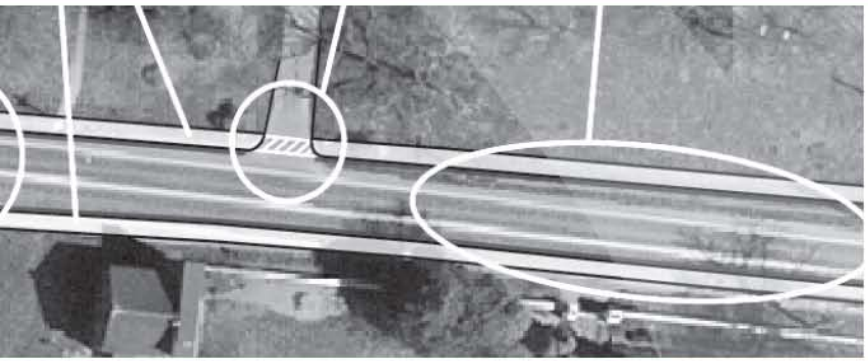
SEPTEMBER 2006

TAMING TRAFFIC



Context-Sensitive Solutions in the DVRPC Region:

Smithville Road, Eastampton, NJ
Chester Pike, Sharon Hill, PA

Delaware Valley
Regional Planning
Commission

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

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

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

TAMING TRAFFIC

Context-Sensitive Solutions in the DVRPC Region

September 2006

Delaware Valley Regional Planning Commission
190 North Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215-592-1800
www.dvrpc.org

MAPS AND FIGURES

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Traffic calming planning and implementation has gained wide acceptance in the United States and abroad in recent decades. In the DVRPC region, both the New Jersey and Pennsylvania Departments of Transportation have developed programs that support traffic calming. DVRPC has also endorsed traffic calming strategies in its planning studies. This report details the findings and recommendations of a study focused solely on problem locations that will benefit from traffic calming techniques and context-sensitive solutions.

During fiscal year 2006, DVRPC staff conducted the second round of Taming Traffic: Context Sensitive Solutions in the Delaware Valley. Again this year, the project was focused on the application of traffic calming strategies as a way of addressing the negative effects of automobile traffic. In keeping with the context-sensitive solutions (CSS) approach, this year's effort placed special emphasis on creating a sense of place as a way of adding value to traditional traffic calming techniques. By including a full range of stakeholders in the study process, and identifying strategies that create safe facilities for all users that are in harmony with the values of the community, both case studies were successful in advancing the goals of CSS. These goals are also echoed in DVRPC's Long Range Plan, *Destination 2030*, which describes traffic calming as an effective strategy for advancing the commission's vision for the Delaware Valley as "a place where people of all ages can walk and bicycle safely, on an efficient transportation system that is comprehensive and accommodates all modes."

The report is divided into two main components, (1) a background narrative that describes traffic calming and its commonly used techniques; and (2) two local case studies, one in Pennsylvania and one in New Jersey.

Sharon Hill Borough in Delaware County, Pennsylvania, was chosen as an urban/suburban case study location. Chester Pike (US Route 13), the main focus of the study, is a primary arterial road that traverses several Delaware County municipalities and provides a connection to the cities of Philadelphia and Chester. At approximately one mile in length, the study area portion of Chester Pike carries both local and regional traffic and provides access to the business district of Sharon Hill, surrounding residential neighborhoods, and nearby industrial parks.

Through the study process, six main issues were identified that could be addressed through traffic calming and context-sensitive solutions. One issue that was immediately apparent was the excess capacity of Chester Pike in several locations within the study area. Combined with varying and poorly marked lanes, inadequate and often skewed pedestrian crossings, and duplicative driveways, the function of Chester Pike is compromised for motorists, bicyclists, and pedestrians. This study recommends several improvements that address these issues specifically while fostering a sense of place for Sharon Hill Borough, including: eliminating excess capacity, consolidating driveways, improving pedestrian crossings, and better integrating transit. The addition of colored or textured pavement, median plantings, and gateway lighting and signage add value to the traffic calming improvements and help Sharon Hill establish itself as a destination by creating a sense of place. A photo simulation of select recommendations is included.

Smithville Road (CR 684) in Eastampton, Burlington County, New Jersey, was selected for the suburban/rural case study. At its southern terminus Smithville Road connects with NJ Route 38. It primarily provides access to residential neighborhoods as it extends north into Eastampton Township, paralleling US Route 206. This location is unique in that the study corridor traverses a county park, and provides the only vehicle access to the park. The centerpiece of the Burlington County parks system, Historic Smithville Park is a 300-acre site that incorporates historic, recreational, and scenic attractions including the Smith Mansion, hiking and biking trails, and a lake with boat access and floating trail. This award-winning park has seen increased visitorship in recent years, resulting in increased traffic, and increased bicycle and pedestrian activity along Smithville Road.

Through field observations and stakeholders meetings, the study team identified several locations that could benefit from traffic calming improvements. The greatest concern identified was the speed of traffic along the corridor and the potential for conflicts with pedestrians and bicyclists. The geography of the site encourages speeding due to the sloping of the roadway inward from both ends of the study corridor. This forms a sort of gulley where the main hiking trail crosses Smithville Road, located near the bridge over Rancocas Creek. Also identified as issues were the lack of bicycle accommodations, the need for additional pedestrian crossings, and the need to better establish an identity, or sense of place, for the park.

The study recommends several traffic calming improvements that will raise the profile of the park, improve safety for its users, slow traffic, and provide additional facilities for bicycling and walking. In particular, gateway median treatments were suggested for both entrances to the park. These were designed to make motorists aware that they are entering a special place where the speed limit is reduced because the roadway transforms into a shared space for all users. Other treatments such as additional pedestrian crossings that utilize color and texture, a multiuse trail, period lighting, plantings, and a lowered speed limit all further inhibit inappropriate vehicle speeds and help establish Smithville Park as a destination. A photo simulation of select recommendations is included.

TAMING TRAFFIC

INTRODUCTION

The origins of traffic calming are typically linked to a grass roots movement in Europe where residents worked to reduce traffic from cutting through their neighborhoods. Their approach, called "woonerven" or "living yard," turned the streets into an extension of the home by adding tables, benches, sand boxes, and parking spaces, etc. This transformed the streets into shared areas that served as obstacles to free-flowing traffic, and opened up new living space for residents.

In the United States, use of traffic calming techniques dates back to the 1940s and 1950s when the cities of Montclair, NJ, and Grand Rapids, MI, installed street closures and traffic diverters. In the decades to follow, other US cities began implementing traffic calming into traffic management plans and programs. Since then, innovative strategies, both technical and nontechnical, have been implemented in the pursuit of calming traffic.

Because the overriding goal of traffic calming is to improve quality of life, which can be highly subjective, both quantitative and qualitative data are valid in defining the need for calming traffic. The key to a well-executed traffic calming study is the involvement of local stakeholders. These local residents and local leaders help identify and define the problems, collaborate on the strategies, and ultimately take ownership of the improvements. In this second round of DVRPC's traffic calming study, the project team again relied heavily on local stakeholders for their intimate knowledge of each study area and its needs.

While this study focused on traditional traffic calming techniques to improve the traffic conditions and quality of life for motorists, pedestrians, and cyclists within the study areas, improvement strategies were not limited only to commonly accepted engineering approaches. Rather, value was added to the recommendations by also including streetscaping elements such as street vegetation, signage, significant sidewalks, unique textures, and other techniques to create a sense of place along the corridor. The aim of this comprehensive approach is to change the look and feel of the roadway, which in turn may alter driver behavior and make passing motorists more aware of the dynamic atmosphere beyond the roadway. As traffic calming evolves, less traditional techniques, such as those previously mentioned, are becoming increasingly significant and vital components of an improvement plan. Together with education and enforcement elements, these more tangible techniques can enhance the entire fabric of a roadway—which makes a stronger and more lasting impact than engineering techniques alone.

The work was conducted through a collaborative process that involved a local task force representing each community, comprised of law enforcement, municipal and county planners, and community activists. The identified problems and recommended improvements are unique to each location and have been endorsed by the local task force members. A list of the participants can be found at the end of the report. Finally, the recommended improvements are presented in before-and-after photo simulations. These graphics are an effective tool used to assist local stakeholders in visualizing the implemented recommendations.

WHAT IS TRAFFIC CALMING?

Although many definitions of traffic calming are available there are basic elements common to all. The most commonly cited definition comes from the Institute of Traffic Engineers, which states that traffic calming is "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users."

The Institute for Traffic Engineers (ITE) provides a set of traffic calming techniques that are accepted nationally. However, there are other techniques that can be used to complement traditional traffic calming measures by building a "sense of place" and changing the surrounding physical environment. Such techniques include streetscaping elements—street trees and plantings, street furniture, period lighting, signage and vibrant textural treatments. Companion improvements—such as widening sidewalks, adding bike lanes, and creating median islands—improve the bicycle and pedestrian environment, and are likely to draw more nonmotorized users to the roadway. As driving behavior is often linked to a motorist's perception of the surrounding context, these changes to the environment help to modify driver behavior. As seen in both local and international examples, destinations that exhibit a sense of place and have increased multimodal activity foster slower speeds and heightened caution among drivers—thus reducing the negative impacts of traffic.

Like all traffic calming elements, these techniques must be customized to appropriately match the location, function, and design of the roadway. These complementary elements, which effectively change the context of the roadway, contribute to a more comprehensive improvement strategy when implemented in conjunction with conventional calming measures.

Unlike the set of traffic calming techniques laid out in the ITE manual, the effectiveness of techniques aimed at creating a sense of place can be difficult to quantify, and have not been measured objectively, as compared to several engineering techniques. Nonetheless, their application is widely accepted by planners across the country, and many traffic calming studies include such elements to complement conventional measures.

Regional Perspective

Traffic calming strategies are common across the globe, and are becoming increasingly widespread throughout the Delaware Valley region. In January 2001, the Pennsylvania Department of Transportation (PennDOT) published Pennsylvania's Traffic Calming Handbook. The handbook provides guidance for PennDOT when considering the use of traffic calming measures on state roadways in Pennsylvania. It also provides municipalities with information that can help them establish a traffic calming program for roadways within their jurisdictions.

The New Jersey Department of Transportation (NJDOT) is currently developing a traffic calming chapter that will become part of its roadway design manual. NJDOT has also embraced traffic calming planning and implementation by funding local projects through its Local Technical Assistance Program (LTAP).

DVRPC promotes traffic calming at a regional level by including such principles in *Destination 2030*, its long-range plan for the Delaware Valley Region. Listed under the title "Design Streets and Highways for All Users," the policy states: "DVRPC promotes the implementation of traffic calming techniques in a context sensitive approach." This policy supports the plan's bicycle and pedestrian goals of doubling the percentage of trips by foot and bicycle while reducing the number of injuries and fatalities suffered by bicyclists and pedestrians.

Although many examples of traffic calming can be found throughout the region, few have been implemented as the end result of a comprehensive study. During the winter of 2004-2005, Haddonfield Borough in Camden County, NJ, conducted a comprehensive traffic calming study. Led by a state-funded consultant, the study examined qualitative and quantitative data from five target locations within the borough. An active citizens' committee, called the Borough of Haddonfield Transportation and Pedestrian Safety Committee (TAPS), initially identified these locations. This committee was the driving force in getting local political support for the traffic calming study and

securing state funds. TAPS also participated in a walkable places audit of their town, and organized a Drive25 campaign that has become an annual event in Haddonfield. The Haddonfield study was successful because it had support from municipal, county, and state governments, and from residents.

Goals of Traffic Calming

In the most basic terms, traffic calming seeks to modify the behavior of traffic to match its surrounding context. Many of the traffic calming techniques provide solutions to alleviate potentially dangerous conditions, and to improve safety for drivers, pedestrians and cyclists. The Institute of Traffic Engineers identifies the following goals and objectives.

Traffic Calming Goals:

- Increasing the quality of life
- Incorporating the preferences and requirements of the people using the area (e.g., working, playing, residing) along the street(s), or at intersection(s)
- Creating safe and attractive streets
- Helping to reduce the negative effects of motor vehicles on the environment (e.g., pollution, sprawl)
- Promoting pedestrian, cycle and transit use

Traffic Calming Objectives:

- Achieving slow speeds for motor vehicles
- Reducing collision frequency and severity
- Increasing the safety and the perception of safety for nonmotorized users of the street(s)
- Reducing the need for police enforcement
- Enhancing the street environment (e.g., streetscaping)
- Increasing access for all modes of transportation
- Reducing cut-through motor vehicle traffic

Traffic Calming Techniques

Traffic calming techniques are an attempt to enhance traffic and pedestrian safety and preserve neighborhood character and livability. The primary effects produced by these techniques are speed reduction, traffic volume reduction, increased driver awareness, and increased safety.

There are a variety of ways to organize or categorize traffic calming techniques. For the purposes of this study, the techniques have been organized into four categories: education, engineering, enforcement, and policy. The following text includes background of each category and a brief description of each technique culled from the various publications researched for this report. Although a technique from any one of these categories may produce some level of benefit, these techniques work best when used together.

Education

Education-based traffic calming measures include “programs implemented on a day-to-day basis to regulate, warn, guide, inform, enforce and educate motorists, bicyclists and pedestrians” as described in the Traffic Calming Toolkit published by the City of San Jose, California. Many of these techniques can be implemented quickly and at a low cost, providing immediate benefit; whereas the techniques described in the engineering section may require more extensive planning and design, and, in some cases, right-of-way acquisition, which can be costly and time consuming.

Haddonfield, New Jersey’s Drive 25 Campaign is an educational effort using media coverage and promotional materials, such as this window sticker.

Neighborhood Traffic Safety Campaigns: Education programs to appeal to local residents to comply with traffic laws. This usually consists of personalized letters or other materials distributed to all residents of a town or neighborhood typically citing local, state, or national statistics on speeding.

Drive 25 Campaign: This program informs motorists of the benefits of driving at the speed limit and encourages them to be conscious of their speed. The effectiveness of this program can be bolstered by increased police presence and enforcement of the speed limit. The temporary nature of the campaign, and the cost of increased law enforcement, is a downside of the program.

Safe Routes to School: A federally funded program that strives to establish, improve, and maintain the walking and bicycling paths to schools serving children in grades K-8.

Engineering

The most definitive resource on traffic calming is the Institute of Transportation Engineers (ITE) report entitled Traffic Calming: State of the Practice, published in August of 1999. Since that time, the ITE has created an extensive traffic calming website at www.ite.org/traffic/index.html providing information and research regarding all aspects of traffic calming. The following descriptions of engineering techniques were taken from the aforementioned document. Although most traffic calming measures that involve changes to the physical environment have some effect on both volume and speed, they can be classified according to their dominant effect, i.e.: volume control or speed control.

Not included in this list are regulatory measures such as modifications to traffic signal timings, or the implementation of new stop signs. As stated in Traffic Calming: State of the Practice, “regulatory measures are generally perceived as less effective at calming traffic than are physical measures that by their nature are self-enforcing.” Stop signs and lane markings, etc., are considered to be more effective as complimentary techniques than as stand-alone techniques. See the table on the following pages for examples of engineering techniques.

Enforcement

Police enforcement of traffic laws is an effective way of raising awareness at select locations. Unfortunately, it is cost prohibitive to target multiple traffic calming locations simultaneously using enforcement. In addition, the effect of enforcement on driver behavior is temporary. Such constraints make this approach less successful, and unsustainable in a practical sense, when compared to self-policing engineering techniques. Enforcement is, however, a practical complimentary strategy when used in companion with Neighborhood Traffic Safety Campaigns.

Another enforcement-based program is the Radar Speed Trailer unit that displays a motorist’s speed as they approach the device. The Neighborhood Speed Watch program empowers residents by allowing them to record speeds of motorists passing their homes, record license plate and vehicle information, and submit the information to local law enforcement. The police then mail warning letters to the owners of offending vehicles, reminding them of the posted speed limit and the neighborhood’s concern for safety.

Policy

The policy approach to traffic calming is much more proactive when compared to the techniques described in the education, engineering, and enforcement categories, which address an existing problem. The policy approach seeks to set standards or performance measures for the transportation system and its users (pedestrians, bicyclists, and motorists) that maintain mobility, create connectivity, and ensure safety. Some tools that may be utilized in a policy approach are the municipal Comprehensive or Master Plan including an Official Map delineating road rights-of-way, bicycle and pedestrian routes, and multipurpose shared facilities.

Likewise, it is logical to incorporate the goals of traffic calming when developing or redeveloping infrastructure, or during a new land development, as to avoid the need and added cost of reactive treatments. Engineering Specifications can be tailored to ensure that new or rehabilitated roads are designed to meet lower design speeds, and to incorporate innovative pedestrian accommodations where necessary. If the goals of traffic calming can be incorporated at the policy level, a municipality can prevent the negative impacts of traffic in a comprehensive manner.

The following pages display examples of engineering traffic calming techniques.

ENGINEERING TRAFFIC CALMING TECHNIQUES

Volume Control Measures

The primary purpose of these techniques is to discourage or eliminate through-traffic.

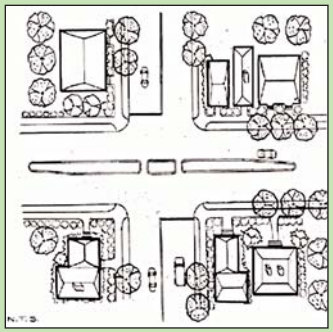
Full Street Closures: Barriers placed across a street to close the street completely to through-traffic, usually leaving only sidewalks or bicycle paths open. The barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstructions that leave an opening smaller than the width of a passenger car.

Half Street Closures: Barriers that block travel in one direction for a short distance on otherwise two-way streets. When two half closures are placed across from one another at an intersection, the result is a semi-diverter. Half closures are often used in sets to make travel through neighborhoods with grid streets circuitous rather than direct.

Diagonal Diverters: Barriers placed diagonally across an intersection, blocking through-movement. Like half closures, diagonal diverters are usually staggered to create circuitous routes through neighborhoods.

Forced Turn Islands: Raised islands that block certain movements on approaches to an intersection.

Median Barriers: Raised islands located along the centerline of a street and continuing through an intersection so as to block through-movement at a cross street.



Source: Pennsylvania's Traffic Calming Handbook, PennDOT

Speed Control Measures

The primary purpose of these techniques is to slow traffic. Speed control measures are classified as vertical, horizontal, or narrowings, with vertical and horizontal devices being most effective at reducing speeds.

Vertical Speed Control Measures
Achieve speed reductions by forcing motorists over vertical curves or over road surfaces that have a texture different from the main line.

Speed Humps
Rounded raised areas placed across the road. The Watts profile hump, developed and tested by Britain's Transport Research Laboratory, is the most common speed control measure in the United States.

Speed Tables
Flat-topped speed humps often constructed with brick or other textured materials on the flat section. Their long flat fields, plus ramps that are sometimes more gently sloped than speed humps, give speed tables higher design speeds than humps.

Reno, NV

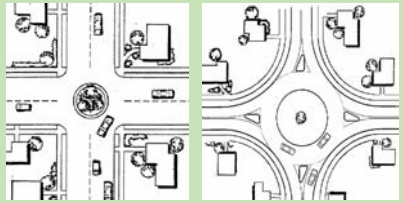
Raised Intersections: Flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section. They make entire intersections-crosswalks and all-pedestrian territory.

Textured Pavements: Roadway surfaces paved with brick, concrete pavers, stamped asphalt, or other surface materials that produce constant small changes in vertical alignment. A noted limitation to textured pavements, such as cobblestone, is that they may present difficulties for pedestrians and bicyclists, particularly in wet conditions.

Collingswood, NJ

Horizontal Speed Control Measures
Achieve speed reductions by forcing drivers around horizontal curves and by blocking long views of the road ahead.

