SEPTEMBER 2009

TAMING TRAFFIC

Context-Sensitive Solutions in the DVRPC Region:

PA 896, Franklin Township, PA

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

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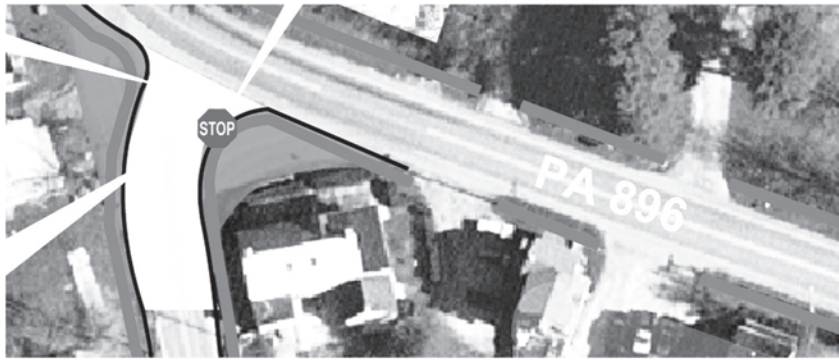

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DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

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

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TAMING TRAFFIC

Context-Sensitive Solutions in the DVRPC Region

PA 896, Franklin Township, PA

September 2009

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EXECUTIVE SUMMARY

Communities in the Delaware Valley Region are increasingly placing a noticeable emphasis on the importance of local identity and quality of life. Even in more rural communities like Franklin Township where the automobile is the predominant form of transportation, there has been a renewed interest in accommodating alternate modes of transportation such as biking and walking. Automobile traffic created by our daily routines can have a negative effect on our neighborhoods, especially sensitive areas like town centers, parks, and areas around schools and other institutions. The good news is that there are planning techniques that can help us to balance the demands of our transportation system, retain our sense of place, and improve our quality of life.

Many of these techniques fall into the category of context-sensitive solutions (CSS). This set of planning methods, which has gained popularity and support in recent years, looks "*beyond the pavement*" to the way that roads interact with their environment, and seeks to enhance the community and natural features of the setting. CSS recognizes and responds to the fact that in order to have safe and attractive communities, roads should be designed so that drivers behave differently depending on the context. CSS strategies are meant to visually indicate to drivers that they are passing through a special type of area, and need to drive with greater awareness.

In addition, a goal of CSS is to balance the competing needs of all modes of travel to create roadway facilities that complement the local context and are safe for all users - not just those in cars. Therefore, CSS promotes the idea of streets as transportation routes that serve automobiles, as well as transit (where applicable), walking, and bicycling. DVRPC's Long-Range Plan for the region, *Connections: The Regional Plan for a Sustainable Future*, explains "Smart Transportation works to resolve transportation problems with solutions that are context-sensitive, affordable, supported by the communities involved, and can be implemented in a reasonable timeframe."

Traffic calming is one very important and effective tool of CSS. Speed tables, raised crosswalks, roundabouts, median barriers, textured pavements, and bulbouts are just some of the traffic calming techniques that can be found throughout the Delaware Valley Region. Both the New Jersey and Pennsylvania departments of transportation have developed programs that support traffic calming, and DVRPC has also endorsed traffic calming strategies in its planning studies.

This document details the findings and recommendations of a study focused on a problem location that will benefit from the implementation of CSS techniques. A diverse group of public officials, local stakeholders, and planning partners worked with the Study Team to identify issues and reasonable improvement strategies in the study location - PA 896 in Franklin Township, Chester County, PA. The improvement strategies developed by the Study Team create safe facilities that are aligned with the values of the local community. This report is divided into two main components: (1) a background narrative that describes CSS and traffic calming; and (2) the local case study. A series of detailed plan views and photo simulations are also included for the study location.

PA 896 is both a major local access route and a primary commuter corridor for Lancaster and Chester County residents to reach northern Delaware. The one mile segment of PA 896 between Good Hope Road and Parsons Road has one travel lane in each direction and no clear amenities for pedestrians or cyclists other than the roadway shoulders, which vary in width. The study area is largely characterized by sparse residential development with generous setbacks flanking a traditional rural village center, known locally as Kemblesville. The village of Kemblesville contains several locally owned businesses with modest roadside parking lots as well as one more recent, but currently vacant, drug store with ample parking fronting the roadway.

The Avon Grove Charter School is also located in the study corridor, and is one of the primary bus and auto traffic generators during school drop off / pick up periods. The presence of the school along PA 896 also increases the need for the safe accommodation of cyclists and pedestrians in this area. Franklin Township officials anticipate growth in the Village of Kemblesville due to a large mixed-use development planned for this area. The development will include both residential units and a retail component to serve the new and existing neighborhood. The development is currently on hold due to the challenging economic climate, but Township officials expect it to move forward in the near future. As new residents and patrons are added to Kemblesville, the accommodation of alternate modes of travel becomes even more important.

Stakeholders helped the Study Team identify four main existing issues and four anticipated future problems that could be addressed through context-sensitive solutions, with specific improvements focused on nine locations. Overall, many of the issues addressed during the study involved the need for better pedestrian amenities, the abundance of horizontal and vertical curves that compromise safety, and the desire to create a stronger identity for the Kemblesville Village area.

The major recommendations include traffic calming at two of the horizontal curves, realignment of Appletown Road and Good Hope Road, planted gateway medians at each side of the village center, enhanced crosswalks, a pedestrian trail along the village center, and streetscaping improvements including pedestrian-scale lighting and banners. Together these recommendations are designed to physically slow traffic while giving drivers a stronger visual impression of the village setting, so that they drive more slowly and carefully. This combination of traffic calming, improving pedestrian mobility, and building sense of place together help match the roadway to its present and future land-use context.

SECTION 1:
CONTEXT-SENSITIVE SOLUTIONS

INTRODUCTION

Context-sensitive solutions (CSS) describes an approach to transportation planning that attempts to enhance communities and natural environments, while balancing the competing needs of all modes of travel. While CSS is widely accepted today, the first significant step toward a context-sensitive approach came in 1969 with the National Environmental Policy Act, requiring transportation agencies to consider the impact of projects on the surrounding environment.

Over the next two decades, policy continued to evolve, incorporating an appreciation of context into transportation planning. Another major step forward occurred in 1998, when the Maryland Department of Transportation, in partnership with the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA), conducted Thinking Beyond the Pavement: National Workshop on Integrating Highway Development with Communities and the Environment While Maintaining Safety and Performance.

FHWA continued to promote the CSS approach in its planning documents and incorporated language about CSS into the current federal surface transportation act, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Today, the FHWA is an advocate for CSS, and it is endorsed by many state departments of transportation, including PennDOT and NJDOT.

An important component of a CSS approach is that it links driving behavior with the perception of the surrounding context. Traffic calming techniques are often implemented as a component of a complete CSS strategy. Traffic calming aims to reduce the speed and volume of traffic to a level appropriate for the type of roadway and the surrounding land use context. Although this approach originated in Europe, it was adopted in the United States starting in the 1940s and 1950s, when the cities of Montclair, New Jersey, and Grand Rapids, Michigan, installed street closures and traffic diverters. In the decades to follow, other US cities began implementing traffic calming into traffic management plans and programs.

This study focuses on a full-range of CSS approaches, incorporating traditional traffic calming techniques in some instances. The aim of this comprehensive approach is to change the look and feel of a roadway that is currently out of context with its surroundings. These changes may, in turn, alter driver behavior and make passing motorists more aware of the dynamic atmosphere beyond the edge of pavement. The recommendations in this report show how value can be added to traditional engineering approaches 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 study site in this report focuses on an area with new development — and thereby traffic — anticipated. Some of the strategies are proactively anticipating future growth, while strengthening the local character and corridor identity.

This study was conducted through a collaborative process that involved a local study advisory committee representing each community, comprising law enforcement, municipal and county planners, transit and roadway agency staff, and community activists. The identified problems and recommended improvements are unique to each location and have been endorsed by the local advisory committee members. A list of the participants can be found at the end of the report.

WHAT ARE CONTEXT-SENSITIVE SOLUTIONS (CSS)?

As an approach to transportation planning, CSS has spread rapidly since the late 1990s. This planning method looks "*beyond the pavement*" to the role that streets and roads can play in enhancing communities and natural environments. It is grounded in the principle that many roadways, particularly residential and local streets, do not exist solely to facilitate automotive use, and thus transportation solutions should not focus exclusively on the motorist and the cartway. Most notably, CSS involves a commitment to collaboration with community stakeholders to respond to local needs and values while accommodating the safe movement of motor vehicles.

The primary goal of CSS is to balance the competing needs of all modes of travel with a flexible application of design controls, guidelines, and standards to create roadway facilities that complement the local context, maintain a distinct sense of place, and are safe for all users. As driving behavior is often linked to a motorist's perception of the surrounding context, 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 multi-modal activity foster slower speeds and heightened caution among drivers, thus reducing the negative impacts of traffic. An effective CSS approach to transportation planning and project development should include the following key elements:

- An evaluation of the "context" of the area
- Interdisciplinary stakeholder involvement throughout the project
- Attention to community values and qualities including environmental, scenic, aesthetic, historic, and natural resources, as well as safety and mobility
- Evaluation of the effects of transportation action on a community
- Objective evaluation of a full range of alternatives, including flexible engineering and policy principles

To implement CSS along a corridor, a variety of techniques can be packaged into a comprehensive improvement strategy. Unlike other approaches to transportation planning, CSS strategies will not only include typical engineering improvements, but may also incorporate less common components to create a highly functioning roadway environment.

Elements of CSS, such as community involvement, flexible engineering techniques, and attention to the surrounding environment are also prominent in other planning methods. Traffic Calming is one such prevalent planning technique that values a comprehensive approach to transportation solutions. The most commonly cited definition of traffic calming comes from the Institute of Transportation Engineers (ITE), which states that it 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." Traditional traffic calming solutions involve both engineering and policy modifications and include an education component.

ITE provides a set of engineering-focused traffic calming techniques that are accepted nationally. However, there are several other techniques that can be used to complement traditional traffic calming measures by building a sense of place and changing the context of the surrounding physical environment. These techniques include streetscaping elements, such as 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. Like all traffic calming elements, these techniques must be customized to appropriately match the location and function 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. In this way, traffic calming principles are not only consistent with CSS principles, but also Smart Growth values, which support the creation of walkable communities that provide a range of transportation choices.

REGIONAL PERSPECTIVE

CSS and traffic calming strategies are common internationally and are becoming increasingly widespread throughout the Delaware Valley region. Although many examples of traffic calming can be found throughout the region, few have been implemented as the result of a comprehensive study.

During the winter of 2004-2005, Haddonfield Borough in Camden County, New Jersey, conducted a comprehensive traffic calming study. Led by a state-funded consultant, the study examined qualitative and quantitative data from five areas in the municipality that could benefit from traffic calming, and offered "initial improvement concepts" for each. The first area where improvements were implemented, Lincoln Avenue, was given priority due to high levels of cut-through traffic and proximity to a school. Measures thus far consist of raised intersections and curb extensions. An active citizens committee called the Borough of Haddonfield Transportation and Pedestrian Safety Committee (TAPS) identified the five target areas and 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 and organized a "Drive 25" campaign that has become an annual event in Haddonfield. The Haddonfield study was successful because it had support from municipal, county, and state governments, as well as from residents.

At a regional level, DVRPC promotes CSS and traffic calming in *Connections: The Regional Plan for a Sustainable Future*, its long-range plan for the Delaware Valley region. According to the plan, "Smart Transportation works to resolve transportation problems with solutions that are context-sensitive, affordable, supported by the communities involved, and can be implemented in a reasonable timeframe."

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 is also provides municipalities with information that can help them establish a traffic calming program for roadways within their jurisdiction. Several years ago, PennDOT began re-evaluating road projects using an approach known as "right-sizing." Right-sizing seeks to meet transportation needs while considering social and environmental considerations, such as community and regional goals and objectives, quality-of-life concerns, economic development initiatives, and fiscal constraints. Right-sizing is context sensitive, as it considers a much wider range of factors than just traditional mobility issues.

