 and Franklin Avenue intersection from the Walmart, D'Angelo Drive, and Commerce Lane, none of which provide direct access to southbound NJ 73. Ingress to the Walmart is available from southbound NJ 73, via an unsignalized left-turn lane at D'Angelo Drive; however, this storage lane's capacity is limited by the adjacent storage lane for northbound NJ 73, and vice versa.

The study explored multiple alternatives, including signalization at the intersection of NJ 73 and D'Angelo Drive, and two variations of a northbound NJ 73 jug handle at Franklin Avenue. The signalization of the intersection of NJ 73 and D'Angelo Drive was not supported by NJDOT due to signal spacing standards and safety concerns; a signalized intersection at D'Angelo Drive would place it within 1,000 feet of the intersection at Franklin Avenue and 1,300 feet of the intersection at Prospect Avenue, both within the 2,640-foot minimum spacing (assuming a posted speed limit of 55 MPH and a 130 second cycle length). Rather, the "local road jug handle" alternative was selected for further evaluation and presentation to local officials, based upon its anticipated prevention of upstream queuing into northbound NJ 73 travel lanes through the year 2027. Utilizing 2007 data, McCormick Taylor determined that the intersection of NJ 73 and Franklin Avenue operates at a LOS of C with 28 seconds of average delay during the AM peak hour, and a LOS of D with 40 seconds of average delay during the PM peak hour. As indicated in Table 7, during the AM peak hour, the intersection of NJ 73, Prospect Avenue, and the Berlin Circle Plaza driveway operates at a LOS E with 72 seconds of overall average delay. During the PM peak hour, this intersection operates at LOS F and 95 seconds of overall average delay.

Table 7: NJ 73/Prospect Avenue Level of Service

| | | Existing* | | Medium-Term* | |
|---|---|---|---|---|---|
| | | Existing Geometry | | New Road Connecting Walmart Shopping Center to Prospect Ave | |
| | | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 92 | F | 93 | F |
| | NJ 73 (SB) | 22 | C | 21 | C |
| | Berlin Circle Plaza (EB) | 37 | D | 37 | D |
| | Prospect Ave (WB) | 37 | D | 44 | D |
| | Total Intersection | 72 | E | 73 | E |
| PM Peak | NJ 73 (NB) | 185 | F | 185 | F |
| | NJ 73 (SB) | 41 | D | 37 | D |
| | Berlin Circle Plaza (EB) | 43 | D | 42 | D |
| | Prospect Ave (WB) | 42 | D | 62 | E |
| | Total Intersection | 95 | F | 93 | F |

*Existing Signal Plan (130 sec. Cycle Length)
Source: DVRPC 2009

## Recommendations

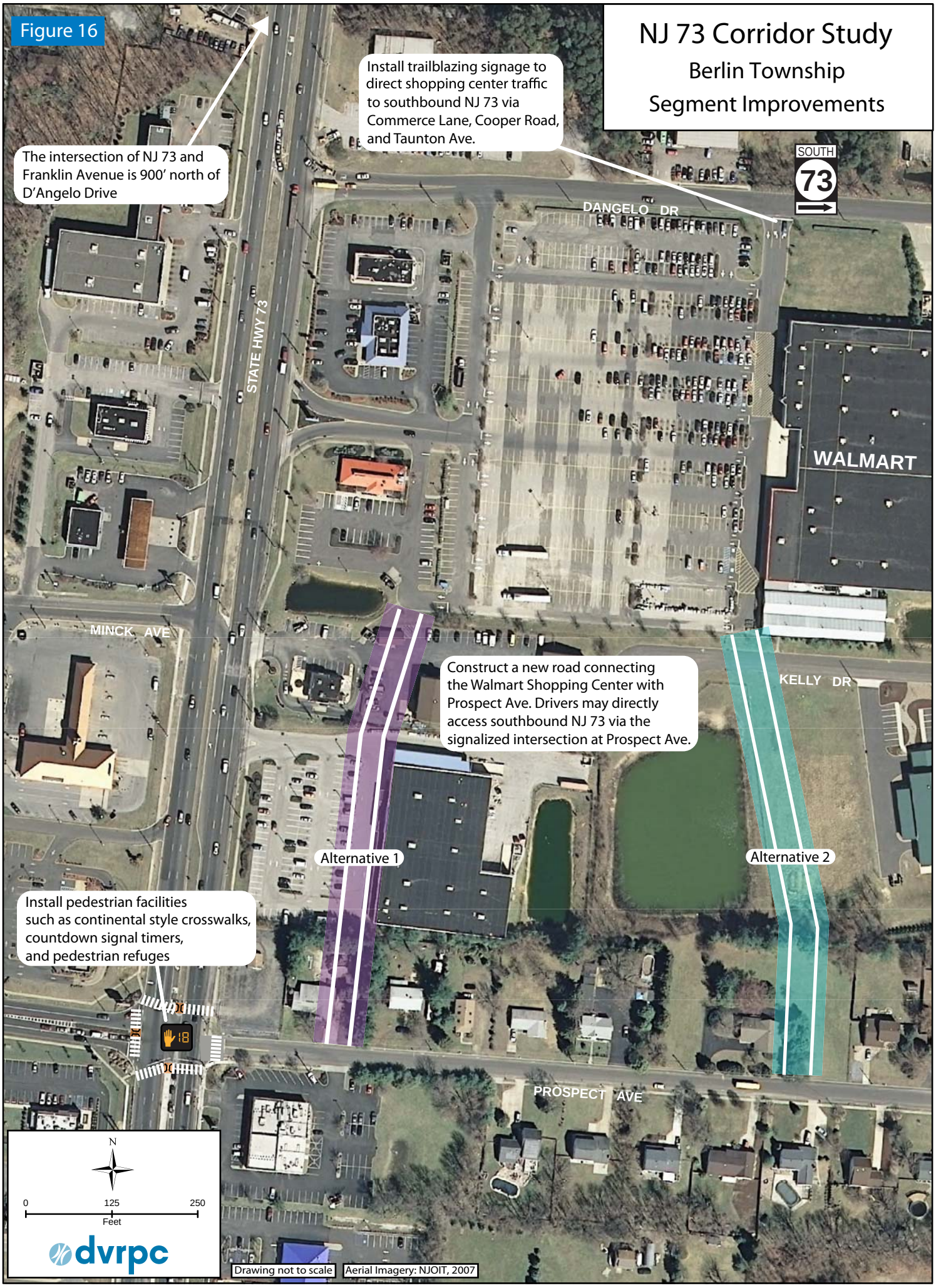
- Explore potential connections to adjacent signalized intersections via new and short links to the existing road network. Specifically, consider an internal road connection between the Walmart parking lot and Prospect Avenue. Potential alignments are depicted in Figure 16. This new connection is not anticipated to have a negative impact upon the LOS and delay for the intersection of NJ 73 and Franklin Avenue due to its subtraction of left-and U-turning vehicles from its northbound approach. At the intersection of NJ 73 and Prospect Avenue, the road connection would provide for a partial reduction of southbound vehicles due to the lesser U-turn volume at the upstream intersection of NJ 73 and Franklin Avenue; however, this is offset by the addition of vehicles to the westbound Prospect Avenue approach. As a result, the overall LOS and delay is very similar to existing conditions;
- Unlike the “local road jug handle” alternative pursued by NJDOT, this new road connection may use an alignment that does not require the removal of fixed structures, and without violating NJDOT minimum signal spacing standards. However, it will increase the impervious surface coverage in an area with already insufficient stormwater management. This may be mitigated by improvements to the adjacent detention basins and the installation of stormwater best management practices such as pervious pavement, dry wells, and retrofitted parking lot islands; and
- For the short term, encourage drivers to utilize an alternative route within the existing road network to access southbound NJ 73, via Commerce Lane, Cooper Road, and Taunton Avenue. As shown in Figure 17, from the Walmart to the intersection of NJ 73 and East Taunton Avenue, this route is roughly 1.8 miles in length. To reach the same intersection via a U-turn at the intersection of NJ 73 and Franklin Avenue is 1.6 miles.

Figure 16

# NJ 73 Corridor Study

## Berlin Township

## Segment Improvements



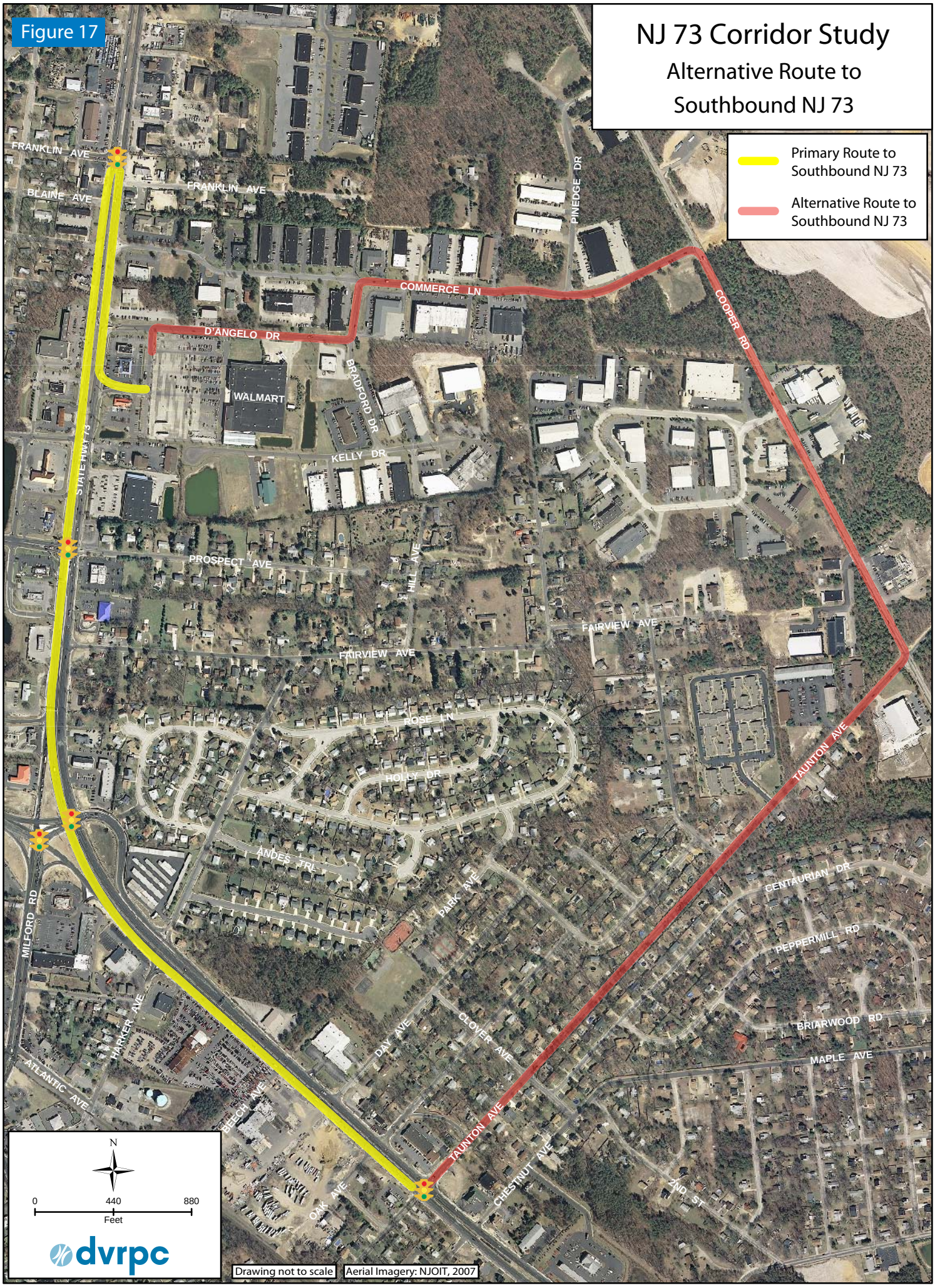


Figure 17
NJ 73 Corridor Study
Alternative Route to
Southbound NJ 73
Primary Route to Southbound NJ 73
Alternative Route to Southbound NJ 73
FRANKLIN AVE
BLAINE AVE
FRANKLIN AVE
PINEDGE DR
COMMERCE LN
COOPER RD
D'ANGELO DR
WALMART
BRADFORD DR
KELLY DR
STATE HWY 73
PROSPECT AVE
HILL AVE
FAIRVIEW AVE
FAIRVIEW AVE
ROSE LN
HOLLY DR
TAUNTON AVE
ANDER TRL
PARK AVE
CENTAURIAN DR
PEPPERMILL RD
MILFORD RD
HARKER AVE
DAY AVE
CLOVER AVE
BRIARWOOD RD
MAPLE AVE
ATLANTIC AVE
BEECH AVE
TAUNTON AVE
CHESTNUT AVE
OAK AVE
2ND ST
N
0
440
880
Feet
dvrpc
Drawing not to scale
Aerial Imagery: NJOIT, 2007

# Intersection Analysis

Specific intersections were analyzed due to their significance within the study area. The following intersections, highlighted in Figure 15, carry substantial volumes of daily traffic or provide direct access to major trip generators, such as shopping centers, regional institutions, and transit stations. Utilizing 2009 traffic data, vehicular delay and levels of service were quantified for each of these intersections. Recommendations include improvements to vehicular operations and pedestrian connectivity.

## Intersection 1: NJ 73 and Jackson Road (CR 534)

This intersection is the southernmost in the study area. It is in close proximity to US 30, as well as NJ Transit's Atco rail station. This intersection was recently reconstructed in 2007 as part of the Berlin Circle Elimination Project. North and southbound NJ 73 left turns are accommodated by a far- and near-side jug handle, respectively. East- and westbound Jackson Road left turns are accommodated by exclusive turn lanes and protected-only signal phasing. There are multiple approach lanes at all four intersection legs, creating long crossing distances for pedestrians. Vehicles traveling south on NJ 73 to access the NJ Transit Atco Station have to take a circuitous route due to a lack of access to the existing station platform from its north side. From this intersection, a driver must travel an additional 1.7 miles, including two portions of a cloverleaf interchange to access the existing station parking lot. This signalized intersection may better serve vehicles destined for the NJ Transit Atco station from points north with station parking on the northern side of the rail tracks, in conjunction with access to the station via a pedestrian underpass.