Roundabouts
Raised islands, placed in intersections, around which traffic circulates. Roundabouts are defined by yield control of all entering traffic, channelized approaches, and appropriate geometric curvature to ensure that travel speeds are less than 30 miles per hour. Roundabouts should not be confused with the older traffic circles that give priority to entering vehicles, and are prone to a high rate of crashes and congestion.



Traffic circle (left) and roundbout (right)

Chicanes
Curb extensions that alternate from one side of the street to the other, forming S-shaped curves. A chicane-like effect can be achieved, at a fraction of the cost, by alternating on-street parking from one side of the street to the other.

Chicanes
Curb extensions that alternate from one side of the street to the other, forming S-shaped curves. A chicane-like effect can be achieved, at a fraction of the cost, by alternating on-street parking from one side of the street to the other.

Lateral Shifts
Curb extensions on otherwise straight streets that cause travel lanes to bend one way and then bend back the other way toward the original direction of travel. Lateral shifts are one of the few measures that have been used on roadways where high traffic volumes and high posted speeds preclude more abrupt measures.

Realigned Intersections
Changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles.

Narrowings Speed Control Measures
The final set of traffic calming measures uses roadway narrowing to achieve speed reductions. The addition of on-street parking, and/or striped bicycle lanes, is another method of narrowing lanes for speed reduction.

Neckdowns/Bulbouts
Curb extensions at intersections that reduce roadway width curb to curb. Neckdowns are the most common type of street narrowing. Their primary purpose is to “pedestrianize” intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas.

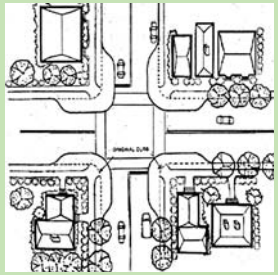


Diagram of bulbouts and a photo of bulbouts in Collingswood, NJ.

Center Island
Raised islands located along the centerline of a street that narrow the travel lanes at that location. When placed at the entrance to a neighborhood, they are called gateways.

Examples of gateway islands.

Chokers
Curb extensions at midblock that narrow a street by widening the sidewalk or planting strip.

METHODOLOGY

This report is the product of the second round of DVRPC's annual traffic calming studies.

Site Selection

At the project start, DVRPC distributed surveys to solicit traffic calming case-study candidate locations from its member county governments, as well as from the cities of Camden, Chester, Philadelphia, and Trenton. After receiving the completed surveys, DVRPC collected consistent key data, and arrayed the locations into a spreadsheet matrix for analysis.

Relevant data sets included:

- area type (urban, suburban, village, rural)
- posted speed limit
- average annual daily traffic (AADT)
- accidents (including breakdown of fatalities, bicycle, and pedestrian)
- road type (arterial, major collector, minor collector, etc.)
- community facilities
- concurrent projects
- public input
- previous studies

The DVRPC project team carried out a comparison and selection process, to determine the final case study locations, based on a set of established criteria:

- one higher-density and one lower-density location
- one site in Pennsylvania and one in New Jersey
- counties/cities that were chosen in the last round were given a lower priority
- areas for which a local comprehensive plan or study recommended traffic calming measures were given higher priority
- locations that were recently the subject of a traffic calming or transportation planning study were given lower priority
- locations that lacked public support for their improvement were not considered

Priority was given to areas:

- where potentially hazardous conditions may be eased through traffic calming
- where traffic calming is deemed an appropriate and potentially effective improvement strategy
- where travel speeds are reported to be inappropriate for the surrounding context
- where roadways are unnecessarily wide or confusing when there is recent change in existing conditions, including an increase in pedestrian activity
- where the infrastructure supports intermodality
- where there is close proximity to schools, recreation, residential, shopping, or transit-oriented destinations
- where other improvement options (signalization, striping, enforcement) have already been considered
- where traffic calming has a moderate-to-high probability of leading to additional future improvements

DVRPC project team members made site visits to the highest ranking candidate locations, and collected photographs of noteworthy conditions that may warrant traffic calming measures. DVRPC project team and senior staff then made final selections. Selections were announced to participating member governments.

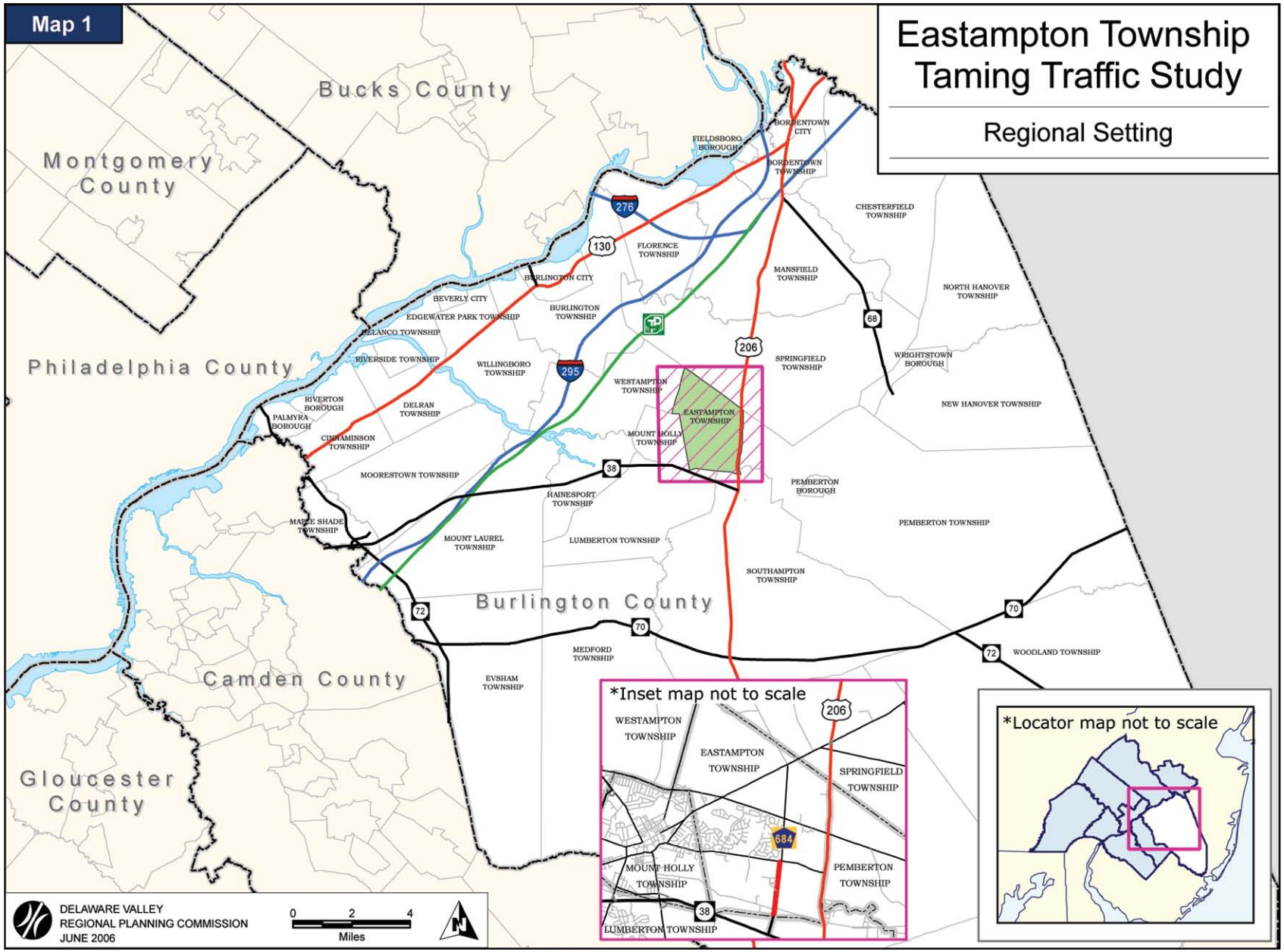
Data Collection and Report Production

For each selected site, the study research included two site visits at which DVRPC staff took roadway measurements and surveyed existing conditions. Staff collected additional site data, as needed.

For each site, DVRPC staff held two meetings with the steering committee, comprised of stakeholder representatives from municipal and county governments, law enforcement, parks and recreation, departments of transportation, and transit agencies.

During the course of data collection and research, DVRPC staff held several internal workshops, to produce a problem identification document and recommendation plans. DVRPC staff submitted the problem identification to the steering committee for approval, and at the second meeting with each steering committee, presented a set of conceptual recommendation plans, and solicited changes and amendments.

Concluding the site selection, data collection, site visits, steering committee meetings, research, workshops, problem identification, and plan production phases, DVRPC staff combined its own recommendations with the collected local input, to produce this final report.


Map 1
Eastampton Township
Taming Traffic Study
Regional Setting
Bucks County
Montgomery County
Philadelphia County
Burlington County
Camden County
Gloucester County
BORDENTOWN CITY
FIELDSBORO BOROUGH
BORDENTOWN TOWNSHIP
CHESTERFIELD TOWNSHIP
FLORENCE TOWNSHIP
BURLINGTON CITY
MANSFIELD TOWNSHIP
NORTH HANOVER TOWNSHIP
BEVERLY CITY
EDGEWATER PARK TOWNSHIP
BURLINGTON TOWNSHIP
DELANCO TOWNSHIP
RIVERSIDE TOWNSHIP
WILLINGBORO TOWNSHIP
SPRINGFIELD TOWNSHIP
WRIGHTSTOWN BOROUGH
WESTAMPTON TOWNSHIP
EASTAMPTON TOWNSHIP
NEW HANOVER TOWNSHIP
RIVERTON BOROUGH
PALMYRA BOROUGH
DELRAN TOWNSHIP
CINNAMINSON TOWNSHIP
MOUNT HOLLY TOWNSHIP
MOORESTOWN TOWNSHIP
PEMBERTON BOROUGH
HAINESPORT TOWNSHIP
MAPLE SHADE TOWNSHIP
MOUNT LAUREL TOWNSHIP
LUMBERTON TOWNSHIP
PEMBERTON TOWNSHIP
SOUTHAMPTON TOWNSHIP
MEDFORD TOWNSHIP
WOODLAND TOWNSHIP
EVSHAM TOWNSHIP
276
130
295
206
68
38
72
70
684
*Inset map not to scale
*Locator map not to scale
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JUNE 2006
0 2 4
Miles

CASE STUDY: SMITHVILLE ROAD
Eastampton Township, Burlington County, NJ

Existing Conditions

Street Name: Smithville Road
Functional Class: Urban Collector
Posted Speed Limit: 45 MPH
AADT: 4,498

Study Area:

Eastampton is a developing suburban township in Burlington County, NJ, comprised of 5.68 square miles, and about 6,200 residents. Within this sprawling township is Smithville Park and historic Smithville Village. Maps 1 and 2 depict a regional setting and study area. The study area is a portion of Smithville Road (CR 684), nearly one mile in length, which stretches between Railroad Avenue and Powell Road. Extending through Smithville Park, past the Smithville Mansion, the surrounding area includes large tracts of farmland, wetlands, the Rancocas Creek, and municipal buildings. A multi-use path parallels a former freight rail line and intersects Smithville Road at Railroad Avenue.

Smithville Road is an urban collector located approximately one mile east of Route 206 that connects to New Jersey Route 38. It is also within close proximity of Mount Holly New Jersey Turnpike interchange (#5).

Background and Recent Development:

The study area was originally developed in the mid-nineteenth century by the Smith Machine Company factory, and the subsequent creation of the Smithville industrial village. In the 1920s, the factory closed and the mansion became a private residence for many decades. In 1975, Burlington County purchased the 300-acre property, containing the historic village, mansion, and Smithville Lake, fed by the Rancocas Creek, and opened it as Smithville Park. Between 1975 and 2000, Smithville was the only park in the Burlington County park system. Since 2000, the county has increased both the quantity and quality of its parks and is continuing efforts to connect much of the park system via the Rancocas Creek. Over the past few years, Smithville Park has changed dramatically, and visitation to the park has increased significantly. During the 2005 park season, visitation to Smithville Park spiked tenfold, primarily due to the creation of trails, boating and fishing docks, a floating footbridge, bicycle paths, and park facilities. The county has also undertaken significant historic preservation efforts to restore and interpret the mansion, industrial and village buildings, as well as the connecting roads, trails, and bridges.

New private development over recent years has increased the residential population near the study area. Smithville Road, once a corridor cutting through farmland, now runs through the highly utilized Smithville Park with substantial pedestrian activity. Further residential and parkland development is slated for the near future, including historic interpretation sites and recreational facilities. With more enhancements planned, visitation numbers are expected to increase significantly in the coming years.

Need for Traffic Calming:

As a result of the aforementioned factors, automobile traffic has increased on Smithville Road, as well as pedestrian activity. Current operating speeds, and the posted speed limit of 45 MPH, reflect the former usage patterns of the roadway. However, considering the recreational park activity and the new residential growth in and near the study area, these traffic speeds and patterns on Smithville Road are no longer appropriate for the evolving park setting. With support from Eastampton Township, the county parks department has worked with the county engineers in an attempt to lower speeds along Smithville Road through conventional approaches, but was not able to meet the county's criteria to warrant a speed limit change.

Roadway Conditions:

Within the study area, Smithville Road is a consistent 24-foot-wide roadway, with one lane in each direction, and a one-foot shoulder. The road stretches over the Rancocas Creek, and is traversed by two major recreation trails. At both ends of the study area, the roadway slopes inward toward the park, creating a gully at the center of the study area where the roadway crosses Rancocas Creek. Both of the aforementioned recreation trails cross Smithville Road at this roadway depression. Much of the roadway is bordered by wetlands.

Crash Summary:

A cursory crash analysis was performed in an effort to identify safety problems related to the operation of the study corridor: Smithville Road (CR 684) between Railroad Avenue and Powell Road, Eastampton Township (Milepost 0.40-1.15). Crash data from the NJDOT's web page for years 2002-2004 was utilized. According to the NJDOT, rear-end and sideswipe collisions involve traffic moving in the same direction, angle crashes involve angular traffic (i.e., north and west), and left turn and head-on crashes involve opposing traffic. Crashes are detailed on Map 3.

During the three-year period, 11 crashes were recorded on Smithville Road's ¾-mile study corridor length, an overall low number. Six crashes were coded as "at intersection," which is defined by NJDOT as being within 30 feet of the nexus of the intersecting streets. These crashes occurred where Smithville Road meets Powell Road, and also where it meets East and West Railroad avenues. The remaining five crashes were scattered along the corridor. Angle crashes were the most frequent collision type accounting for six crashes, followed by rear-ends with three crashes. Despite the high pedestrian and bicycle activity within the study area associated with Smithville Park, no pedestrian and bicycle crashes were identified in the crash analysis. There were zero fatal crashes, four injury, and seven property-damage-only crashes.

Transit:

In this area, Smithville Road is not served by transit. However, two bus lines operate immediately outside of the study area. New Jersey Transit Route 317 travels between Philadelphia and Asbury Park, primarily along NJ 38. BurLink, the public transit system operated by Burlington County, also serves the area with the B1 shuttle bus, which stops north of the study area at Woodlane Road and Route 630.

Pedestrian Environment:

There are many pedestrian amenities within Smithville Park. Various pedestrian trails snake throughout the park while a pedestrian "floating bridge" crosses Smithville Lake. Trail crossings over Smithville Road are striped and marked with signs. However, there is no pedestrian connection along Smithville Road between the trailheads, historic sites, or adjacent residential developments. Additionally, Smithville Road lacks sidewalks within the study area. Despite the lack of pedestrian facilities along the length of the roadway, pedestrians continue to walk between park attractions using Smithville Road—an unsafe practice.

Bicycling:

Smithville Park accommodates cyclists with several bicycle trails and bicycle racks located at trailheads and parking areas. The portion of Smithville Road within the study area does not include a bike lane, and cannot accommodate cyclists within its one-foot shoulders. Bicycling is possible, but cyclists must share the road with vehicular traffic. Local officials reported that bicycle use is moderate, but is expected to grow as the park develops.

Parking:

Parking along Smithville Road within the park is prohibited, and well marked with "No Parking" signs. There are two significant public parking lots-one adjacent to the Smith Mansion at Meade Lane, and the other near the Eastampton Township municipal building at the Smith Woods trailhead. With the use of these parking facilities, there is currently adequate parking capacity to accommodate the study area's use patterns.

Land Use/Growth:

The area between the study area and Route 38 is moderately developed with single-family homes and several commercial structures. Year 2000 land use is depicted on Map 4. North of the study area, large tracts of farmland dominate the landscape. Beyond the Smith Mansion, residential development is more pronounced with a larger subdivision of single-family homes located at Powell Road. Development increases to the west of the study area, leading into Mount Holly.

Though the study area is bordered by fairly low-density development and many acres of preserved farmland, growth trends in the region illustrate potential for new residential development near the study site. In addition, the Burlington County Parks Department has many plans for park improvements and expansions in the near future, while Eastampton Township officials also are planning for a town center development north of Smithville Park.

Strengths:

The study area includes a well-maintained roadway, surrounded by valuable critical environmental resources, exceptional parklands and a variety of recreational facilities. It is within close proximity to major access routes, and to the town of Mount Holly. Park improvements have sparked a significant increase in recreational usage, pedestrian, bicycle, and visitor traffic. Likewise, as Eastampton Township continues to experience residential and commercial growth, the Smithville Road corridor may become even more vital to the transportation network.

Other major advantages for the Smithville Road corridor is the level of commitment to the improvement of this area, apparent at both the municipal and county levels of government and the availability of funding for the planning and implementation of traffic calming solutions in this corridor.

Weaknesses:

The study area is near Route 38 and the New Jersey Turnpike, which makes it highly accessible, but also vulnerable to heavy traffic usage and high speeds. As congestion increases on the major access routes, Smithville Road becomes an even more attractive alternate route; resulting in higher volumes of cut-through traffic during peak times. This factor creates situations detrimental to a recreational corridor with heavy foot traffic. The roadway itself is narrow—generally positive for calming traffic—however, it is bordered by wetlands for much of its span, making any widening for pedestrian and bicycle amenities more difficult. Finally, there is no access to mass transit options within the study area.

Existing Plans and Studies:

- *Master Plan for Smithville Park* (1996)
  Burlington County Board of Chosen Freeholders
  Established the guidelines for rehabilitating the site as the nucleus for Burlington County Park
- *Parks and Open Space Master Plan* (August 2002)
  Burlington County Department of Resource Conservation
  Established the foundation for the county to develop and maintain the county parks in a systematic approach
- *Landscape Master Plan for Historic Smithville Park* (December 2002)
  Burlington County Department of Resource Conservation
  Defined strategies for creating an engaging visitor experience that celebrates the history of the site through historic interpretation
- *Rancocas Main Branches, Greenway Plan* (December 2002)
  DVRPC
  Proposed strategies for resource protection and recreational development along the Rancocas Creek main branches.

Problem Identification

The following are major problems, identified along the study area that may be alleviated through traffic calming measures.

Problem 1: Typical Speeds Inappropriate for Park Setting

The character and use patterns of Smithville Road have recently changed significantly, with both increased automobile and pedestrian activity. Current operating speeds and the posted speed limit of 45 MPH reflect the former usage patterns of the road, but are no longer appropriate for the study area's current and expected future conditions. The roadway now is largely uninterrupted with long stretches devoid of signalization.

At both ends of the study area, the roadway slopes inward toward the park, creating a gully at the center of the study area. The trail crossings in the heart of the park are located at the bottom of the road's depression, where it crosses Rancocas Creek. This geography causes increased speeds and reduced sight corridors when entering the most intensely used park area. Combined, these factors do not foster awareness of the oncoming pedestrian activity and crossings, thereby potentially causing dangerous conflicts.