The New Jersey Department of Transportation (NJDOT) has updated its roadway design manual to include traffic calming techniques. NJDOT has also embraced traffic calming, planning, and implementation by funding projects through its Local Technical Assistance Program (LTAP). Additionally, NJDOT has launched an effort known as NJFIT: Future in Transportation. NJFIT is a partnership between NJDOT, the Office of Smart Growth, and other state agencies to tackle the root causes of congestion by fostering strengthened connections between transportation and land use. For example, in the Borough of Flemington, instead of building a bypass, a new parkway boulevard with extensive connectivity to the local grid is being designed. This Smart Growth alternative is context-sensitive, as it will increase the number of travel choices and support existing settlement patterns at one-third the cost of a limited access freeway.

NJDOT and PennDOT, in conjunction with DVRPC, released a joint publication in spring 2008 titled *Smart Transportation Solutions Guidebook*. It identifies roadway and roadside design values appropriate for different types of roadways in a variety of land use contexts, recommends a process for implementing context-sensitive design projects, and provides guidelines for improving the transportation system in accordance with context-sensitive and Smart Growth principles.

CSS STRATEGIES

Placemaking Elements

Features, such as decorative lighting, landscaping, and public art, give a roadway a distinct character. CSS encourages these features to be created with materials that reflect the architectural style and urban fabric of the surrounding community. These elements may be placed along the sides of the roadway or introduced in the cartway by way of engineering techniques like bulb-outs or center medians/islands.

Consistent placement and appearance of necessary directional signage along a corridor contributes to the sense of place. It also reduces confusion associated with visual clutter and leads to more predictable travel movements.

Collingswood, New Jersey utilized decorative lighting, plantings, patterned crosswalks, banners, and other placemaking elements to give Haddon Avenue its distinctive character. Source: DVRPC

Pedestrian/Bicycle/Transit Amenities

Sidewalks, visually bold and texturally distinct crosswalks, median islands, and pedestrian signal heads and push buttons create a safe environment for pedestrians and raise the profile of crossing points.

Designated bike lanes, commonly within the cartway, provide a safe riding area for cyclists and serve to heighten driver awareness and encourage sharing of the road. Roadside shelters, benches, and lighting all provide convenient and safe accommodations for transit users and create a more transit-friendly environment. CSS encourages transit facilities to be carefully designed to contribute to the character of the roadway and its surroundings.

This image shows bicycle lanes and a bicycle rack by the University of Pennsylvania, in Philadelphia. Source: DVRPC

Traffic Calming

The most commonly cited definition of traffic calming comes from the Institute of Transportation Engineers (ITE), which states that it is "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for nonmotorized street users."

Traditional traffic calming solutions involve both engineering and policy modifications, as well as an education component. The most effective and long-term traffic calming techniques are engineering measures that actually alter the form of the roadway and impact driver behavior. Traffic calming measures can be combined with placemaking elements to create a distinct roadway character and heightened driver perception. See pages 12 and 13 for some engineering traffic calming techniques.

Jenkintown Borough in Montgomery County, PA installed curb bumpouts as a traffic calming measure, forcing traffic to slow down. In addition to the calming benefits, the bumpouts shorten the pedestrian crossings and create contained streetside parking. Source: DVRPC

Smart Growth Development Pattern

Much of a roadway's character, configuration, and driver behavior are determined by the pattern of development along the corridor. Uses such as big-box stores, large parking lots, suburban-style housing developments, and warehouses may convey the image of a sprawling, high-speed corridor, where drivers do not need to be concerned about pedestrians.

In contrast, focusing development around concentrated main streets and mixed-use communities may create a different type of roadway character. Smart growth is the term often used to describe this type of development pattern, promoting development that mirrors elements found in traditional small towns. These elements include mixed-use development, main streets and town centers, diversity of housing types, a focus on human-scale and street-level uses, and an overall emphasis on walking and mass transit. Even traditional uses, such as big-box stores, can be adapted to portray more of a town-center type of character, thereby influencing the way drivers use and perceive the adjacent roadway.

Main Street at Exton, in West Whiteland Township, PA is a smart growth development, including several retailers typically found in "big box" stores. The smart growth development pattern changes the character of the shopping corridor and the configuration of the roadway. Source: DVRPC

TRAFFIC CALMING GOALS AND TECHNIQUES

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 Transportation 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 or 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 are an attempt to enhance traffic and pedestrian safety and preserve neighborhood character and liveability. 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. Although a technique from any one of these categories may produce some level of benefit, these techniques work best when used in conjunction with one another.

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 engineering techniques may require more extensive planning and design, and, in some cases, right-of-way acquisition, which can be costly and time consuming.

Neighborhood Traffic Safety Campaigns: This education program appeals 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.

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

Safe Routes to School (SRTS): This federally funded program is designed to make physical improvements that promote safe walking and biking passages to our schools. PennDOT and NJDOT each have their own program that they administer with federal funds. In addition, DVRPC administers the SRTS program that is part of the Transportation Enhancements Program.

Engineering

The most definitive resource on traffic calming is the Institute of Transportation Engineers (ITE) report, *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 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: 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 are considered to be more effective as complementary techniques than as stand-alone techniques. See pages 12 and 13 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 by 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 motorists' speed as they approach the device. Speed trailers serve to draw drivers' attention to the fact that they may be traveling above the speed limit, thus encouraging them to slow down. 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.

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 are reactive. The policy approach seeks to set standards or performance measures (pedestrians, bicyclists, and motorists) for the transportation system and its users that maintain mobility, create connectivity, and ensure safety. The policy approach covers two areas: retrofits of existing problem areas and standards for new construction. For retrofits, a framework to rank projects based on roadway characteristics and factors, such as vehicle speed, crashes, and proximity to schools, could be established. Opportunities to add traffic calming measures when resurfacing roadways should also be analyzed. Ideally, a retrofitting policy would be integrated into the transportation component of the local comprehensive plan.

The most comprehensive approach is to alter subdivision and land development ordinances to include traffic calming measures in new construction projects. Engineering specifications can be tailored to ensure that roadway designs that complement the surrounding land use are created at the outset; thus conflicts requiring corrective traffic calming measures are less likely to occur in the future. For instance, requiring narrow lane widths in residential areas may lead to drivers exercising additional care and engaging in behavior more appropriate for a residential setting. The policy approach to traffic calming shares the proactive Smart Growth planning approach by setting standards that maintain mobility, create connectivity, and promote safety. 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.

Some tools that may be utilized in a policy approach are the municipal Comprehensive Plan or Master Plan, including an Official Map delineating road rights-of-way, bicycle and pedestrian routes, and multi-purpose shared facilities.

ENGINEERING TRAFFIC CALMING TECHNIQUES

Volume Control Measures

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

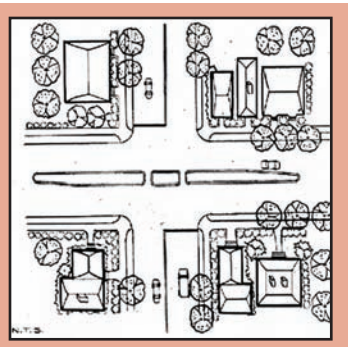
Full Street Closures: Barriers placed across a street to close the street completely to through-traffic, usually leaving only sidewalks or bicycle paths open. The barriers may consist of landscaped islands, walls, gates, side-by-side bollards, or any other obstructions that leave an opening smaller than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

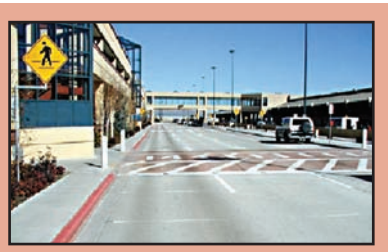
Speed Control Measures

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

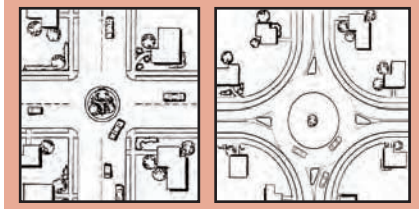
Raised Intersections: Flat raised areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section. They make entire intersections-crosswalks and all-pedestrian territory.

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 MPH. 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 roundabout (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.

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
Use 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 from 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.

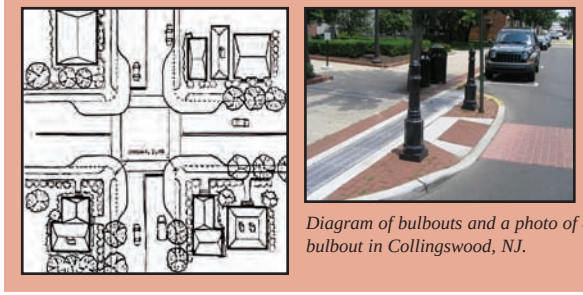


Diagram of bulbouts and a photo of a bulbout in Collingswood, NJ.

Center Islands
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.

TRAFFIC CALMING ISSUES

Though traffic calming measures may create more predictable and safe motorist behavior, there are also concerns that these engineering techniques may negatively impact other roadway functions, including emergency service vehicles, drainage, and the Americans with Disabilities Act (ADA) requirements.

Funding

The expense of implementing a comprehensive traffic calming program is a concern for communities. Though rarely significant in cost, without dedicated funding, most local governments must find flexible ways to finance these efforts from their capital or general funds. In Pennsylvania, Liquid Fuels funds may be used for traffic calming measures if a "Traffic Calming Study and Approval Process" has been completed. The appendix of this study also lists several funding sources to help communities implement the recommendations herein.

Problems for Emergency Vehicles and Heavy Service Vehicles

Many communities are hesitant to install traffic calming techniques, as some can cause delay and other problems for emergency vehicles and heavy service vehicles (buses, garbage trucks, and snowplows). According to Pennsylvania's *Traffic Calming Handbook*, a speed hump causes delays from 0-9 seconds, while roundabouts cause 1 to 11 seconds of delay. Though it is important to identify and weigh this response time increase, the incremental risk to residents from fire truck delays is typically much smaller than the benefit of increased road safety from accident reductions resulting from the installation of traffic calming techniques.

Many of the emergency vehicle concerns with respect to speed humps and roundabouts also apply to transit vehicles. Additionally, bulb-outs at intersections may make it difficult for buses to pick up and drop off passengers. Coordination with transit agencies is essential to ensure that accessibility and convenience are not hampered. Impact on snow removal is a common concern, but when the locations of traffic calming treatments are clearly identified, municipalities have found the impact to be minimal. With any traffic calming program, it is vital that emergency responders and road crews be consulted during design and implementation.

These problems can be minimized if they are considered in project planning. Some street closures include short-cuts for emergency and service vehicles, while medians, roundabouts, and other driving obstructions may be outfitted with mountable curbing for use by oversized vehicles or in emergency situations. If accommodations for these vehicles cannot be determined, communities may also purchase smaller fire and garbage trucks for use in traffic calmed areas or elect not to install such treatments on roadways that are major emergency response routes.

Drainage and Landscaping Concerns

As the installation of traffic calming treatments may change the drainage pattern of the roadways on which they are located, it is very important to review drainage characteristics when determining the appropriateness of certain measures. Poorly-sited bulb-outs and chicanes, for example, may lead to the accumulation of ice/water on the roadway or pedestrian walkways. However, when properly designed, these features can serve as filtering strips that improve stormwater management.

Choosing the correct landscaping elements is also an important consideration to include in any traffic calming program. To reduce maintenance efforts, some local governments recruit neighborhood residents for routine landscape maintenance or opt for a low-maintenance landscape plan. Along with maintenance concerns, one must consider safety issues that could arise if the wrong types of plantings are used, resulting in decreased sight distance or the creation of obstacles for bicyclists and pedestrians. For this reason, any traffic calming program suggesting landscaping elements should consider plant type, growth, and location.

ADA Requirements

Finally, traffic calming must accommodate all people in the community. Measures that impact pedestrian travel must be designed to meet the requirements set forth in the Americans with Disabilities Act (ADA).