During the AM peak hour, the intersection operates at an overall LOS C with 27 seconds of delay. Northbound NJ 73 carries 1,900 vehicles, which constitute over 50 percent of the intersection's total hourly volume. However, this approach only experiences an LOS B with 18 seconds of average delay. Westbound Jackson Road is the intersection's second heaviest approach leg, with 754 vehicles, and experiences an LOS D with 51 seconds of average delay.

During the PM peak hour, the intersection operates at LOS E with an average delay of 64 seconds. Both NJ 73 approaches carry approximately 1,100 vehicles and experience average delays between 18 and 24 seconds. The westbound Jackson Road approach carries 771 vehicles and experiences an LOS F with 156 seconds of average delay. This is primarily due to the extremely high volume of left turns, 414 vehicles, which contribute a disproportionate amount of delay. Full LOS information is listed in Table 8. Recommended intersection improvements are illustrated in Figure 18.

### Pedestrian Recommendations

- Provide access to the station from the north via a new pedestrian underpass, to the station's existing platform and parking lot. This underpass may be aligned with Hopewell Road;
- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s; and
- Complete the adjacent sidewalk network.

Table 8: NJ 73/Jackson Road Level of Service

| | | Existing | | Short-Term | | Medium-Term | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing Geometry with Existing Signal Plan | | Existing Geometry with Split Optimized Signal Plan | | Assuming Construction of a Pedestrian Underpass to the Atco Station | | | |
| | | | | | | Existing Signal Plan | | Signal Plan Optimized with Westbound Lead | |
| | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 18 | B | 18 | B | 24 | C | 24 | C |
| | NJ 73 (SB) | 15 | B | 15 | B | 20 | B | 20 | B |
| | Jackson Rd (EB) | 64 | E | 66 | E | 63 | E | 61 | E |
| | Jackson Rd (WB) | 51 | D | 56 | E | 46 | D | 48 | D |
| | Total Intersection | 27 | C | 28 | C | 32 | C | 32 | C |
| PM Peak | NJ 73 (NB) | 18 | B | 24 | C | 18 | B | 18 | B |
| | NJ 73 (SB) | 24 | C | 31 | C | 24 | C | 23 | C |
| | Jackson Rd (EB) | 101 | F | 60 | E | 101 | F | 64 | E |
| | Jackson Rd (WB) | 156 | F | 61 | E | 146 | F | 122 | F |
| | Total Intersection | 64 | E | 40 | D | 66 | E | 54 | D |

Source: DVRPC 2009

### Highway Recommendations

- Split optimize the PM peak hour's existing timing plan to provide greater green time for east-and westbound Jackson Road. This will decrease the intersection's overall delay to 40 seconds and LOS D. The minor increase in delay for north- and southbound NJ 73 vehicles provides substantial improvement for the Jackson Road approaches, particularly for the westbound approach, which has a delay reduction over 90 seconds; and
- Assuming the introduction of station access from the northern side of the rail line, consider providing a westbound Jackson Road lead-phase during the PM peak hours. This will require eastbound Jackson Road left turns to operate without any protected signal phasing.

## Intersection 2: NJ 73 and Cooper Road (CR 675)

Cooper Road is a major north-south arterial in the corridor. In some areas, it can provide an alternative to NJ 73. At this four-legged intersection, the side streets approach NJ 73 at an acute angle, which impedes sight distance and left-turn operations, and lengthens pedestrian crossing distances. NJ 73 has three approach lanes per leg, including an exclusive left-turn lane, whereas Cooper Road has two approach lanes per leg, including an exclusive left-turn lane. There is adjacent big-box retail (Kohl's and Marshall's) near this intersection. There is also a NJ Transit bus stop near this intersection. The dominant direction of travel along NJ 73 is time-of-day dependent. During the AM peak hour, the northbound NJ 73 approach carries 1,913 vehicles, which is greater than twice the opposing southbound approach's volume. During the PM peak hour, the southbound NJ 73 approach is 35 percent greater than the northbound approach's volume. During either peak hour, there is a substantial volume of right-turning vehicles from both Cooper Road approaches.


Figure 18
NJ 73 Corridor Study
Jackson Road Intersection Improvements
STATE HWY 73
Install continental-style crosswalks
Install pedestrain-actuated countdown timers
JACKSON RD
Extend sidewalk network
Existing sidewalk
STATE HWY 73
Redevelopment Area with Additional Station Parking
HOPEWELL RD
Existing sidewalk
Add pedestrian underpass
Atco Station
N
0
100
200
Feet
dvrpc
Drawing not to scale
Aerial Imagery: NJOIT, 2007

Table 9 indicates the intersection's overall LOS is F during both the AM and PM peak hours. The AM peak hour's most delayed approach is northbound NJ 73 with over three minutes of average delay. The PM peak hour's most delayed approach is eastbound Cooper Road, with over 400 seconds of average delay, or over two complete cycles of the traffic signal. Recommended intersections improvements are illustrated in Figure 19.

Table 9: NJ 73/Cooper Road Level of Service

| | | Existing | | Short-Term | | Medium-Term | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing Geometry | | | | Add Exclusive Right-Turn Lanes for EB and WB Cooper Rd | | | |
| | | Existing Signal Plan (130 - 150 sec. Cycle Length) | | Split Optimized Signal Plan (130 - 150 sec. Cycle Length) | | Existing Signal Plan (130 - 150 sec. Cycle Length) | | Split Optimized Signal Plan (130 - 150 sec. Cycle Length) | |
| | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 197 | F | 103 | F | 126 | F | 66 | E |
| | NJ 73 (SB) | 34 | C | 34 | C | 29 | C | 24 | C |
| | Cooper Rd (EB) | 54 | D | 67 | E | 41 | D | 47 | D |
| | Cooper Rd (WB) | 80 | F | 143 | F | 35 | D | 53 | D |
| | Total Intersection | 134 | F | 89 | F | 86 | F | 53 | D |
| PM Peak | NJ 73 (NB) | 62 | E | 93 | F | 60 | E | 52 | D |
| | NJ 73 (SB) | 156 | F | 124 | F | 156 | F | 107 | F |
| | Cooper Rd (EB) | 407 | F | 332 | F | 62 | E | 99 | F |
| | Cooper Rd (WB) | 182 | F | 170 | F | 48 | D | 73 | E |
| | Total Intersection | 153 | F | 140 | F | 105 | F | 86 | F |

Source: DVRPC 2009

### Pedestrian Recommendations

- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, raised median pedestrian refuges, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s; and
- Complete the adjacent sidewalk network.

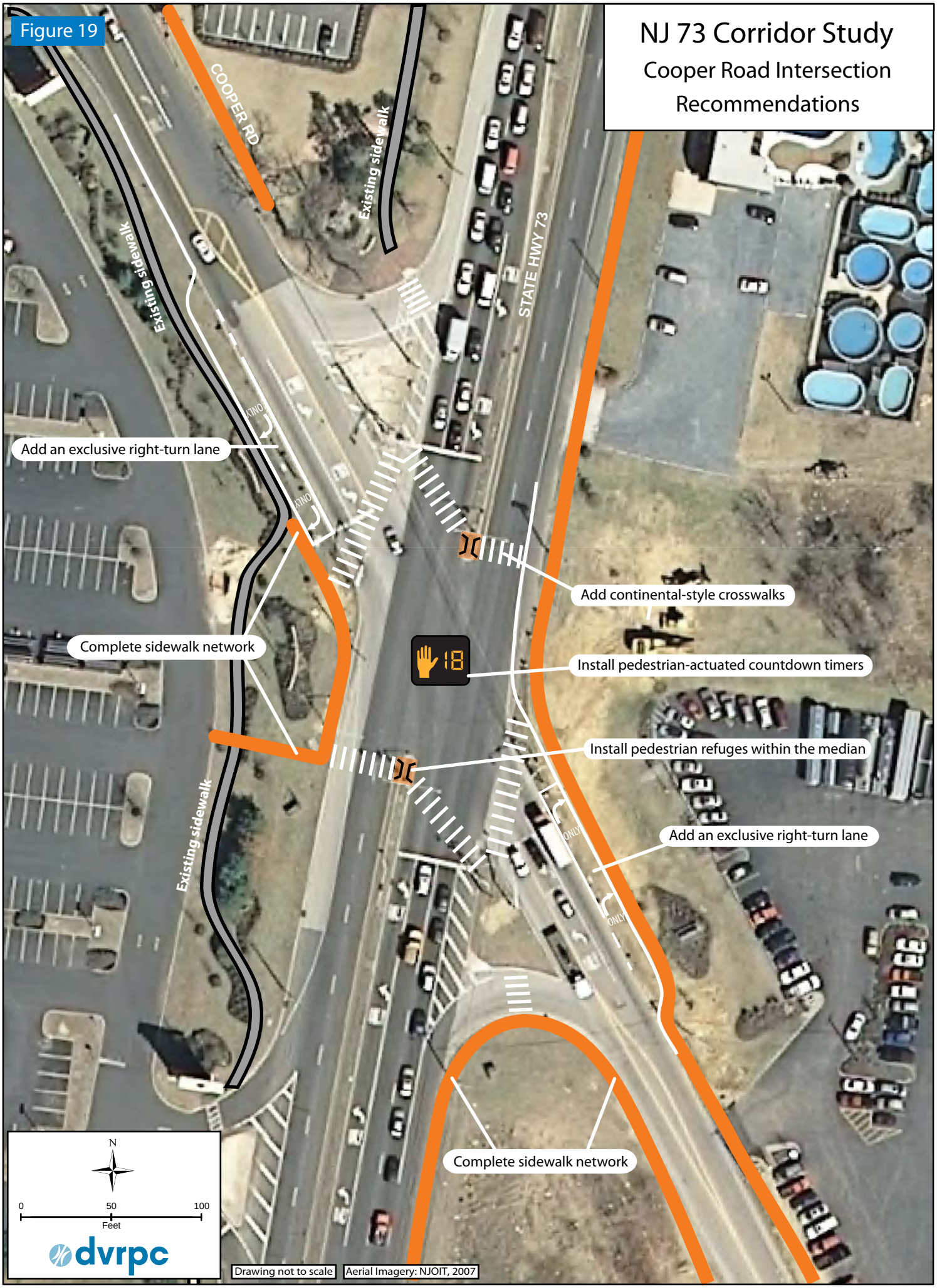
### Highway Recommendations

- Optimize signal splits to reduce the intersection's overall average delay. These reductions are achieved via a lengthening of the green time for the dominant NJ 73 and Cooper Road through movements; however, this requires a reduction of green time for all four protected left-turn phases; and
- Add exclusive right-turn lanes for both approach legs of Cooper Road. For both peak hours, this will provide approximately 50 seconds decrease in overall intersection delay. If the signal timing is subsequently optimized, overall intersection delay will decrease an additional 20 to 30 seconds. A protected right-turn overlap phasing for Cooper Road may occur concurrently with protected left-turn phasing along NJ 73.

Figure 19

# NJ 73 Corridor Study

## Cooper Road Intersection Recommendations



## Intersection 3: NJ 73 and Kresson Road (CR 671)/Braddock Mill Road

This is a high-volume intersection with heavy east-west traffic flow. Environmentally sensitive areas are in close proximity to this intersection. A tributary of Barton Run parallels Braddock Mill Road and traverses the intersection via a buried culvert. The approach legs of Kresson Road and Braddock Mill Road are slightly offset and misaligned. Westbound Braddock Mill Road has a single approach lane. This location is a de facto five-leg intersection due to the extremely close proximity (75 feet) of the Kresson-Gibbsboro Road (CR 685) and Kresson Road intersection. Both NJ 73 approaches utilize a channelized right-turn lane. The southbound NJ 73 channelized right-turn lane terminates opposite the Kresson-Gibbsboro Road approach, thus creating an unsafe convergence of four approaches, located only 75 feet away from the NJ 73 intersection. Table 10 indicates that during the AM peak hour, overall delay at the NJ 73 intersection is 52 seconds for LOS D, while during the PM peak hour, overall delay is 78 seconds for LOS E.

Voorhees Township is considering two different realignments of Kresson-Gibbsboro Road to shift the intersection of this road with Kresson Road further away from NJ 73. The first alternative relocates this intersection approximately 600 feet west of NJ 73, whereas it is approximately 350 feet west of NJ 73 for Alternative 2. At the new intersection, Kresson-Gibbsboro Road will be perpendicular to Kresson Road. Recommended intersection improvements are illustrated in Figure 20.

Table 10: Kresson Road/Braddock Mill Road Level of Service

| | | Existing | | Medium-Term | | | |
|---|---|---|---|---|---|---|---|
| | | Existing Timing and Geometry | | Add an Exclusive Left-Turn Lane for Westbound Braddock Mill Road | | | |
| | | Existing Timing Plan (150 sec. Cycle Length) | | Existing Timing Plan (150s). Cycle Length) | | Add Protected & Permitted Left-Turn Phasing for EB/WB Approaches | |
| | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 55 | E | 35 | D | 59 | E |
| | NJ 73 (SB) | 29 | C | 27 | C | 29 | C |
| | Kresson Rd (EB) | 36 | D | 84 | F | 37 | D |
| | Braddock Mill Rd (WB) | 91 | F | 72 | E | 97 | F |
| | Total Intersection | 52 | D | 40 | D | 55 | D |
| PM Peak | NJ 73 (NB) | 39 | D | 39 | D | 39 | D |
| | NJ 73 (SB) | 77 | E | 77 | E | 77 | E |
| | Kresson Rd (EB) | 74 | E | 73 | E | 172 | F |
| | Braddock Mill Rd (WB) | 389 | F | 90 | F | 54 | D |
| | Total Intersection | 78 | E | 64 | E | 77 | E |

Source: DVRPC 2009

### Pedestrian Recommendations

- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s; and
- Where applicable, introduce a comprehensive sidewalk network, particularly toward the south, where the new Virtua Hospital complex is being constructed.

### Highway Recommendations

- Realign Kresson-Gibbsboro Road to intersect Kresson Road roughly 600 feet west of NJ 73, as per Voorhees Township's Alternative 1. This alternative has the least impact on the operation of the NJ 73 intersection. Delay would be reduced, particularly during the PM peak hour for the Kresson-Gibbsboro Road approach; and
- Construct an exclusive left-turn lane for westbound Braddock Mill Road. This will reduce the approach's average delay by 20 and 300 seconds during the AM and PM peak hours, respectively. Though the additional right-of-way necessary for this left-turn lane may be obtained from the eastbound leg of Braddock Mill Road, it will affect the adjacent tributary of Barton Run, a waterway with existing water quality impairment. An enhanced vegetated riparian buffer may mitigate additional impairment of the tributary.