Problem 2: Park Entrances Minimally Impact Driver Behavior

Currently, there is a sign at each entrance to the park alerting drivers that they have entered Smithville Park. However, this signage alone does not create a roadway character that signals to drivers that they have entered an active-use area, requiring more cautious driving patterns. As a result, drivers are not

conscious of, or sympathetic to, the land use and park activities along Smithville Road. Combined, these factors allow drivers little time to react when encountering pedestrians crossing Smithville Road along park trails.

Problem 3: Lack of Pedestrian Amenities

The recently developed park trails and facilities are well designed and successfully built. Pedestrian usage is encouraged along the path system, but for safety reasons is intentionally discouraged along Smithville Road, with pedestrian amenities only placed at trail crossings. As a result, Smithville Road lacks sidewalks, with much of the study area lined with grass. Additionally there are no streetscape amenities like pedestrian lighting, trash receptacles, or benches to accommodate park patrons along Smithville Road.

Considering Smithville Road is the central access point for various park activities, it is important to incorporate it into the park system with pedestrian access routes and amenities. The present lack of sidewalks and roadside shoulders creates dangerous and unfriendly pedestrian conditions along Smithville Road. As Historic Smithville Park expands and draws more visitors to various locations along Smithville Road, the safe accommodation of pedestrians between attractions is vital. Improvements along the roadway are a necessary first step in the creation of efficient and safe access for pedestrians.

Problem 4: Minimum Pedestrian Trail Crossing Amenities

There are currently five pedestrian trail crossings within the study area. The crossings are marked with street striping and fluorescent signage, built per traffic codes. However, this treatment is basic and can still be improved upon to make the crossings safer for pedestrians and more visible to motorists from a distance. Due to these factors, drivers traveling at high speeds do not expect the crossings, and have little time to respond once they see the signs and markings. Additionally the existing road markings are not highly visible from a sufficient distance.

Problem 5: Lack of Bicycle Amenities

Just as pedestrian amenities along Smithville Road are lacking, the roadway is similarly unsafe for bicyclists in the current condition. With one lane in each direction, and no shoulder, there is little opportunity for bicycle and automobile traffic to safely share the road. While the park trails and trailhead locations do accommodate bicycles, the roadway does not provide a viable option for arriving by bicycle, or for riding from one trailhead to the next.

Problem 6: Compromised Turning Sight Distances

At the major parking and visitor arrival area by the Smith Mansion, entry and egress points have poor turning sight distances. Walls, fences, and shrubbery force drivers to proceed into the roadway without adequate visibility. According to local stakeholders, the present volume of cars turning from these points is low. However, as the *Landscape Master Plan* for Smithville Park proceeds, it is expected that the historic village will receive increased visitation, increasing the traffic at this intersection. Other access points from buildings and parking areas also need to be reconsidered as entry and egress points, to account for increased usage and maximized visibility.

Improvement Strategies

One of the most effective traffic-calming strategies is to create a sense of place. Currently, along the study area the roadway does not change—visually or in its configuration—as one travels through the park corridor. There is no indication that traffic should behave differently. In an area such as Smithville Park that is shared by vehicles, bicyclists and pedestrians, it is critical to alert drivers to this active recreation area, and provide visual cues to heighten awareness and lower travel speeds.

The improvements below are intended to have the shared effect of creating a sense of place along Smithville Road. By altering the character of the study area, the driving patterns along Smithville Road should also change accordingly; resulting in behaviors that are more appropriate for the surroundings. The accompanying site plans and photo simulations are located at the end of this section.

For the Smithville Road location the study task force strongly favored the engineering approach to traffic calming. Enforcement has been used in the past and will continue to be used as a complimentary strategy. Although, according to local officials past enforcement efforts (ticketing speed violators) provided only minimal results due to the lack of available police staff and due to the fact that there is little room along the road side to position police

vehicles to monitor speed. This is one of the problems that prompted park officials to pursue traffic calming. Regarding education, park literature can be re-designed to include speed limit and traffic safety reminders for park patrons. Such a campaign may prove highly effective due to the growing number of park visitors.

Appendix A, at the end of this document, provides general cost estimates for many of the improvements suggested in this study. It is important to note that these costs may vary depending on the type of materials used, the intricacy and comprehensiveness of the design elements, as well as economies of scale. In all cases, final engineering will be necessary to determine the most exact cost estimate. Appendix B, also included in this report, provides an inventory of potential funding sources for municipalities to consider as the improvements suggested in this report advance to the next phase of development.

Strategy 1: Create Gateways

Gateway treatments are an effective tool for alerting motorists that the context through which they are passing is changing, and that their driving behavior must also change. Although Smithville Park is marked by well designed roadside signs, located at its entrance points, these signs do not adequately signify a change in character.

Such a change in character can be achieved by creating gateways. The purpose of a gateway is threefold: (1) creates a visible and attractive park entrance, (2) facilitates a reduction in travel speed by narrowing lanes, creating horizontal curves, and visual cues, and (3) establishes a sense of place by incorporating aesthetic elements that can be applied throughout the park area. Gateway treatments should be placed at the north and south entrance points to the park. Appropriate signage, such as “Active Pedestrian Area” and / or “Yield to Pedestrians in Crosswalk”, may also help to increase awareness of pedestrians within the park vicinity.

The gateway treatments shown in the site plans and photo simulation depict a landscaped median island combined with a park entrance sign and period lighting. This treatment should be four to six feet in width, and will require a widening of the roadway at the areas containing the medians. This treatment, when implemented in combination with the associated traffic calming techniques described herein, facilitates a reduction in operational speeds. As a result, the posted speed limit may also be reduced from the current 45 mph to a more appropriate 35 mph limit. Upon the occurrence of a future decrease in the speed limit through the park area, “Reduced Speed Ahead” signs should be placed in advance of the gateways to warn drivers of this reduction.

Strategy 2: Install Edge Treatments

The proposed edge treatment contributes to the sense of place by providing drivers with a clear and constant visual indication that they are still within the park area. In the site plans and photo simulations, this treatment is portrayed as a brick material installed along the roadway shoulders, and between the double yellow centerline. The edge treatment would begin at the gateway on either end of the park area, and continue through the entire study area. This consistent visual cue acts as a continuous reminder to drivers that they are within park boundaries, and should drive more carefully.

As the multiuse path, explained in more detail as Improvement Strategy number four, provides a safe surface for cyclists, a bicycle friendly material is not necessary for this edge treatment. However, if necessary, a synthetic brick surface could be used as a substitute to create the same character without the uneven texture of authentic brick.

Strategy 3: Improve the Crosswalks

The study area currently has striped crosswalks at the two trail crossings, as well as one mid-block crossing near the Eastampton Township municipal building. However, these designated pedestrian rights-of-way are not very visible as they lack tactile treatments that could make them more prominent. By using materials and colors that contrast with the roadway, drivers are more readily aware of the upcoming conditions and can adjust their driving behavior and speed accordingly. The site plans and photo simulations show crosswalks that are wider than the existing treatment, lined with two-foot, white reflector strips, and paved with brick or synthetic brick material. Additionally, the photo simulation shows a stop bar and “SLOW” in-pavement markings at the approach to the crosswalks to further heighten awareness of pedestrians. It is also recommended that glare-free pedestrian-scale lighting be installed, that is highly visible to drivers at dusk. Crosswalks at secondary crossing points (i.e., minor local streets that intersect Smithville Road), should also be marked with a similar treatment, or at the very least, with painted striping.

Strategy 4: Build a Multiuse Trail Along the Roadway

Currently there is no path or sidewalk connecting the trails and historic sites, along Smithville Road. It is recommended that a multiuse trail be built along the western side of the roadway, from Park Avenue to Railroad Avenue. This path may be elevated with a curb and a paved or vegetated buffer area between the trail and curb line. This improvement not only provides a new amenity for the park, but also increases the safety of joggers and cyclists in the study area. A well-defined path that is clearly visible to drivers raises awareness of pedestrians and facilitates slower, safer speeds throughout the park area.

Strategy 5: Install Sidewalks in Heavy Pedestrian Areas

Within the study area, there are two areas in particular where sidewalks would be beneficial. The first location is the historic area around the Smith Mansion between Meade Lane and Park Avenue. It is recommended that sidewalks be installed on both sides of Smithville Road at this location. These sidewalks would accommodate park visitors seeking to travel between historic attractions located on either side of Smithville Road. Design considerations should reflect Americans with Disabilities Act (ADA) guidelines.

The second location where the addition of sidewalks would be beneficial is between Railroad Avenue and the Eastampton Township municipal building. The parking lot at Railroad Avenue is used by both park patrons and individuals conducting business at the municipal building. The primary use of this sidewalk would be to provide a safe pedestrian path between the parking lot and the municipal building. Thus, a sidewalk is only necessary on the east side of the street, though may be installed on both sides.

To further improve safety, it is recommended that the existing crosswalk at Forrest Avenue be removed, with a new crosswalk over Smithville Road added, located directly in front of the entrance to the municipal building. To accompany the installation of the new sidewalk and crosswalk, the existing access trails from the parking lot should be realigned to direct pedestrians from the parking lot to the sidewalk, as opposed to the current configuration that directs pedestrians into the street at Forrest Avenue.

Strategy 6: Realign the Roadway at the Smith Mansion

Currently the masonry wall around the Smith Mansion nearly abuts the street, with a grassy slope between the wall and Smithville Road. This configuration leaves no room for the addition of a sidewalk—a critical element in providing pedestrian access to the historic sites. It is recommended that this problem be addressed with a roadway realignment in the form of a subtle chicane, or arc. Curving the road in this manner has dual benefits: (1) it creates enough buffer space to accommodate a sidewalk, and (2) forces traffic to slow down around the horizontal curve. Chicanes such as this are commonly used to slow traffic along roadways that have a long and straight alignment. In the case of Smithville Road, the current roadway lane widths would be retained.

Strategy 7: Place a Mid-corridor Median

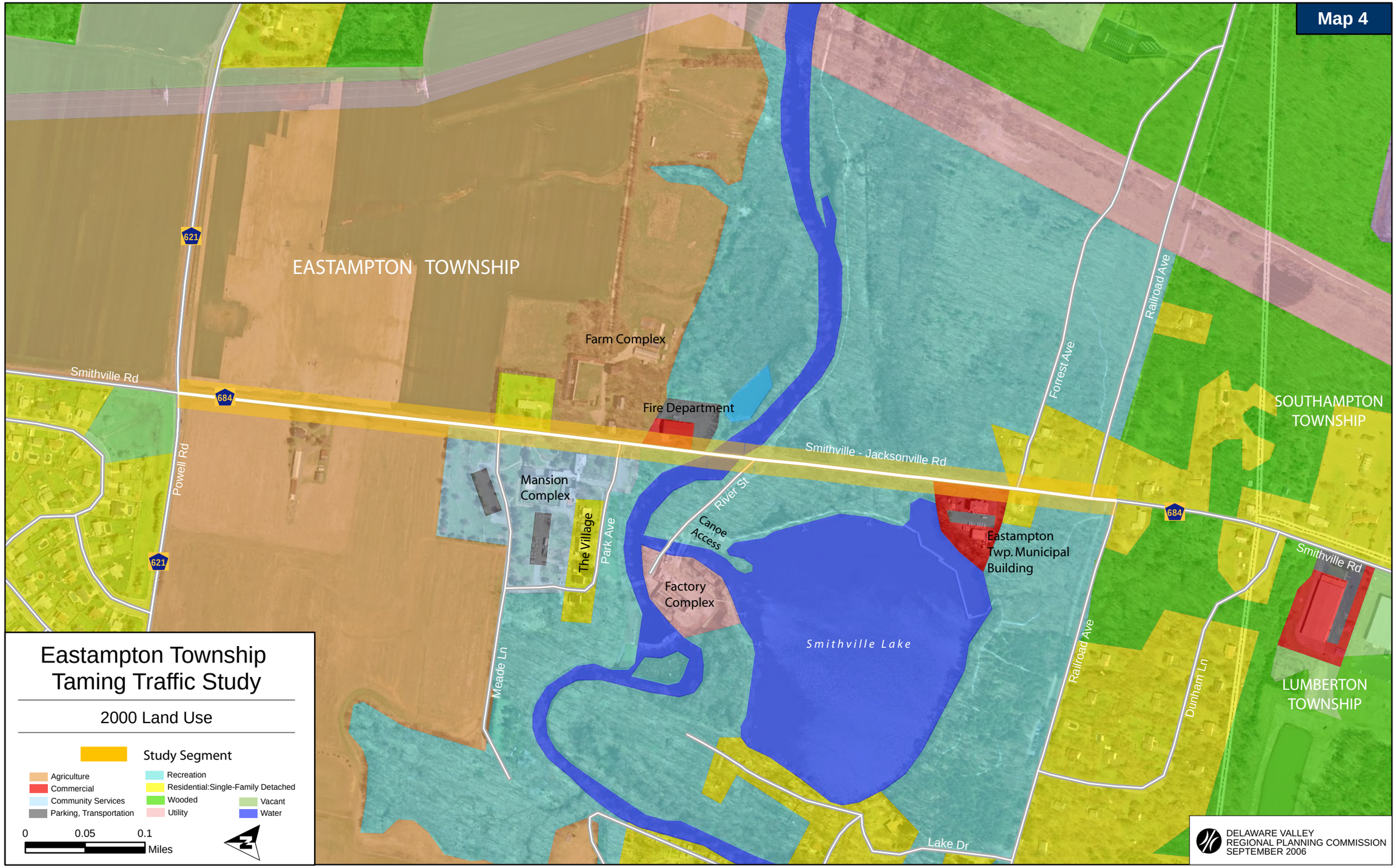
Due to the geography of the landscape, Smithville Road has a low point at nearly the center of the park where it crosses Rancocas Creek. Also at this low point is a major pedestrian trail crossing and the intersection of River Road—which provides access to the creek for boaters. Vehicles traveling on Smithville Road typically reach their highest speeds at this point due to the downgrade. Higher speeds combined with high pedestrian activity, and the close proximity of a cross street, creates a potentially hazardous situation. This is also a point with compromised sight distance for exiting River Road traffic due to the vertical curvature of Smithville Road.

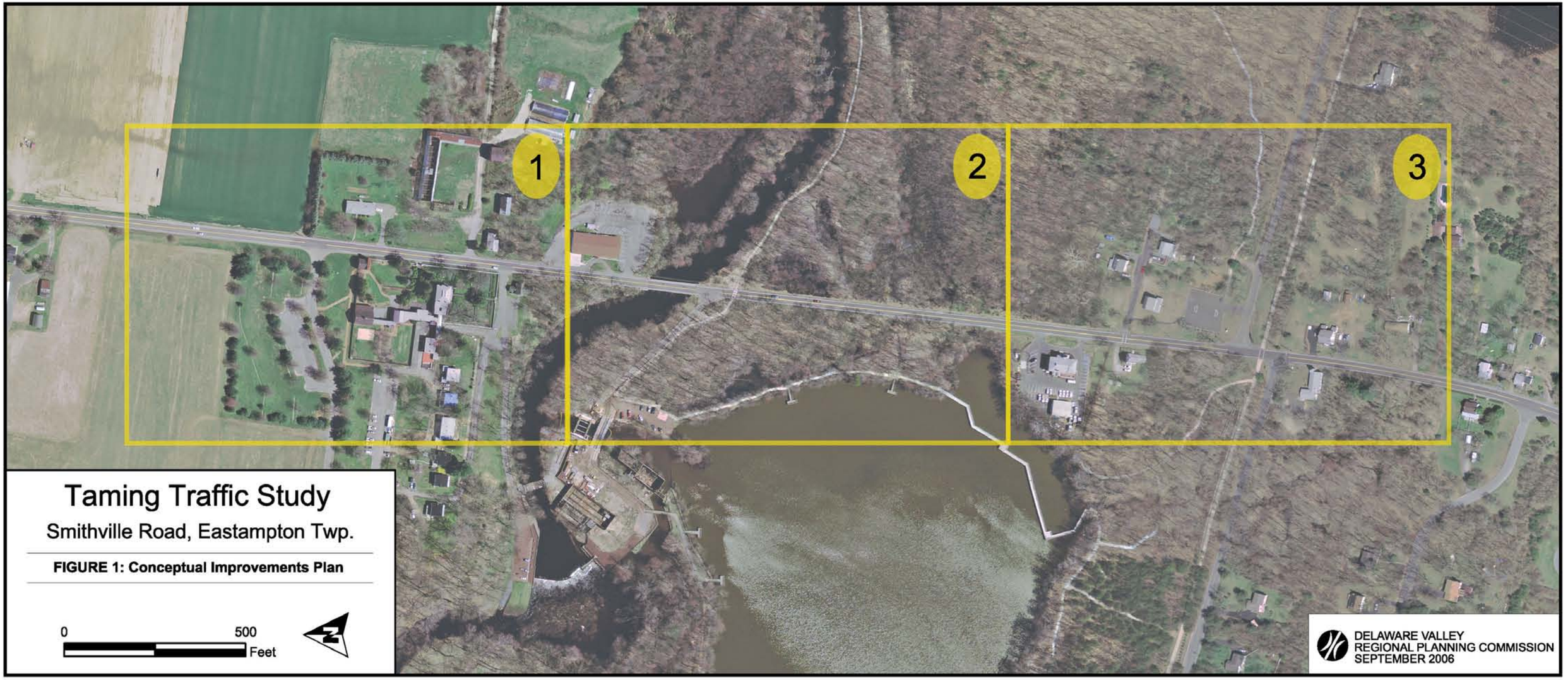
The planted island medians that are integral to the gateways are effective traffic calming devices as both visual indicators for drivers, and physical barriers that facilitate lower speeds. A third median installed at this point will improve the safety of the area for pedestrians by calling attention to the roadway and creating a visual obstruction for motorists. Design of this median should replicate that of the gateway medians (landscaping, signage, etc.) to continue the consistent character of the park area.