Liability Claims

Current experience indicates that traffic calming projects do not cause significant liability claims. A 1997 survey by ITE found that out of more than 1,500 total lawsuits brought against traffic engineers in 68 jurisdictions, only six involved traffic calming devices, and only two were successful. Vehicle damage during construction and inadequately signed speed humps appear to be the most common cause of claims. Monetary awards tend to be relatively small. As designers and motorists become more familiar with traffic calming, and as specific strategies become widely accepted practices, the risk of claims is likely to decline. Liability can be minimized by using standard strategies and designs published by organizations such as ITE and by using appropriate signage to warn drivers.

Temporary Traffic Calming Applications

Traffic calming measures may not always work, or may be a hard sell to neighbors, municipal governments, or state DOTs. For this reason, many municipalities implement temporary traffic calming applications prior to installing permanent treatments. These temporary applications simulate the more permanent treatments, but with materials that are cheap and easy to install or remove.

While not always terribly attractive, temporary traffic calming installations allow for a trial run, to see if the treatment impacts driver behavior. Traffic calming treatments often take time for drivers to become acclimated to them. For this reason, temporary applications, made of rubber, low pavers, or pavement striping, are minimally destructive if involved in a collision. Sometimes temporary applications are used simply to help drivers acclimate to the new roadway configuration before installing a hardscape treatment.

The images to the right show temporary traffic calming treatments, simulating a curb bump out (top), and a median island (bottom).
Source: Top — www.flickr.com/photos/drdul/180850619/
Bottom — Chris Knigge, Princeton Borough

TAMING TRAFFIC METHODOLOGY

This report, *Taming Traffic*, is the product of the fifth round of DVRPC's annual context-sensitive solutions study. Whereas in past years DVRPC produced one report containing two case studies, this year the agency will produce two separate reports — one for each study site. This is the first of those two reports.

Site Selection

At the project start, DVRPC distributed surveys to solicit CSS 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
- annual average daily traffic (AADT)
- crashes (including breakdown of fatalities, bicycle, and pedestrian)
- roadway functional class (arterial, major 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
- areas for which a local comprehensive plan or study recommended CSS or 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 lacking public support for their improvement were given lower priority

Priority was given to areas:

- where potentially hazardous conditions may be eased through context-sensitive solutions and traffic calming
- where CSS and traffic calming are 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
- where 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 CSS and traffic calming have 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 CSS. The DVRPC project team and senior staff then made the final selection, announced to participating member governments.

Data Collection and Report Production

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

DVRPC staff held two meetings with the study advisory committee (SAC), comprising stakeholder representatives from municipal and county governments, law enforcement, parks and recreation, departments of transportation, and transit agencies. The initial meeting was held to introduce the project and gather input from the stakeholders to help the Study Team identify the highest priority concerns that could be improved with traffic calming and/or CSS solutions.

During the course of data collection and research, DVRPC staff held several internal meetings to produce a problem identification document and recommendation plans. DVRPC staff submitted the problem identification to the study advisory committee for approval, and at the second meeting with the 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, internal meetings, problem identification, and plan production phases, DVRPC staff combined its own recommendations with the collected local input to produce this final report.

SECTION 2

CASE STUDY: PA 896

FRANKLIN TOWNSHIP

CHESTER COUNTY, PA

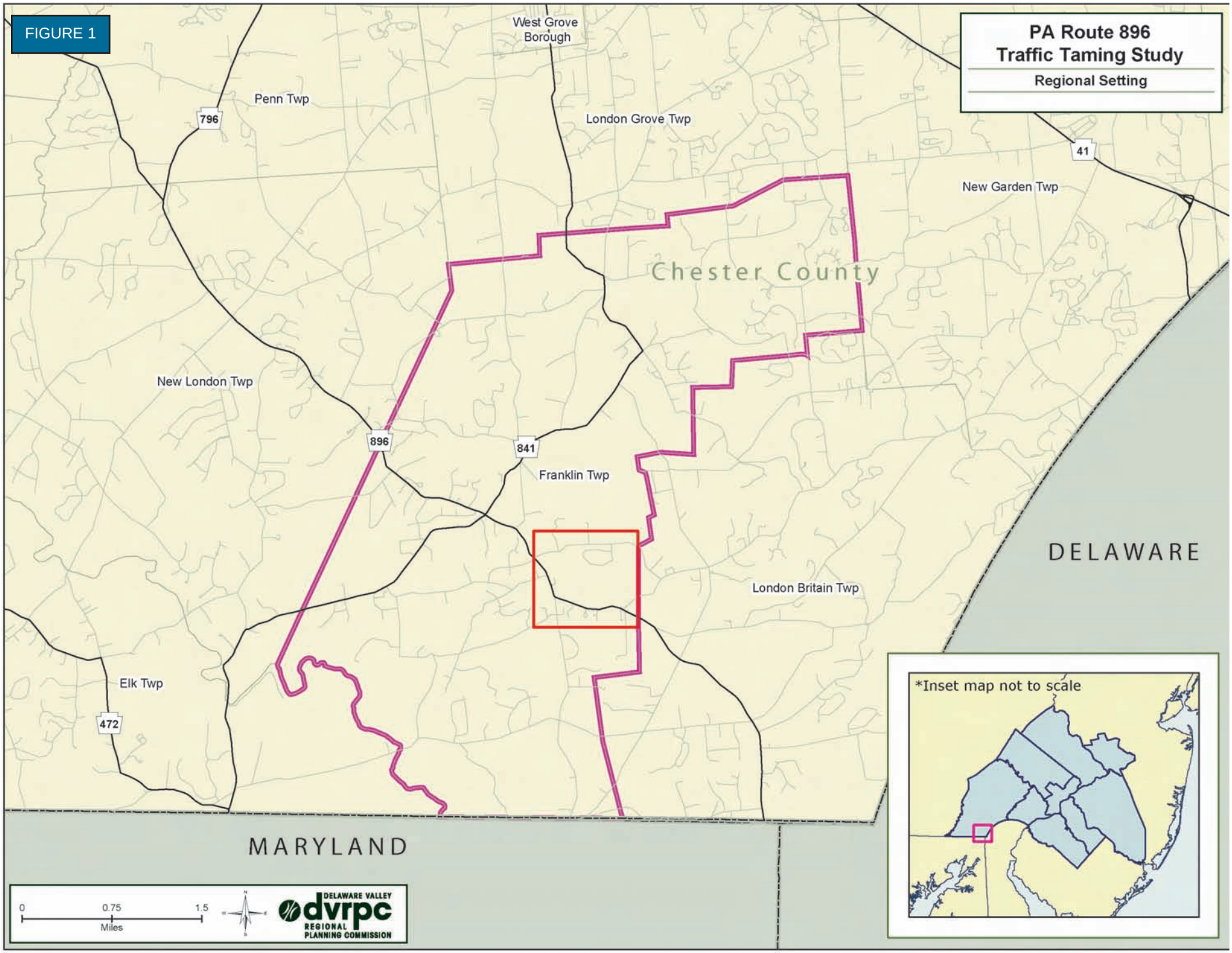


FIGURE 1
PA Route 896
Traffic Taming Study
Regional Setting
West Grove Borough
Penn Twp
796
London Grove Twp
41
New Garden Twp
Chester County
New London Twp
896
841
Franklin Twp
DELAWARE
London Britain Twp
Elk Twp
472
MARYLAND
*Inset map not to scale
0
0.75
1.5
Miles
DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

PA 896: EXISTING CONDITIONS

Street Name: Newark / New London Road / PA 896
Functional Class: Rural Minor Arterial
Posted Speed Limit: 35 MPH
AADT: 9,300-10,000

Location

The study area is a segment of PA 896 approximately one mile long, running through Franklin Township, in Chester County, PA, focused around Kemblesville Village. This section extends along PA 896 from the intersection with Good Hope Road on the south, to the intersection of Parsons Road on the north. The southern end of the study area is adjacent to London Britain Township, which borders the state of Delaware. This part of Chester County is also adjacent to the Maryland border.

PA 896 is primarily used as a commuter corridor, particularly for travel from Lancaster County and rapidly growing Chester County townships north of the corridor to Newark and Wilmington, Delaware. This road is also critical for local traffic accessing shopping, education, and recreation destinations. The main intersections with PA 896 in the one-mile study area are Parsons Road, Peacedale Road, Appleton Road, and Good Hope Road, all of which connect residents living in the vicinity of Kemblesville with the PA 896 corridor.

Highway Access

While the study area is not within immediate proximity to major highways, PA 896 creates an important connection between Interstate 95 to the south in Delaware and Route 1 to the north in Pennsylvania.

Transit Access

There is no transit in proximity to the study corridor.

A view of Kemblesville Village, looking north along PA 896 toward the intersection with Appleton Road. Source: DVRPC

Roadway Characteristics

Within the study area limits PA 896 is a state road configured as one travel lane in each direction through the study corridor. As a minor arterial in a predominantly rural setting the roadway has a small shoulder and no turning lanes. There are no sidewalks on either side of the roadway, with the exception of the recent development at the intersection of McMaster Boulevard, which is currently vacant. The roadway is winding in parts with small hills, and the curved intersection of Appleton Road is the most prominent transportation safety concern within the study area.

Neighboring Amenities

The study area is predominantly low-density residential with a small mix of institutional and commercial uses. At the northern end of the study area, at the intersection of PA 896 and Parsons Road, is the Kemblesville Methodist Church, the Kemblesville Christian Day School, and the Avon Grove Charter School Early Learning Center. Just south along the route around the Appleton Road intersection is a series of historic homes and several businesses: a gas station, the Village Pizza restaurant, and Weir's Auto Service. This intersection also includes offices and apartments housed in a historic building. South of the Appleton Road intersection, and throughout the rest of the study area there are several homes directly adjacent to the roadway on both sides of PA 896.

Historic Character

Lenni Lenape Indians originally inhabited the area of Franklin Township and Kemblesville. William Penn later obtained and then sold much of this land to the London Land Company (1699), a British company that managed and leased the land to farmers and settlers moving into the area. Settlers slowly acquired the deeds to this land, prompting the creation of township divisions and borders. Franklin Township was established in 1852, with much of the land consisting of small farmsteads and larger farms. New London Road (PA 896) was laid out and in use by 1750 and acted as a major thoroughfare between farms in Lancaster County and Chester County and marketplaces in Delaware.

Kemblesville, then known as Fox Chase, served as a popular stagecoach stop along the route, and gradually developed into a thriving village by the mid-1800s, with three mills, a hotel, tavern, school, a pottery works, and a prominent Presbyterian, and then later, Methodist Church. In the early twentieth century Kemblesville continued to prosper. Over time, automobile use and changing industrial and economic patterns led to Kemblesville's decline as a commercial center. Today the village and surrounding areas remain more as bedroom communities for employees of businesses and organizations in Newark and Wilmington, Delaware.

Crash Summary

A cursory crash analysis of reportable crashes was performed in an effort to identify crash safety problems and areas of crash concentrations related to the operation of the PA 896 study corridor-Good Hope Road to Parsons Road, an approximate length of one mile. Since the Taming Traffic study corridor is a segment of the larger PA 896 corridor that was the focus of a Road Safety Audit (RSA) in 2006, this analysis provides an update of the crash data and focuses on shorter limits than were used in the RSA. A more comprehensive crash analysis is contained in the RSA final report including an examination of three focus areas which are within the Taming Traffic study limits: 1) Good Hope Road, 2) Appleton Road, and 3) Parsons Road.

All raw data was provided by the Pennsylvania Department of Transportation (PennDOT) via the CDART crash database. A reportable crash involves at minimum an injury, or damage to a vehicle which requires that it be towed from the scene. Non-reportable crashes were not considered in this analysis. The data analyzed in this report involves crashes coded to PA 896 only.

Corridor Crash Statistics

During the Road Safety Audit analysis period of 2003-2005, 37 crashes were identified along the stretch between Good Hope Road and Parsons Road. In comparison there were 32 crashes on the same stretch from 2005 to 2007-a slight decrease. The nominal difference in crash totals between the two analysis periods indicates a consistent crash experience through this section of the corridor.