Figure 20

# NJ 73 Corridor Study

## Kresson Road/Braddock Mill Road Intersection Recommendations

## Intersection 4: NJ 73 and Evesham Road/Marlton Parkway (CR 544)

NJ 73 and CR 544 is a large four-legged intersection with three approach lanes on all legs except for northbound NJ 73, which has four approach lanes with an exclusive left-turn lane. Southbound NJ 73 left-turning vehicles are accommodated via a far-side jug handle. Approximately 150 feet east of the intersection, the two eastbound Marlton Parkway travel lanes merge into a single lane. The current signal timing provides split-phasing for the Evesham Road and Marlton Parkway approaches. Sidewalks along Marlton Parkway and Evesham Road terminate at or near the intersection. There are parallel-striped crosswalks on three of the four legs at this intersection; only the southern crosswalk is equipped with pedestrian man-hand signal heads. As indicated in Table 11, this intersection currently operates at LOS E during the AM peak hour and LOS F during the PM peak hour. The AM and PM peak hours worst performing approaches are westbound Marlton Parkway and eastbound Evesham Road, respectively. This intersection experienced 50 crashes between 2005 and 2007, the highest in the corridor. Recommended intersection improvements are shown in Figure 21.

### Pedestrian Recommendations

- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, a raised median pedestrian refuge, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s; and
- Complete the adjacent sidewalk network, especially along Evesham Road and Marlton Parkway.

### Highway Recommendations

- Install skip marks through the intersection to delineate the path for westbound Marlton Parkway and eastbound Evesham Road's dual left-turning departure lanes; and
- Relocate the existing lane merge along eastbound Marlton Parkway further east away from the intersection. This would require widening of the roadway's pavement width, for the existing bicycle lane to be retained.

Table 11: NJ 73/Evesham Road (CR 544) Level of Service

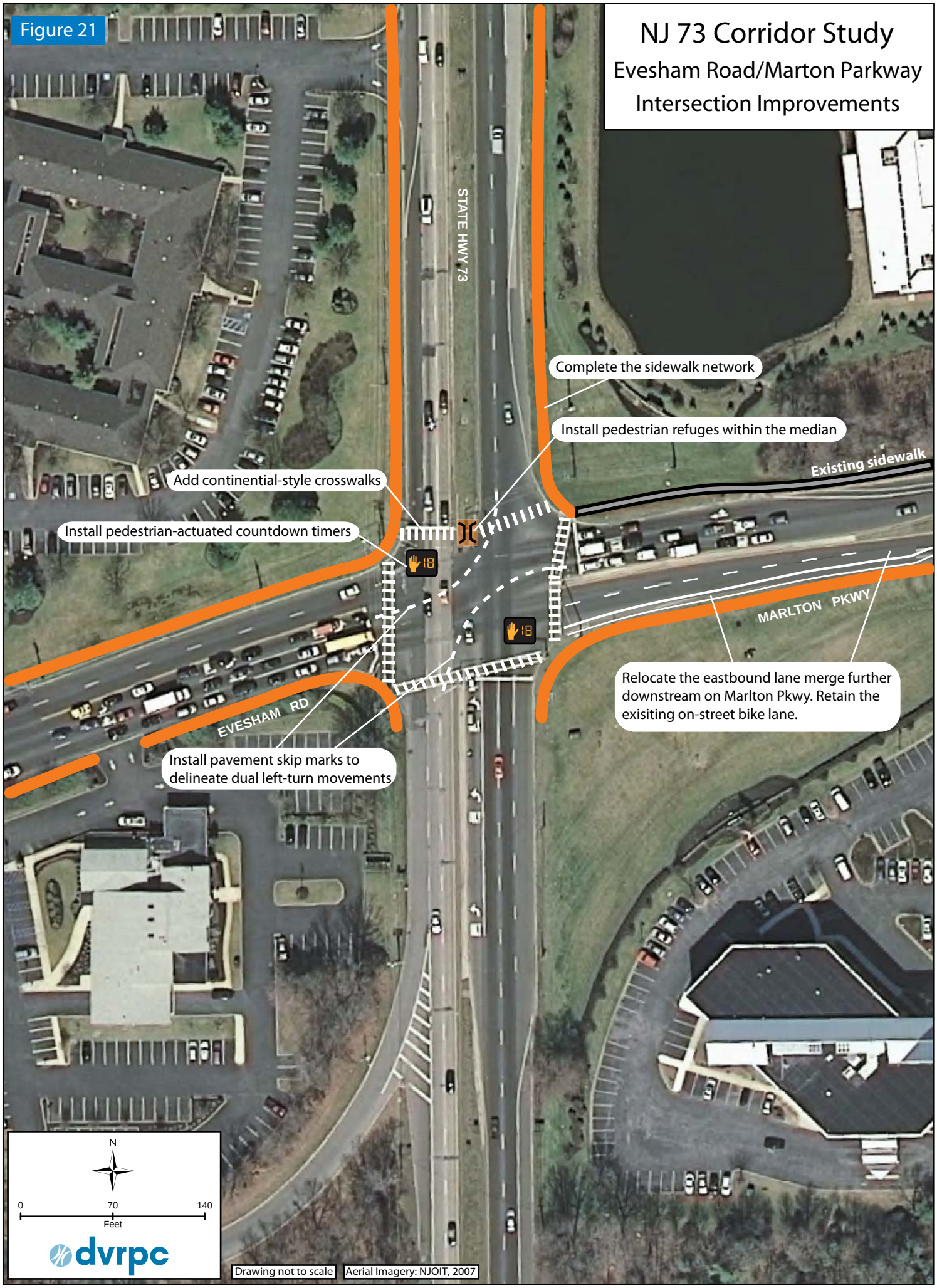
| | | Delay (sec) (existing) | LOS (existing) |
|---|---|---|---|
| AM Peak | NJ 73 (NB) | 55 | D |
| | NJ 73 (SB) | 35 | D |
| | Evesham Rd (EB) | 92 | F |
| | Marlton Pkwy (WB) | 170 | F |
| | Total Intersection | 71 | E |
| PM Peak | NJ 73 (NB) | 25 | C |
| | NJ 73 (SB) | 73 | E |
| | Evesham Rd (EB) | 316 | F |
| | Marlton Pkwy (WB) | 150 | F |
| | Total Intersection | 120 | F |

Existing Signal Plan (150 sec. Cycle Length) Source: DVRPC 2009

Figure 21

# NJ 73 Corridor Study

## Evesham Road/Marton Parkway Intersection Improvements



## Intersection 5: NJ 73 and Brick Road

This intersection is at a commercial retail hub with far-side jug handles serving both directions of NJ 73. Sidewalks along Brick Road and NJ 73 terminate at or near the intersection. There are three approach lanes for all legs at the intersection except for eastbound Brick Road, which has two lanes. The current signal timing provides split-phasing for the opposing Brick Road approaches. The sole pedestrian amenities provided at the intersection are a parallel-striped crosswalk and man-hand pedestrian signal heads across the northern intersection leg.

As indicated in Table 12, this intersection is LOS D during the AM peak hour and E during the PM peak hour. The AM and PM peak hours worst performing approaches are westbound Brick Road with LOS F and eastbound Brick Road with LOS F, respectively. The intersection experienced 37 crashes between 2005 and 2007, the second highest cluster in the corridor. Recommended intersection improvements below are illustrated in Figure 22.

Table 12: NJ 73/Brick Road Level of Service

| | | Existing | | Short-Term | |
|---|---|---|---|---|---|
| | | Existing Geometry | | Add Exclusive Left Turn Lane along Eastbound Brick Rd Approach | |
| | | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 28 | C | 28 | C |
| | NJ 73 (SB) | 23 | C | 23 | C |
| | Brick Rd (EB) | 86 | E | 75 | E |
| | Brick Rd (WB) | 156 | F | 122 | F |
| | Total Intersection | 48 | D | 43 | D |
| PM Peak | NJ 73 (NB) | 23 | C | 23 | C |
| | NJ 73 (SB) | 34 | C | 34 | C |
| | Brick Rd (EB) | 250 | F | 155 | F |
| | Brick Rd (WB) | 112 | F | 112 | F |
| | Total Intersection | 68 | E | 55 | E |

Existing Signal Plan (150 sec. Cycle Length) Source: DVRPC 2009

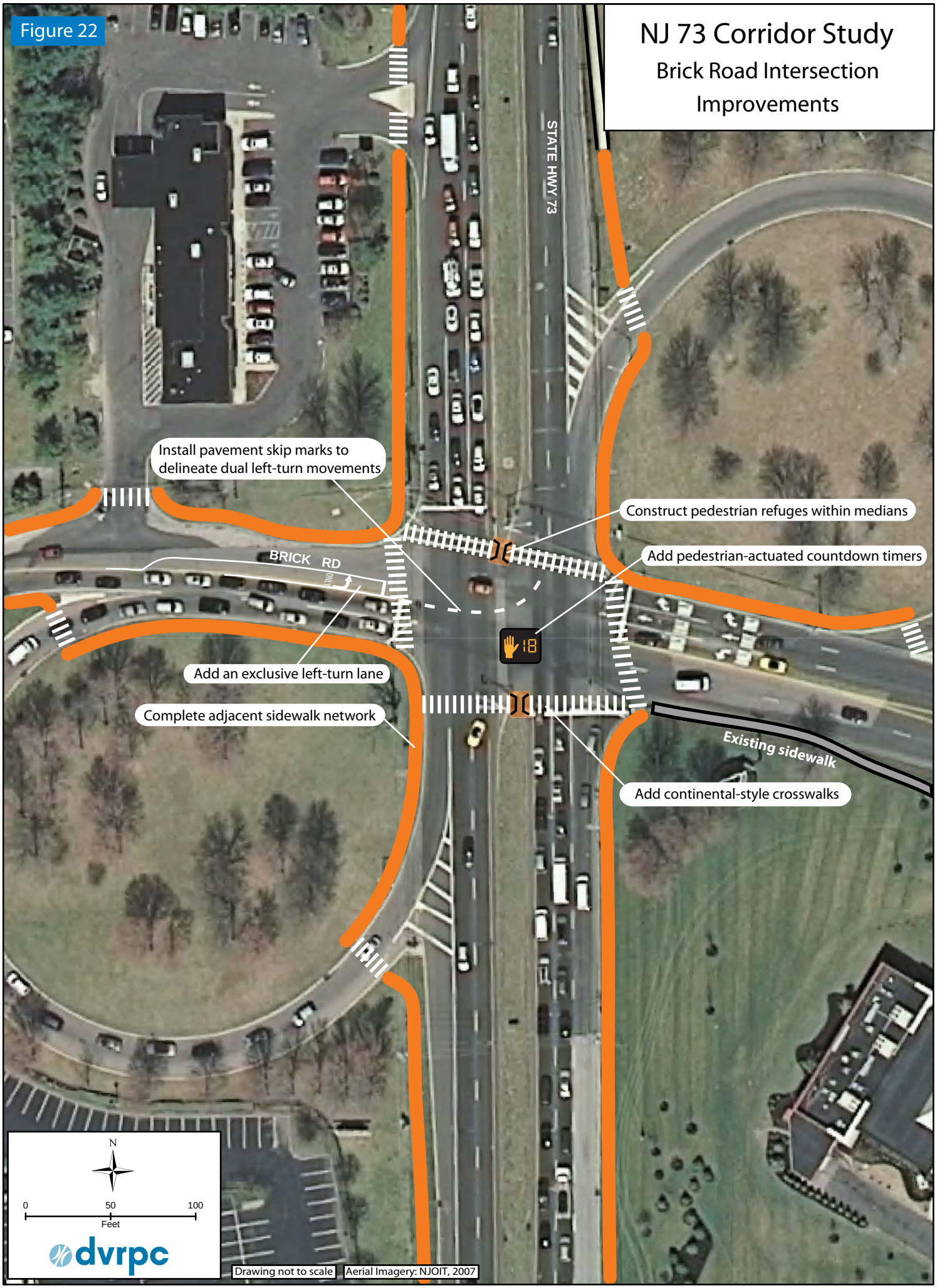


Figure 22
NJ 73 Corridor Study
Brick Road Intersection Improvements
STATE HWY 73
BRICK RD
ONLY
Install pavement skip marks to delineate dual left-turn movements
Construct pedestrian refuges within medians
Add pedestrian-actuated countdown timers
Add an exclusive left-turn lane
Complete adjacent sidewalk network
Existing sidewalk
Add continental-style crosswalks
N
0
50
100
Feet
dvrpc
Drawing not to scale
Aerial Imagery: NJOIT, 2007

### Pedestrian Recommendations

- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s;
- Install curbed pedestrian refuge areas within the NJ 73 median, along the path of the crosswalks. These refuges must include ADA-compliant curb ramps; and
- Complete the adjacent sidewalk network.

### Highway Recommendations

- Install an exclusive left-turn lane along the eastbound Brick Road approach leg. This increase in capacity does not require roadway widening, as the adjacent westbound travel lane is 23 feet wide. This will provide a minor five-second improvement in overall delay and retain the same intersection LOS D for the AM peak hour. During the PM peak hour, a 90-second delay reduction for the eastbound Brick Road approach is anticipated. This will provide a 13-second improvement in overall delay, though the intersection's LOS will remain an F; and
- Install skip marks through the intersection to delineate the path for eastbound Brick Road's dual left-turning departure lanes.

## Intersection 6: NJ 73 and Centre Boulevard

This intersection is adjacent to both large retail destinations and historic Marlton. All but one approach leg has three approach lanes; northbound NJ 73 is composed of two travel lanes. Sidewalks along Centre Boulevard and NJ 73 terminate at or near the intersection. Neither crosswalks nor pedestrian signal heads are provided at this intersection. The intersection does not provide for eastbound Centre Boulevard through movements. Eastbound drivers seeking to access historic Marlton via Maple Avenue (CR 607) may do so via a left turn onto northbound NJ 73, followed by a right turn onto West Main Street (CR 620). The current signal timing provides split-phasing for the opposing Centre Boulevard approaches.

As indicated in Table 13, this intersection is LOS D during the AM peak hour and is LOS F during the PM peak hour. The AM and PM peak hours worst performing approaches are westbound Centre Boulevard with LOS E and eastbound Centre Boulevard with LOS F, respectively. This intersection lies immediately beyond the southern boundary for the Marlton Circle Elimination project. Completion of this project will have a strong impact upon this intersection, as well as those further downstream. The recommended improvements below are illustrated in Figure 23.