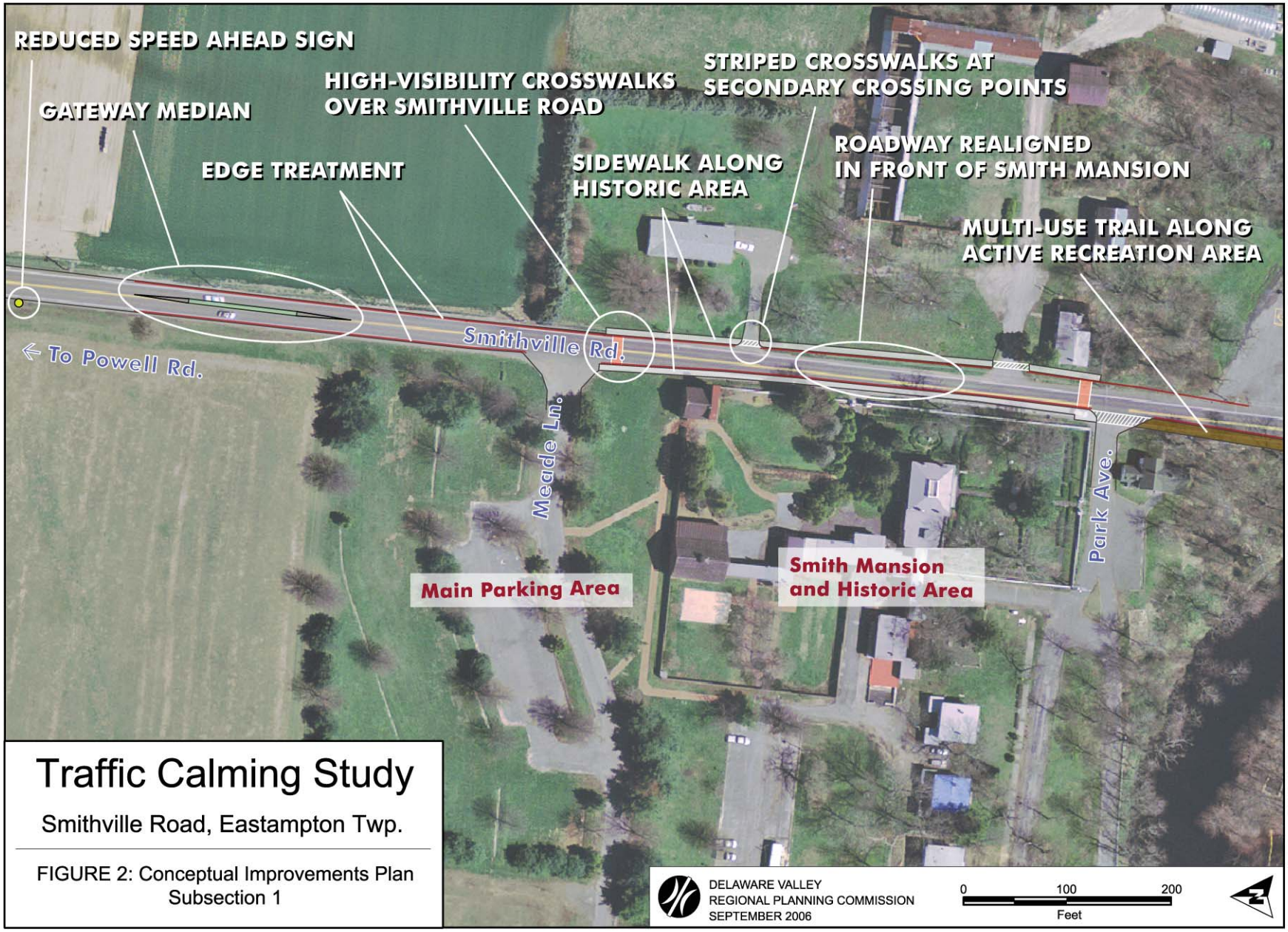

Map 2
EASTAMPTON TOWNSHIP
Smithville Park
LUMBERTON TOWNSHIP
SOUTHAMPTON TOWNSHIP
Smithville Rd
Smithville - Jacksonville Rd
Powell Rd
Park Ave
River St
Meade Ln
Forrest Ave
Railroad Ave
Durham Ln
Lake Dr
621
684
4522 (06)
4461 (06)
4511 (06)
Eastampton Township
Taming Traffic Study
Study Area
Study Segment
Traffic Counts - AADT (Year)
0
0.05
0.1
Miles
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006

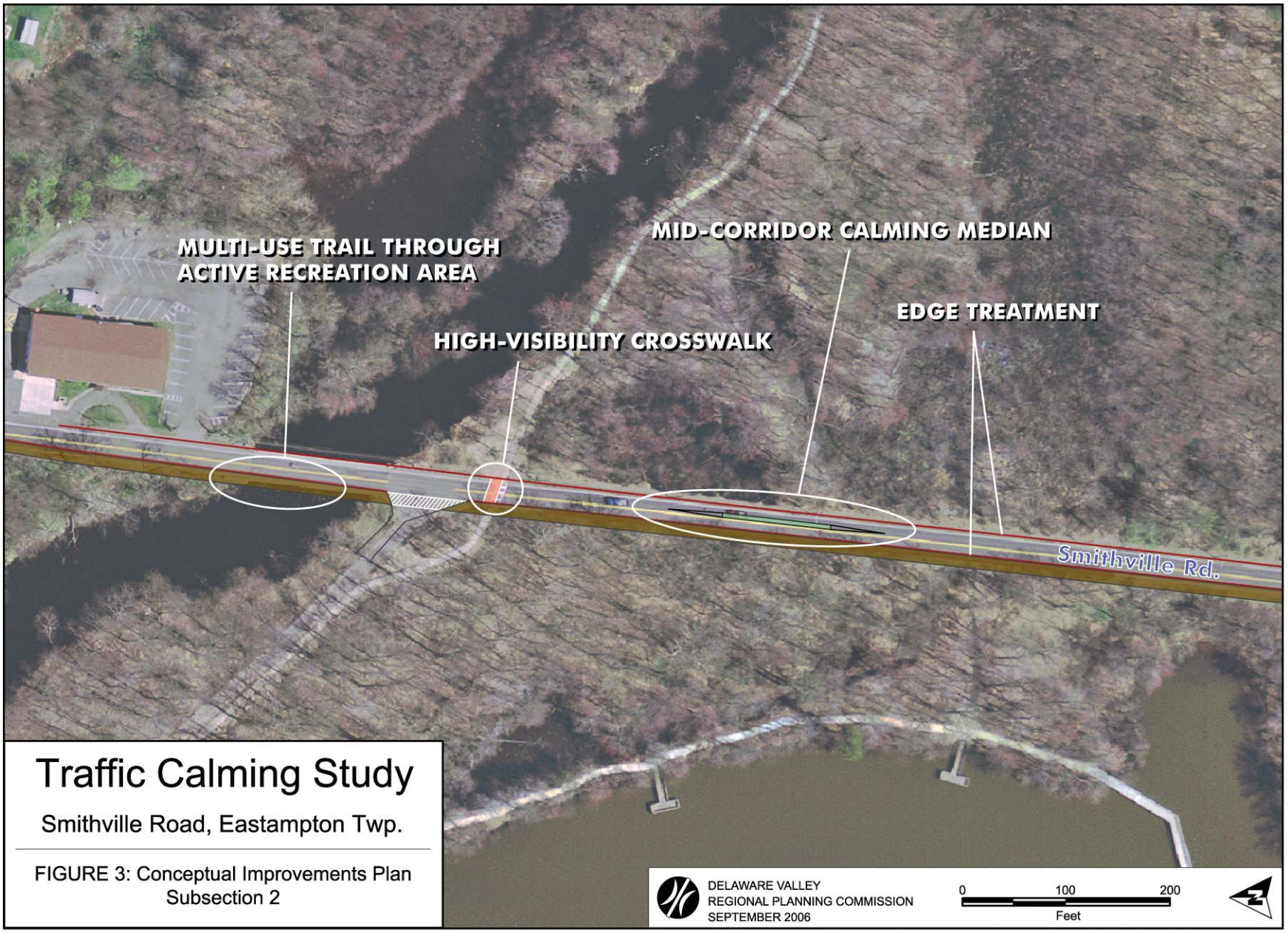
CR 684 Smithville Road
Eastampton Township, NJ
Crash Summary, 2002-2004
MP 0.40 - 1.15

TOTAL CRASHES	**11**	
COLLISION TYPE		
Same Direction - Rear End	2	18%
Angle	6	55%
Animal	2	18%
Other or Unknown	1	9%
INTERSECTION		
Not at Intersection	5	45%
At Intersection	6	55%
LIGHT		
Daylight	7	64%
Night, Dawn or Dusk	4	36%
Other or Unknown	0	0%
SEVERITY		
Fatal	0	0%
Injury	4	36%
Property	7	64%
SURFACE CONDITION		
Dry	8	73%
Wet	1	9%
Snowy or Ice	2	18%
Other or Unknown	0	0%


Map 4
EASTAMPTON TOWNSHIP
SOUTHAMPTON TOWNSHIP
LUMBERTON TOWNSHIP
Smithville Rd
Smithville - Jacksonville Rd
Powell Rd
Railroad Ave
Forrest Ave
Farm Complex
Fire Department
Mansion Complex
The Village
Park Ave
River St
Canoe Access
Factory Complex
Eastampton Twp. Municipal Building
Smithville Lake
Meade Ln
Dunham Ln
Lake Dr
621
684
Eastampton Township
Taming Traffic Study
2000 Land Use
Study Segment
Agriculture
Commercial
Community Services
Parking, Transportation
Recreation
Residential:Single-Family Detached
Wooded
Utility
Vacant
Water
0
0.05
0.1
Miles
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006


1
2
3
Taming Traffic Study
Smithville Road, Eastampton Twp.
FIGURE 1: Conceptual Improvements Plan
0
500
Feet
N
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006


REDUCED SPEED AHEAD SIGN
GATEWAY MEDIAN
HIGH-VISIBILITY CROSSWALKS OVER SMITHVILLE ROAD
STRIPED CROSSWALKS AT SECONDARY CROSSING POINTS
EDGE TREATMENT
SIDEWALK ALONG HISTORIC AREA
ROADWAY REALIGNED IN FRONT OF SMITH MANSION
MULTI-USE TRAIL ALONG ACTIVE RECREATION AREA
To Powell Rd.
Smithville Rd.
Meade Ln.
Park Ave.
Main Parking Area
Smith Mansion and Historic Area
Traffic Calming Study
Smithville Road, Eastampton Twp.
FIGURE 2: Conceptual Improvements Plan
Subsection 1
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
200
Feet


MULTI-USE TRAIL THROUGH
ACTIVE RECREATION AREA
MID-CORRIDOR CALMING MEDIAN
EDGE TREATMENT
HIGH-VISIBILITY CROSSWALK
Smithville Rd.
Traffic Calming Study
Smithville Road, Eastampton Twp.
FIGURE 3: Conceptual Improvements Plan
Subsection 2
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
200
Feet
N

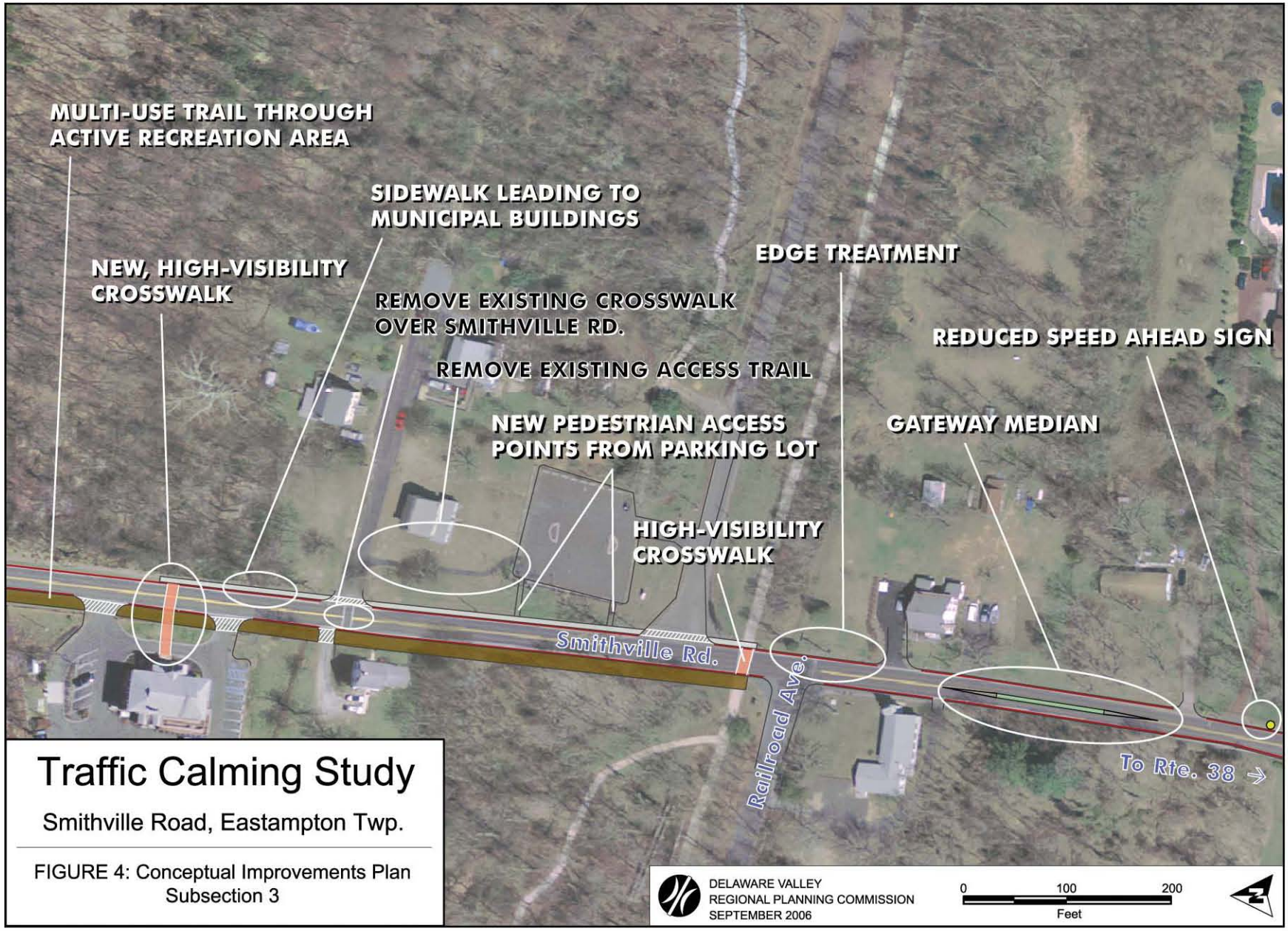
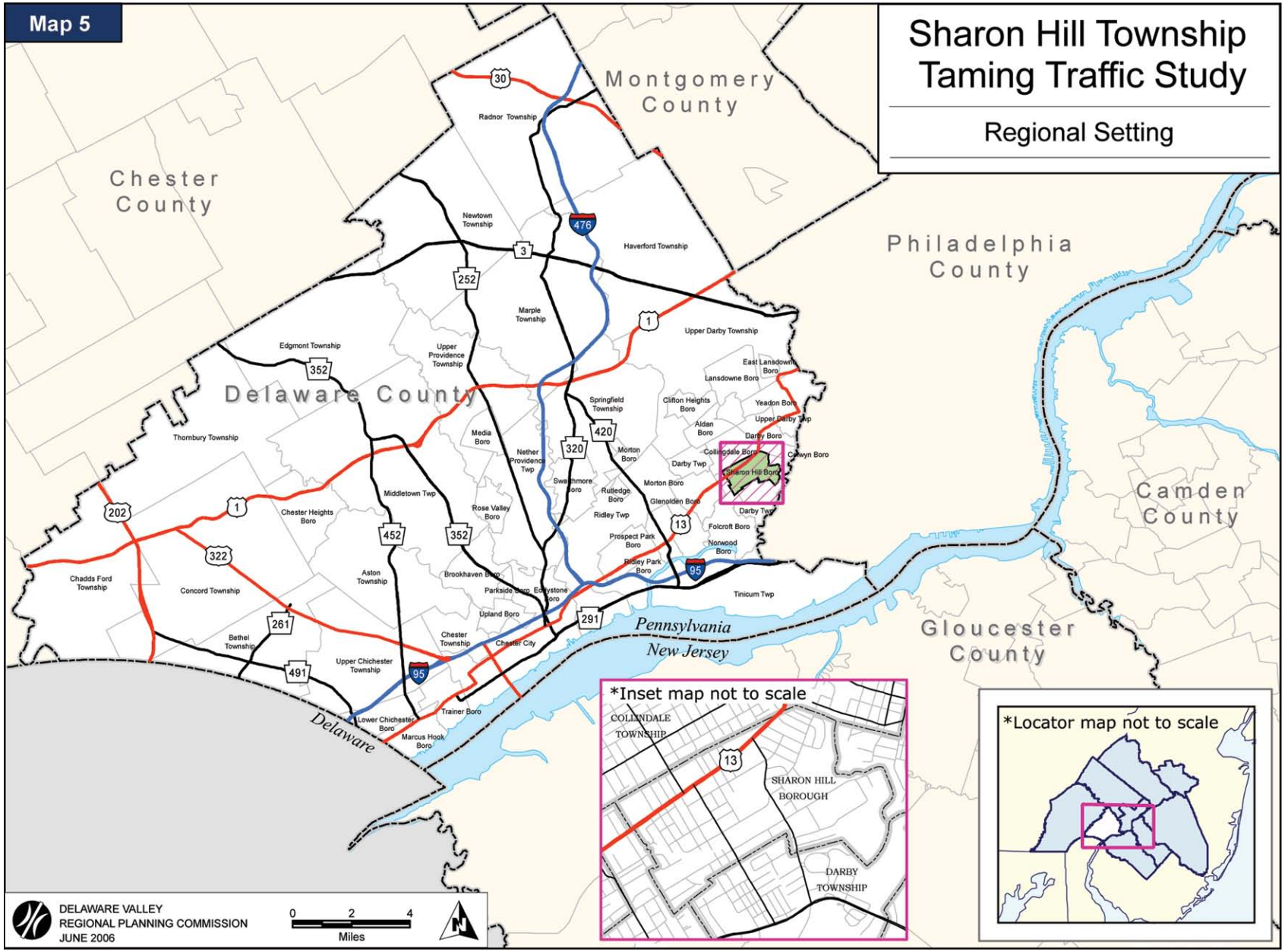

MULTI-USE TRAIL THROUGH ACTIVE RECREATION AREA
SIDEWALK LEADING TO MUNICIPAL BUILDINGS
NEW, HIGH-VISIBILITY CROSSWALK
REMOVE EXISTING CROSSWALK OVER SMITHVILLE RD.
EDGE TREATMENT
REDUCED SPEED AHEAD SIGN
REMOVE EXISTING ACCESS TRAIL
NEW PEDESTRIAN ACCESS POINTS FROM PARKING LOT
GATEWAY MEDIAN
HIGH-VISIBILITY CROSSWALK
Smithville Rd.
Railroad Ave.
To Rte. 38
Traffic Calming Study
Smithville Road, Eastampton Twp.
FIGURE 4: Conceptual Improvements Plan
Subsection 3
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
200
Feet

FIGURE 5: Existing conditions along Smithville Road

FIGURE 6: Conceptual improvement strategy

FIGURE 7: Existing conditions along Smithville Road

FIGURE 8: Conceptual improvements strategy


Map 5
Sharon Hill Township
Taming Traffic Study
Regional Setting
Montgomery County
Chester County
Delaware County
Philadelphia County
Camden County
Gloucester County
Pennsylvania
New Jersey
Delaware
Radnor Township
Newtown Township
Haverford Township
Marple Township
Upper Darby Township
Edgmont Township
Upper Providence Township
Thornbury Township
Springfield Township
Clifton Heights Boro
Yeadon Boro
Upper Darby Twp
East Lansdowne Boro
Lansdowne Boro
Aldan Boro
Darby Boro
Collingdale Boro
Sharon Hill Boro
Colwyn Boro
Darby Twp
Morton Boro
Media Boro
Nether Providence Twp
Swarthmore Boro
Rutledge Boro
Glenolden Boro
Ridley Twp
Folcroft Boro
Prospect Park Boro
Norwood Boro
Ridley Park Boro
Tinicum Twp
Middletown Twp
Rose Valley Boro
Chester Heights Boro
Aston Township
Brookhaven Boro
Parkside Boro
Edgmont Township
Upland Boro
Chadds Ford Township
Concord Township
Bethel Township
Chester Township
Chester City
Upper Chichester Township
Lower Chichester Boro
Trainer Boro
Marcus Hook Boro
*Inset map not to scale
COLLINGDALE TOWNSHIP
SHARON HILL BOROUGH
DARBY TOWNSHIP
*Locator map not to scale
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JUNE 2006
0 2 4
Miles

CASE STUDY: CHESTER PIKE
Sharon Hill Borough, Delaware County, PA

Existing Conditions

Street Name: Chester Pike (U.S. Route 13)
Functional Class: Minor Arterial/Principal Arterial/Urban Collector
Posted Speed Limit: 45 MPH
AADT: 15,978

Study Area:

Located about two miles west of the Philadelphia city border is Sharon Hill—an older borough comprising 0.77 square miles and about 5,700 residents. Maps 5 and 6 depict the regional setting and study area. The study area is a portion of Chester Pike (U.S. Route 13) about one mile in length, which stretches between Cherry Street to the east and Folcroft Avenue to the west. This is a Principal Arterial road that runs through Delaware County, connecting with Chester City and Philadelphia. Chester Pike also serves as a local connector, joining Sharon Hill Borough to neighboring boroughs of Norwood, Glenolden, and Darby. It is located within close proximity of Interstate 95 as well as major industrial facilities to the south, which results in substantial truck traffic.