Crashes by year varied between 44 percent in 2005 and 25 percent in 2006 with an average of about 11 crashes per year. Hit-fixed-object crashes were the most frequent collision type accounting for forty seven percent (15 crashes), followed by angle crashes at 34 percent (11 crashes). No pedestrian or bicycle crashes occurred within the study area. There was one fatal crash in which one person was killed. This was an isolated crash that occurred mid-way between Good Hope Road and Parsons Road. Seventeen of the 32 crashes included property damage. There were eight minor injury crashes, three moderate injury crashes, and the remaining three were unknown injury. Road condition was a significant influence on the crash experience along this stretch. Fifty-six percent (18) of the crashes occurred on wet road surface conditions and 41 percent in rainy weather. This rural route has many vertical and horizontal curves which are more easily navigated at slower speeds. Combined with bad weather, these curves present potentially dangerous conditions that require extra caution when driving.

Although the Taming Traffic study's recommended improvements are not designed to specifically address safety, there are safety benefits to slowing traffic through the corridor. As mentioned earlier, PennDOT District 6-0 is advancing several recommendations from the PA 896 Road Safety Audit which will address safety issues within the Taming Traffic study corridor. Specifically, there are plans to reduce the vertical curve approaching Good Hope Road northbound to improve sight distance. Also, the district is also considering improvements at Appleton Road which are supported by the recommendations in this study.

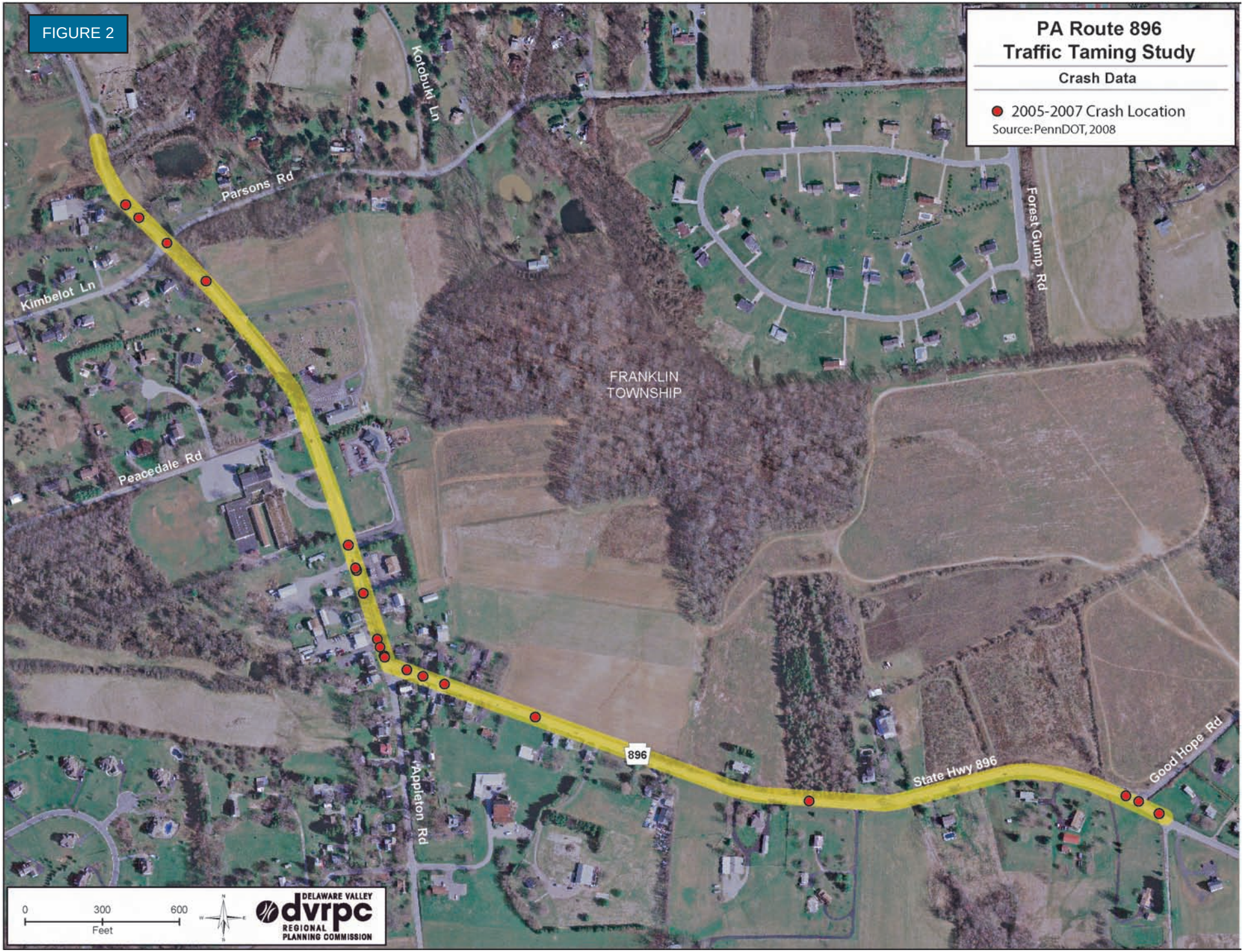


FIGURE 2
PA Route 896
Traffic Taming Study
Crash Data
2005-2007 Crash Location
Source: PennDOT, 2008
Kotobuki Ln
Parsons Rd
Kimbelot Ln
Peacedale Rd
Forest Gump Rd
FRANKLIN
TOWNSHIP
896
State Hwy 896
Good Hope Rd
Appleton Rd
0
300
600
Feet
DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

Existing Plans and Studies

PA 896 has been the subject of several recent plans and studies. The Taming Traffic study seeks to add value to this work, not to duplicate it. The first existing plan to note is the *Franklin Township Comprehensive Plan*, prepared by Thomas Comitta Associates, Inc., Brandywine Conservancy, and RETTEW Engineers and Environmental Consultants (adopted February 2006). Included in the plan is a transportation section, which identifies PA 896 as the Township's primary travel route despite its classification as a minor arterial. The transportation section notes issues of concern, including increased traffic volumes, truck traffic, and limited sight distances. The plan cites the PA 896-Appleton Road intersection as an area of critical concern and suggests specific traffic calming remedies that may fit with the rural character of the corridor. The transportation section also notes the importance of linking land use and the rapid development of Chester County to transportation planning. Other major recommendations include making PA 896 a less desirable truck route, the use of rural roundabouts at dangerous intersections, sidewalk improvements in Kemblesville, and the employment of traffic calming measures in residential areas.

In the fall of 2006, a consultant team comprised of McCormick Taylor Engineering and Planning firm and the Chester County Planning Commission developed the *Route 896 Corridor Plan* for Chester County. This initiative also involved the participation of a task force of representatives from four of the five townships in Chester County that share this corridor: Franklin, New London, Penn, and Upper Oxford townships. This plan analyzed a 14 mile long and a 1/2 mile wide segment of PA 896. The main purpose of the plan was to address ongoing growth and change in surrounding areas, while maintaining quality of life for the residents near and along the PA 896 corridor.

The major recommendations of this plan fall into three categories: safety, mobility, and quality of life. Safety recommendations address road geometry, intersection safety, and pedestrian and bike safety issues. The mobility recommendations suggest intersection upgrades to allow for more efficient traffic flow, and overall improvements to bicycle and pedestrian access. Quality of life recommendations also include improvements to bicycle and pedestrian access, and road design changes that improve safety and mobility but maintain the rural character of the townships along the corridor.

Additional recommendations include standardized roadway cross section models for three types of areas: "Typical," "Village," and "Special Use." Typical sections are recommended in the more rural areas along the corridor where there are fewer driveway access points to PA 896. The Village section model calls for greenways along the roadway to buffer pedestrians from traffic and to help filter roadway runoff. The Special Use section is designed for areas with more intensive uses, such as higher density residential and non-residential developments. Implementation strategies in this plan provide municipalities with steps toward adoption of these recommendations, along with future projects, municipal regulation updates, and a discussion of the various roles and responsibilities necessary for implementation.

In addition to the McCormick Taylor study released in 2006, DVRPC also completed a *Road Safety Audit* for PA 896 in conjunction with PennDOT that same year. This study utilized crash data for a five-mile segment of PA 896, identifying, mapping, and analyzing crash clusters for 14 locations along the roadway. Major findings identified four specific issues of roadway geometry such as narrow lanes and shoulders; poor drainage, especially at intersections; inconsistent signage, particularly at curves in the road; and a lack of pavement markings and delineators to slow traffic. Other findings included problems of utility poles that are too close to the roadway and/or obscuring signage, and a lack of appropriate locations for enforcement vehicles to set up for speed monitoring.

Lastly, in November of 2007, McCormick Taylor completed another PA 896 analysis, specifically focused on Franklin Township. This study, entitled *Roadway Sufficiency Analysis: Franklin Township, Chester County, PA*, was completed for the Township Impact Fee Advisory Committee as part of the requirements for adoption of a Traffic Impact Fee Ordinance. This study is intended as a basis for the Franklin Township Capital Improvements Plan and to aid in the calculation of Impact Fees. Included in this analysis are an evaluation of current and future traffic conditions and the traffic impacts of anticipated new developments. In addition, the study identifies needed improvements along the Route 896 corridor in Franklin Township. Summary conclusions state a need for additional traffic lanes, turn lanes, or road widening in some areas, as well as increased traffic signalization in specific areas.

Detail of a 2008 sketch plan for the proposed "traditional neighborhood development" in Franklin Township. The roadway running along the bottom and left of the drawing is PA 896.
Source: Hillcrest Associates, Inc.

Case for Study

PA 896 is a major connector between fast-growing townships in Chester and Lancaster County, PA and the cities of Newark and Wilmington, DE. The Kemblesville section, as a historic village along the route, provides a unique opportunity and challenge for traffic calming and roadway design.

Accident data collected for the DVRPC Route 896 Road Safety Audit (November 2006), indicated concentrations of accidents at the Parsons Road, Appleton Road, and Good Hope Road intersections. Because speeding was recognized as a contributing factor at these intersections, it was the consensus of the Road Safety Audit team that traffic calming measures in and around the village could potentially slow traffic and improve safety conditions. Additionally, the geometric configuration of these intersections creates limited site distance and further warrants the need for context sensitive solutions.

Continuous development of the townships along this corridor, including proposals for a mixed-use subdivision in Kemblesville, will significantly increase the mobility need for Kemblesville residents. The DVRPC Study Team recognizes the opportunity to contribute a complementary element to previous studies through the Taming Traffic effort, recommending strategies for altering the roadway to match its emerging context as a safer, bicycle and pedestrian-friendly village segment of the PA 896 corridor.

This image, looking south, just past Appleton Road shows Kemblesville Village, with the problematic "Appleton curve" in the distance. Source: DVRPC

PROBLEM IDENTIFICATION

Based on site visits and one meeting of the study advisory committee (SAC), the DVRPC study team compiled the following list of existing and anticipated future problems along the corridor. The study team will seek to address these issues through context-sensitive solutions.

Documented history of crashes

According to DVRPC's PA 896 Road Safety Audit (January 2007), from 2003-2005 there were 30 reported crashes along the corridor segment, with one fatal incident. There were six crashes at the intersection of PA 896 and Parsons Road, sixteen crashes at PA 896 and Appleton Road, and eight crashes at PA 896 and Good Hope Road. The fatal incident occurred in the vicinity of Good Hope Road, resulting in three fatalities. For a roadway with fewer than 10,000 daily vehicles, these crash figures are significant.

Compromised sight distances due to horizontal and vertical curves

The study corridor contains several significant hills and sharp turns, resulting in compromised visibility. Combined with high vehicle speeds and access points located in areas with poor sight distances, these factors create a potentially hazardous environment. Key areas of concern are at the vertical/horizontal curve at Parsons/Kimbelot Roads, the vertical/horizontal curve by Peacedale Road, the horizontal curve at Appleton Road, and the vertical/horizontal curves in the vicinity of Good Hope Road.