Table 13: NJ 73/Centre Boulevard Level of Service

| | | Existing | | Medium-Term | | | |
|---|---|---|---|---|---|---|---|
| | | Existing Geometry | | Add 2nd Exclusive Left-Turn Lane for Westbound Centre Boulevard | | | |
| | | Existing Signal Plan (150 sec. Cycle Length) | | Existing Signal Plan (150 sec. Cycle Length) | | Split Optimized Signal Plan (150 sec. Cycle Length) | |
| | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | NJ 73 (NB) | 25 | C | 21 | C | 21 | C |
| | NJ 73 (SB) | 20 | B | 17 | B | 17 | B |
| | Centre Blvd (EB) | 73 | E | 73 | E | 73 | E |
| | Centre Blvd (WB) | 78 | E | 72 | E | 72 | E |
| | Total Intersection | 39 | D | 35 | D | 35 | D |
| PM Peak | NJ 73 (NB) | 28 | C | 28 | C | 23 | C |
| | NJ 73 (SB) | 86 | F | 86 | F | 57 | E |
| | Centre Blvd (EB) | 161 | F | 102 | F | 111 | F |
| | Centre Blvd (WB) | 104 | F | 71 | E | 108 | F |
| | Total Intersection | 85 | F | 71 | E | 66 | E |

Source: DVRPC 2009

### Pedestrian Recommendations

- Construct pedestrian facilities, such as continental-style crosswalks, ADA-compliant curb ramps, and pedestrian-actuated count-down signal heads at all four intersection legs. Assume a walking speed of 3.5 ft/s;
- Install curbed pedestrian refuge areas within the NJ 73 median and the eastbound Centre Boulevard approach, along the path of the proposed crosswalks. These refuges must include ADA-compliant curb ramps; and
- Complete the adjacent sidewalk network.

### Highway Recommendations

- Install skip marks through the intersection to delineate the path for both east- and westbound Centre Boulevard's dual left-turning departure lanes; and
- Construct a second exclusive left-turn lane for westbound Centre Boulevard. The existing shared through and left-turn lane would be reassigned into an exclusive through lane. This will require widening of the existing pavement. Currently no built structures would impede this improvement, and NJDOT signal plans indicate that sufficient public right-of-way exists. This will provide a four-second and 14 second reduction in overall delay during the AM and PM peak hours, respectively. Subsequent timing optimization provides an additional five-second reduction of overall average delay during the PM peak hour.

## Intersection 7: North Cropwell Road at NJ 70 and Old Marlton Pike (CR 600)

These two closely spaced intersections provide access to roads that directly intersect with NJ 73 in a congested section of the study area. The sidewalk network is discontinuous; neither crosswalks nor man-hand signal heads are provided at either intersection. This makes it difficult for pedestrians to travel between the numerous commercial properties and to residential developments in close proximity. These two intersections are spaced approximately 500 feet apart, thus preventing adequate queue storage between NJ 70 and Old Marlton Pike. Signals along this portion of NJ 70 are coordinated with a 135-second and 125-second cycle length during the AM and PM peak hours, respectively. The signal plan at the intersection of North Cropwell Road and Old Marlton Pike utilizes a 65-to-77 second variable-length cycle throughout the day. Peak period volumes are heavy with strong time-of-day directionality; the morning peak is north- and westbound dominant, whereas the afternoon peak is south- and eastbound dominant.

A level of service analysis was conducted in order to assess the congestion levels at this intersection. The intersection of NJ 70 and North Cropwell Road operates at LOS F during both peak hours, though delays are more severe during the afternoon peak. The intersection of Old Marlton Pike and North Cropwell Road operates at LOS A during the morning peak hour but deteriorates to LOS E during the afternoon peak hour. All LOS information is shown in Tables 14 and 15. The recommended improvements are illustrated in Figure 24.

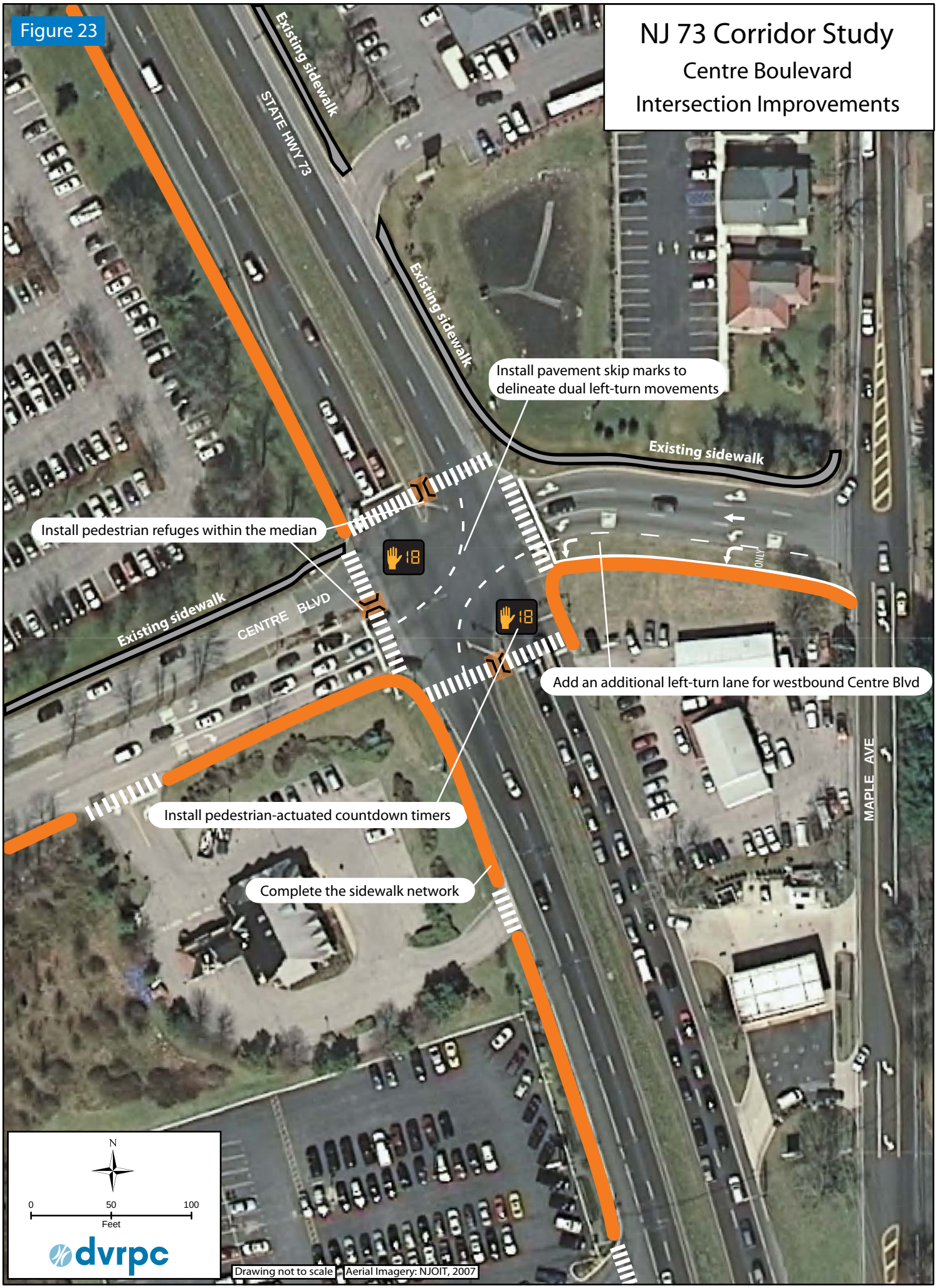


Figure 23
NJ 73 Corridor Study
Centre Boulevard
Intersection Improvements
STATE HWY 73
Existing sidewalk
Existing sidewalk
Existing sidewalk
Existing sidewalk
CENTRE BLVD
MAPLE AVE
ONLY
Install pavement skip marks to delineate dual left-turn movements
Install pedestrian refuges within the median
Add an additional left-turn lane for westbound Centre Blvd
Install pedestrian-actuated countdown timers
Complete the sidewalk network
N
0
50
100
Feet
dvrpc
Drawing not to scale
Aerial Imagery: NJOIT, 2007

### Pedestrian Recommendations

- Complete the sidewalk network along both sides of Old Marlton Pike;
- Provide pedestrian amenities at all approach legs. These should include crosswalks, pedestrian push buttons, ADA-compliant ramps, countdown man-hand signal heads, and sidewalks. Assume a 3.5 ft/s walking speed; and
- Install curbed pedestrian refuge areas within the NJ 70 median along the part of the proposed crosswalks. These refuges must include ADA-compliant curb ramps.

### Highway Recommendations

- Provide a lead interval for the large volume of northbound vehicles during the morning peak period at the NJ 70 and North Cropwell Road intersection. This would reduce northbound delay by three seconds with no impact upon the overall intersection delay. However, delay for the small volume of vehicles traveling in the opposing direction increases by 11 seconds;
- Retime the signal at Old Marlton Pike and North Cropwell Road with a 135-second and 125-second AM and PM peak hour cycle-length, respectively. This will allow coordination with the adjacent signal at NJ 70 and North Cropwell Road;
- Restripe 700 feet of the shoulder along Old Marlton Pike, from its intersection with North Cropwell Road toward South Cropwell Road. With the shoulder shifted toward the curb, a second eastbound travel lane may be accommodated. As a result, southbound North Cropwell Road at its intersection with Old Marlton Pike may carry dual left-turn lanes. During the PM peak hour, the intersection's overall delay would be reduced by 50 percent, from LOS F to LOS C, and the southbound North Cropwell Road approach would experience a 100-second improvement from existing conditions; and
- Monitor traffic volume and congestion along NJ 70 and Old Marlton Pike following the completion of the Marlton Circle Elimination Project, which may affect travel patterns due to improved north-south travel along NJ 73 and the rearrangement of the surrounding street network. The elimination project includes the extension of Centre Boulevard to eastbound NJ 70, which would provide a more direct route to destinations south of Marlton Circle, particularly those along Centre Boulevard and Lippincott Drive, and thus potentially reducing cut-through traffic along Old Marlton Pike.

Table 14: Route 70/North Cropwell Road Level of Service

| | | Existing | | Short Term | |
|---|---|---|---|---|---|
| | | Existing Signal Plan (125 - 135 sec. Cycle Length) | | Northbound Lead Phase (125 -135 sec. Cycle Length) | |
| | | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | N. Cropwell Rd (NB) | 87 | F | 84 | F |
| | N. Cropwell Rd (SB) | 85 | F | 96 | F |
| | NJ 70 (EB) | 68 | E | 68 | E |
| | NJ 70 (WB) | 87 | F | 87 | F |
| | Total Intersection | 81 | F | 81 | F |
| PM Peak | N. Cropwell Rd (NB) | 184 | F | 82 | F |
| | N. Cropwell Rd (SB) | 244 | F | 391 | F |
| | NJ 70 (EB) | 60 | E | 60 | E |
| | NJ 70 (WB) | 140 | F | 140 | F |
| | Total Intersection | 129 | F | 138 | F |

Source: DVRPC 2009

Table 15: Old Marlton/North Cropwell Road Level of Service

| | | Existing | | | | Short-Term | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing Geometry | | | | Provide a 2nd Receiving Lane along Old Marlton Pike and Dual Left-Turns from Southbound North Cropwell Road | | | |
| | | Existing Signal Plan (65 - 77 sec. Variable Cycle Length) | | Coordinated and Optimized Signal Plan (125 - 135 sec. Cycle Length) | | Existing Signal Plan (65 - 77 sec. Variable Cycle Length) | | Coordinated and Optimized Signal Plan (125 - 135 sec. Cycle Length) | |
| | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| AM Peak | N. Cropwell Rd (SB) | 29 | C | 35 | D | 24 | B | 27 | C |
| | Old Marlton Pike (EB) | 7 | A | 7 | A | 7 | A | 5 | A |
| | Old Marlton Pike (WB) | 5 | A | 5 | A | 5 | A | 4 | A |
| | Total Intersection | 8 | A | 8 | A | 7 | A | 6 | A |
| PM Peak | N. Cropwell Rd (SB) | 132 | F | 101 | F | 34 | C | 58 | E |
| | Old Marlton Pike (EB) | 66 | E | 124 | F | 50 | D | 26 | C |
| | Old Marlton Pike (WB) | 8 | A | 10 | A | 7 | A | 6 | A |
| | Total Intersection | 64 | E | 82 | F | 32 | C | 28 | C |