The study area includes several residential areas, commercial and retail centers, and industrial parks. While the majority of structures along Chester Pike are single-family residential or modest commercial establishments, there are two major shopping centers along the corridor. For the most part, these shopping centers serve local residents with retail uses such as grocery stores, pharmacies, and check-cashing centers. The diversity of uses along Chester Pike results in traffic with a variety of vehicle classes, from autos to larger trucks, and usage patterns. Its key location between major commuter destinations makes Chester Pike an important primary thoroughfare. At the same time, its residential communities and shopping districts define Chester Pike as a local connector road, and community asset.

Background and Recent Development:

Sharon Hill was originally part of Darby Township, until an 1890 Pennsylvania Supreme Court ruling allowed areas to secede. At this time, Sharon Hill Borough broke away from the township and formed a new charter, naming itself after the "Sharon" estate. Owned by Halliday Jackson, this estate of nearly 75 acres of land became present day Sharon Hill.

Even prior to Sharon Hill's incorporation, significant real estate speculation and rapid residential growth existed along the nearby rail line. A number of prominent figures moved to Sharon Hill, and new businesses sprouted up along Chester Pike. The 1920s saw the heyday of Sharon Hill's growth, with new development, the installation of utility systems, and the erection of schools and parks. Growth slowed during the Great Depression, but increased again post World War II.

In the 1970s, like many of Philadelphia's older suburbs, Sharon Hill's population began to decline and its commercial stronghold along Chester Pike weakened. Since that time, Sharon Hill has battled the problems of aging in an attempt to renew its residential and commercial vitality. In November 2004, the Delaware County Planning Department, working with the boroughs of Aldan, Collingdale, Colwyn, and Sharon Hill, produced the *Four Borough Comprehensive Plan*, which presents a strategy for collaboration and revitalization in these adjacent communities.

Need for Traffic Calming:

The locally adopted *Four Borough Comprehensive Plan* identifies Chester Pike as "the strongest candidate for traffic calming…because of its extreme width." Within Sharon Hill, Chester Pike is an excessively wide road that in several sections lacks shoulders and clearly defined lanes. It is used as a commuter road, and provides access to retail destinations and nearby industrial parks. Chester Pike also traverses a number of residential communities. The roadway's width and character as a thoroughfare encourage travel speeds inappropriate for its residential setting. Additionally, the lack of lane definition and inconsistent roadway configuration, coupled with high average speeds, creates potentially dangerous conditions. As an area seeking to revitalize its retail base along Chester Pike, Sharon Hill does not benefit from these conditions. Traffic calming addresses these potential hazards by reducing

speeds, improving safety, and increasing the overall attractiveness of the roadway as a local main street and community asset.

Roadway Conditions:

Within the study area, Chester Pike varies significantly in width and configuration, with total pavement widths greater than 100 feet at some points. The inside lanes are consistently between nine and eleven feet, while the outer lanes bordering the street edge are often undefined and unusually wide (up to 18 feet). There is no marked shoulder for much of the study area. However, street parking is permitted along Chester Pike in many locations. Several roadway segments include two travel lanes in each direction. Other points consist of up to three travel lanes in each direction as well as a right-turn lane and/or a center-turning lane.

There are two particular areas of note. The first, the intersection of Calcon Hook Road and Chester Pike, has a very wide turning radius for eastbound traffic turning right onto Calcon Hook Road southbound. The extra space allows easier turning movements by heavy trucks. Second, at Clifton Avenue the roadway shifts and the lane configuration changes dramatically. Prior to this roadway shift, there is a marked turning lane that becomes a large striped shoulder during the transition. In the stretch of roadway to the west of this point, the previously designated turning lane becomes an ambiguous unmarked third lane, creating a potentially dangerous and confusing situation.

Crash Summary:

A cursory crash analysis was performed in an effort to identify safety problems that may be addressed by way of traffic calming measures. Crash data from the Pennsylvania Department of Transportation's Crash Records System (CRS) database for years 2003, 2004, and 2005 was utilized. The analysis focuses on crashes that occurred on Chester Pike (US 13) through Sharon Hill Borough (see Map 7).

During the three-year period, 38 crashes were recorded along Chester Pike within the study area. Twenty-two crashes occurred at intersections, of which 14 were recorded at T-intersections. The balance occurred mid-block. Angle crashes were the most frequent collision type, accounting for 15 accidents, followed by rear-end crashes with 13 crashes. Combined, these two categories represent 73 percent of the total. Angle type crashes are associated with turning opportunities, which are frequent along Chester Pike. One pedestrian and one bicycle crash each were recorded during the analysis period. Crashes of this nature are considered an indication of alternative mode usage. During field observations, pedestrian and bicycle activity was noted.

Regarding severity, there were 25 injury crashes, 13 property-damage-only crashes, and no fatalities. The majority of the crashes on Chester Pike occurred under good weather conditions (35), and during daylight hours (25).

Transit:

The study area offers several transit options allowing riders access to the City of Philadelphia as well as suburban locations. SEPTA's Route 102 trolley travels through several other older suburbs in Delaware County and terminates in Sharon Hill at Chester Pike and Brainerd Boulevard. This route originates at the 69th Street Terminal, where riders can transfer between several bus routes and the Market-Frankford El. Bus lines #114 (Granite Run Mall) and #305 (Philadelphia International Airport) also travel along Chester Pike with several stops within the study area.

Pedestrian Environment:

While study area conditions are not ideal for pedestrians, there are many pedestrian amenities along Chester Pike that make the option of walking a viable possibility. Most of the study area has sidewalks, though the widths vary considerably. Bus stops are equipped with shelters. Striped crosswalks are located at major intersections, yet are hard to see as they lack features like cross striping, patterning or texturing. Most intersections do have pedestrian buttons, but do not have pedestrian signal heads indicating the crossing phase. Only one intersection within the study area (Calcon Hook Road) has both a pedestrian signal head and push button activators.

Additionally, the vast width of the road at points makes intersection crossings unfriendly to pedestrians. Slower walkers—such as the elderly, physically handicapped individuals, or children—may have difficulty crossing the entire roadway in the allotted signal time. The study area lacks features like median islands, curb extensions, and squared-off crossings that create more pedestrian-friendly environments by reducing the crossing distance. Finally,

street trees are scattered throughout the landscape of the study area, but overall Chester Pike lacks pedestrian amenities, street furniture, and plantings that improve the streetscape.

Bicycling:

Currently there are no marked bicycle lanes within the study area, though Chester Pike is wide enough to accommodate bicycling. This portion of Chester Pike is a priority area for designated bike lanes according to the Delaware County Bike Plan. The inappropriate traffic behavior and the ambiguity of the road markings and configuration leads to potentially dangerous bicycling conditions.

Parking:

A number of businesses have private parking lots with access from Chester Pike or local side streets. The two major shopping centers in the study area have significant parking lots fronting Chester Pike. Parallel street parking is permitted along much of the study area, with several front-in angle parking spaces located between Ridley and Felton avenues. While most of these spaces are designated for patrons of adjacent businesses, a local auto body shop also uses this frontage for loading/unloading bays as it is the only available access. Street parking located in front of shopping center parking lots appears redundant and perhaps unnecessary. In short, there is seemingly more than ample parking available to serve the existing residences and businesses.

Land Use/Growth:

Chester Pike in the study area contains several single-family residences, but is largely commercial. There is one block of street-frontage retail, while most development, including two significant shopping centers, is set back from the roadway. The neighborhood on either side of Chester Pike is almost entirely residential with a combination of single-family detached, semidetached, and attached dwelling units. Within the study area is a substantial community park. Nearby Chester Pike are municipal buildings, schools, and athletic fields. Year 2000 land use is depicted on Map 8.

Sharon Hill has a stable residential market, but a less robust commercial sector. Along the study area are several vacant retail properties, including one vacant shopping center anchor location. The corridor contains some major retailers such as Acme, CVS, MAB Paints, and Wawa, as well as mom and pop businesses, including a deli, restaurant, offices, barber shop, dollar store and nail salons. Several potentially incompatible uses such as automotive businesses front Chester Pike, with garage access from the roadway.

As acknowledged in the *Four Borough Comprehensive Plan*, Sharon Hill (and its neighbors) has experienced the challenges of many older suburbs, with a lack of population growth, and a struggling commercial market. Nonetheless, Sharon Hill does contain a solid infrastructure of neighborhood amenities, affordable housing stock, and commercial locations. The *Four Borough Comprehensive Plan* recommends residential and commercial revitalization.

Strengths:

Chester Pike's width provides ample space for maintaining the current roadway capacity and number of lanes. This infrastructure also includes basic amenities such as sidewalks, bus shelters, crosswalks, and pedestrian signal buttons. The size of the cartway lends support for improvements including the addition of desirable features such as landscaped medians, streetscape elements, and pedestrian and transit amenities.

The corridor has significant through-traffic, providing a strong foundation for reinvigorating its commercial base. Additionally, existing commercial infrastructure may serve to attract visitors and new businesses.

One of the corridor's greatest strengths is its access to mass transit. With the 102 trolley and several bus lines, the corridor is well served by transit and connected to the wider community. This advantage creates alternatives to automotive traffic, and lays the foundation for potential transit-oriented development.

Sharon Hill's residential community, nearby parks, schools, and services provide the kind of environment that warrants traffic calming efforts to promote safety and a friendlier atmosphere.

Weaknesses:

Though the road width creates opportunities to install traffic calming features, the undefined lane patterns are a weakness within the corridor. The confusion

resulting from ambiguous travel lanes creates potentially dangerous conditions for both vehicular traffic and pedestrians. Additionally, wide and undefined curb cuts, wide crossings, and lack of pedestrian signal heads create an unfriendly pedestrian environment.

The use of the corridor as a commuter route and a trucking route brings a high volume of through-traffic to the study area, which detracts from its potential as a transit and pedestrian-friendly main street destination. The two major shopping centers, with sprawling parking lots and the absence of street-front retail are impediments to conventional traffic calming approaches that encourage human-scale streets and walkability.

Finally, the weak retail sector poses a significant challenge in defining the corridor as a shopping destination. However, the traffic calming techniques suggested in this report could act as a foundation to encourage smart growth and local economic development. As identified in the *Four Borough Comprehensive Plan*, traffic calming is part of a wider strategy, and could be an important element in revitalizing Chester Pike, and bringing enriched economic growth to the borough.

Existing Plans and Studies:

- *Four Borough Comprehensive Plan* (November 2004)
  Delaware County Planning Department in cooperation with the boroughs of Aldan, Collingdale, Colwyn, and Sharon Hill
  Identifies a number of strengths and shortcomings of Chester Pike, regarding vehicular traffic and pedestrian safety

Problem Identification

The following are major problems, identified along the study area that may be alleviated through traffic calming measures.

Problem 1: Underutilized Roadway Capacity

Chester Pike is a major thoroughfare in southern Delaware County. Nonetheless, even at peak periods the roadway does not demonstrate significant congestion. Chester Pike's roadway design is more than adequate to handle current traffic volumes. Its width and lane configurations change substantially along the course of the study area, varying from 45 to over 100 feet. While it is beneficial to maintain a roadway designed to accommodate peak traffic patterns with ease, an inconsistent and excessively wide roadway creates a number of potentially dangerous conditions, including unpredictable traffic flow and unsafe pedestrian crossings.

A wide roadway like Chester Pike gives the impression of a through road, and not a community arterial. The nature of a roadway affects driver behavior which could result in high speeds, hindering its full potential as a community asset. The roadway design of Chester Pike discourages lower speeds, attention to pedestrian safety, connectivity to local businesses, and walkability—essential elements in developing a safe roadway for a diversity of users, and a sense of place.

Problem 2: Variable and Unclear Lane Configurations

As noted above, the width of Chester Pike within the study area is inconsistent, and accordingly so are the lane configurations. In some areas, the cartway contains two travel lanes and a turning lane, in each direction. In other areas, the roadway expands to three travel lanes, and may include various auxiliary lanes, such as a parking lane, center striped median, right-turn-only lane, or center turning lane. At some locations the roadway widens or narrows suddenly, creating confusing conditions for drivers. At various points, roadway markings are unclear, creating ambiguity in distinguishing between through lanes, turning lanes, and shoulders.

One key problem area identified by local officials is the unmarked eastbound shoulder located west of Clifton Avenue. This shoulder is commonly used by drivers as a third travel lane or as a turning lane, creating the potential for conflicts. Similarly, drivers on Chester Pike westbound approaching Clifton Avenue frequently use the shoulder as a right-turn lane, though it is prohibited and clearly striped as such. These inconsistencies create a confusing and potentially dangerous roadway.

Problem 3: Excessively Wide, Numerous, and Undefined Business Access Points

The numerous businesses and shopping centers along the study area have an inconsistent treatment for access points. In some cases access is provided by a

depressed segment of the sidewalk, spanning a large portion of the business frontage without delineated points of entry and egress. At other locations, numerous access driveways litter the roadway frontage, creating several points of intersect with Chester Pike. These factors pose safety concerns for pedestrians who must cross wide driveways and navigate uneven pavement. The lack of clearly delineated access points can also cause confusing or potentially dangerous situations for drivers turning into or out of a retail access driveway.

Problem 4: Inadequate Pedestrian Crossings

There are many pedestrians along Chester Pike because of its connection to mass transit and proximity to schools, a park, residential areas, and local retail centers. Pedestrian crossings over Chester Pike consist of traditional marked crosswalks at signalized intersections. These sanctioned crosswalks lack pedestrian signalization and can be more than 100 feet in length, with no center refuge medians. Most crossings do have a pedestrian button to request a change in the traffic signal. However, in the entire study area there is only one pedestrian signal head, located at Calcon Hook Road. Confusingly, at some intersections the street is posted with a no-pedestrian-crossing sign located adjacent to a marked crosswalk.

Local officials have cited complaints from local residents of the signal phase being too short to cross the entire roadway. Additionally, in some locations crossings are spaced 700 feet apart, creating long stretches without sanctioned pedestrian access. This factor has a real impact, expressed by the numerous pedestrians observed crossing mid-block, across free-flowing lanes. Chester Pike already maintains signal spacing closer than PennDOT's recommended 1,000 feet; however, due to the density of mass transit users and commercial activity, there may be enough pedestrian activity in the study area to warrant the addition of unsignalized crossings at select locations.

Problem 5: Poorly Integrated Transit Facilities

The study area contains access stops for several mass transit routes, including SEPTA's Route 102 trolley and bus lines #114 and #305. All bus stops along Chester Pike have shelters, and the 102 trolley stop at Brainerd Boulevard is well equipped with a permanent terminal structure. The facilities themselves are adequate; however, their integration with Chester Pike and the surrounding context is currently unsuccessful. The bus stops are often placed too far from crossings, creating situations where pedestrians are prone to cross Chester PIke mid-block to access the stops, rather than walk several hundred feet to the nearest sanctioned crossing. The trolley terminal is located across the street from a major bus stop, but the crossing is more than 100 feet long, traversing five travel lanes, the center turning lane, and two parking lanes. This important crossing does not include a pedestrian refuge island and is not clearly marked, creating potentially dangerous conditions and poor connectivity.

Several retail sites, located nearby trolley and bus stops, are frequented by a large number of transit riders; however, the access from the transit stops to retail establishments is not well designed for pedestrians. These parcels lack integration and attention to walkable site design, as encouraged by transit-oriented development. The study area has a wonderful asset in its concentration of mass transit options, but lacks the intermodalism, pedestrian amenities, and pedestrian-friendly design to create safe and efficient access for transit users.

Problem 6: Lacking Sense of Place

The design of a roadway, sidewalks, and surrounding development, impacts traffic conditions and defines the nature of the road and its intended usage. Chester Pike currently exhibits the conditions of a thoroughfare, and lacks the design and amenities necessary to give drivers the impression that they are passing through a community main street and destination, requiring careful attention to speed and safety. Roads should behave differently as they travel through commercial corridors. The study area lacks the needed elements for building a more cohesive and recognizable identity typical in a commercial or residential district.

Sharon Hill blends into the other nearby towns, without perceptible entry or exit, warranting no change in traffic behavior. As such, drivers do not behave like they are traversing a community. There are several locations with welcome signage and decorative banners, but overall these elements do not make a substantive impression on drivers or pedestrians. The wide cartway encourages driving at high speeds, while the inconsistent roadway configuration and sidewalk treatments also detract from a sense of uniformity and defined character along Chester Pike.

Improvement Strategies

The *Four Borough Comprehensive Plan*, completed by the Delaware County Planning Department in 2004, recommends traffic calming on Chester Pike as an integral part of a broad strategy to make Sharon Hill safer, more attractive, and more livable. Successfully implemented traffic calming techniques have the effect of changing the total environment of the roadway, and contribute to creating a sense of place for the community. Currently, the portion of Chester Pike within the study area functions largely as a through street for fast moving traffic. The intent of the improvements below is to change the landscape of the Chester Pike corridor by transforming it into a community main street-a destination where drivers must be aware of their surroundings and decrease their speeds. Improvements like widened sidewalks, curb extensions, highly visible crosswalks, planted center medians, bicycle lanes, and pedestrian-scale lighting not only improve the pedestrian experience, but indicate to drivers that they need to behave differently.

Although this study only recommends improvements that affect the roadway and immediately adjacent right-of-way, traffic calming has proven to be an effective component of many comprehensive economic and community development strategies. Altering the character of a roadway from a thoroughfare to a slower, pedestrian-scale, community main street has been an important element in enhancing local businesses and reshaping the image of a municipality. The improvements below are intended to improve safety, heighten driver awareness, and transform the overall appearance of the roadway, affecting driver behavior. The accompanying site plans and photo simulations are located at the end of this section.

The Sharon Hill study task force did not identify excessive traffic violations as a major issue along Chester Pike. Therefore, enforcement was considered a complimentary strategy to be used on an as needed basis. The greatest needs were relative to the varying cross-section geometry and associated vehicular mobility and pedestrian issues. These problems will be most effectively improved through street-scaping and engineering techniques. An education initiative to encourage drivers to slow down and be mindful of pedestrians and bicyclists would be a good complimentary effort as part of a downtown place-making initiative.

Appendix A, in the end of this document, provides general cost estimates for many of the improvements suggested in this study. It is important to note that these costs may vary depending on the types of materials used, the intricacy and comprehensiveness of the design elements, as well as economies of scale. In all cases, final engineering will be necessary to determine the most exact cost estimate. Appendix B, also included in this report, provides an inventory of potential funding sources for municipalities to consider as the improvements suggested in this report advance to the next phase of development.

Strategy 1: Simplify the Roadway

Currently the study area contains wide and ambiguous outer lanes, up to 18 feet in width at some locations. It is recommended that the existing lane configurations be maintained throughout the corridor, but that the lanes be repainted to create standard and consistent lanes throughout the corridor. This added consistency in the lane configuration makes the driving task clearer and the roadway easier to navigate. As a result, potentially dangerous driving practices, such as weaving between lanes or using the outside lane as a turning lane, are diminished. The extra six to eight feet of roadway made available by narrowing the outside lane can be utilized for various bicycle and pedestrian improvements, such as those cited below.

Strategy 2: Improve the Sidewalks

The sidewalks throughout the corridor are not a consistent width, ranging from 4 to 12 feet, and in some cases changing dramatically from block to block. In an effort to improve the pedestrian experience, the sidewalks along Chester Pike should be widened to a consistent width of at least five feet. This is the minimum width necessary to allow pedestrians to walk side-by-side comfortably. Additionally, a buffer between the sidewalk and the roadway should be created by lining the sidewalk with a planting strip of grass containing street trees. These improvements not only enhance the pedestrian accessibility of Chester Pike, but they also aid in channeling pedestrian traffic to marked crosswalks and increase pedestrian safety by creating a heightened awareness of foot traffic along the roadway. Sidewalks may be further improved with amenities such as street furniture—benches, trash receptacles, and bicycle racks.