Vehicle speeds inappropriate for roadway context

The study advisory committee reported that average vehicle speeds exceed the posted speed limit, although the DVRPC study team does not have speed data to substantiate this observation. The speed limit on the corridor is 35 MPH; however, the speed limit east of Good Hope Road and west of Parsons/Kimbelot Road is 45 MPH. There is an advisory speed limit of 20 MPH at the Appleton Road curve, and 30 MPH at the Peacedale Road Curve within Kemblesville Village. Considering the topography of this roadway, speeds above the posted limit can be particularly hazardous.

Horizontal and vertical curves, like the one shown here, looking south along PA 896, just past Parsons Road, compromise sight distances. Directly over this curve is the Avon Grove school and the village center. Source: DVRPC

Unresolved issue of Peacedale Road alignment

DVRPC's PA 896 Road Safety Audit recognized the vertical curve west of Peacedale Road as a dangerous section of the corridor. The intersection's close proximity to the curve results in a blind spot where vehicles exiting Peacedale Road have severely compromised sight distance of approaching eastbound 896 traffic.

The Road Safety Audit contains the following recommendation for the Peacedale Road intersection: "Convert Peacedale Road to one way westbound from PA 896 to Sunset Circle" (pg. 11). Franklin Township acted on this recommendation by temporarily closing Peacedale Road's access to 896, and rerouting traffic from Peacedale Road en-route to 896 through the Avon Grove Charter School's driveway. Albeit effective, this is clearly only a temporary solution. A new development planned for the north side of 896 in this area provides an opportunity to rethink access in the vicinity of Peacedale Road, and consider a permanent solution.

Roadway fails to match future land-use context

Several contiguous parcels on the northern side of the study corridor comprise the future site of a 125-acre traditional neighborhood development (TND), with over 200 residential units and nearly 50,000 square feet of retail space. Aside from a new access point onto PA 896 at the retail component, the plan does not include provisions to better define a sense of place for the village, or to mediate context-sensitive issues related to this new development.

One major area of concern is the lack of place identity in the village center. With the new development's commercial area connected to the existing Kemblesville Village, this area has potential for additional local economic development--further defining itself as a destination.

Another item of concern is the ability of the existing roadway design to handle projected increases in traffic volume associated with the planned TND, as well as the influence of new housing developments coming to neighboring municipalities.

Lack of walkability and pedestrian amenities

The study corridor currently lacks sidewalks and crosswalks throughout its entire length. The DVRPC study team observed pedestrians walking in the shoulder. With the Avon Grove Charter School and village center, there is currently a need for some pedestrian enhancements. With the realization of the new residential and commercial development there will likely be a much stronger need for sidewalks, crosswalks, and other pedestrian amenities, to enable a safe and attractive environment for all roadway users.

Commuter population underserved by transit

The study corridor is proximate to significant employment centers, including the headquarters of technology products manufacturer GORE, and the military bases in Maryland. In addition, the corridor is a major commuter route to Newark, Delaware, home of the University of Delaware. Farther out from the study area PA 896 connects to US 1 in Chester County, and on the other end with I-95 in Delaware. Despite its advantageous alignment and good connectivity, public transportation is currently not a viable alternative due to lack of population density along this rural corridor. With new housing developments in Franklin Township and nearby communities, the demand for commuter-based transit may increase.

Anticipated impact of new development on rural character

Area residents have voiced concerns about the potential impacts of the proposed TND on the rural character of the study corridor. Certainly, a development of the size proposed in such a sparsely developed community will take sensitive design to avoid a negative impact on the attractive visual context and pastoral quality of life present in Franklin Township.

The village center, shown above, lacks sidewalks, trails, or other amenities for safe pedestrian mobility. Source: DVRPC

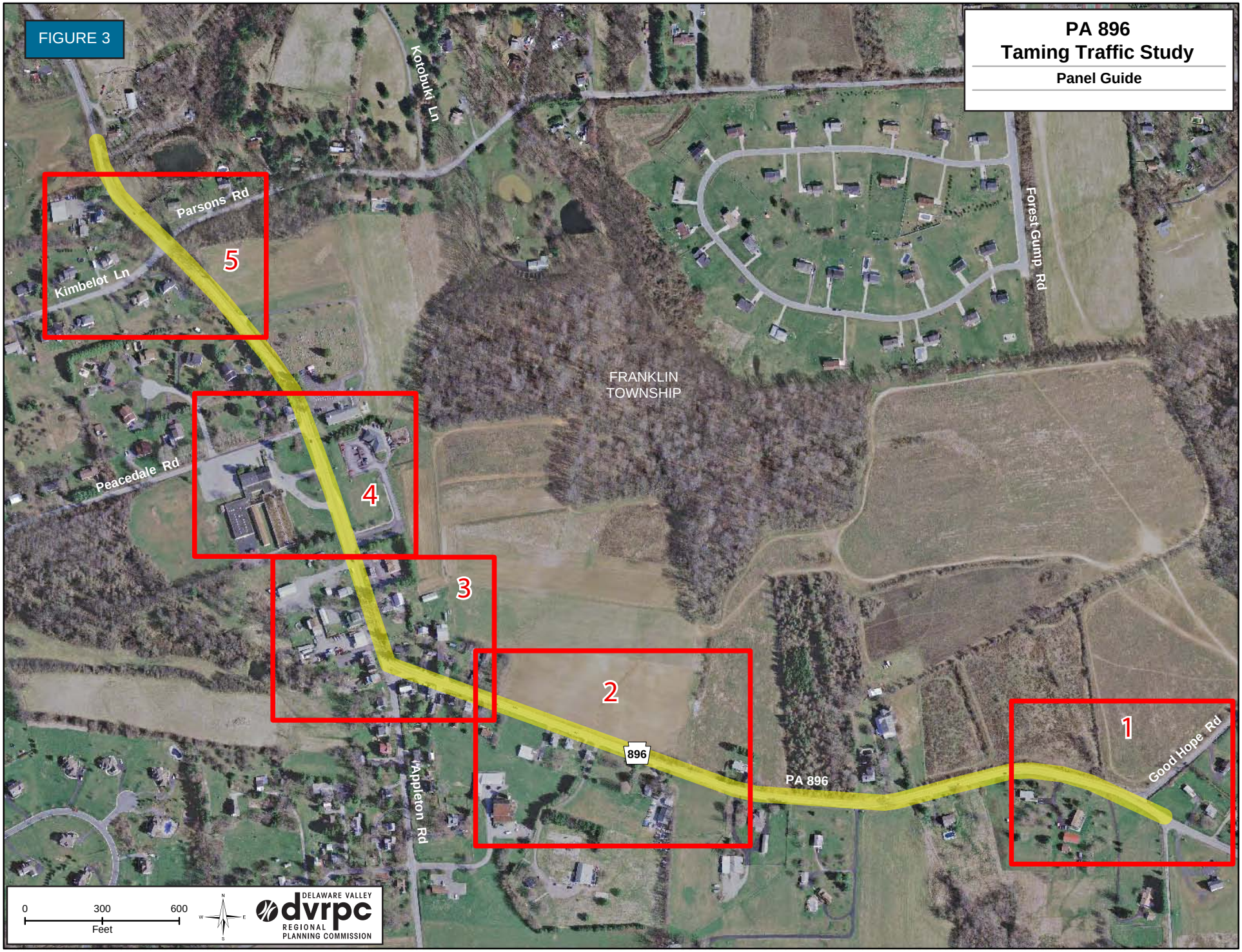


FIGURE 3
PA 896
Taming Traffic Study
Panel Guide
Kotobuki Ln
Parsons Rd
Kimbelot Ln
5
Forest Gump Rd
FRANKLIN
TOWNSHIP
Peacedale Rd
4
3
2
896
PA 896
Appleton Rd
1
Good Hope Rd
0
300
600
Feet
DELAWARE VALLEY
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REGIONAL
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RECOMMENDED IMPROVEMENTS

Panel 1: Vicinity of Good Hope Road

This area was identified in *PA 896 Road Safety Audit - Chester County* ("Location #10") as having a demonstrated crash history, likely related to the vertical and horizontal curves along PA 896 on either side of the Good Hope Road intersection, exacerbated by the offset alignment of Good Hope Road. In order to get a better view of oncoming traffic, drivers turning right from Good Hope Road typically pull out into an undefined shoulder area that puts them dangerously close to the northbound travel lane.

The northern end of this panel area will contain part of the proposed mixed-use development, but there is a substantial buffer between the development and PA 896, thus allowing the area to retain its rural visual character. Therefore, placemaking strategies are not appropriate here, and the necessary improvements are focused on calming traffic and improving the safety and operations of the intersection with Good Hope Road.

Recommended improvements include transverse rumble stripes on both approaches using a thermoplastic treatment, realignment of Good Hope Road to form a "T" intersection, and the consideration of a dedicated left-turn lane for southbound traffic at the Good Hope Road approach. In the longer term this intersection may be a strong candidate for installation of a roundabout, dependant upon a topographical feasibility assessment and future traffic conditions.

Recommendations from the RSA are slated for funding through PennDOT's Highway Safety Improvement Program (HSIP). One important improvement is the removal of the vertical crest to the south of Good Hope Road. If this improvement were carried out, it would improve the sight lines at this location providing a safety benefit.

Panel 1 Improvements

1. Install transverse, thermoplastic rumble stripes on northbound and southbound approaches to Good Hope Road
2. Realign Good Hope Road to form a "T" intersection
3. Consider installation of dedicated left-turn lane for southbound PA 896 traffic turning onto Good Hope Road
4. Evaluate feasibility of a roundabout


FIGURE 4
Planned development area
Good Hope Rd
Install rumble stripes
Consider installation of dedicated left-turn lane
Install rumble stripes
Re-align Good Hope Rd. to "T" intersection
PA 896
Taming Traffic: Panel 1
0 50 100 200 Feet
SEPTEMBER 2009
DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Panel 2: Vicinity of Planned Entrance to New Retail Area

The proposed location of the mixed-use development entrance associated with the retail component is well placed so that it is in close proximity to the existing village area adding to the overall context and sense of place. It is important to take advantage of this village context and start communicating it through visual cues to alert drivers that they are entering a special environment where they should drive more slowly and more alertly, and are sharing the space with walkers and bikers.

Northbound drivers approach this area coming around two curves, before gaining a clear sight line of the Appleton Road curve. This straightaway is an ideal location to mark the transition from the open rural setting to the more densely developed village. The recommended improvement is a planted gateway median. This treatment is a "speed control" traffic calming device that forces drivers to slow down and provides a visual cue for drivers that they are entering the village context. Note that the conceptual site shown on the plan on the facing page locates this median island at a point where it does not block any driveways.

As drivers continue north past this gateway median, it is important to continue the visual cues showing the village context through banners, brick treatments, and other placemaking elements. Crosswalks are recommended at the new intersection serving as the development entrance. Also north of the development entrance, installation of pedestrian paths is recommended, preferably with a grass buffer between the path and the roadway. These pedestrian paths do not have to be conventional sidewalks, but can be brick paths or another type of multi-use trail material/design that meets federal ADA requirements. These pedestrian path treatments create a much needed pedestrian right-of-way while maintaining the village context.

