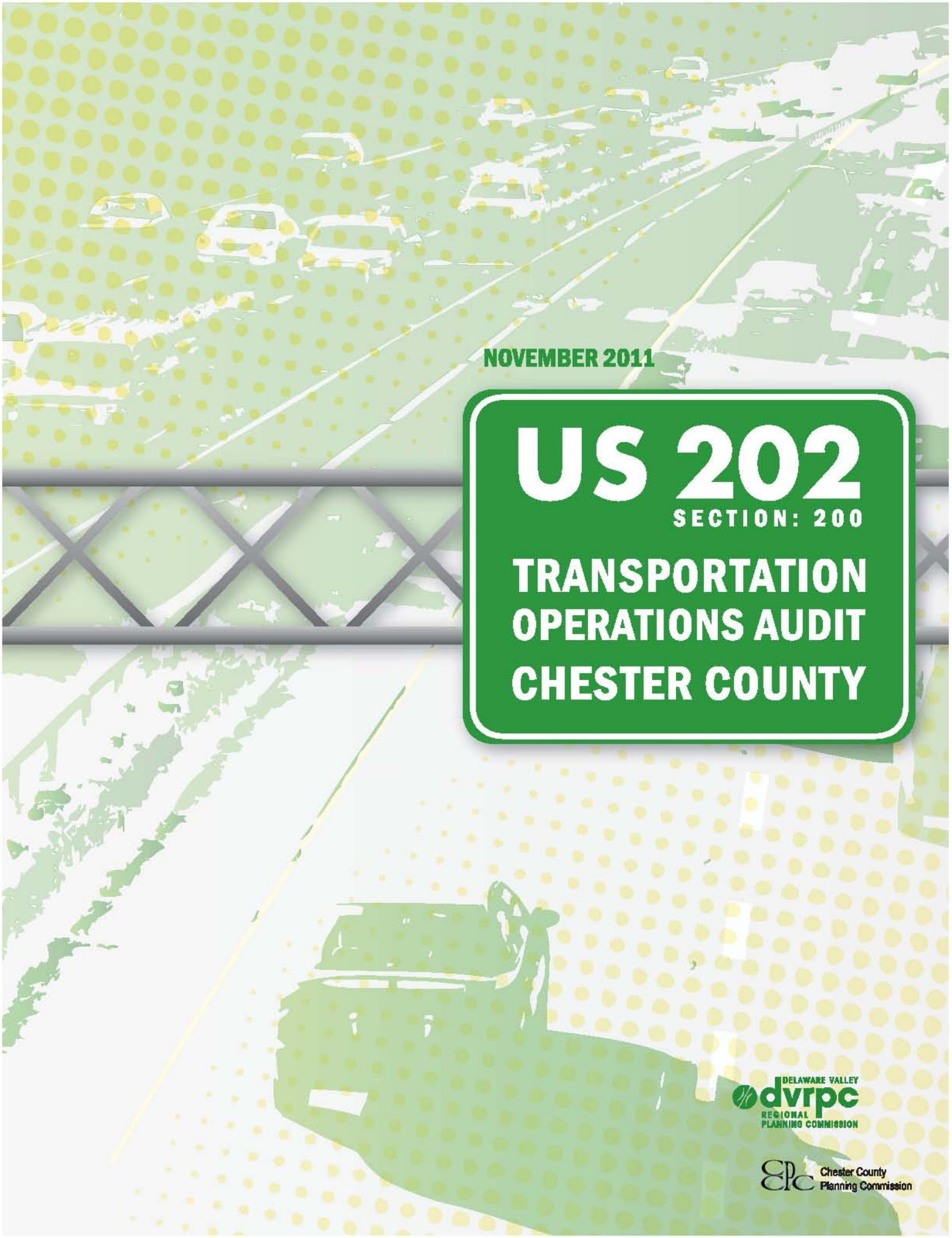


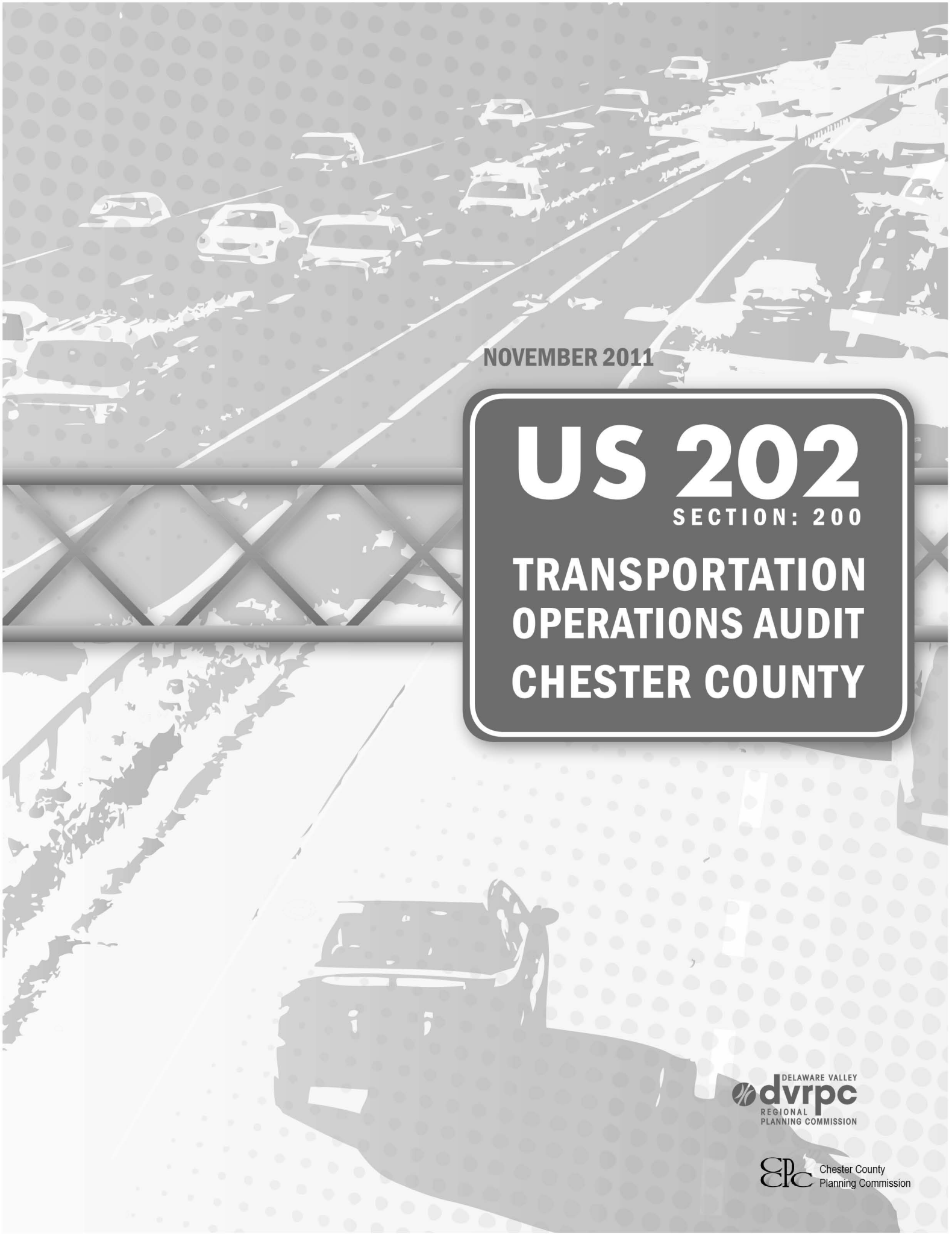
NOVEMBER 2011

US 202
SECTION: 200

TRANSPORTATION OPERATIONS AUDIT
CHESTER COUNTY

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Chester County Planning Commission



NOVEMBER 2011

US 202
SECTION: 200

TRANSPORTATION OPERATIONS AUDIT
CHESTER COUNTY

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Chester County 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.

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

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

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. DVRPC's website (www.dvrpc.org) may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested. For more information, please call (215) 238-2871.

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Appendices

The crash data used in this report was provided by the Pennsylvania Department of Transportation for the Delaware Valley Regional Planning Commission's traffic safety-related transportation planning and programming purposes only. The raw data remains the property of the Pennsylvania Department of Transportation, and its release to third parties is expressly prohibited without the written consent of the Department.

Executive Summary

This document is the report for the US 202—Section 200 Transportation Operations Audit (TOA) of Chester County. This project was developed through the Delaware Valley Regional Planning Commission (DVRPC) Annual Work Program, as a joint effort with the Chester County Planning Commission (CCPC).

The US 202—Section 200 corridor provides key connections to US 322, PA 100, and PA 3 in the heart of Chester County. Despite the critical role of this section of US 202 in the county and regional transportation system, and projected increases in traffic volumes, there are no plans for significant infrastructure improvements in the foreseeable future.

The goals of the TOA are to:

- identify a list of multi-modal operational issues which affect the mobility of the corridor;
- identify a coordinated approach to transportation operations and incident management; and
- develop potential low-cost mitigation strategies designed to preserve capacity; and
- improve safety and reliability of the corridor's transportation system.