Strategy 3: Simplify Vehicle Access Points

Another important element in calming the corridor is to minimize the number and width of vehicle ingress and egress points for destinations and businesses along Chester Pike. Driveway consolidation and standardization is an effective tool for reducing the number of conflict points along the roadway and improving the pedestrian environment. Where possible, separate ingress and egress points should be combined into joint driveways with improved interior circulation. Similarly, access points that are unduly wide should be reduced in width. Corner lot businesses may be encouraged to provide access via a side street, rather than from Chester Pike. This would eliminate left turns from the main thoroughfare and shift this traffic to an intersection, which is typically safer and benefits mobility.

Likewise, driveways along Chester Pike should be redesigned to ensure that the sidewalk elevation remains consistent as it passes through an access point. Any necessary tapering should occur in the area between the sidewalk and the roadway. This serves to keep cars from stopping while straddling the sidewalk, a potentially unsafe condition for pedestrians. Also, this sidewalk table acts similarly to a speed hump, reducing speeds at which cars enter and exit business access points.

Strategy 4: Add Curb Extensions

Curb extensions, also known as bump outs, are a common tool for calming traffic and improving pedestrian safety. At each corner, the curb would be extended beyond the sidewalk into the roadway shoulder, thus narrowing the width of the cartway. As a result, pedestrian crossings are shorter and safer as there is less pavement to cross. The curb extension also provides a grade-separated refuge where pedestrians can better see oncoming traffic from a safe vantage point. Outside of improving the overall pedestrian environment, curb extensions fulfill many other purposes—visually defining travel lanes, providing protected and defined parking lanes, and slowing turning traffic.

Strategy 5: Install Median Islands

Throughout Chester Pike there are several areas where the roadway is very wide, and the center lane is designated for turning movements. Where turns are not permitted, the center lane is painted in crosshatch style. These striped center lane areas could accommodate center median islands without imposing significant changes in lane configuration.

Center median islands can narrow the roadway, provide better definition and a crashworthy buffer area between opposing traffic lanes, and improve the aesthetic atmosphere of the roadway. Island styles and contents may vary depending on the existing roadway width and desired character. However, it is suggested that the median islands be planted with grass, flowers, or other appropriate low-maintenance vegetation. The islands may also include period-style lampposts and place-making or wayfinding banners. By pairing this attractive treatment at the center of the roadway with improvements at the pavement edge, a consistent roadway identity can be achieved.

Strategy 6: Add a Bike Lane

Currently, bicycling is permitted on Chester Pike, however, there are no bicycle accommodations such as bike lanes or “share the road” signs. In addition, this roadway is cited in the Delaware County Planning Department’s Bicycle Plan as a “Primary” roadway for improved bicycle amenities. A bicycle lane improves safety for bicyclists by providing them with an exclusive portion of the roadway. Additionally, a clearly defined bike lane serves as a constant reminder to drivers of the intermodalism of the roadway; requiring increased awareness and safe speeds. It is recommended that a five-foot bike lane be added throughout the entire corridor, with the future goal of continuing this bike lane into adjacent municipalities, with their cooperation.

Driver awareness of bicycling activity along Chester Pike can be further amplified by striping and shading the bike lane in a unique color—such as the blue bike lane that exists in the University City area of Philadelphia. This added color creates a distinction between the bike lane and the vehicle lanes, clearly defines the sanctioned location for cyclists, and contributes to a sense of place by creating a distinguished and uniform appearance along the corridor.

Strategy 7: Improve the Crosswalks

Considering that the width of Chester Pike varies from about 45 feet to over 100 feet, many of the crosswalks traversing the roadway are extremely long.

Additionally, as all of the crosswalks consist of painted striping, many of them lack the visibility to motorists necessary to create a safe pathway for pedestrians. As a result, this study recommends shortening the crosswalks through curb extensions and, at points, median islands, which could serve as pedestrian refuge areas.

Also, many of the crosswalks are angled; creating unnecessarily long pedestrian crossings. These crosswalks should be realigned closer to a 90-degree angle to create the shortest possible crossing distance. By designing crosswalks that join with median islands and curb extensions, an entire pedestrian network is created. Not only is this a valuable amenity for pedestrians, but it also becomes a highly visible reminder for drivers to adjust their behavior.

For all crosswalks traversing Chester Pike, the pedestrian pathway could be further enhanced with a brick, synthetic brick, or other unique material to set them apart from the remainder of the intersection. Additionally, major crossings should be improved with more advanced pedestrian amenities. While most of the current crossings have pedestrian buttons, the addition of pedestrian signal heads, preferably with countdown mechanisms, could increase the awareness of pedestrian activity and also assist pedestrians in safely crossing the roadway within the allotted time period.

Strategy 8: Add Gateways

The goal of many of the aforementioned improvements is to change the character of the roadway, thereby calming driver behavior. Gateways are yet another tool that can add emphasis to a corridor-wide traffic calming plan. A gateway not only serves to welcome visitors to Sharon Hill, but also establishes the desired community design—the colors and materials that will be carried through in the streetscape, crosswalks, and median treatments in the study area. The most basic gateways traditionally consist of welcome signs and plants, trees, or other vegetation bounded by concrete curbing. More elaborate designs may include strategic lighting, public art, fountains, statues, decorative brick or stone curbing, etc. The suggested gateway design for Chester Pike is a fairly modest treatment that would include decorative mountable curbing, sizable welcome signage, vegetation, and decorative lighting that coincides with the overall character of the corridor.

While there are already signs along Chester Pike that announce entrance to the borough of Sharon Hill, these signs do not significantly impact driver behavior. The signs can be difficult to see as they are located off to the side of the road. In addition, roadway characteristics remain unchanged as drivers cross the physical boundary in Sharon Hill Borough. To improve the presence of Sharon Hill Borough along Chester Pike, it is suggested that a more formalized gateway treatment be included at locations where the roadway character changes significantly and becomes a more distinct, traditional business district. One gateway treatment is proposed at Ridley Avenue, where commercial development is dense with minimal setbacks, and on-street parking is available. Ideally, the second gateway treatment should be located amidst the concentration of public transportation facilities at Brainerd Boulevard. There are several bus stops in the vicinity, as well as the final stop for the SEPTA Route 102 trolley.

At these two locations, the gateway would be placed at the center of the roadway. By placing the gateway treatment between the eastbound and westbound travel lanes, the installment commands driver attention by providing both horizontal and vertical cues, thus changing the roadway atmosphere. The current cartway width at Ridley Avenue (approximately 52 feet) and at Brainerd Boulevard (about 92 feet), provides ample space for the gateway treatment and restriping of the current lane configuration. The elements chosen for this treatment—such as the lighting structure, welcome sign or banner, and vegetation—can be incorporated into other improvements throughout the corridor to help define this portion of Chester Pike as a distinct location, a destination.

Strategy 9: Modify Roadway Features

Changes to the roadway configuration and geometrics at two key locations are recomended. At Calcon Hook Road the volume of turning traffic is significant, with considerable truck volumes. To provide a larger turning radius, the curb at Calcon Hook Road is currently cut back, which minimizes the sidewalk area, resulting in a poor pedestrian environment. Though the corner of the roadway is already cross-striped to indicate that driving is prohibited, this area could be reconstituted as a curb in order to reclaim some of the sidewalk area. This addition of sidewalk space at the corner would narrow the cartway of Calcon Hook Road and thus create a shorter, safer, pedestrian crossing, without affecting the turning radius. In order to better accommodate turning

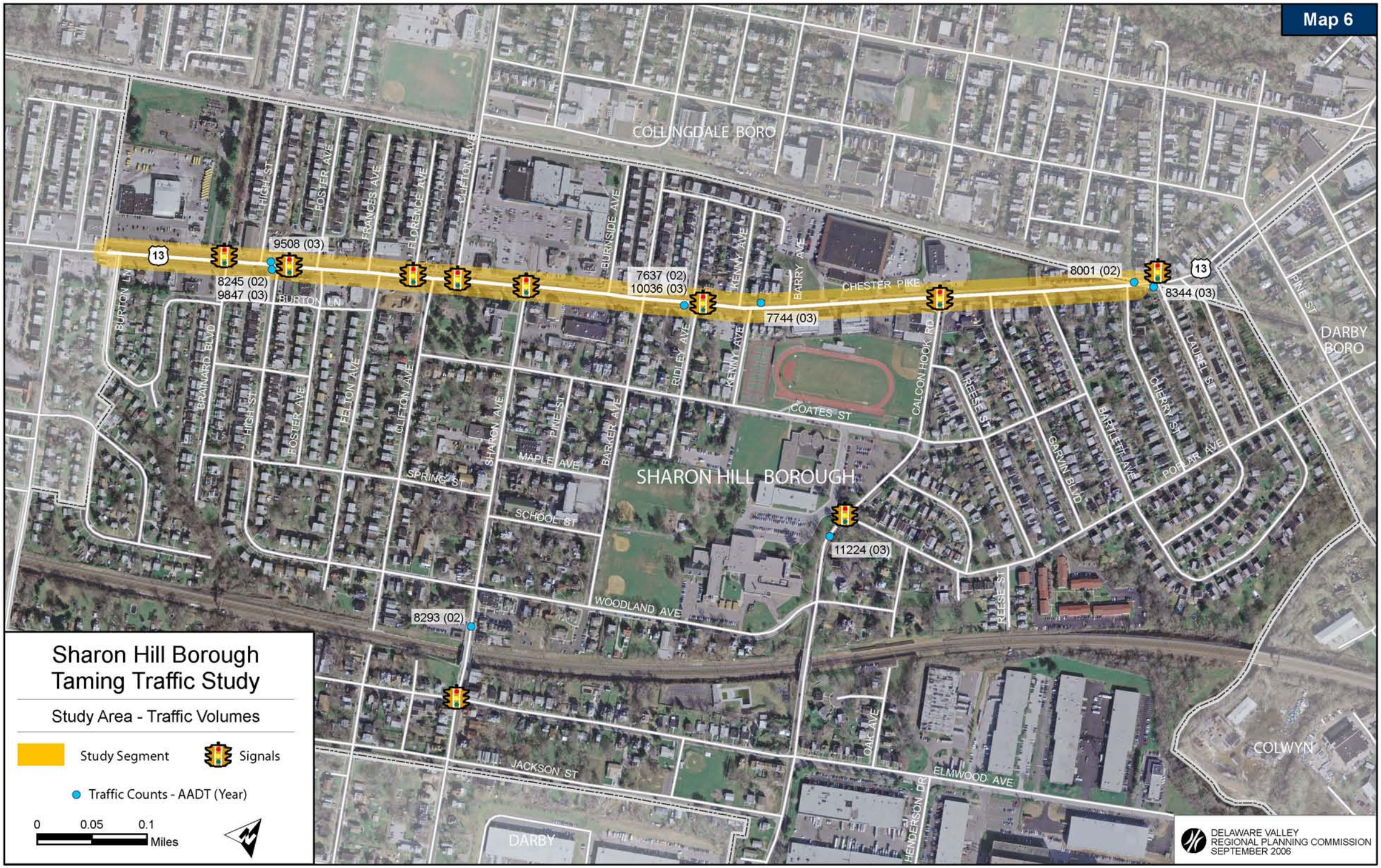
truck traffic, the stop bar on Calcon Hook Road should be moved further south in order to remove northbound Calcon Hook traffic queuing at the signal from the path of turning traffic.

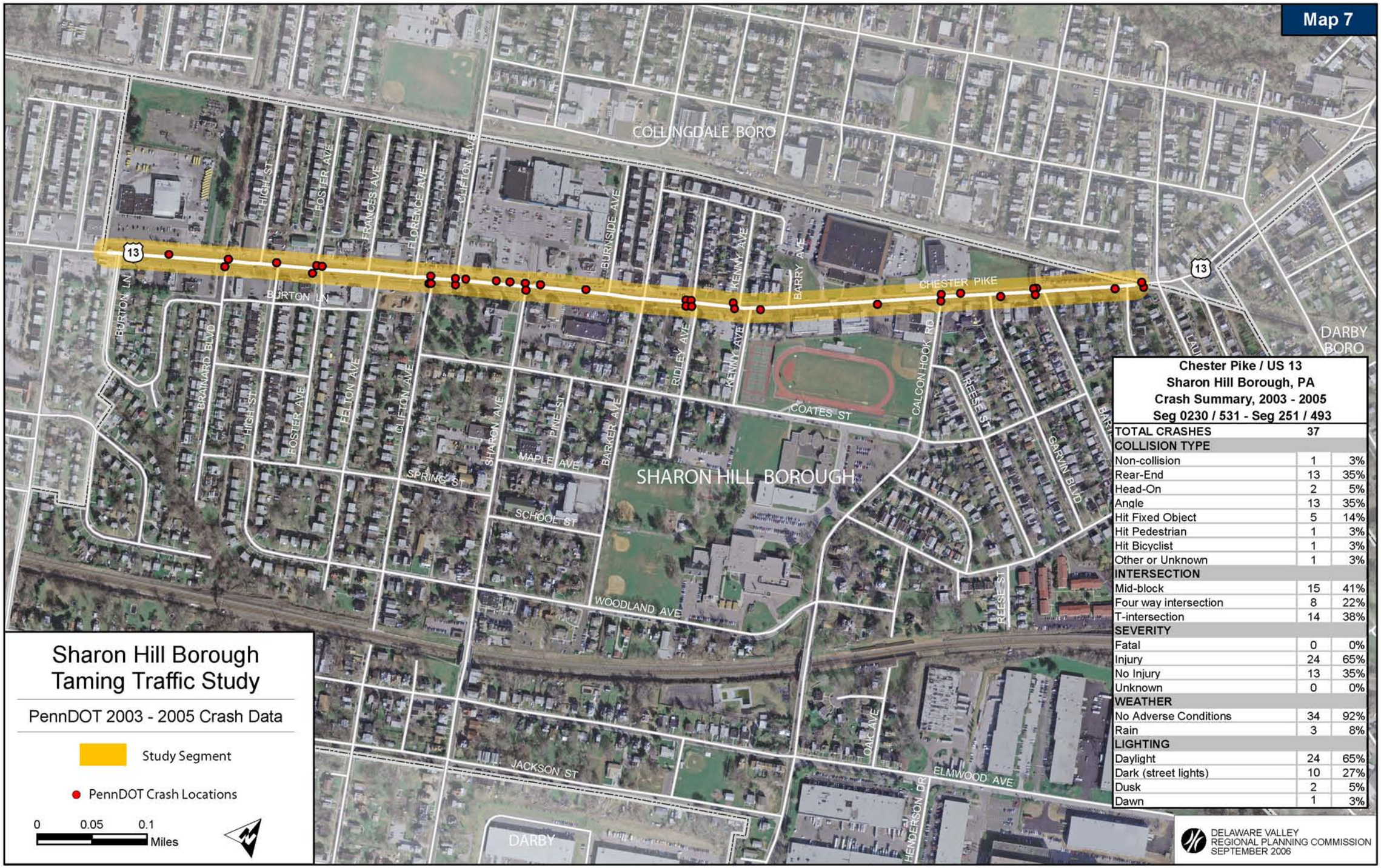
The second portion of Chester Pike where geometric improvements are needed is the area of Clifton Avenue. When traveling eastbound toward Clifton Avenue there are two distinct travel lanes. The outside lane is extremely wide and is frequently used as two additional lanes instead of one. At Clifton Avenue this extra pavement becomes marked as a right-turn lane. However, after crossing Clifton Avenue, Chester Pike narrows considerably and this ambiguous lane is lost to a sea of painted cross-hatching, indicating the transition in lane configuration. To make the roadway configuration in this location clearer to drivers, the through lanes and turn lanes should be repainted to distinctly define their boundaries. In addition, the extra pavement width prior to Clifton Avenue can contribute to a designated bike lane and other sidewalk improvements. While the bike lane would continue through the Clifton Avenue intersection, any remaining portion of the crosshatched area should rejoin the current sidewalk and contribute to the various sidewalk improvements previously discussed.

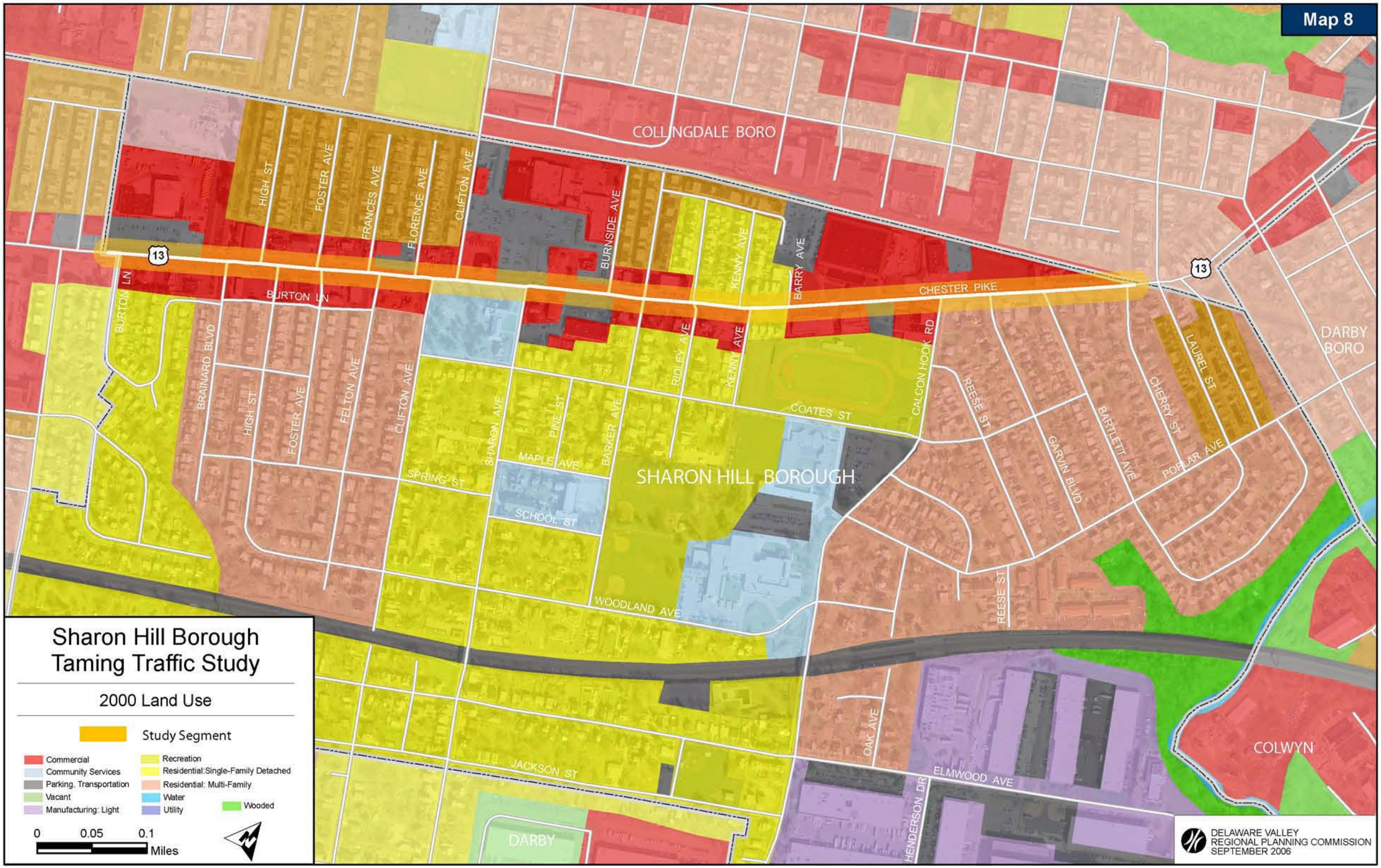
Strategy 10: Improve the Trolley Terminal Area