Panel 2 Improvements

1. Install planted gateway median
2. Begin treatment of placemaking elements (banners, decorative village lamps, etc.) in northbound direction
3. Install crosswalk at and over intersection with new development entrance
4. Begin pedestrian pathways north of development entrance

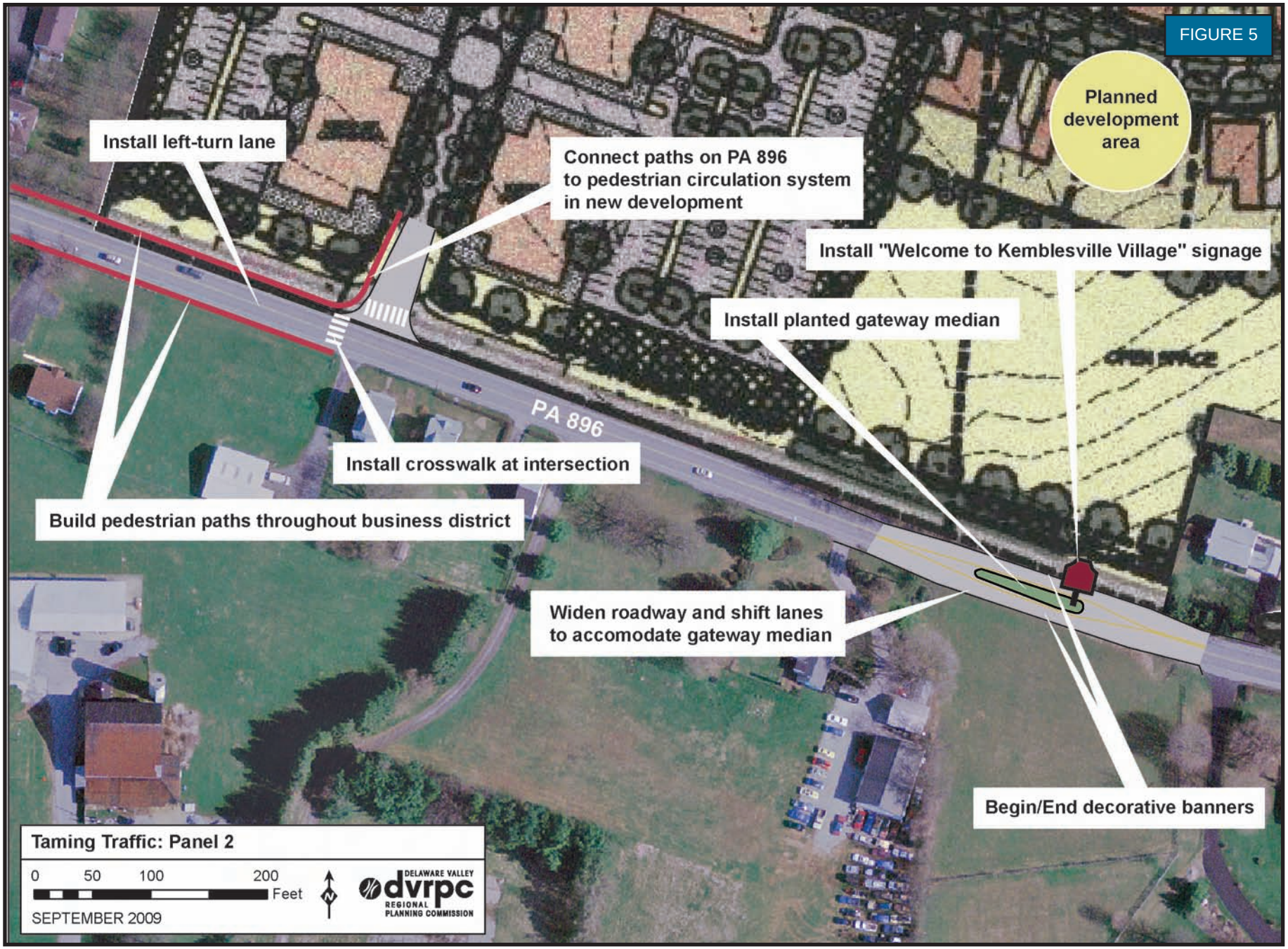


FIGURE 5
Planned development area
Install left-turn lane
Connect paths on PA 896 to pedestrian circulation system in new development
Install "Welcome to Kemblesville Village" signage
Install planted gateway median
PA 896
Install crosswalk at intersection
Build pedestrian paths throughout business district
Widen roadway and shift lanes to accomodate gateway median
Begin/End decorative banners
Taming Traffic: Panel 2
0 50 100 200 Feet
SEPTEMBER 2009
DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

FIGURE 6: Area South of Appleton Road – Existing Conditions. *This image is a photograph of existing conditions on PA 896, looking north toward the intersection with Appleton Road. Source: DVRPC*

FIGURE 7: Area South of Appleton Road – Simulation. *This image is a photo-simulation of the recommended improvements for the location shown in the image on the left-hand page. Improvements include a planted "gateway" island, banners and other placemaking elements. Source: DVRPC*

Panel 3: Vicinity of Appleton Road

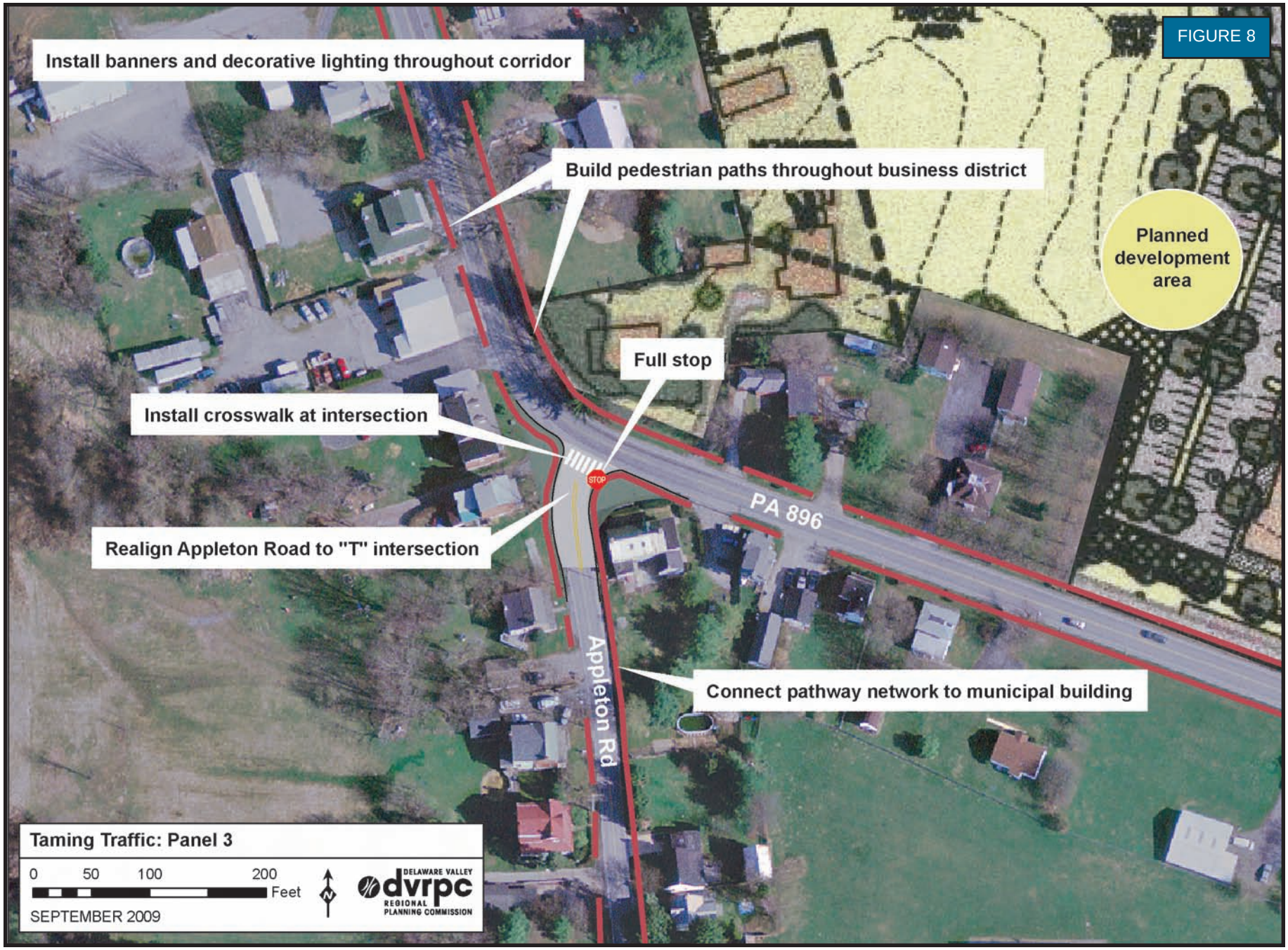
This area was also identified in the Road Safety Audit as having a demonstrated crash history ("Location #9"). The sharp curve on PA 896, coupled by the channelized right-turn lanes to and from Appleton Road, and obstructions to sight lines make this a challenging intersection. It is recommended that the intersection be reengineered so that Appleton Road meets PA 896 at a "T" intersection with a full stop control for Appleton Road traffic. This realignment concept is also a recommendation from the RSA and is slated for funding through PennDOT's Highway Safety Improvement Program.

It is important to maintain the pedestrian trail way network through the business district on PA 896 and also south along Appleton Road to connect to the municipal building. An investment in placemaking elements - such as banners, decorative village lamp posts, and brick edging - will make a significant impression on drivers and pedestrians, defining this area as a true destination.

Panel 3 Improvements

1. Re-align Appleton Road to form a "T" intersection
2. Create a full stop for northbound Appleton Road traffic
3. Install crosswalk over Appleton Road
4. Continue pedestrian network north along PA 896 and south along Appleton Road
5. Continue treatment of placemaking elements through the village

FIGURE 8


Install banners and decorative lighting throughout corridor
Build pedestrian paths throughout business district
Planned development area
Full stop
Install crosswalk at intersection
STOP
PA 896
Realign Appleton Road to "T" intersection
Appleton Rd
Connect pathway network to municipal building
Taming Traffic: Panel 3
0 50 100 200 Feet
SEPTEMBER 2009
DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Panel 4: Vicinity of Peacedale Road and McMaster Boulevard

DVRPC's Road Safety Audit recommended reconfiguring Peacedale Road to lessen the probability of crashes resulting from the close proximity of the intersection to the vertical curve to the north along PA 896. As a result of the RSA, Franklin Township closed Peacedale Road temporarily, and working with the nearby school, will realign it to run through the school's property with a dedicated bus driveway to the south. This realignment will significantly improve the safety at this location. The new alignment is represented on the accompanying site plan.

Where the proposed engineering plans call for gore striping just to the north of the new Peacedale Road entrance, it is recommended here to install a planted gateway median to mirror the median shown in Panel 2. In similar fashion this treatment will serve to alert drivers emerging southbound over the vertical curve that they are entering a village area, and should drive more alertly.

To improve pedestrian mobility crosswalks are recommended over PA 896 by McMaster Boulevard, and over McMaster Boulevard. The pedestrian path network should extend to Peacedale Road along southbound PA 896, and to the church along the northbound side. It is also important for this pedestrian system to connect to the internal sidewalks or circulation associated with the new mixed-use development. Placemaking elements should continue through this section, extending north beyond the gateway over the vertical crest.