Source: DVRPC 2009

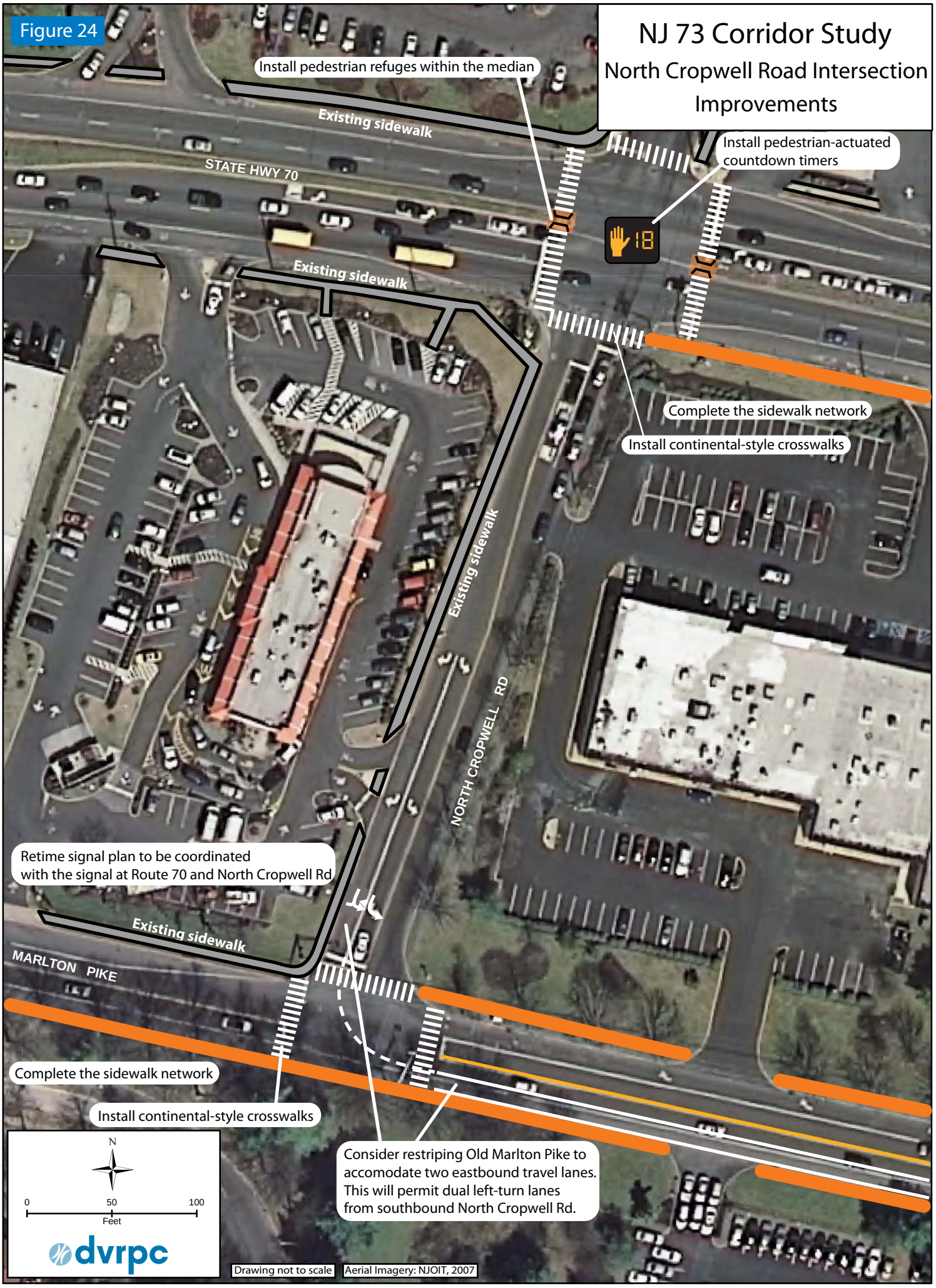


Figure 24
NJ 73 Corridor Study
North Cropwell Road Intersection Improvements
Install pedestrian refuges within the median
Existing sidewalk
STATE HWY 70
Install pedestrian-actuated countdown timers
18
Existing sidewalk
Complete the sidewalk network
Install continental-style crosswalks
Existing sidewalk
NORTH CROPWELL RD
Retime signal plan to be coordinated with the signal at Route 70 and North Cropwell Rd
Existing sidewalk
MARLTON PIKE
Complete the sidewalk network
Install continental-style crosswalks
Consider restriping Old Marlton Pike to accomodate two eastbound travel lanes. This will permit dual left-turn lanes from southbound North Cropwell Rd.
N
0
50
100
Feet
dvrpc
Drawing not to scale
Aerial Imagery: NJOIT, 2007

# Bicycle and Pedestrian Amenities

Bicycling and walking are viable alternatives to driving for certain trips. Bicycle trips are most appropriate for trips of five miles or less, while most pedestrian trips are usually of a half-mile or less. Bicycling and pedestrian activity is most successful in an environment that is safe and attractive, with convenient facilities and amenities.

The pedestrian and bicycle amenities in the study area are inconsistent. Sidewalks are mostly absent on the major thoroughfares and, where available, are often narrow and abut roadways without an adequate buffer between pedestrians and automobiles. Many roads in the study area currently do not safely integrate bicycles with automobile traffic, as they often lack shoulders wide enough to create separate bicycle lanes. Indeed, four pedestrians, one of which resulted in a fatality, and four pedacyclists were struck along the NJ 73 corridor during the years analyzed. NJDOT utilizes the term “pedacyclist” to differentiate between crashes involving bicyclists and those involving motorcyclists. Varying degrees of accessibility exist with large parking lots and driveways, making non-motorized travel between retail establishments prohibitive. The area lacks the aesthetics and streetscaping necessary to entice pedestrian traffic, with characteristics of a highway commercial area rather than a residential and retail mixed-use area. There is a lack of connectivity between adjoining residential and commercial areas. The NJ 73 corridor necessitates better pedestrian, bicycle, and transit amenities, such as those provided by Context Sensitive Solutions (CSS).

## Bicycle Facilities and Amenities

The NJ 73 facility within the study area experiences heavy vehicular volumes in both directions. There are numerous areas of excessive speeding due to the open nature of roadway segments. In addition, there are very few bicycle-specific accommodations along NJ 73 to provide a safe and enjoyable experience. However, many of the intersecting routes carry far fewer volumes and thus may provide a suitable environment, particularly where there is adequate shoulder width that may accommodate an on-road bicycle lane.

The presence of bicycle facilities and amenities (such as lanes, trails, signs, pavement markings, racks, lockers, etc.) has a direct link to the number of people who use bicycles as a transportation mode. The design of the facility is closely associated to the citizen’s perception of what bicycling experience can be expected.

This section of the report seeks to identify existing and proposed bicycle facilities and identify ways in which these facilities can be improved to promote connectivity, safety, and convenience. The primary goal is to improve the desirability of bicycle routes by minimizing conflicts between motorized traffic and bicycle traffic. This analysis reflects the goals and objectives of recent studies in the area. A map of the study area’s existing and proposed bicycling network is shown in Figure 25.

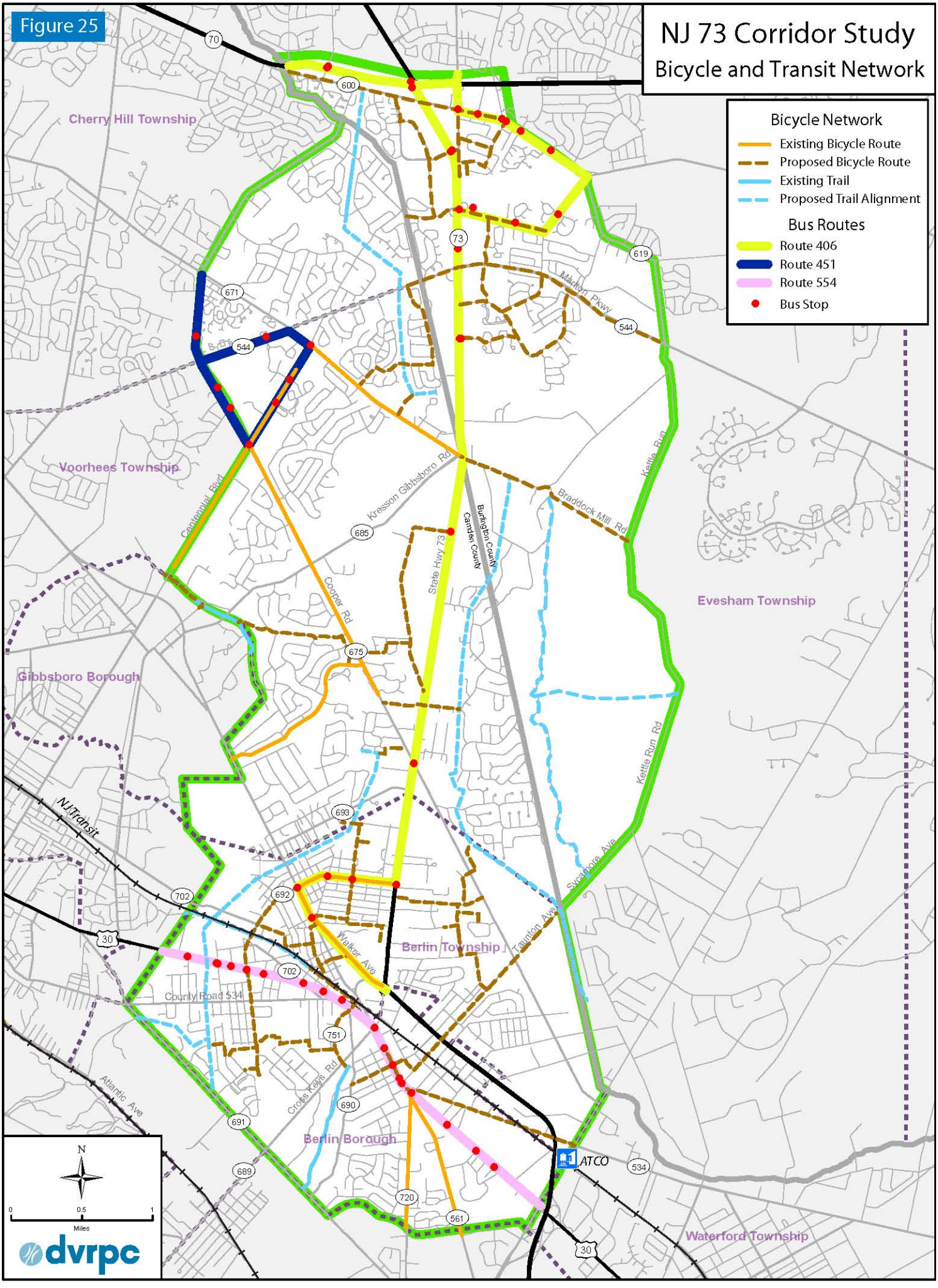


Figure 25
NJ 73 Corridor Study
Bicycle and Transit Network
Bicycle Network
Existing Bicycle Route
Proposed Bicycle Route
Existing Trail
Proposed Trail Alignment
Bus Routes
Route 406
Route 451
Route 554
Bus Stop
Cherry Hill Township
Voorhees Township
Gibbsboro Borough
Berlin Township
Berlin Borough
Evesham Township
Waterford Township
Centennial Blvd
Kresson Gibbsboro Rd
Cooper Rd
State Hwy 73
Burlington County
Camden County
Braddock Mill Rd
Kettle Run
Kettle Run Rd
Marlton Pkwy
Sycamore Ave
Taunton Ave
Walker Ave
County Road 534
Cross Keys Rd
Atlantic Ave
NJ Transit
ATCO
70
600
73
619
671
544
685
675
693
692
702
30
751
690
691
689
720
561
534
N
0
0.5
1
Miles
dvrpc

## Local Bicycle Plans

### Evesham Township

The *Evesham Township Bikeway Master Plan (2003)* outlines several goals aimed at improving the climate for bicycling in the Township. These are:

- Create a bikeway system that makes bicycling a viable alternative to driving;
- Increase recreational bicycling opportunities;
- Improve bicyclist safety;
- Create policies that encourage bicycling and proactive implementation of bicycle facilities;
- Continuously improve and maintain bicycle facilities; and
- Adopt and implement the Master Plan's recommendations.

### Camden County

The *Central Camden County Bicycle and Multi-Use Trail Network Master Plan* (DVRPC #08073, 2009) covers sections of the NJ 73 corridor in Camden County. It recommends improvements to on-road and off-road bicycle facilities and amenities.

#### Corridor-wide Bicycle Recommendations

Several factors may improve the accessibility of roads for bicyclists and increase overall bicycle safety and compatibility conditions:

- Repaint to create bicycle lanes (at least four feet in each direction) on streets with wider shoulders. Where appropriate, right-of-way for a bicycle lane can also be carved from the buffer between the sidewalk and the curb;
- Narrow general-purpose travel lanes to 10 or 11 feet to accommodate the added bicycle lanes. The narrowed lanes will reduce vehicle speeds, which can increase safety and raise awareness for the presence of bicycle riders. On certain segments, a reduction in lane width and buffer width could provide the required space for a bicycle lane;
- Secure and convenient bicycle parking facilities can be built to better accommodate those who use bicycles for commuting or shopping purposes. Bicycle racks are free-standing structures that provide a secure location for bicycles. A single bike rack can generally provide storage for several bicycles. The inverted "U" style rack is more secure and is preferred over the old-fashioned style "dish rack." Areas with bike racks should be well lighted and in full view from the surrounding area, and conveniently located to the entrance of the destination;
- Enact zoning that permits mixed-use neighborhood centers that are within biking distance of residential areas. Commercial and office development should be permitted to exist closer to residential areas. They should be designed to accommodate bicycling and walking to and within the site;

- Lessen the dependency on motor vehicles by creating linkages between neighborhoods and public services via bicycle lanes;
- Provide safe conditions for bicycling through education to motorists and bicyclists;
- Adopt and implement the appropriate recommendations for action in the NJ Bicycle and Pedestrian Master Plan; and
- Create bicycle-friendly arterials that serve major trip generators.

## Site Specific Bicycle Improvement Areas

The bicycle route network, once fully implemented, would provide the connectivity necessary to elevate biking as a transportation mode within the corridor. The following locations are priority locations where existing or proposed bicycle routes cross NJ 73.

### NJ 73 and Centre Boulevard, Evesham Township (MP 23.61)

Evesham Township's proposed bikeway crosses this intersection. This bikeway connects the residential areas in the east to the commercial area west of NJ 73.

#### Immediate Improvements

- Install signage designating Centre Boulevard as a bicycle route.

### NJ 73 and Brick Road, Evesham Township (MP 23.19)

Evesham Township's proposed bikeway crosses this intersection. This intersection accounts for one of the highest number of crashes in the corridor. This bikeway would connect to the proposed bikeway on Lippincott Drive.

#### Immediate Improvements:

- Install signage designating Brick Road as a bicycle route; and
- Install "Share the Road" signage on Brick Road.

### NJ 73 and Kresson (CR 671)/Braddock Mill/Gibbsboro Road (CR 685), Voorhees and Evesham Townships (MP 21.43)

There are bike lanes on Kresson Road but none on Braddock Mill Road. This intersection accounts for the third highest number of crashes in the corridor. Evesham Township's proposed bikeway connects to this intersection.

#### Immediate Improvements

- Install signage designating bicycle route; and
- Examine the feasibility of a bicycle lane on Braddock Mill Road.

### NJ 73 and Evesham Road/Marlton Parkway (CR 544), Evesham Township (MP 22.80)

Evesham Township's proposed bikeway crosses this intersection. This bikeway would connect to the proposed bikeway on Peregrine Drive, as well as the proposed Power Line Bikeway in Cherry Hill Township.

### Recommended Improvements

- Install “Share the Road” signage on Evesham Road; and
- Install a bike lane on Evesham Road. This is in keeping with the proposed bicycle route that would connect Evesham and Voorhees Townships along CR 544.

#### NJ 73 and Signal Hill Drive /Lakeside Avenue, (MP 19.65)

The proposed bicycle lane in Voorhees Township would cross this intersection from Signal Hill Drive to Lakeside Avenue and connect to the existing bicycle route on Cooper Road. This bikeway would also bring riders closer to the proposed trail alignment along the power line in Voorhees Township.