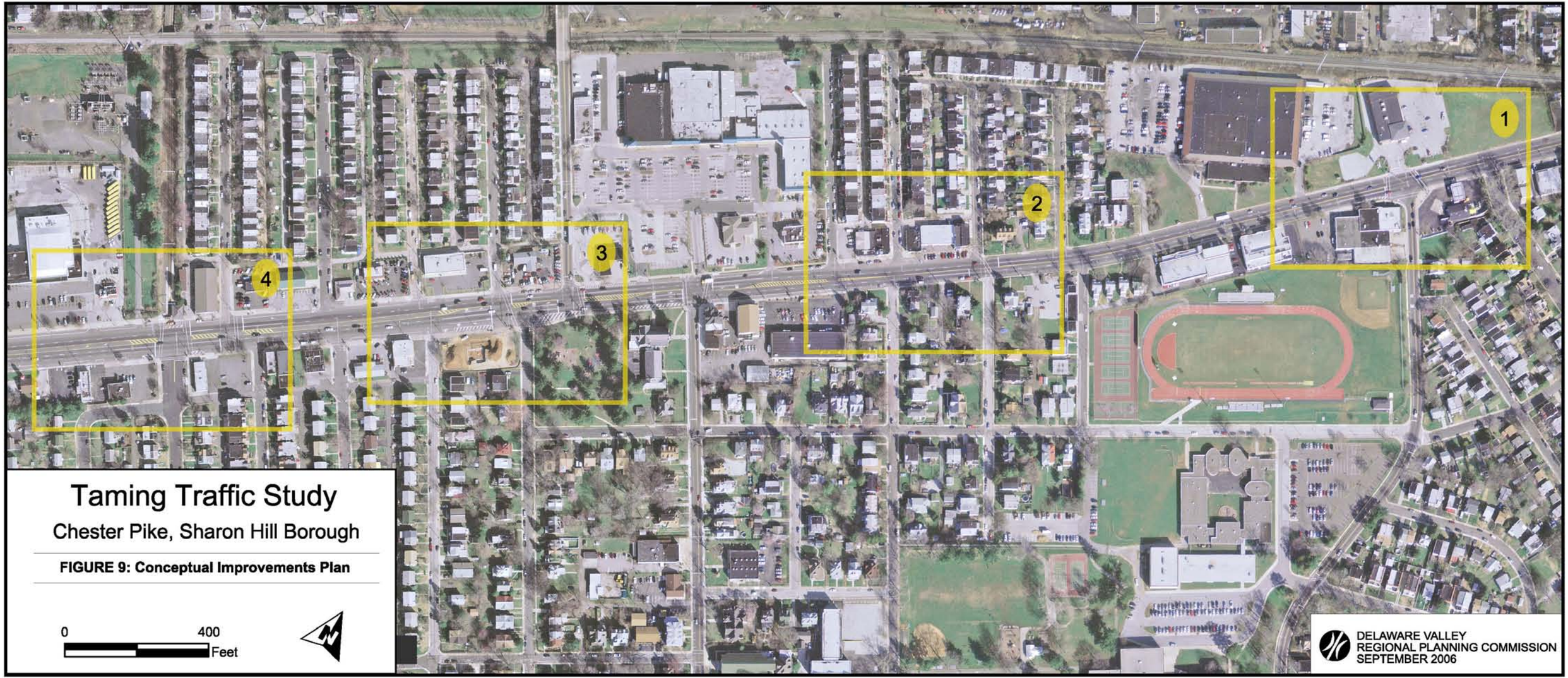
The terminus for the SEPTA Route 102 trolley is along Chester Pike in the vicinity of Brainerd Boulevard. Near the trolley station building are several major bus stops and retail locations. All of these elements could contribute to a coherent transportation center, facilitating increased intermodalism and land-use connections.

The primary improvement suggested for this location is the creation of a service lane along westbound Chester Pike, adjacent to the trolley depot. The roadway, 92-feet wide at this point, is sufficiently wide to accommodate this addition. The service lane would service westbound travel only, and would also serve as a bus lane for this portion of Chester Pike, as well as a drop off/pick up lane for transit riders. A planted median barrier would act as a buffer between this slower-speed service lane, and the westbound through-traffic on Chester Pike. The buffer would also provide protected space for angled parking, which could be utilized by both transit users and local business patrons. This treatment serves as a refuge area so that pedestrians can cross the wide roadway in more manageable and safer segments. Additionally, this treatment acts as a cornerstone to tie together various modes of transportation, several land uses, and multiple types of traffic. Finally, the creation of a service lane and a median buffer indicates to through-traffic that the roadway configuration has changed and drivers should exercise increased awareness and caution.


Map 6
COLLINGDALE BORO
SHARON HILL BOROUGH
DARBY BORO
DARBY
COLWYN
CHESTER PIKE
COATES ST
WOODLAND AVE
JACKSON ST
ELMWOOD AVE
BURTON LN
SCHOOL ST
SPRING ST
MAPLE AVE
HIGH ST
FOSTER AVE
FRANCES AVE
FLORENCE AVE
CLIFTON AVE
BURNSIDE AVE
RIDLEY AVE
KENNY AVE
BARRY AVE
SHARON AVE
PINE ST
BARKER AVE
FELTON AVE
BRAINARD BLVD
CALCON HOOK RD
REESE ST
GARVIN BLVD
BARTLETH AVE
CHERRY ST
LAUREL ST
POPLAR AVE
OAK AVE
HENDERSON DR
9508 (03)
8245 (02)
9847 (03)
7637 (02)
10036 (03)
7744 (03)
8001 (02)
8344 (03)
11224 (03)
8293 (02)
13
Sharon Hill Borough
Taming Traffic Study
Study Area - Traffic Volumes
Study Segment
Signals
Traffic Counts - AADT (Year)
0 0.05 0.1
Miles
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006


Map 7
COLLINGDALE BORO
SHARON HILL BOROUGH
DARBY BORO
DARBY
CHESTER PIKE
BURTON LN
BRAINARD BLVD
HIGH ST
FOSTER AVE
FELTON AVE
FRANCES AVE
FLORENCE AVE
CLIFTON AVE
SHARON AVE
PINE ST
MAPLE AVE
SPRING ST
SCHOOL ST
WOODLAND AVE
BARKER AVE
BURNSIDE AVE
RIDLEY AVE
KENNY AVE
BARRY AVE
COATES ST
CALCON HOOK RD
REESE ST
GARVIN BLVD
OAK AVE
ELMWOOD AVE
HENDERSON DR
JACKSON ST
13
Sharon Hill Borough
Taming Traffic Study
PennDOT 2003 - 2005 Crash Data
Study Segment
PennDOT Crash Locations
0 0.05 0.1
Miles
Chester Pike / US 13
Sharon Hill Borough, PA
Crash Summary, 2003 - 2005
Seg 0230 / 531 - Seg 251 / 493
TOTAL CRASHES 37
COLLISION TYPE
Non-collision 1 3%
Rear-End 13 35%
Head-On 2 5%
Angle 13 35%
Hit Fixed Object 5 14%
Hit Pedestrian 1 3%
Hit Bicyclist 1 3%
Other or Unknown 1 3%
INTERSECTION
Mid-block 15 41%
Four way intersection 8 22%
T-intersection 14 38%
SEVERITY
Fatal 0 0%
Injury 24 65%
No Injury 13 35%
Unknown 0 0%
WEATHER
No Adverse Conditions 34 92%
Rain 3 8%
LIGHTING
Daylight 24 65%
Dark (street lights) 10 27%
Dusk 2 5%
Dawn 1 3%
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006


Map 8
COLLINGDALE BORO
HIGH ST
FOSTER AVE
FRANCES AVE
FLORENCE AVE
CLIFTON AVE
BURNSIDE AVE
KENNY AVE
BARRY AVE
13
BURTON LN
CHESTER PIKE
DARBY BORO
BRAINARD BLVD
FELTON AVE
RIDLEY AVE
CALCON HOOK RD
REESE ST
LAUREL ST
CHERRY ST
BARTLETT AVE
GARVIN BLVD
POPLAR AVE
COATES ST
SHARON AVE
PINE ST
BARKER AVE
MAPLE AVE
SPRING ST
SCHOOL ST
SHARON HILL BOROUGH
WOODLAND AVE
OAK AVE
ELMWOOD AVE
HENDERSON DR
JACKSON ST
DARBY
COLWYN
Sharon Hill Borough
Taming Traffic Study
2000 Land Use
Study Segment
Commercial
Community Services
Parking, Transportation
Vacant
Manufacturing: Light
Recreation
Residential:Single-Family Detached
Residential: Multi-Family
Water
Utility
Wooded
0 0.05 0.1
Miles
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006



Taming Traffic Study

Chester Pike, Sharon Hill Borough

FIGURE 9: Conceptual Improvements Plan

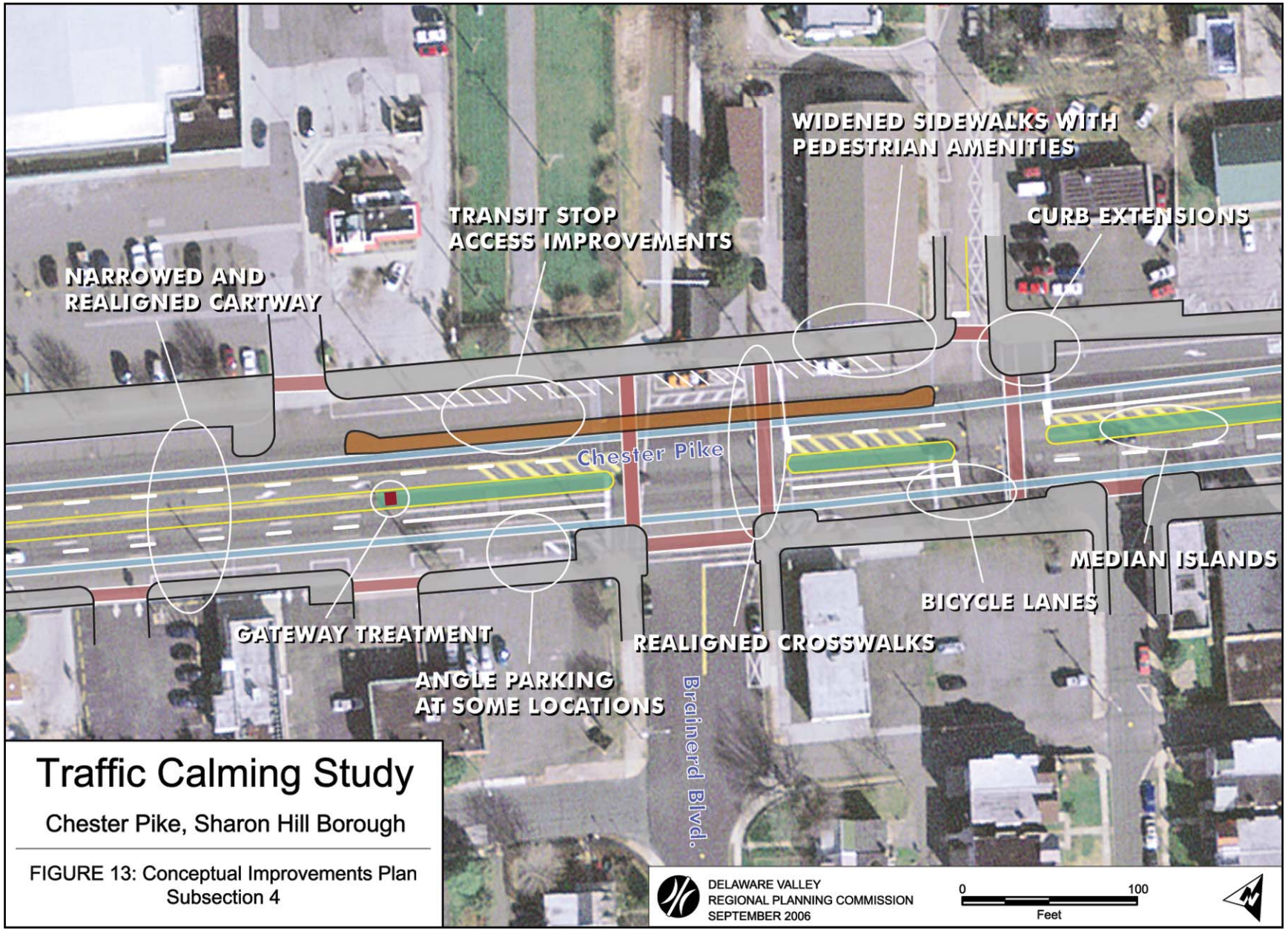
0 400 Feet

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006


NARROWED OUTSIDE TRAFFIC LANES
BICYCLE LANES
REALIGNED CROSSWALKS
Chester Pike
WIDENED SIDEWALKS WITH PEDESTRIAN AMENITIES
ADJUSTED GEOMETRY
Calcon Hook Rd.
Traffic Calming Study
Chester Pike, Sharon Hill Borough
FIGURE 10: Conceptual Improvements Plan
Subsection 1
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
Feet


WIDENED SIDEWALKS WITH PEDESTRIAN AMENITIES
CURB EXTENSIONS
NARROWED AND REALIGNED CARTWAY
GATEWAY TREATMENT
Burnside Ave.
Chester Pike
MEDIAN ISLANDS
Felton Ave.
REALIGNED CROSSWALKS
Ridley Ave.
BICYCLE LANES
Traffic Calming Study
Chester Pike, Sharon Hill Borough
FIGURE 11: Conceptual Improvements Plan
Subsection 2
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
Feet


SIMPLIFIED OR ELIMINATED ACCESS POINTS
ANGLE PARKING AT SOME LOCATIONS
CURB EXTENSIONS
MEDIAN ISLANDS
Chester Pike
BICYCLE LANES
NARROWED AND REALIGNED CARTWAY
REALIGNED CROSSWALKS
Clifton Ave.
WIDENED SIDEWALKS WITH PEDESTRIAN AMENITIES
Traffic Calming Study
Chester Pike, Sharon Hill Borough
FIGURE 12: Conceptual Improvements Plan
Subsection 3
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
Feet


WIDENED SIDEWALKS WITH PEDESTRIAN AMENITIES
TRANSIT STOP ACCESS IMPROVEMENTS
CURB EXTENSIONS
NARROWED AND REALIGNED CARTWAY
Chester Pike
MEDIAN ISLANDS
BICYCLE LANES
GATEWAY TREATMENT
REALIGNED CROSSWALKS
ANGLE PARKING AT SOME LOCATIONS
Brainerd Blvd.
Traffic Calming Study
Chester Pike, Sharon Hill Borough
FIGURE 13: Conceptual Improvements Plan
Subsection 4
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
SEPTEMBER 2006
0
100
Feet

Simulations of conceptual improvements are on the following pages.

FIGURE 14: Existing conditions along Chester Pike

FIGURE 15: Conceptual improvements strategy

FIGURE 16: Existing conditions along Chester Pike

FIGURE 17: Conceptual improvements strategy

CONCLUSION

The two case study locations of this year's traffic calming effort represent a rural and a suburban area, each with very different issues. A common thread between them is their lack of a sense of place. Although they each have welcome signs located at their borders, there is little or no change in context to alert motorists that they have entered a special place where driver behavior is expected to change. In both cases the need for change in context is related to the multi-modal nature of the roadways that are the focus of each location.

In Sharon Hill Borough local and regional automobile traffic mixes with bus and rail transit service, as well as with pedestrian and bicycle traffic representing a variety of trip purposes. With its extra lane capacity and offset intersections, Chester Pike can be onerous for pedestrians and even somewhat confusing for motorists as well as bicyclists. Implementing better crossing amenities, planted medians, and more consistent lane configurations are just a few of the improvements that will set Sharon Hill apart from neighboring municipalities—helping transform it into a destination where multi-modal transportation is a priority.

On CR 684 Smithville Road through Historic Smithville Park there is also a mix of pedestrians, bicyclists, and vehicular traffic. The majority of the non-motorized traffic consists of park patrons traveling between attractions along Smithville Road. This two-lane county road has no sidewalks and very narrow shoulders where present. In recent years the park has undergone renovations that have resulted in a steady increase in visitors. More pedestrians and cyclists using the park without appropriate accommodations increase the potential for conflicts with motorists. The study recommends several improvements that will raise the park's profile, create safe facilities for non-motorized users, and reduce undesirable vehicular speeds while still retaining the roadway's function.

Implementation of the traffic calming techniques set forth in this analysis will be a positive step toward better balancing the needs of all roadway users while creating a sense of place. Rarely is a problem solved by just one "fix-it" measure alone. By combining traditional traffic calming principles with improvements to the streetscape, communities can develop a sense of place. While many techniques may improve a community, the best programs represent a combination of function and aesthetics, attractiveness and cost-effectiveness.

BIBLIOGRAPHY

Burlington County Board of Chosen Freeholders. *Master Plan for Smithville Park*. 1996.

Burlington County Department of Resource Conservation. *Parks and Open Space Master Plan*. August 2002.

Burlington County Department of Resource Conservation. *Landscape Master Plan for Historic Smithville Park*. December 2002.

City of Johannesburg. *Traffic Calming Policy*. September 2002.

City of San Jose. Department of Transportation. *Traffic Calming Toolkit*. November 2001.

Congress for the New Urbanism. *Traffic Calming*. Transportation Tech Sheet. No date.

Delaware County Planning Department. *Four Borough Comprehensive Plan*. November 2004.

Delaware Valley Regional Planning Commission. *Taming Traffic: Context Sensitive Solutions in the DVRPC Region*. December 2005

Ewing, Reid. Institute of Transportation Engineers and Federal Highway Administration. *Traffic Calming—State of the Practice*. August 1999.

Fehr & Peers Associates. *Traditional Neighborhoods, Street Design and Connectivity*. No date.

Hoyle, Cynthia L. *Traffic Calming*. Planning Advisory Service Report Number 456. American Planning Association. July 1995.

Kim, Myung Oak. "Philly's 'Behind Curve' Calming School Zones." *Philadelphia Daily News*. November 18, 2004.

Lyall, Sarah. "Road design? He calls it a revolution." *The New York Times*. January 22, 2005.

Neighborhood Streets Project Stakeholders. *Neighborhood Street Design Guidelines: An Oregon Guide to Reducing Street Widths*. Prepared for the State of Oregon. November 2000.

New Jersey Department of Transportation. *NJDOT FIT* (Future in Transportation) Initiative webpage. http://www.state.nj.us/transportation/works/njfit/toolbox/traffic.shtm

Parsons Brinckerhoff, Quade & Douglas. *Haddonfield Traffic Calming Study*. Prepared for the New Jersey Department of Transportation. 2005.

Pennsylvania Department of Transportation. *Traffic Calming Handbook*. Publication No. 383. January 2001.

Pennsylvania Downtown Center. *Balanced Circulation Workbook*. No date.

Pennsylvania Downtown Center. *Beyond Traffic Calming: A Balanced Circulation Approach to Transportation and Economic Development*. No date.

United States Department of Transportation. Federal Highway Administration. *Roundabouts: An Informational Guide*. June 2000.

Voorhees Transportation Policy Institute. *Traffic Calming Evaluation and Monitoring Plainsboro Township, NJ*. April 2002.

APPENDIX A. COST ESTIMATES

The following are sample costs for various traffic calming techniques, arranged from least to most expensive. These were culled from various sources, including the ITE Traffic Calming State of the Practice, which gathered data in the late 1990s from such locations as Sarasota, Florida, Portland, Oregon, and Seattle, Washington. Another primary source for the cost estimates below was the Traffic Calming Handbook, produced by the Pennsylvania Department of Transportation in 2001. Prices will differ based on numerous variables regarding materials, project extent, and local economies. The costs suggested do not include necessary expenses for the planning and engineering of these techniques.