The methodology for this TOA is based on procedures and successes of Road Safety Audits (RSAs), which are formal safety performance examinations of an existing or future road or intersection by a multi-disciplinary audit team. To date, DVRPC has primarily conducted RSAs on roadway segments of five miles in length or less where there is a demonstrated history of crashes. This TOA project adapts the typical RSA to a highway segment and addresses operational issues.

The TOA team consisted of the following agencies: Chester County Department of Emergency Services, CCPC, DVRPC, Federal Highway Administration (FHWA), East Goshen Township, Pennsylvania Department of Transportation (PennDOT), Southeastern Pennsylvania Transportation Authority (SEPTA), Transportation Management Association of Chester County (TMACC), West Goshen Township, West Goshen Police Department, West Whiteland Township, and Westtown-East Goshen Regional Police Department.

The audit team met several times throughout this process. The following is a short description of the steps involved in the TOA, which are further described in subsequent chapters:

- obtained background data for the study area, including traffic volumes, land uses, Intelligent Transportation Systems (ITS) infrastructure, transit facilities, PennDOT detour routes, and programmed transportation improvement projects;
- performed a top-level crash analysis of the corridor;

- met with the audit team to introduce the project and identify potential locations to be studied on the day of the audit;
- conducted the one-day TOA, which included extensive field views, as well as pre- and post-audit meetings at the West Goshen Township building; and
- met with the audit team to present the results of the audit and to conclude the project.

Tables listed in **Chapter 3** outline corridor-wide and interchange specific issues, as well as present recommendations to address those issues; timeframes associated with accomplishing those recommendations; suggest prioritization; and assign a responsible agency or agencies to address the recommendations.

A major corridor-wide issue identified by the audit team is poor warning and guidance for travelers. They experience inadequate or illegible signage and striping due to incomplete delineation and lane designation, non-standard or missing signs, and overgrown vegetation. Short-term, high-priority recommendations to address these issues are to improve signage to meet current standards, and remove vegetation that reduces sign visibility.

Another corridor-wide issue is related to significant conflicting movements in merge areas. There are seven interchanges within a four-mile segment, a limited number of through travel lanes, and short acceleration/deceleration lanes. The short-term, high-priority recommendation is to install or maintain small dashed lines on the roadway to separate auxiliary lanes from travel lanes.

CHAPTER 1

Introduction

Traffic congestion occurs more frequently throughout the day and on more roadways than in the past. Traditionally, improvements to transportation mobility, reliability, and safety along these roadways were achieved through capital-intensive infrastructure investments. However, funding for major new highway and transit capacity projects is limited. At the same time, much of the traffic delay on roadways is caused by non-recurring incidents, weather conditions, special events, and other factors that require more immediate solutions and are not solved solely through transportation infrastructure enhancements.

A low-cost approach to these challenges is to conduct a TOA to look at improving the transportation operations of the roadway. Transportation operations strategies are designed to optimize the performance of the transportation system. They allow for a more immediate response to traveler concerns than capacity projects offer, while improving the reliability and safety. A TOA provides a formal performance examination of an existing road or corridor by a qualified audit team and it qualitatively estimates and reports on potential road operational issues. It also identifies opportunities for improvements for all road users.

There are many potential benefits of a TOA. It is a collaborative effort from a team with members of varying backgrounds and expertise, and it is adaptable to local needs and conditions. It can be used as a planning tool to identify issues which may be considered in improvement projects, and its recommendations can be implemented in small stages as time and resources permit.

There are three major goals for this TOA: identify a list of multi-modal operational issues that affect the mobility of the corridor; identify a coordinated approach to transportation operations and incident management; and develop potential low-cost mitigation strategies designed to preserve capacity, and improve safety and reliability of the corridor's transportation system.

Project Background

The US 202—Section 200 corridor was chosen as the first regional TOA for many reasons. Although there are known safety and congestion issues at interchange areas, and projected traffic volume growth along the corridor, there is limited transportation funding. There are currently planned capacity improvements north and south of the study area on US 202, for Sections 100 and 300, but no existing plans for future capacity improvements on Section 200. This corridor also provides key regional connections via US 322 and PA 100 to Exton, western/central Chester County. Paoli Pike and PA 3 connect the region to corporate parks, West Chester Borough, Delaware County, and Philadelphia.

DVRPC's Transportation Operations Master Plan

The *Transportation Operations Master Plan* (DVRPC Publication #09049) outlines a long-range vision of transportation operations for the DVRPC region and was developed in conjunction with the DVRPC 2035 long-range plan; *Connections: The Regional Plan for a Sustainable Future* (DVRPC Publication #09047). It presents transportation operations goals, objectives, and operational strategies to achieve them. The plan includes an operations vision that establishes a plan for where ITS infrastructure, emergency service patrols, and incident management task forces should be deployed in the region.