Panel 4 Improvements

1. Carry out proposed Peacedale Road realignment
2. Install planted gateway median just north of new Peacedale Road alignment
3. Install crosswalk over PA 896, on south side of McMaster Boulevard
4. Continue pedestrian trail network north to the church and Peacedale Road
5. Connect trail network to pedestrian circulation system in new development
6. Continue treatment of placemaking elements through village

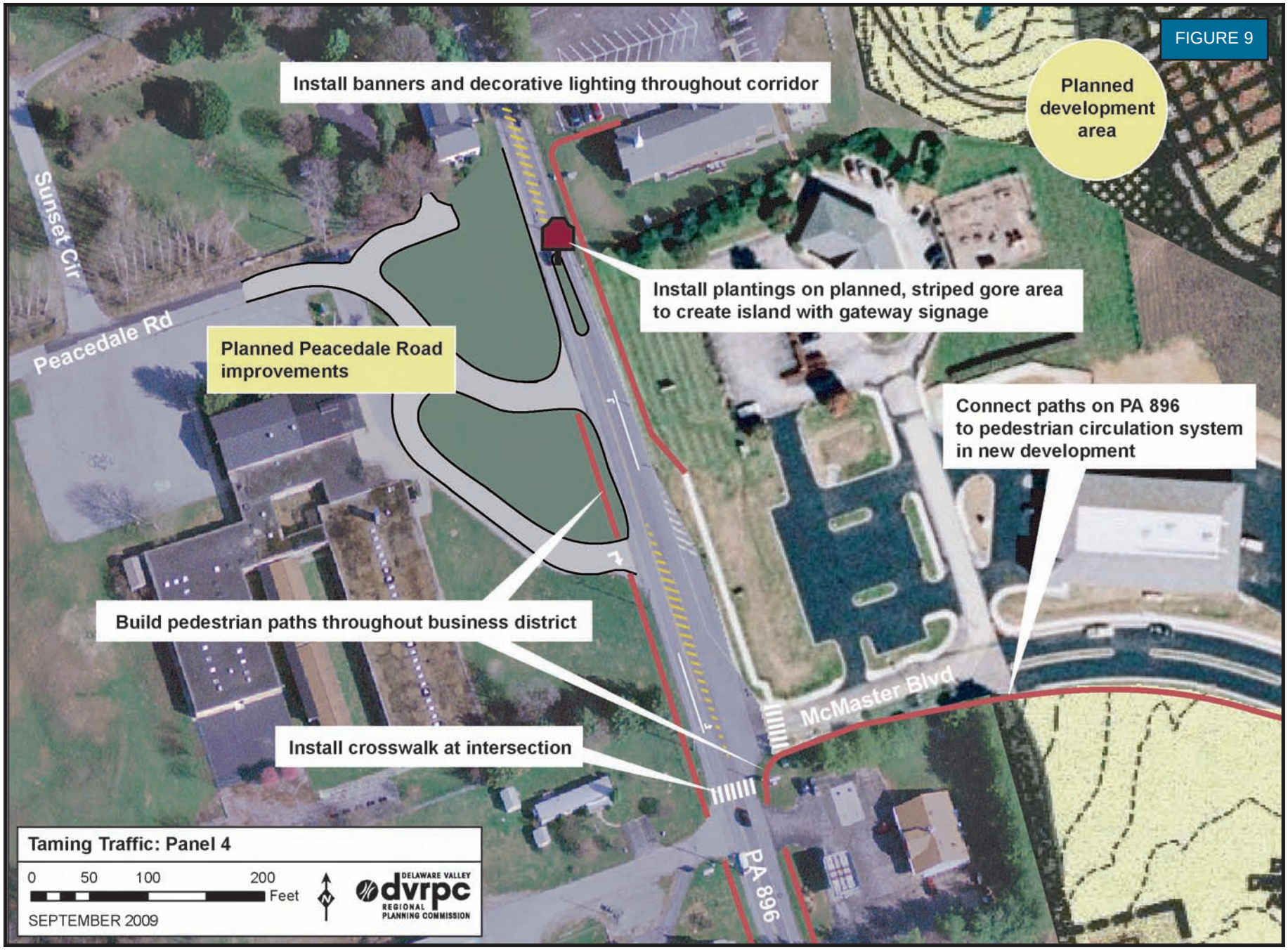


FIGURE 9
Install banners and decorative lighting throughout corridor
Planned development area
Sunset Cir
Peacedale Rd
Planned Peacedale Road improvements
Install plantings on planned, striped gore area to create island with gateway signage
Connect paths on PA 896 to pedestrian circulation system in new development
Build pedestrian paths throughout business district
McMaster Blvd
Install crosswalk at intersection
PA 896
Taming Traffic: Panel 4
0 50 100 200 Feet
SEPTEMBER 2009
DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

FIGURE 10: Vicinity of McMaster Boulevard – Existing Conditions. *This image is a photograph of existing conditions on PA 896, looking south toward the intersection with Appleton Road. Source: DVRPC*

FIGURE 11: Vicinity of McMaster Boulevard – Simulation. *This image is a photo simulation of the proposed imporovements applied to the location shown in the image on the left-hand page. Improvements include a marked crosswalk, pedestrian trails, lighting, banners, and other placemaking elements. Source: DVRPC*

Panel 5: Vicinity of Parsons Road and Kimbelot Lane

In this area, drivers headed southbound drive up the vertical crest through a wooded, rural environment, with no indication that there is a village setting beyond this peak. It is important to slow drivers and alert them through visual cues of the village setting they are about to encounter. To slow the speed of southbound traffic, transverse rumble stripes, using a thermoplastic treatment, are recommended for the southbound lane. Gateway signage should be installed off the side of the road, but within drivers' sight lines, and decorative banners should be placed at this point serving as additional visual cues for drivers about the changing context.

It should also be noted that this area was identified by PennDOT as a candidate location for its Highway Safety Improvement Program (HSIP), with the proposed "Parsons Road drainage" project. This improvement should not impact any of the recommendations made here.

Panel 5 Improvements

1. Install transverse, thermoplastic rumble stripes on southbound lane

2. Install gateway sign on the side of the road, visible to southbound traffic

3. Begin treatment of placemaking elements (banners, decorative village lamps, etc.) in southbound direction

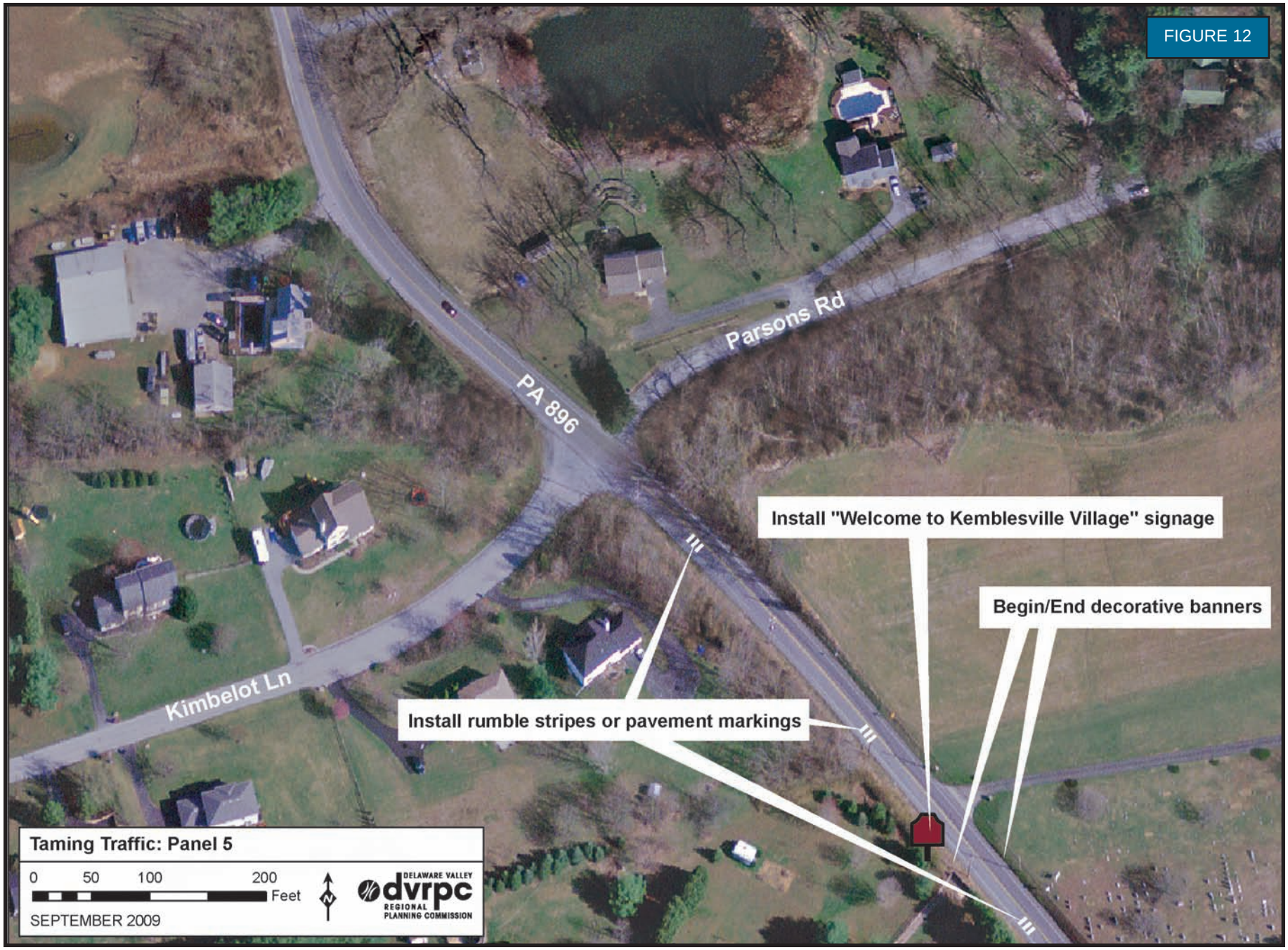


FIGURE 12
PA 896
Parsons Rd
Kimbelot Ln
Install "Welcome to Kemblesville Village" signage
Begin/End decorative banners
Install rumble stripes or pavement markings
Taming Traffic: Panel 5
0 50 100 200 Feet
SEPTEMBER 2009
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IMPLEMENTATION

It is often a challenge for municipalities to transition a concept from plan to implementation; however, Franklin Township is well-positioned to realize many of the concepts recommended in the Taming Traffic study. It is easier to move a concept forward when it is reflected in a series of plans, developed through a consensus building process with all of the players at the table.

The path to implementation should continue to incorporate all of the stakeholders, to leverage resources, and alleviate concerns along the way. PennDOT has already taken a strong interest in this roadway, and will be an important partner in moving forward. It is important to note that the recommendations presented here are not an all-or-nothing strategy; they can be applied in phases.

The recommended next step toward implementation is for the township, county, and PennDOT to work together to implement some of the roadway recommendations. Meanwhile the township and county could form a task force to assess the feasibility of the placemaking recommendations, to prioritize the recommendations, and start seeking funding.

Funding could come from the county or state-level, competitive grants from DVRPC and PennDOT, or from creative sources of revenue such as development impact fees.

While these recommendations may be phased, it is important for the stakeholders to keep their eye on the big picture — the way the recommendations interact to change characteristics of the roadway. While the recommendations may be built separately, they have a symbiotic relationship that contribute toward a shared impact. When built, these improvements will provide the basis for enhancing safety, multi-modal mobility, attractiveness, and the economic competitiveness of Franklin Township and Kemblesville Village.

SECTION 3:
CONCLUSION AND BIBLIOGRAPHY

CONCLUSION

The case study of PA 896 in Franklin Township exhibits how context-sensitive solutions can be applied to improve an existing roadway and village center, and to proactively prepare for development that could increase traffic. This study proposes a set of recommendations developed by a diverse group of stakeholders, to guide local municipalities in their pursuit to transform the character of their roadways.

The CSS strategies employed here are not complex, but together they have the potential to enhance the safety of PA 896, and to build a context in the village center that better accommodates pedestrians, and encourages slower, responsible driving patterns. Kemblesville Village does not yet give the visual impact necessary to make drivers aware that they are passing through a special environment where they should drive more slowly and carefully. Adding pedestrian trails will make the roadway much more hospitable for residents to stroll, children to walk around the Avon Grove school, and visitors to walk around the village center. At the same time, these trails, lighting, and other amenities will give drivers visual cues that there are other users on the roadway.

There are conventional, traffic calming elements in the plan, such as transverse rumble stripes, and planted islands, that serve as physical obstacles to slow drivers. However, many of the recommendations are visual and psychological — transforming the look and feel of the roadway to communicate the surrounding context to drivers. This set of engineering and visual recommendations together create a comprehensive set of CSS strategies that could improve the current roadway, and build the necessary foundation to maintain calm, responsible, and multi-modal traffic patterns once new development arrives. The context that this study has helped define can accommodate growth beyond the current village center.

Rarely is a problem solved by just one measure alone. By combining a range of context-sensitive solutions, traffic calming, and smart-growth principles, Franklin Township can create a safer environment for all roadway users and also develop a distinct sense of place that sets Kemblesville Village apart from other communities. While many techniques may improve a community, the greatest success comes as a result of comprehensive programs that represent a combination of function and aesthetics, attractiveness, and cost effectiveness.

The realization of these strategies will require a step-by-step approach, while maintaining a big-picture view and cooperating with multiple levels of government and community leaders.

BIBLIOGRAPHY

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 Valley Regional Planning Commission. *PA 896 Road Safety Audit - Chester County.* January 2007 (#07042D).

Delaware Valley Regional Planning Commission. *Taming Traffic: Context Sensitive Solutions in the DVRPC Region. 2008, 2007, 2006, 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.