### Immediate Improvements

- Examine the feasibility of constructing a bicycle lane along the proposed bicycle route; and
- Install appropriate “Share the Road” signs.

#### NJ 73 and Franklin Avenue (CR 692), Berlin Township (MP 18.35)

There is an existing bicycle route along Franklin Avenue. An extension along Commerce Lane would provide a connection to NJ 73. The NJ Transit 406 bus also serves this intersection, which provides an opportunity for intermodal connections.

### Recommended Improvements:

- Install appropriate “Share the Road” signs.

#### NJ 73 and Taunton Avenue, Berlin Borough, Berlin Township (MP 17.12)

This proposed bicycle route would connect to the proposed Broad Street bicycle route in Berlin Borough to the west and with the proposed bicycle route on Sycamore Avenue in Evesham Township.

### Immediate Improvements

- Install appropriate “Share the Road” signs.

## Pedestrian Facilities and Amenities

Pedestrian facilities and amenities encourage an alternative form of transportation that can result in reduced motor vehicle traffic on area highways. Such facilities are critical links in the transportation network as they provide pedestrian access to major destinations such as retail commercial areas and recreation facilities.

In retail areas of the NJ 73 corridor, pedestrian amenities such as sidewalks and crosswalks are mostly absent. A barrier is created between nearby residential areas and the retail area for the non-motorized population. The resulting environment is therefore not conducive for pedestrian activity. This is significant because, due to the lack of bicycling amenities and very limited bus service, the automobile is the primary mode of transportation in the area.

### Pedestrian Corridor-wide Recommendations

To make the NJ 73 corridor more pedestrian-friendly, several improvements are considered appropriate for the area. Figure 25 simulates the addition of pedestrian amenities along NJ 73. Pedestrian improvements may include the following:

- Where possible, there should be pedestrian linkages between major retail areas with safe and direct access points;
- Sidewalks should be protected from the street at entry points and should clearly lead to building entrances;
- The number of points at which pedestrians encounter traffic should be minimized;
- Crosswalks should be clearly marked and provide a pedestrian-actuated signal phase;
- Driveways should be consolidated where possible and exits controlled by proper signage or signals;
- Landscaped and raised islands should be created on busy arterials where practical, to serve as refuge for pedestrians when crossing streets;
- Safety can be improved at pedestrian crossings with traffic calming devices (e.g., different paving textures, speed humps, tighter corners, curb extensions, raised crosswalks);
- Create wide sidewalks, buffers, and shoulders to provide adequate space for pedestrians to pass one another while ensuring a sense of distance from the presence of vehicle traffic. This will also constrain the roadway to slow traffic speeds. Buffers of 4 to 6 feet wide are recommended between the sidewalk and the road shoulder;
- There should be pedestrian-scale lighting and landscaping. Adequate street lighting not only creates a sense of security among shoppers, but also aesthetically adds to the area. Fixtures should be designed to illuminate both roadways and sidewalks, and should provide a consistent level of lighting. Mercury vapor, incandescent, or less expensive high-pressure sodium lighting is preferable at pedestrian level;
- Plant trees along buffers and integrate street furniture (such as benches) into the more traveled retail areas in order to draw pedestrians and introduce a sense of community among the various distinct developments;
- Integrate raised medians and gateways that will lend to the community feel. Landscaping and fencing should not hinder pedestrian movement but should encourage it; and
- Curb cuts and ramps should be used to allow access for the disabled.

Figure 26: Improved Pedestrian Amenities along NJ 73

Before

After Improvements

Source: DVRPC 2009

## Site Specific Pedestrian Improvement Areas

Several locations were identified for improvement with the intention of making the area more pedestrian-friendly.

### NJ 73 and Franklin Avenue, Berlin Township (MP 18.35)

This is a "T" intersection where Franklin Avenue intersects with NJ 73. Sidewalks are present along all approaches; however, crosswalks are present only at the western and northern legs. Transit service is provided by NJ Transit Bus Route #406.

#### Immediate Improvements

- Restripe crosswalks to continental-style on all legs to improve visibility to motorists;
- Install ADA-compatible curb ramps;
- Improve access by installing continuous sidewalks on all approaches; and
- Install pedestrian actuated countdown signals at all crosswalks.

### NJ 73 and Ardsley Road, Evesham Township (MP 22.28)

The adjacent shopping center generates high vehicular volumes. The bus stop also provides for additional pedestrian volume. This is a four-leg intersection where one leg of Ardsley Road terminates in the shopping center parking lot. Parallel-striped crosswalks are present on three legs of the intersection.

#### Immediate Improvements

- Install and upgrade the crosswalks across all four approaches to continental-style for greater visibility;
- Install ADA-compatible curb ramps;
- Install sidewalks on the eastern side of NJ 73 to provide connectivity in the area; and
- Install pedestrian-actuated countdown signals at all crosswalks.

### NJ 73 and Centre Boulevard, Evesham Township (MP 23.61)

This intersection provides a link between South Maple Avenue and Marlton Center Boulevard. The adjacent land use is primarily retail, with Burlington Coat Factory being a major destination. There are bus stops present near the intersection. Marked crosswalks are absent at all legs of this intersection. There is a pedestrian-actuated push button to cross the northern leg of the intersection.

#### Immediate Improvements

- Install continental-style crosswalks across all four approaches for greater visibility;
- Install ADA-compatible curb ramps;
- Install sidewalks on the western and southeastern quadrants;
- Install pedestrian-actuated countdown signals at all crosswalks; and
- Install curbed pedestrian refuge areas with ADA-compliant curb ramps along NJ 73 and eastbound Centre Boulevard medians.

## Corridor Transit Service

### Bus Transit

The service area of the NJ 73 corridor study is poorly served by transit. The transit network for the study area is displayed in Figure 25. The area is defined by infrequent bus service, as well as an unattractive environment around bus stops, i.e., lack of sidewalks and crosswalks. All these contribute to discouraging bus ridership. NJ Transit bus is the only bus transit provider to the corridor. The Bus Route #406 operates daily from the corridor to Philadelphia. In general, weekday bus travel time from most of the corridor to Camden or Philadelphia (and vice versa) during the AM and PM peak period requires a minimum of one hour. The #406 bus serves Virtua West Jersey Hospital and points beyond the study area, such as the Walter Rand Transportation Center in Camden and Philadelphia. The first #406 bus departs from Berlin Township at 5:36 AM weekdays for Philadelphia. There are four buses in the AM that depart from Berlin and 15 in the PM, with the last bus departing at 11:35 PM.

There is more frequent bus service at the northern end of the corridor. The first bus to Philadelphia leaves at 5:50 AM from Virtua West Jersey Hospital in Evesham Township, while the last bus departs at 11:49 PM. There are 12 departing buses in the AM and 21 in the PM from this location. Scheduled travel time from Marlton's Virtua West Jersey Hospital to Philadelphia takes at least one hour during either peak period.

The reverse trip from Philadelphia has 19 buses in both the AM and PM arriving at Virtua West Jersey Hospital. The first bus arrives at 5:56 AM and the last bus arrives at 11:38 PM. From Philadelphia, there are 7 buses in the AM and 12 in the PM that terminate in Berlin Township. The first bus arrives at 6:59 AM while the last bus arrives at 11:52 PM. There is approximately 20 minutes headway for buses that terminate at Virtua West Jersey Hospital. This is compared to 35 minutes for buses continuing to Berlin Township during the AM hours. In the PM, the average headway is 35 minutes to Virtua West Jersey Hospital, and 56 minutes to Berlin Township.

## Bus Amenities

Shown in Table 16 are the 12 designated bus stops within the corridor. There are no bus stop shelters. Given the above, most of the NJ 73 study corridor fares poorly in terms of: (1) transit availability, comfort, and convenience; (2) travel time for riders to reach their destination by transit; as well as (3) mobility for those without a vehicle. Those without automobile access experience restricted mobility due to the infrequent bus service in the area. All of the bus stops appear to lack shelters and on-street information (e.g., displaying service information at bus stops) that enhance customer awareness and comfort to use transit. It is therefore reasonable to conclude that the public's preference of the private automobile for travel is solidified by a lack of alternative modes, including transit, within the study area.

Table 16: Bus Routes along NJ 73

| Number for Bus Stop | Municipality | Primary Street | Secondary Street | Bus Route | Direction |
|---|---|---|---|---|---|
| 1 | Berlin | NJ 73 | Franklin Avenue | 406 | South |
| 2 | Berlin | NJ 73 | Franklin Avenue | 406 | North |
| 3 | Voorhees | NJ 73 | Cooper Road | 406 | South |
| 4 | Voorhees | NJ 73 | Cooper Road | 406 | North |
| 5 | Voorhees | NJ 73 | Dutchtown Road | 406 | South |
| 6 | Voorhees | NJ 73 | Dutchtown Road | 406 | North |
| 7 | Evesham | NJ 73 | Ardsley Drive | 406 | South |
| 8 | Evesham | NJ 73 | Ardsley Drive | 406 | North |
| 9 | Evesham | NJ 73 | Oak Terrace | 406 | South |
| 10 | Evesham | NJ 73 | Brick Road | 406 | North |
| 11 | Evesham | NJ 73 | Centre Blvd. | 406 | South |
| 12 | Evesham | NJ 73 | Centre Blvd. | 406 | North |

Source: NJ Transit 2008

### Recommended Transit Improvements

- Install bus stop shelters at all corridor bus stops with bus schedule posted and benches for passenger comfort;
- In anticipation of the planned Virtual Hospital complex near Dutchtown Road, transit service along the corridor should increase to accommodate the expected ridership;
- Improve crosswalks and sidewalks near bus stops to improve access and safety for bus riders;
- Improve bus headways from Berlin Township especially in the AM peak;
- Construct bus pull-outs at peak boarding locations to minimize disruption to traffic flow and provide a safe environment for bus riders;
- Improve lighting at bus stops to enhance rider safety; and
- Explore the feasibility of park and ride lots at shopping centers along NJ 73.

## Rail Transit

The corridor is partly served by two rail lines, the Atlantic City Rail Line, which can be accessed from the Atco rail station in Waterford Township, and the PATCO rail line, which, while outside the corridor, can be reached via US 30 and other key roadways. The major issues limiting rail transit use in the corridor is the infrequent rail service (Atlantic City Rail Line) at the Atco station and accessibility. On average, the hourly headways per direction for this service between Atlantic City and Philadelphia discourage rail use for potential riders. In addition, there is difficulty accessing the Atco station from southbound NJ 73. Currently, people traveling south on NJ 73 have to enter US 30 eastbound, and then exit US 30 to NJ 73 northbound to the Atco station, an additional 1.7 miles of travel. Signage directing motorists to the station is inadequate.

### Recommended Rail Improvements

- Erect wayfinding signs to direct motorists to the Atco station from southbound and northbound NJ 73;
- Improve access to Atco Train Station from southbound NJ 73. Figure 27 illustrates a pedestrian underpass from Hopewell Road to the Atco rail station in Waterford Township to provide access to and from the rail station from both sides of the tracks. This would allow commuters from north of the station area to park their vehicles on the north side of the station, thus negating an additional 1.7 miles of travel. Wayfinding signage could be erected along southbound NJ 73 where it intersects with Jackson Road (CR 534) to accommodate this access;
- Explore the feasibility of a transit village at this station as a means of utilizing the adjacent vacant land and improve the economic base of the community;
- Improve frequency of service to and from Philadelphia and Atlantic City from its current one hour headway; and
- Erect wayfinding signs along Evesham Road (CR 544) and Kresson Road (CR 671), directing motorists to PATCO Train Stations at Ashland and Lindenwold, respectively.

Figure 27: Image of Pedestrian Underpass at Atco Station


Before | After Improvements

Source: *Increasing Intermodal Access to Transit, Phase IV*, DVRPC #07017, 2006

CHAPTER 8

# Implementation

This report's recommendations aim to alleviate congestion, improve highway efficiency, protect and remediate environmental resources, and enhance the quality of life within the communities along NJ 73. The implementation of these recommendations relies upon the corridor municipalities. This section summarizes each recommendation by subsection, estimates possible project costs, and identifies the responsible agency. Funding sources have also been identified for each recommendation. They are outlined by municipal, county, region, and state funding sources.

## Project Recommendations

The following recommendations are identified first as corridor-wide and then broken into the various segments and locations as outlined in the transportation section. Project cost estimates are based on site-specific conditions. Smart growth and environmental recommendations are included in each of the various segment tables.