TECHNIQUE	ESTIMATED COST	ADDITIONAL COMMENTS
Bike Lane	$5,000 - $10,000 per mile	
Center Island	$5,000 - $15,000	Cost depends on size, curbing, and landscape features.
Chicane	$6,000 - $14,000	Chicanes are less expensive when existing curb is kept and the new curb is pre-cast instead of removing the existing curb and pouring in place the new curb.
Choker	$7,000 - $13,000	Asphalt streets are less expensive than concrete streets.
Curb Bulb	$7,000 - $10,000 per pair	Mid-block measures may cost less ($4,000) if they are smaller.
Curb Ramp	$1,500	Bike Lane
Diagonal Diverter	$7,500 - $20,000	Cost can be greater depending on intersection width, drainage requirements, and landscaping.
Gateway Treatment	$5,000 - $20,000	Cost depends on the design and extent of physical elements used.
Marked Crosswalk	$100 - $3,000	As expected, costs are lower for painted crosswalks compared to textured crosswalks, such as brick, patterned concrete, etc.
Median Barrier	$50 - $150 sq yd (textured)	
Raised Crosswalk	$10,000 - $20,000	
Raised Intersection	$2,000 - $10,000	Cost depends on the width of intersecting roadways and drainage requirements.
Speed Hump or Table	$15,000 - $60,000	Cost depends on roadway width.
Street Closure	$1,500 - $3,500	More costly street closures involve poured-in-place curbs, landscaping, and sidewalks. Full-street closures can be much more expensive than partial street closures.
Traffic Circle	$1,500 - $25,000+	Traffic circles that fit within existing curbs, gutters, and drains, and have no irrigation for landscaping, are least expensive. Costs increase if right-of-way needs to be acquired or utilities need to be relocated. More complicated installations may cost $20,000+.
Traffic Sign	$3,000 - $20,000+	
Traffic Signal	$15,000 - $60,000	

Sources: See introductory paragraph above

APPENDIX B. POTENTIAL FUNDING SOURCES

Sources for Sharon Hill

BIKES BELONG COALITION

Purpose:

"To fund bicycle facilities and paths which encourage facility, education, and capacity building."

Eligible Projects Must:

- Address ridership growth, leveraging funding, building political support, and promoting cycling
- Address the project objectives of the facility, education or capacity funding categories
- Propose a specific program or project whose impact is measurable

Examples of Eligible Projects:
Bike paths, trails, routes, lanes, parking, and transit

Examples of Ineligible Projects:

- Master Plans and policy documents
- Signs, maps and travel
- Projects where Bikes Belong is the sole funder

Terms of Funding:
$10,000 or less

Deadlines:
Applications accepted quarterly in February, May, August, and November

Contact:
Bikes Belong Coalition
1368 Beacon St.
Brookline, MA 02446-2800
617.734.2111
mail@bikesbelong.org
http://www.bikesbelong.org/

COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)

Purpose:
The program provides grant money to eligible entities in Delaware County who meet the program's goal of developing viable urban communities by providing decent housing and a suitable living environment and by expanding economic opportunities.

Examples of Eligible Projects:

- Acquisition of real property
- Provision of handicap access
- Historic preservation
- Community planning
- Energy conservation

Terms of Funding:
70% of each grant must be used for activities that benefit low- and moderate-income persons.

Deadline:
January

Contact:
Jennifer Wesson
Delaware County Office of Housing and Community Development
600 North Jackson St, Rm 101
Media, PA 19063-2561
610-891-5131
wessonj@co.delaware.pa.us
http://www.co.delaware.pa.us/hcd/
http://www.newpa.com

COMPETITIVE CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)

Purpose:
"For projects that contribute to the attainment of the Clean Air Act standards by reducing emissions from highway sources."

Examples of Eligible Projects:

- Transit projects
- Employer-based transportation management plans
- Traffic flow improvement projects
- Fringe and corridor park-and-ride facilities
- Bicycle and pedestrian projects
- Education, marketing and outreach programs
- Ridesharing activities

Examples of Ineligible Projects:

- Highway or transit maintenance and reconstruction projects
- Construction of SOV capacity
- Statutorily mandated projects

Terms of Funding:
80% of costs
No maximum

(CMAQ continued)

Deadline:
Fall 2006 (Tentative)
Currently not accepting new applications

Contact:
Charles D. Dougherty
Director, Division of Technical Services
DVRPC
190 N Independence Mall West, 8th Floor
Philadelphia, PA 19106
215.238.2863
cdougherty@dvrpc.org
http://www.dvrpc.org/transportation/capital/cmaq.htm

DELAWARE COUNTY REVITALIZATION PROGRAM

Purpose:
"To revitalize the County's first-generation municipalities by making them more attractive, livable, safe, and economically viable."
Projects must be consistent with a Renaissance Action Plan.

Deadline:
Expected to be late August 2007

Contact:
Jennifer Wesson
Delaware County Office of Housing and Community Development
600 North Jackson St, Rm 101
Media, PA 19063-2561
610-891-5131
wessonj@co.delaware.pa.us
http://www.co.delaware.pa.us/hcd/06ren/06ren.html

HOME TOWN STREETS & SAFE ROUTES TO SCHOOL

Purpose:
"To encourage the reinvestment in and redevelopment of our downtowns; and to establish, where feasible, safe walking routes for our children to commute to school and to promote healthy living."

Examples of Eligible Home Town Streets Projects:
- Sidewalk improvements
- Planters, benches and kiosks
- Street lighting
- Bicycle and pedestrian amenities
- Transit bus shelters
- Traffic calming
- Community "gateway" plantings
- Signage

Examples of Eligible Safe Routes to School Projects:
- Sidewalk improvements
- Pedestrian/bicycle crossing improvements
- Bike lanes
- Traffic calming

Terms of Funding:
This is a cost reimbursement program.
Sponsor completes all pre-construction activities. Program reimburses all construction costs.
Project must be included in the Commonwealth's Twelve Year Transportation Program, DVRPC's Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP)

Deadline:
Every 2 years. Deadline for next round of funding will be Fall 2007.

Contact:
Linda Guarini
PennDOT District 6-0
7000 Geerdes Blvd.
King of Prussia, PA 19406
610.205.6950
lguarini@state.pa.us

Ryan Gallagher
DVRPC
190 N Independence Mall West, 8th Floor
Philadelphia, PA 19106
215.238.2881
rgallagher@dvrpc.org

MUNICIPAL CHALLENGE GRANT

Purpose:
"For the purchase and delivery of up to 50 trees [dependent upon number of residents in municipality]."

Terms of Funding:
Grant funds must be matched at least equally with nonfederal source funds (match may be in-kind)
For municipalities with populations up to 5,000:
10 trees/year, $1,500 maximum grant
For municipalities with populations between 25,000 -50,000:
40 trees/year, $4,500 maximum grant

Deadline:
Spring 2007

(Municipal Challenge Grant continued)

Contact:

Rachel Bilingham
Urban Forestry Coordinator
PA Urban and Community Forestry Council
717.783.0385
rbillingha@state.pa.us
Montgomery County Cooperative Extension Office
1015 Bridge Rd., Suite H
Collegeville, PA 19426-1179

MUNICIPALITY BUS SHELTERS

Purpose:
To assist municipalities in the provision of safe bus shelters

Deadline:
Continuous

Contact:
Cecile Charlton
Delaware County TMA
102 West Front Street
Media, PA 19063
610.892.9440
ccharlton@dctma.org

NEW COMMUNITIES PROGRAM

Consists of 3 separate programs:

- Enterprise Zone Program
- Main Street Program
- Elm Street Program

Purpose:
"To integrate the revitalization of downtowns, surrounding neighborhoods and industrial/manufacturing areas…assists communities to become more desirable to a broad range of 'New Economy' companies…to incorporate sound land use policies that will manage growth, promote urban renewal, preserve local historic properties, and conserve open space/resources."

Examples of Eligible Projects:

- Administrative support of business development in downtown and business park areas
- Downtown facade renovations
- Loan capital for property acquisition and improvements

Terms of Funding:
Maximum $50,000 for administrative grants
Maximum $250,000 for development projects and competitive loans

Deadline:
Continuous, apply at any time

Contact:
Donie Kartorie
PA DCED
Customer Service Center Commonwealth Keystone Bldg
400 North St., 4th Floor
Harrisburg, PA 17120
717.720.7409
akartorie@state.pa.us
http://www.inventpa.com/default.aspx?id=326

SURFACE TRANSPORTATION PROGRAM (STP)

Purpose:
"This program provides funding that may be used for projects on any federal-aid highway, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities."

Examples of Eligible Projects:

- Modifications of existing public sidewalks to provide handicap access
- Infrastructure-based intelligent transportation system capital improvements

Deadline:
Continuous, contact Delaware County for more information

Contact:
Thomas Shaffer
Delaware County Planning Department
Court House and Government Center
201 West Front Street
Media, PA 19063-2751
610.891.5217
shaffert@co.delaware.pa.us
http://www.co.delaware.pa.us/planning/transportation.html

TRANSPORTATION AND COMMUNITY DEVELOPMENT INITIATIVE (TCDI)

Purpose:
To support local planning projects to improve transportation and encourage redevelopment.

Examples of Eligible Projects:

- Transit-oriented development studies

(TCDI continued)

- Preliminary engineering for streetscape design
- Sidewalk plans

Terms of Funding:
This is a cost reimbursable grant.
Grants up to $100,000 with 20% local match
TCDI grants may only be used for the planning or preliminary engineering stage of project.

Deadline:
Annual. Applications for next round of funding will be available in January 2007.

Contact:
Karen Cilurso
DVRPC
190 N Independence Mall West, 8th Floor
Philadelphia, PA 19106
215.238.2813
kcilurso@dvrpc.org

TRANSPORTATION ENHANCEMENTS PROGRAM (TE)

Purpose:
"For the funding of '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 through transportation-related improvements."

Examples of Eligible Projects:
- Provision of pedestrian and bicycle facilities
- Provision of safety and educational activities for pedestrians and bicyclists
- Landscaping or other scenic beautification
- Historic preservation

Terms of Funding:
80% of costs, No maximum

Deadline:
Every 2 years. Deadline for next round of funding will be Fall 2007.

Contact:
Ryan Gallagher
DVRPC
190 N Independence Mall West, 8th Floor
Philadelphia, PA 19106
215.238.2881
rgallagher@dvrpc.org

Linda Guarini
PennDOT District 6-0
7000 Geerdes Blvd.
King of Prussia, PA 19406
610.205.6950
lguarini@state.pa.us

TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

Purpose:
"Required under the SAFETEA-LU, the federal transportation authorization legislation, the TIP lists specific priority transportation improvement projects in the region for which federal funds are anticipated. The TIP also lists regionally significant projects that are not federally funded."

Examples of Eligible Projects:
- New construction
- Bicycle lanes
- Improvements to highway and bridges, transit, rail passenger facilities and other infrastructure

Terms of Funding:
Municipalities participate through their respective county governments.
Deadline:
PA TIP is adopted every other year.
Next TIP will be adopted in June 2009.

Contact:
Thomas Shaffer
Delaware County Planning Department
Court House and Government Center
201 W Front Street
Media, PA 19063
610-891-5217
shaffert@co.delaware.pa.us

Elizabeth Schoonmaker
DVRPC
190 N Independence Mall West
8th Floor
Philadelphia, PA 19106
215.238.2938
eschoonmaker@dvrpc.org

TREE IMPROVEMENT GRANT

Purpose:
"To stimulate communities to initiate systematic programs for public trees which are not receiving regular care, and to develop local resources for continuing tree care, especially periodic pruning…to assist them in implementing a tree care program for street and park trees including trees growing in greenways."
Grant funds must be matched at last equally with non-federal source funds.

Terms of Funding:
Population up to 5,000: $1,500 maximum
Population between 25,000-50,000: $4,500 maximum

Deadline:
March 15 & October 15

Contact:
Rachel Bilingham
PA Urban and Community Forestry Council
P.O. Box 15025
Harrisburg, PA 17105-5025
717.783.0385
rbillingha@state.pa.us

Julianne Schieffer
Montgomery County
Cooperative Extension Office
1015 Bridge Rd., Suite H
Collegeville, PA 19426-1179
610.489.4315
jxs51@psu.edu

TREEVITALIZE NEIGHBORHOODS

Purpose:
"Improve the quality of life in older neighborhoods through tree planting projects in neighborhood settings- along streets, in parks or other public lands."

Examples of Ineligible Projects:
- Land acquisition

Terms of Funding:
Each neighborhood must "match" 150 free trees with tree installation services from volunteers, municipal staff, or contractors.

Deadline:
Check website for updates

Contact:
www.treevitalize.net

Sources for Eastampton

BIKES BELONG COALITION

Purpose:
"To fund bicycle facilities and paths which encourage facility, education, and capacity building."

Eligible Projects Must:
- Address ridership growth, leveraging funding, building political support, and promoting cycling
- Address the project objectives of the facility, education or capacity funding categories
- Propose a specific program or project whose impact is measurable

Examples of Eligible Projects:
Bike paths, trails, routes, lanes, parking, and transit

Examples of Ineligible Projects:
- Master Plans and policy documents
- Signs, maps and travel
- Projects where Bikes Belong is the sole funder

Terms of Funding:
$10,000 or less

Deadline:
Applications accepted quarterly in February, May, August, and November

Contact:
Bikes Belong Coalition
1368 Beacon St
Brookline, MA 02446-2800
617.734.2111
mail@bikesbelong.org
http://www.bikesbelong.org/

COUNTY AID PROGRAM

Purpose:
Provides funds for public road and bridge improvements under county jurisdiction.

Terms of Funding:
Minimum allotment is $300,000 per county

Contact:
New Jersey Department of Transportation
609-530-2856
http://www.state.nj.us/transportation/business/localaid/countyaid.shtm

GREEN ACRES GRANTS AND LOANS

Purpose:
To acquire or develop municipal land for public recreation and conservation purposes.

Eligible Applications Must Demonstrate:
- Consistency with needs and objectives in local and state planning documents
- An ability and commitment to maintain the proposed open space/outdoor recreation project
- Public input in the project planning process

Examples of Eligible Projects:
- Acquisition of open space for conservation or recreational uses
- Development of outdoor recreation facilities
- Assistance for park development to increase public use

Terms of Funding:
Low interest (2%) loans & grants

Deadline:
Funding considered in February for Spring allocations.

Contact:
New Jersey Department of Environmental Protection
Bureau of Local Assistance and Program Policy
609-984-0570
http://www.state.nj.us/dep/greenacres/

LOCAL DISCRETIONARY AID

Purpose:
Provides funding for pedestrian safety and bicycle projects. Primarily focused on emergency and regional needs. At the discretion of the Commissioner of Transportation.

Deadline:
Continuous

Contact:
New Jersey Department of Transportation
609-530-2856
http://www.state.nj.us/transportation/business/localaid/descrfunding.shtm

LOCAL LEAD

Purpose:
Provides an opportunity for subregions to apply for funding for design, right of way or construction.

Terms of Funding:
Design costs must exceed $100,000
Construction costs must be a minimum of $250,000

Contact:
New Jersey Department of Transportation
609-530-2856
http://www.state.nj.us/transportation/business/localaid/lead.shtm

LOCALLY INITIATED PEDESTRIAN PROJECTS

Purpose:
Provides funds to municipalities and counties for pedestrian access construction.

Contact:
New Jersey Department of Transportation - District 4
856-486-6618
www.state.nj.us/transportation

RECREATION TRAILS PROGRAM

Purpose:
To provide for the development and maintenance of trails and trail facilities.
Examples of Eligible Projects:

- Maintenance and restoration of existing trails
- Development and rehabilitation of trailside and trailhead facilities and trail linkages
- Construction of new trails in existing parks or in new right of way

Terms of Funding:
Requires 20% matching funds
Maximum grant award is $25,000
Trail facility must be constructed on public land or private land with an easement for public recreational use.

Deadline:
Mid-December annually, notification in August/September

Contact:
New Jersey Department of Environmental Protection
Division of Parks and Forestry
609-984-0404
http://www.nj.gov/dep/parksandforests/natural/njtrails.html - grants

TRANSPORTATION ENHANCEMENTS PROGRAM (TE)

Purpose:
"For the funding of '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 through transportation-related improvements."

Examples of Eligible Projects:

- Provision of pedestrian and bicycle facilities
- Provision of safety and educational activities for pedestrians and bicyclists
- Landscaping or other scenic beautification
- Historic preservation

Terms of Funding:
80% of costs
No maximum

Deadline:
Every 2 years. Deadline for next round of funding will be Fall 2007.

Contact:
Ryan Gallagher
DVRPC
190 N Independence Mall West, 8th Floor
Philadelphia, PA 19106
215.238.2881
rgallagher@dvrpc.org

APPENDIX C. STUDY STEERING COMMITTEES

Smithville Road

Jeff Kerchner
Superintendent of Parks, Burlington County Division of Parks

Martin Livingston
Engineer, Burlington County Engineers Office

Tom Durham
Lieutenant, Eastampton Township Police

Scott Carew
Township Manager, Eastampton Township

Chester Pike

Robert O'Neill
Mayor, Sharon Hill Borough

Bill Scott
Manager, Sharon Hill Borough

Joseph Kelly
Chief, Sharon Hill Police

Tom Shaffer
Manager, Transportation Planning, Delaware County

Justin Dula
Senior Transportation Planner, Delaware County

George Kobryn
Manager, Community Assistance Planning, Delaware County

John Calnan
Manager, Suburban Service Planning, SEPTA

Ronald Romanelli
Commissioner, Sharon Hill Planning Commission

Fran Hanney
Manager, Traffic Control Services, PennDOT

Susan LaPenta
Traffic Control Services, PennDOT

DVRPC Staff

Kevin Murphy
Senior Transportation Planner

Kelly Rossiter
Regional Planner

Gregory Heller
Planing and Design Analyst

TAMING TRAFFIC: CONTEXT-SENSITIVE SOLUTIONS IN THE DVRPC REGION

Publication Number: 06040

Date Published: September 2006

Geographic Area Covered: Nine-County Delaware Valley Region, including the counties of Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester and Mercer in New Jersey; and specifically Eastampton Township in Burlington County, and Sharon Hill Borough in Delaware County.

Key Words: Traffic calming, context-sensitive solutions, context-sensitive design, balanced circulation, NJDOT, PennDOT, Smithville Road, Eastampton,Chester Pike, Sharon Hill, enforcement, engineering, education, policy, vertical deflection, horizontal deflection.

Abstract: This report focuses on the application of traffic calming principles and best practices to demonstrate the benefits of this more sensitive planning and implementation approach. Traffic calming is a means to link land use and transportation planning and implementation. A Pennsylvania and New Jersey case study are included, with recommendations and before and after photo simulations. The study includes an explanation of traffic calming and related terms, and a discussion of policy at the state level and in the Delaware Valley region. A listing of the priority areas in need of traffic calming, nominated by city and county planners, for each county and major city in the region is included.

Delaware Valley Regional Planning Commission
190 N. Independence Mall West, 8th Floor
Philadelphia PA 19106
Phone: 215-592-1800
Fax: 215-592-9125
Internet: www.dvrpc.org

Staff Contact:	Kevin Murphy	Kelly Rossiter	Gregory Heller
Direct Phone:	215-238-2864	215-238-2890	215-238-2810
Email:	kmurphy@dvrpc.org	krossiter@dvrpc.org	gheller@dvrpc.org

Delaware Valley Regional Planning Commission

190 N. Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
P: 215.592.1800
F: 215.592.9125
www.dvrpc.org