Franklin Township. "Comprehensive Plan." Prepared by Thomas Comitta Associates, Inc., Brandywine Conservancy, RETTEW. February 15, 2006 (date of adoption).

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

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

McCormick Taylor. "Roadway Sufficiency Analysis." Developed for Franklin Township Impact Fee Committee. November 2007.

McCormick Taylor. "Rt. 896 Corridor Plan Chester County, PA." Developed for Franklin Township, New London Township, Penn Township, Upper Oxford Township. Fall 2006.

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

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.

Ransford S. McCourt. *Survey of Safety Programs*. ITE Traffic Engineering Council. www.westernite.com/technical/signalsurvey/ntm. 1997.

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: SAMPLE COST ESTIMATES

SAMPLE COST ESTIMATES FOR RECOMMENDED ELEMENTS

Below are sample cost estimates for some of the elements recommended in this report. The figures for lane restriping, streetscape projects, and trail projects are derived from the costs of recent projects completed using federal Transportation Enhancements (TE) funds, administered by DVRPC (2008). The costs for crosswalk treatments come from Chris Knigge, Princeton Borough Engineering Department (2008).

Streetscape Projects

Projects range from $300,000 to $1,000,000 per block (both sides of the street). This cost range is wide due to the numerous elements and quality of fixtures that may be used in streetscaping projects. Streetscaping elements typically include street furniture, pedestrian lighting, decorative crosswalks, brick-inlaid sidewalks and replacement of all existing sidewalk and curbing.

Trail Projects

Simple trail projects, which include hard surface such as asphalt, and that do not involve major structural work, range from $350,000/mile to $450,000/mile. Larger projects that involve major structure work and right-of-way acquisition may cost between $2 million to $5 million per mile.

Crosswalk Treatments

Brick Crosswalk: $270/square yard

Concrete Stamping: $115/square yard

Proprietary Synthetic Treatment: $360/square yard

SAMPLE TRAFFIC CALMING COSTS

The following are sample costs for various traffic calming techniques, arranged from least to most expensive. These were culled from various sources, including ITE's *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 was the *Traffic Calming Handbook*, produced by PennDOT in 2001. Prices differ based on numerous variables, including materials, project extent, and local economies. These costs do not include expenses for design and engineering.

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 precast 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 Bulbout	$7,000 — $10,000 per pair	Midblock measures may cost less ($4,000) if they are smaller.
Curb Ramp	$1,500	
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.
Median Barrier	$50 — $250 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	
Roundabout	$1,500 — $25,000+	Roundabouts 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: FUNDING SOURCES

FUNDING SOURCES FOR FRANKLIN TOWNSHIP

BIKES BELONG COALITION

Eligibility: Federal, state, regional, county, and municipal agencies; and nonprofits or organizations whose mission is expressly related to bicycle advocacy. Public agencies are encouraged to align with a local bicycle advocacy group to develop and implement the grant activities.

Purpose: Funds bicycle facilities and paths that encourage facility, education, and capacity building

Terms: $10,000 or less

Deadline: Applications accepted quarterly

Contact: Bikes Belong Coalition

Phone: 617-734-2111

Website: www.bikesbelong.org

CLANEIL FOUNDATION INC.

Eligibility: Southeastern Pennsylvania local governments, nonprofits

Purpose: Grants for building arts, education, environment and community development.

Terms: Grants range from $1,000 to $290,000 for building renovation, conferences, consulting, land acquisition, and development.

Deadline: Ongoing; must submit letter of intent.

Contact: Claneil Foundation Inc.

Phone: 610-941-1143

Website: n/a

COMMUNITY CONSERVATION PARTNERSHIPS PROGRAM (C2P2)

Eligibility: Pennsylvania local governments

Purpose: Rehabilitates and develops parks and recreational facilities

Terms: A match of 50% is required

Contact: Regional Recreation and Park Advisor

Phone: 215-560-1182

Website: www.inventpa.com

COMMUNITY REVITALIZATION PROGRAM

Eligibility: Pennsylvania local governments, redevelopment authorities, industrial development agencies, and nonprofits

Purpose: To support local initiatives that promotes the stability of communities

Terms: Grants of $5,000-$25,000

Deadline: Three funding rounds during fiscal year. No more than one application is allowed in any one fiscal year

Contact: Pennsylvania Department of Community and Economic Development, Customer Service Center

Phone: 866-GO-NEWPA (866-466-3972)

Website: www.newpa.com

COMMUNITY TRANSPORTATION DEVELOPMENT FUND (CTDF)

Eligibility: Nonprofit transit providers, public agencies, local and state governments, and community organizations

Purpose: To promote better transportation options

Terms: Low interest loans of up to $150,000 per recipient and 75% of the total project cost

Deadline: Varies; there are several funding options that require a one time service fee

Contact: Community Transportation Associate of America

Phone: 202-661-0210

Website: www.ctaa.org

ELM STREET PROGRAM

Eligibility: Pennsylvania local governments, redevelopment authorities, nonprofit economic development organizations, other nonprofits, BIDs, neighborhood improvement districts (Elm Street)

Purpose: Provides grants for planning, technical assistance, and physical improvements to residential and mixed-use areas in proximity to central business districts

Terms: Maximum $50,000 for administrative grants; Maximum $250,000 for development projects and loans

Contact: Pennsylvania Department of Community and Economic Development

Phone: 866-GO-NEWPA (866-466-3972)

Website: www.newpa.com

GROWING GREENER II

Eligibility: Pennsylvania local governments and nonprofits

Purpose: Provides redevelopment grants to municipalities and nonprofits to help a community's downtown redevelopment effort, focusing on the improvement of downtown sites and buildings

Terms: No minimum or Maximum; Typical grants average between $250,000 and $500,000

Deadline: Varies

Contact: Pennsylvania Department of Community and Economic Development, Customer Service Center

Phone: 866-GO-NEWPA (866-466-3972)

Website: www.newpa.com

LIQUID FUELS TAX PROGRAM

Eligibility: Pennsylvania local governments

Purpose: Provides funds for any road-related activity

Terms: Varies

Deadline: Annual

Contact: Pennsylvania Department of Transportation, District 6-0

Phone: 610-205-6539

Website: www.dot.state.pa.us

LOCAL HISTORY GRANTS

Eligibility: Pennsylvania local governments, institutions, community groups, heritage organizations, or school districts

Purpose: Funding for the research, development, and execution of public programs that present Pennsylvania history

Terms: Grants up to $5,000 with no matching funds; Grants between $5,000 and $15,000 require a 50% local match

Contact: Pennsylvania Historical and Museum Commission

Phone: 717-772-0921

Website: www.artsnet.org

HOME TOWN STREETS /SAFE ROUTES TO SCHOOL (HTS/SRS)

Eligibility: Federal or state agencies, Pennsylvania county or local governments, school districts, nonprofits

Purpose: Encourages the reinvestment in and redevelopment of downtowns

Terms: 80% of total costs; Projects must be included in the 12-year Transportation Improvement Program (TIP)

Deadline: Varies

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215-238-2881

Website: www.dvrpc.org/transportation/capital/hts_srs.htm

LOCAL MUNICIPAL RESOURCES AND DEVELOPMENT PROGRAM (LMRDP)

Eligibility: Pennsylvania local governments, nonprofits

Purpose: Provides grants to municipalities for improving the quality of life within the community

Terms: No maximum or minimum

Deadline: Continuous

Contact: Pennsylvania Department of Community and Economic Development, Customer Service Center

Phone: 800-379-7448

Website: www.newpa.com

LOWE'S HOME IMPROVEMENT

Eligibility: Nonprofits

Purpose: Support of public education, community improvement projects, and home safety initiatives

Terms: $5,000 to $25,000 with a total of about $3 million annually

Deadline: Varies

Contact: Lowe's Companies, Inc.

Phone: n/a

Website: www.lowes.com

MAIN STREET PROGRAM

Eligibility: Pennsylvania municipalities and downtowns

Purpose: Provides funds for administrative costs associated with Main Street Manager positions and offices, physical improvements, and acquisition costs

Terms: $115,000 over a 5-year period; Downtown Reinvestment and Anchor Building components: up to $250,000 or not to exceed 30% of project costs

Contact: Pennsylvania Department of Community and Economic Development

Phone: 866-GO-NEWPA (866-466-3972)

Website: www.newpa.com

MUNICIPAL CHALLENGE GRANT

Eligibility: Pennsylvania local governments

Purpose: For the purchase and delivery of up to 50 trees

Terms: Grant funds must be matched with non federal dollars. For municipalities with population of less than 5,000; 10 trees/year, $1,500 maximum grant. For municipalities with population between 25,000-50,000, 40 trees/year, $4,500 maximum grant.

Deadline: Fall/Spring

Contact: Pennsylvania Urban and Community Forestry Council

Phone: 717-783-0385

Website: www.dcnr.state.pa.us

PECO'S GREEN REGION PROGRAM

Eligibility: Municipalities in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties

Purpose: Protects, acquires, and enhances open space

Terms: Grants of up to $10,000

Deadline: Spring and fall

Contact: Natural Lands Trust

Phone: 610-353-5597

Website: www.natlands.org

PENNSYLVANIA HERITAGE PARKS PROGRAM

Eligibility: Pennsylvania local governments, nonprofits or federally designated commissions

Purpose: To promote public/private partnerships to preserve and enhance natural and historic recreation resources

Terms: Grants required a 25% to 50% match

Deadline: Annual

Contact: Schuylkill River Greenway Association

Phone: 484-945-0200

Website: www.schuylkillriver.org

PENNSYLVANIA INFRASTRUCTURE BANK

Eligibility: Pennsylvania local governments and contractors

Purpose: To provide low-cost financing to municipalities and contractors for eligible transportation improvements.

Terms: Low-interest loans rams from $49,000 to $3.9 million through a revolving loan fund for implementation.

Deadline: Ongoing

Contact: Pennsylvania Department of Transportation (PennDOT)

Phone: 717-772-1772

Website: www.dot.state.pa.us

THE PHILADELPHIA FOUNDATION

Eligibility: Must be 501 (c) (3) nonprofits

Purpose: Manages over 775 charitable funds, with different purposes and priorities, focused on improving the quality of life in Southeastern PA

Terms: Grants from $3,000 to $50,000

Deadline: Spring and fall

Contact: Philadelphia Foundation

Phone: 215-563-6417

Website: www.philadfound.org

TRANSPORTATION ENHANCEMENTS PROGRAM (TE)

Eligibility: Pennsylvania local governments, counties, state or federal agencies, nonprofits

Purpose: Funds nontraditional 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

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

Deadline: Varies by state

Contact: Delaware Valley Regional Planning Commission (DVRPC)

Phone: 215.592-1800

Website: www.dvrpc.org/te

TREEVITALIZE

Eligibility: Organizations and local governments in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties

Purpose: To help restore tree cover, educate citizens about planting trees, and build capacity among local governments to understand, protect, and restore their urban trees

Terms: Contribution of trees and related materials

Deadline: Varies

Contact: Pennsylvania Horticultural Society

Phone: 215-988-8795

Website: www.treevitalize.net

APPENDIX C:
STUDY ADVISORY COMMITTEE

STUDY ADVISORY COMMITTEE

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Franklin Township Board of Supervisors / Planning Commission

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Franklin Township resident

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TAMING TRAFFIC: CONTEXT-SENSITIVE SOLUTIONS IN THE DVRPC REGION

Publication Number: 09067

Date Published: September 2009

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 Franklin Township in Chester County, PA.

Key Words: Traffic calming, context-sensitive solutions, context-sensitive design, balanced circulation, PennDOT, enforcement, engineering, education, policy, vertical deflection, horizontal deflection, smart growth, placemaking, multi-modal, chicane, rumble stripe, crosswalk, multi-use trail, Route 896, Franklin Township.

Abstract: This report focuses on the application of context-sensitive solutions (CSS) principles and best practices, including traffic calming, focusing on the case study site of PA 896 in Franklin Township, Chester County, PA. CSS is a means to link land use and transportation planning and implementation. The case study is 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.

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