### Corridor-wide Recommendations

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Encourage corridor growth in centers – Identify key parcels for infill development and mixed-use residential and commercial | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF)<br>New Jersey Environmental Infrastructure Financing Program<br>Section 319(h) Nonpoint Source (NPS) Grant Program<br>User fee financing for water | Minimal cost to municipalities. May require planning consultant |
| Design for future residential density | | | |
| Adopt better access management and parking policies | | | |
| Adopt smart growth zoning | | | |
| Provide for Wayfinding along US NJ 73 - Design and Install Wayfinding Signs | | | $20,000 - $40,000 corridor-wide |
| Install stormwater best management practices (BMPs) where feasible | | | Varies by scale, $5,000 - $250,000+ per project |

## Evesham Township

### South Maple Avenue (CR 607) Segment

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Narrow travel lanes | Evesham Township Officials<br>Burlington County Engineering<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | $9,000 - $12,000 |
| Install wayfinding signage to local destinations | | | $1,000 - $1,500 per sign |
| Pedestrian facilities (continental-style crosswalks, countdown timers, ADA - compliant curb ramps, and curb bump-outs) at intersection | | | $55,000 - $72,000 per intersection |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |
| | | | |

### NJ 73 Segment

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Revise zoning along NJ 73 to include residential and office uses | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Minimal cost to the municipality. |
| Complete sidewalk network | | | $39,000 - $51,000 |
| Install off-street, inter-parcel vehicular and pedestrian connections | | | $88,000 - $115,000 per connection |
| Wayfinding signage for existing internal connections | | | $1,000 - $1,500 per sign |
| Pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, median refuges, and curb bump-outs) at NJ 73 intersections | | | $67,000 - $98,000 per intersection |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

### NJ 73 and Centre Boulevard

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and median refuges) at the NJ 73 intersection | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program | Based upon site-specific conditions, $75,000 - $98,000 |
| Complete the adjacent sidewalk network | | | $23,000 - $30,000 |
| Install skip-marks to delineate the dual left-turns from both eastbound and westbound Centre Boulevard approaches | | | $400 - $500 |
| Construct a second exclusive left-turn lane for the westbound Centre Boulevard approach | | | $50,000 - $65,000 |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

### NJ 73 and Brick Road

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and median refuges) at the NJ 73 intersection | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Based upon site-specific conditions, $70,000 - $91,000 |
| Complete the adjacent sidewalk network | | | $39,000 - $51,000 |
| Install skip-marks to delineate the eastbound approach's dual left-turns | | | $200 - $300 |
| Install an exclusive left-turn lane for the eastbound approach | | | $25,000 - $33,000 |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

## NJ 73 and Evesham Road (CR 544)/Marlton Parkway Issue Area

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and median refuges) at the NJ 73 intersection. | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Based upon site-specific conditions, $67,000 - $87,000 |
| Complete portions of sidewalk network | | | $40,000 - $52,000 |
| Install skip-marks to delineate the dual left-turns from both eastbound and westbound approaches | | | $400 - $500 |
| Relocate the lane merge along Marlton Parkway further east and away from the NJ 73 intersection | | | $150,000 - $195,000 |
| Install bicycle route signage | | | $1,000 - $1,500 per sign |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

## North Cropwell Road at NJ 70 and Old Marlton Pike (CR 600)

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and median refuges) at both North Cropwell Road intersections | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Based upon site-specific conditions, $120,000 - $156,000 |
| Complete the adjacent sidewalk network | | | $38,000 - $49,000 |
| Adjust the signal timing at both North Cropwell Road intersections | | | $5000 - $7,000 |
| Restripe the lane dividers and shoulder along Old Marlton Pike to accommodate a second eastbound travel lane | | | $19,000 - $25,000 |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

## Voorhees Township

### NJ 73 Segment

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Improve immediate access points to the Virtua Hospital development | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Costs to be borne by developer |
| Install bus stops and shelters | | | $18,000 per shelter |
| Build an interconnected sidewalk network, with pedestrian facilities at intersections | | | Varies by scale, $94,000 - $122,000 per mile of 4' wide sidewalk |
| Install physical links to the surrounding bicycle network | | | N/A |
| Install wayfinding signage | | | $1,000 - $1,500 per sign |
| Build additional road connections to the existing street network | | | N/A |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

### NJ 73 and Kresson Road (CR 671)/Braddock Mill Road

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install continental-style crosswalks, countdown timers, and ADA-compliant curb ramps at the NJ 73 intersection | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | $63,000 - $82,000 |
| Complete the adjacent sidewalk network | | | Varies by scale, $94,000 - $122,000 per mile of 4' wide sidewalk |
| Realign Kresson-Gibbsboro Road 600 feet west of the NJ 73 intersection | | | $415,000 – $540,000 |
| Construct an exclusive left-turn lane for the westbound Braddock Mill Road approach | | | $85,000 - $111,000 |
| Enhance riparian buffer to mitigate effect of road widening on Barton Run | | | Varies by scale, $5,000 - $250,000+ per project |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

### NJ 73 and Cooper Road (CR 675)

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Install continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and median refuges at the NJ 73 intersection | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Based upon site-specific conditions, $71,000 - $92,000 |
| Complete the adjacent sidewalk network | | | $38,000 - $49,000 |
| Optimize the signal timing | | | $2,500 - $3,300 |
| Construct exclusive right-turn lanes for both approaches of Cooper Road | | | $85,000 - $111,000 per approach |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements | | | Varies by scale, $5,000 - $250,000+ per project |

## Berlin Borough

### Route 30/NJ 73 Segment

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Revise commercial zoning districts to encourage single lots with mixed uses | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Minimal cost to the municipality. |
| Prioritize infill opportunities along the central business district | | | Minimal cost to the municipality. |
| Provide pedestrian connections to Camden County Park on Park Boulevard from central business district and NJ 73 | | | Minimal cost to the municipality. Study feasibility. |

## Berlin Township

### NJ 73 Segment

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Commercial uses along CR 561 should be concentrated around the central business district (Mink Road/Walker Avenue/CR 561). This should be rezoned for uses that would not be appropriate for a highway such as service type uses and encourage a pedestrian-oriented downtown | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>CMAQ<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Minimal cost to the municipality. |
| Prioritize vacant commercial properties to encourage infill development. | | | Minimal cost to the municipality. |
| Wayfinding signage to southbound NJ 73 via an alternate route. | | | $1,000 - $1,500 per sign |
| Install an internal road connecting the Walmart Shopping Center to Prospect Avenue. | | | $360,000 - $470,000 |
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and curb bump-outs) at the NJ 73 and Prospect Avenue intersection, as well as along Walker Avenue. | | | Based upon site-specific conditions, $110,000 - $143,000 |
| Retrofit stormwater basins and install other BMPs such as porous pavement, dry wells, and bioinfiltration (rain gardens) in parking lot areas, especially to mitigate for added internal road. | | | Varies by scale, $5,000 - $250,000+ per project |
| Integrate vegetated stormwater BMPs such as bioinfiltration into pedestrian improvements. | | | Varies by scale, $5,000 - $250,000+ per project |

## Berlin Township/Waterford Township

NJ 73 and Jackson Road (CR 534)

| Recommendation | Responsible Agency | Possible Funding Options | Project Cost Estimate |
|---|---|---|---|
| Rezone Planned Highway Commercial zone to specifically encourage mixed- use near the Atco train station. | Municipal Officials<br>NJDOT<br>Developer<br>Chamber of Commerce<br>NJ Transit<br>Cross County Connection TMA | Capital Improvement Programs (CIP)<br>Impact Fee Ordinances<br>Business Improvement Districts<br>Transportation Enhancements Program<br>Home Town Streets/Safe Routes to School<br>DVRPC's TCDI Program<br>Tax Increment Financing (TIF) | Minimal cost to the municipality. |
| Construct a pedestrian underpass beneath the NJ Transit Atlantic City rail line. | | | $650,000 - $845,000 |
| Install pedestrian facilities (continental-style crosswalks, countdown timers, ADA-compliant curb ramps, and curb bump-outs) at the NJ 73 intersection. | | | $63,000 - $82,000 |
| Complete the adjacent sidewalk network. | | | $24,000 - $31,000 |
| Adjust the signal timing during the weekday PM peak period. | | | $2,500 - $3,300 |
| Integrate vegetated stormwater BMPs such as bioinfiltration (rain gardens) into pedestrian improvements. | | | Varies by scale, $5,000 - $250,000+ per project |

# Funding Programs and Tools

This section details possible funding sources, ranging from traditional economic development mechanisms available to municipalities, to competitive grant programs administered by state and regional agencies. This information was extracted from DVRPC's *Municipal Resource Guide* (www.dvrpc.org/asp/MCDResource/). If interested in any of the programs listed, please contact the agency listed.

## Municipal Programs and Tools

Business Improvement Districts (BIDs) are public/private partnerships in which businesses in a defined area elect to pay an additional tax in order to fund future improvements within that specific geographic area. Funds are collected by the taxing authority and used to provide services such as street and sidewalk maintenance, marketing, and capital improvements. BIDs are formed through the adoption of a municipal ordinance. State financial assistance is available for municipalities.

Community Impact Assessments are a process by which municipalities can evaluate the effects of a transportation (infrastructure) action on a community and the quality of life for its residents. This type of assessment should be done when large-scale development will be taking place within a community or as part of

a large transportation improvement. This assessment can help the municipality integrate land use, economics, and transportation to achieve common goals, as well as bringing all federal and state agencies to agreement on the sustainable choice of improvement.

Capital Improvement Program (CIP) sets out a municipality's plans for future capital improvements, such as roads and other public facilities. The range and scope of these vary, but most cover an immediate 5 - 6—year period and can be scoped for up to 20 years. A successful CIP should include a schedule of implementation with a projected budget. If a municipality's CIP is consistent with the master plan and zoning ordinance, they can be useful tools, allowing the municipality to plan for future growth and improvements and lowering costs by anticipating the future demands of the municipal infrastructure system. The CIP can also provide developers and the public with more certainty concerning future public improvements, thereby improving opportunities for participation and increasing accountability. The adoption and updating of the CIP is no small task, but should be considered an immediate priority for municipalities.

Impact Fees are paid by developers to help finance a variety of needed services and facilities that result from growth. This type of revenue provides a better quality of life for residents by financing the infrastructure needed to support additional population, employment, and development. It ultimately reduces the need to impose higher taxes on existing residents to finance additional facilities. An impact fee ordinance requires modification to the master plan and subdivision and zoning codes.

Parkland Dedications/Fees-in-Lieu requires developers to provide open space within their development or to contribute fees-in-lieu to improve or preserve open space elsewhere. Fees-in-lieu should be outlined in the zoning and municipal subdivision code for the municipality. They are often based on the number of residential units that a particular development will introduce.

## County Programs

### Camden County Improvement Authority

Eligibility: Camden County local governments, corporations, and non-profits

Purpose: Provides cost-effective financing to better the communities in Camden County

Terms: Vary

Deadline: Open

C: Camden County Improvement Authority

P: 856-751-2242

I: www.camdencounty.com

## Regional Programs

### Transportation and Community Development Initiative (TCDI)

Eligibility: Eligible municipalities

Purpose: Support local planning projects to improve transportation and encourage redevelopment

Terms: Grants up to $75,000 for single projects and $100,000 for multi-municipal projects; 20% local match required

Deadline: Approximately every two years

C: Delaware Valley Regional Planning Commission (DVRPC)

P: 215-592-1800

I: www.dvrpc.org

### Transportation Enhancements Program (TE) – New Jersey

Eligibility: New Jersey local governments, counties, state or federal agencies, nonprofits

Purpose: Funds non-traditional projects designed to enhance the transportation experience, to mitigate the impacts of transportation facilities on communities and the environment, and to enhance community character.

Terms: 80% to 90% of costs can be funded

Deadline: Varies

C: Delaware Valley Regional Planning Commission (DVRPC)

P: 215.592-1800

I: www.dvrpc.org

## State Programs

### Brownfields Development Area (BDA) Initiative

Eligibility: New Jersey community groups and municipalities

Purpose: Project management assistance for communities impacted by multiple brownfield sites

Terms: Project manager is assigned from the Office of Brownfield Reuse

Deadline: Annual

C: New Jersey Department of Environmental Protection

P: 609-292-1251

I: www.state.nj.us/dep/rsp/brownfields/bda

### Brownfield Redevelopment Incentive Program

Eligibility: New Jersey business owners and developers

Purpose: To finance Brownfield site remediation

Terms: Interim financing up to $750,000 at below-market interest rates

Deadline: Varies

C: New Jersey Economic Development Authority

P: 609-777-4898

I: www.njeda.comu

### Environmental Equity Program

Eligibility: New Jersey government entities and developers

Purpose: Provides loans for site acquisition, remediation, and demolition costs for brownfield redevelopment

Terms: Vary

Deadline: Varies

C: New Jersey Redevelopment Authority

P: 609-292-3739

I: www.njra.us

### Fund for Community Economic Development

Eligibility: New Jersey Community Development Organizations, developers

Purpose: To finance feasibility studies or other predevelopment activities

Terms: Vary

Deadline: Varies

C: New Jersey Economic Development Authority

P: 609-777-4898

I: www.njeda.com

### Historic Site Management Grants

Eligibility: New Jersey municipalities, counties, non-profits

Purpose: Awards range from $5,000 to $50,000

Terms: Vary

Deadline: Varies

C: New Jersey Department of Community Affairs

P: 609-292-7156

I: www.state.nj.us/dca

### Innocent Party Grants

Eligibility: New Jersey municipalities, counties, redevelopment entities, homeowners

Purpose: Applicant must not be responsible for contamination

Terms: Vary

Deadline: Open

C: New Jersey Economic Development Authority

P: 609-777-0990

I: www.njeda.com

### Municipal Grants

Eligibility: New Jersey municipalities, counties, redevelopment entities, homeowners

Purpose: Returns contaminated and underutilized properties to productive reuse

Terms: Up to $3 million, per municipality, per year for 100% of costs of preliminary assessment, site investigation, remedial investigation, and remedial action

Deadline: Open

C: New Jersey Economic Development Authority

P: 609-777-0990

I: www.njeda.com

### Redevelopment Investment Fund (NJRIF)

Eligibility: New Jersey municipalities, counties, non-profits, corporations

Purpose: Flexible investment fund that provides debt and equity financing for business and real estate ventures

Terms: Vary

Deadline: Varies

C: New Jersey Redevelopment Authority

P: 609-292-3739

I: www.njra.us

### Redevelopment Area Bond Financing

Eligibility: New Jersey municipalities with designated redevelopment areas

Purpose: Tax-exempt bonds to fund the infrastructure and remediation components of redevelopment projects

Terms: Vary

Deadline: Varies

C: New Jersey Economic Development Authority

P: 609-777-4898

I: www.njeda.com

### Smart Futures Grant

Eligibility: New Jersey local governments, counties, non-profits

Purpose: Funds projects that balance development with the preservation of open space and environmental resources

Terms: Vary

Deadline: Annual

C: New Jersey Department of Community Affairs

P: 609-292-7156

I: www.state.nj.us/dca

### Smart Growth Predevelopment Funding

Eligibility: New Jersey developers undertaking mixed-use development projects

Purpose: To finance site preparations costs such as demolition, removal of debris, or engineering

Terms: Low-interest loans and loan guarantees up to $1 million

Deadline: Varies

C: New Jersey Economic Development Authority

P: 609-777-4898

I: www.njeda.com

### Special Improvement Districts: Loans and Grants

Eligibility: New Jersey municipalities

Purpose: To finance capital improvements within a designated business improvement zone

Terms: Loans up to $500,000 for capital improvements; grants up to $10,000 for technical support

Deadline: Open

C: New Jersey Department of Community Affairs

P: 609-633-9769

I: www.state.nj.us/dca

### New Jersey Environmental Infrastructure Financing Program

Eligibility: New Jersey local government units

Purpose: To finance infrastructure projects to protect clean water and drinking water

Terms: Loans up to $10 million per borrower

Deadline: Annual

C: New Jersey Environmental Infrastructure Trust

P: 609-219-8600

I: www.njeit.org

### Section 319(h) Nonpoint Source (NPS) Grant Program

Eligibility: Municipal planning departments or boards, health departments or boards; county planning departments or boards, health departments or boards; designated water quality management planning agencies; state and regional entities entirely within New Jersey; state government agencies, universities and colleges; interstate agencies of which New Jersey is a member; watershed and water resource associations and other local nonprofit organizations.

Purpose: To finance the construction and implementation of projects that help to protect, maintain, and improve water quality

Terms: Vary

Deadline: Annual

C: New Jersey Department of Environmental Protection, Division of Watershed Management, Bureau of Watershed Planning

P: 609-984-0058

I: www.nj.gov/dep/watershedmgt

## Sources


Berlin Township, 2006 Reexamination Report of the Master Plan, (revised January 2007)

Camden County *Comprehensive Economic Development Strategy*, Camden County Improvement Authority, 2007

Cherry Hill Township, *Reexamination Report*, Camden County, NJ, January 2007

DVRPC, Analytical Data Report No. 14, Employment Forecasts, August 2007

DVRPC, Transit-Oriented Development: Implementation Tool #1, August 2002

DVRPC, Municipal Resource Guide, August 2009

DVRPC, Realizing Density: Strategies for Compact Suburban Development, December 2004

DVRPC, Innovations in Zoning for Smart Growth, July 2007

DVRPC, Smart Transportation Guidebook, March 2008

DVRPC, 2000 Employment Centers in the Delaware Valley, 2005

Evesham Township, *Master Plan*, Burlington County, NJ, September 2006

New Jersey Pinelands Management Plan and Map 2005, www.nj.state.us/pinelands

Voorhees Township, *2005 Master Plan Reexamination Report*, Camden County, NJ, July 2005

Voorhees Township, *Master Plan Amendment*, Camden County, NJ, March 2007

Waterford Township, Master Plan Housing Element and Fair Share Plan, December 2008

Waterford Township, *Master Plan*, Remington and Vernick Engineers, December 1990

APPENDIX A

# Corridor Access Management Overlay District (CAMO)

This sample Corridor Access Management Overlay District ordinance has been adapted from the DVRPC study, *Route 202 Section 100 Land Use Strategies Study, November 2001*. To enact such an ordinance, there needs to be a coordinated effort by a local government and the New Jersey Department of Transportation in accordance with the State Highway Access Management Code.

## Section 00: Purpose

The Corridor Access Management Overlay District is designed to provide additional regulation of the use, development, and highway access of lands located along the frontage of NJ 73 in order to accomplish the following specific purposes:

- To enhance the overall function and appearance of NJ 73 as a gateway and a principal arterial highway through the community;
- To minimize hazardous traffic flow conditions and confusion for drivers along NJ 73;
- To make the transition between the high-speed, free-flowing driving experience of NJ 73 and the lower-speed, more restrictive driving conditions encountered on the intersecting roads, access points, and driveways as smooth as possible for highway users;
- To promote the orderly and coordinated development of land along NJ 73 and to avoid the adverse effects that uncoordinated development can have on the highway;
- To provide for safe, understandable, and convenient access to abutting uses without causing traffic flow problems;
- To promote channeled and coordinated access along NJ 73 in order to limit conflicting turning movements, traffic congestion, and other potential vehicle hazards;
- To encourage reverse-frontage and other design techniques for proposed development to be located along NJ 73 to minimize the need for additional access or intersecting roadways;
- To require, as part of the development review process, related traffic control improvements (such as acceleration and deceleration lanes, traffic signalization, marginal access roads, service roads, loop roads, jug handles, turning or stacking lanes, and similar low-capital intensive improvements) and public transit enhancements (such as bus pullouts and stops) in order to minimize the effects of new development on traffic flow along NJ 73;
- To provide setbacks for both principal and accessory uses, including signs, off-street parking, and loading areas to facilitate potential widening or related access improvements to primary arterials should future traffic volumes warrant such improvements;
- To require, where feasible, natural features preservation in conjunction with man-made buffering in order to preserve special scenic visual environments along NJ 73; and

- To combine 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 article to further improve the general welfare of all users of NJ 73.

## Section 01: District Coverage

The CAMO is defined and established as follows:

### Primary Arterial Corridor Impact Area

The area extending for a distance of 200 linear feet from the centerline of the right-of-way along each side of NJ 73 shall be considered the impact area.

### Secondary Highway Corridor Impact Area

Where the primary arterial corridor impact area is intersected by another highway of arterial classification that is not otherwise included in the CAMO district, the following Secondary Highway Corridor Impact Area shall be defined and added to the area of the Primary Arterial Corridor Impact Area:

- 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 of a mile (660 linear feet) along said road; and
- For regulatory purposes, where the component defined in subsection 1.2 occurs, all those portions of the Secondary Highway Corridor Impact Area that 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 to include the maximum possible area consistent with the boundary definition.

## Section 02: District Mapping

The Corridor Access Management Overlay District shall be delineated on the official Zoning Map as follows:

- Those areas defined in Section 01 shall be plotted on the Zoning Map to indicate the boundaries of the CAMO. The Zoning Map shall be available in the municipal building for inspection by the public; and
- Any subsequent changes in the boundaries of the CAMO District because 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 to regulate the use of land in the municipality.

- 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;
- In those areas of the municipality 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;
- Should the CAMO District boundaries be revised, 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; and
- Should the zoning classification(s) of any parcel or any part thereof on which the CAMO District applied be changed, such change(s) in classification shall not affect the boundaries of the CAMO District or its application to said parcel(s) 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.

- 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 Board, as provided for in Section 14 of this Article; and
- 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:

- Any limited access or arterial highway located within the boundaries of the Corridor Access Management Overlay District, as defined in Section 01, and the appurtenant rights-of-way, including the interchange access ramps, service roads, and any informational signs erected therein;
- Those portions of existing roads of a lower classification than arterial, as defined on the municipality's official map, or existing access driveways that are located within the boundaries of the CAMO, as defined in Section 01. Any improvements to these roads should comply with the requirements of this article;
- Cultivation and harvesting of crops according to recognized soil conservation practices;
- Pasturing and grazing of animals according to recognized soil conservation practices;
- 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 6.6 and 6.7 of this Article;

- Outdoor plant nursery, orchard, woodland preservation, arboretum, and similar conservation uses, according to recognized soil conservation practices;
- Forestry, lumbering, and reforestation, according to natural resources conservation practices;
- 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;
- Subsurface utility lines;
- Fences of wood, wire, or any other material, provided they are located to maintain a clear sight triangle at any intersection or access point along NJ 73 within the CAMO District;
- Sidewalk, crosswalk, or passenger stop or shelter for public transportation;
- 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; and
- Those uses permitted by right or accessory uses in the underlying zoning district(s) and existing uses made nonconforming 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 CAMO district, except those uses expressly prohibited.

- Above-ground utility lines;
- Off-street parking areas associated with passenger stop or shelter or related public transportation facilities;
- Proposed public and private roads or access driveways that are inconsistent with the development guidelines specified in Section 08;
- Parking and loading areas, including above-grade, structured parking facilities;
- Temporary structures, including signs and buildings, whether principal or accessory;
- Permanent, freestanding structures including advertising devices or signs not exempted, with a surface of 100 square feet or less, and accessory buildings permitted in the underlying zoning district with ground coverage of no more than 150 square feet. No such uses located within the CAMO District shall exceed a height of 35 feet;
- Expansion of a use rendered nonconforming by the adoption of this article;
- Any other use, not specifically listed herein, which may contribute to a hazardous traffic condition or visual intrusion along NJ 73 or any other intersecting road within the CAMO District; and
- 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.

- Junkyards, scrap yards, or similar outdoor storage uses;
- Billboards or similar advertising devices or signs that exceed a surface area of 100 square feet;
- Flashing signs or other advertising devices of any type or configuration; and
- 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 herein.

## Section 08: Guidelines for Subdivisions, Land Developments, and Individual Uses within the Corridor 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.

### 8.1 Access Controls

Direct residential or nonresidential driveway access to NJ 73 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 for these techniques shall be governed by the requirements of the municipality's Subdivision Ordinance. The following alternatives are presented according to their priority in meeting the Declaration of Legislative Intent of this article.

- Access Road: Where direct driveway access is to a residential or access road parallel to NJ 73 or an intersecting road within the CAMO District, every effort should be made to minimize the number of intersections from marginal access roads within the CAMO District;
- Reverse frontage development: Where direct driveway access is to a residential or feeder road and the only access to NJ 73 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;
- Joint access, where direct driveway access from a lot or development to NJ 73 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, a turnaround area or similar technique shall be provided on the lot;
- The minimum spacing between the centerline of new and existing roads along NJ 73 or an intersecting road within the CAMO District shall be no less than 600 feet. No new access to NJ 73 shall be located closer than 100 feet to the point of an intersection of an intersecting road; and
- Where direct driveway access to NJ 73 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 200 feet.

### 8.2 Development Regulations

- The minimum setback for any proposed use within the CAMO District shall be 100 feet measured from the ultimate right-of-way line of NJ 73 and 75 feet from the ultimate right-of-way line of an intersecting road within the CAMO District;
- The minimum lot width within the CAMO District shall be 100 feet;
- No sign, except a traffic safety or directional sign, shall be located closer than 25 feet to the right-of-way line along NJ 73 or other intersecting road located within the CAMO District; or
- No parking, loading, or other storage area shall be located closer than 25 feet to the ultimate right-of-way of NJ 73 or other intersecting road located within the CAMO District.

## Section 09: Application Requirement for Use Permitted by Special Exception

An applicant proposing to locate a use(s) specified in Section 06 of this Article within the CAMO District shall submit the following additional information to the Zoning Board to accompany an application for a special exception.

- A plan(s) delineating the necessary information to be shown on a preliminary plan in accordance with the pertinent requirements of the municipal Subdivision Ordinance;
- A written statement justifying the need for the requested special exception;
- A landscaping plan in accordance with Section 13 of this article; or
- A plan showing existing 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, as well as pertinent supplementary materials. The narrative description shall contain, as a minimum, the following information:

- The relationship of the proposed action(s) to the Declaration of Legislative Intent of this article;
- A general description and map of the proposed action(s), including any proposed modifications from the standards of this article;
- A description and map of the existing natural features, vegetation, and topography of the site and their relationship to the proposed action(s); or
- 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:  Guidelines for Approval of Uses by Special Exception

In considering an application for a special exception, the Zoning Board shall use the following guidelines.

- The consistency of the proposed special exception with the Declaration of Legislative Intent of this Article;
- 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 NJ 73 and any intersecting roads located within the boundaries of the CAMO District;
- 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; and
- The degree to which the applicant has 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 NJ 73 or intersecting road(s) located in the CAMO District.

## Section 12: 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 NJ 73 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. 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.

### 12.1 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 species 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;
- Planted Areas - Along the right-of-way of NJ 73 and the intersecting road(s) located within the CAMO District, the applicant shall provide a single row of deciduous trees, at least 8 feet in height when planted and at least 40 feet in height at maturity, which a spacing of not more than 40 feet on center wherever necessary for adequate site distance;
- Mounding - Mounding is encouraged as a means of reducing visual encroachment along NJ 73 or intersecting roads within the CAMO District if such mounding shall not exceed a slope of 3:1 or interfere with sight lines;
- Shrubs and Grass - Coniferous and deciduous shrubs and grass shall be provided, as needed, to complete the landscaped area.  The width of such area as measured from the ultimate right-of-way line shall not be less than 15 feet;

- Buffer Maintenance - All vegetation shall be permanently maintained and should be guaranteed for a period of two years;
- Architecture and Site Design - The applicant may demonstrate, through the submission of pertinent plans, renderings or models, that the development of the proposed structure(s), building(s), parking area(s), or sign(s) will be accomplished in a manner that will be compatible with the NJ 73 corridor and its surroundings and that they will minimize the visual effects on both highway users and the users of the proposed development;
- Traffic Flow and Access Study - For any non-residential uses and any residential use involving more than five dwelling units, a traffic analysis and access study shall be prepared. 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 projections. Particular attention shall be placed upon the relationships of the proposed access to NJ 73 or other intersecting roads located within the CAMO District. The source(s) for all traffic flow data, turning movements, and projects shall be clearly labeled in the submitted study. The study shall include the rationale for the access chosen as well as any alternatives rejected by the applicant;
- Driveway Spacing - Driveways should be spaced a minimum of 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 50 feet shall be provided between an access driveway and the intersection of a public road with NJ 73. Any such minimum corner clearance access shall be restricted through their design to right turns in and out; and
- Sight Distance - Adequate sight distance shall be provided at every access point and intersecting road upon review and determination by the Township Engineer.

## Section 13: Uses or Structures Rendered Nonconforming by the Adoption of This Article

Following the adoption of this Article, any use or structure that is situated within the boundaries of the CAMO District and does not conform to the permitted uses in Section 05 herein shall become a nonconforming use or structure, regardless of its conformance with the requirements of the Zoning District(s) in which it is located.

- The expansion or continuance of a nonconforming use or structure shall be governed by the requirements of article xx, Section xx of this Ordinance. The Zoning Board shall ensure that the standards contained in Section 12, herein are applied to the expansion or continuance of said nonconforming use or structure; or
- The expansion of a nonconforming use or structure which is rendered nonconforming due to the adoption of this article shall be governed by the standards contained in Section 09, herein. The Zoning Board shall ensure that these standards are enforced.

## Section 14: Appeals

A property owner of a lot of record, as of the date of the 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.

- The Zoning 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; or
- A 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 corporation of pertinent mitigating activities, as set forth in Section 13 of this article, in order to minimize the effects of encroachment along NJ 73.

## Abstract

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| Report Title: | NJ 73 Corridor Study |
| Publication Number: | 09070 |
| Date Published: | May 2010 |
| Geographic Area Covered: | Burlington and Camden Counties, the municipalities of Berlin Township, Berlin Borough, Cherry Hill Township, Evesham Township, and Voorhees Township |
| Key Words: | Congestion management, access management, green infrastructure, greenspace management, stormwater management, transit service, segment improvement, intersection improvement, crash analysis, pedestrian amenities, land use analysis, population forecast, employment centers |
| Abstract: | The Delaware Valley Regional Planning Commission worked with study area municipalities and pertinent state agencies to assess current transportation facilities and land use practices in order to promote solutions to help alleviate current and forecasted travel growth, further the goals of coordinated land use, and determine and provide policy rationale for future transportation improvements. This report documents transportation and land use recommendations for reducing congestion and improving mobility and safety in the corridor, with potential breakout projects for the NJDOT pipeline. |

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