For the US 202—Section 200 Corridor, the following operational strategies have been identified in the vision:

- Primary Coverage for ITS Infrastructure — Includes full Closed Circuit Television (CCTV) camera coverage, Variable Message Signs (VMS), incident detection and travel time detectors;
- Limited Coverage for Emergency Service Patrol — 16 hour weekday coverage;
- Potential Location for Incident Management Task Force; and
- Integrated Corridor Management for Freeways — Optimizing travel in a corridor by coordinating traffic on expressways and arterials.

DVRPC's Congestion Management Process (CMP)

DVRPC's CMP is a systematic process to identify congestion and its causes, propose mitigation strategies, and evaluate the effectiveness of implemented strategies. The *2009 Congestion Management Process Report* (DVRPC Publication #09028B) identifies congested corridors and multimodal strategies to mitigate congestion. This study area is in CMP subcorridor 8B (US 202, Section 200). The following are Very Appropriate Strategies listed in the CMP for this subcorridor, which also apply to this audit process:

- closed loop computerized traffic signals;
- its / integrated corridor management for freeways;
- incident management;
- planning and design for non-motorized transportation;
- expanded parking/improved access to stations (all modes); and
- park and ride lots.

A Secondary Strategy that applies specifically to this audit includes "Enhanced Transit Amenities and Safety."

CMP Strategies Appropriate Everywhere, which also are applicable to this audit include:

- Safety Improvements and Programs;
- Signage;
- Improvements for Pedestrians and Bicyclists as Appropriate; and
- Marketing/Outreach for Transit and TDM Services Where Applicable.

American Recovery and Reinvestment Act (ARRA)

When this TOA project was initially envisioned, there were no major capital projects along US 202. However, funding became available from ARRA to mill and overlay US 202 from Stanton Avenue (High Street interchange) to the PA 100 interchange, which incorporates most of the 200 section. This project will also involve concrete barrier and sign replacement. It was bid in December 2009 and construction began in summer 2010. The project is anticipated to be completed by December 2011. Specifically, the US 202 ARRA project includes the following:

- Road resurfacing/patching of concrete underlay;
- Stabilization/full depth construction of shoulders;
- Concrete barrier replacement;
- Guardrail upgrades;
- Signage upgrades; and
- Pavement markings.

The fast-track timing of the ARRA project made it possible for DVRPC and CCPC to meet with PennDOT to review strategies and recommendations from this audit and request that they be incorporated into that project for implementation, as outlined in **Chapter 3**.

The US 202—Section 200 Transportation Operations Audit Events

The US 202—Section 200 TOA kick-off meeting was held on Thursday, November 5, 2009. Agenda items covered at that meeting included providing an introduction to the project, presenting background information, and facilitating an open discussion on priority locations to be studied on the audit day.

The one-day transportation operations audit was conducted on Thursday, December 3, 2009. Pre-and post-audit meetings, as well as extensive field views, were conducted that day. The audit team drove the corridor in several vehicles and stopped at each problem location for closer observation. A binder was prepared for the audit day, which included detailed roadway and aerial maps covering the audit route, background data maps, crash analysis maps, and PennDOT detour route maps.

A follow-up audit meeting to discuss the results of the audit was held on Thursday, May 6, 2010. Final recommendations for the corridor, based on findings from the audit day, were discussed including recommendations for the ARRA project.

The audit team of 19 participants included representation from local, county, regional, state, and federal levels, and is listed in **Table 1**.

Table 1: US 202—Section 200 Transportation Operations Audit Team Members

Name	Agency
Neil Lovekin	Chester County Department of Emergency Services
Matthew Anderson	Chester County Planning Commission
Natasha Manbeck	Chester County Planning Commission
Randy Waltermyer	Chester County Planning Commission
Chris King	Delaware Valley Regional Planning Commission
Laurie Matkowski	Delaware Valley Regional Planning Commission
Stan Platt	Delaware Valley Regional Planning Commission
Rick Smith	East Goshen Township
Carmine Fiscina	Federal Highway Administration
Emmanuel Anastasiadis	Pennsylvania Department of Transportation
Matthew Miele	Pennsylvania Department of Transportation
Mark Cassel	Southeastern Pennsylvania Transportation Authority
Paul DesRocher	TMA Chester County
Sergeant Richard Geiger	West Goshen Police Department
Rick Craig	West Goshen Township
Ray Halvorsen	West Goshen Township
Casey LaLonde	West Goshen Township
Corporal Leo Kennedy	Westtown–East Goshen Regional Police Department
Joseph P. Roscioli	West Whiteland Township

Source: DVRPC, 2010

CHAPTER 2

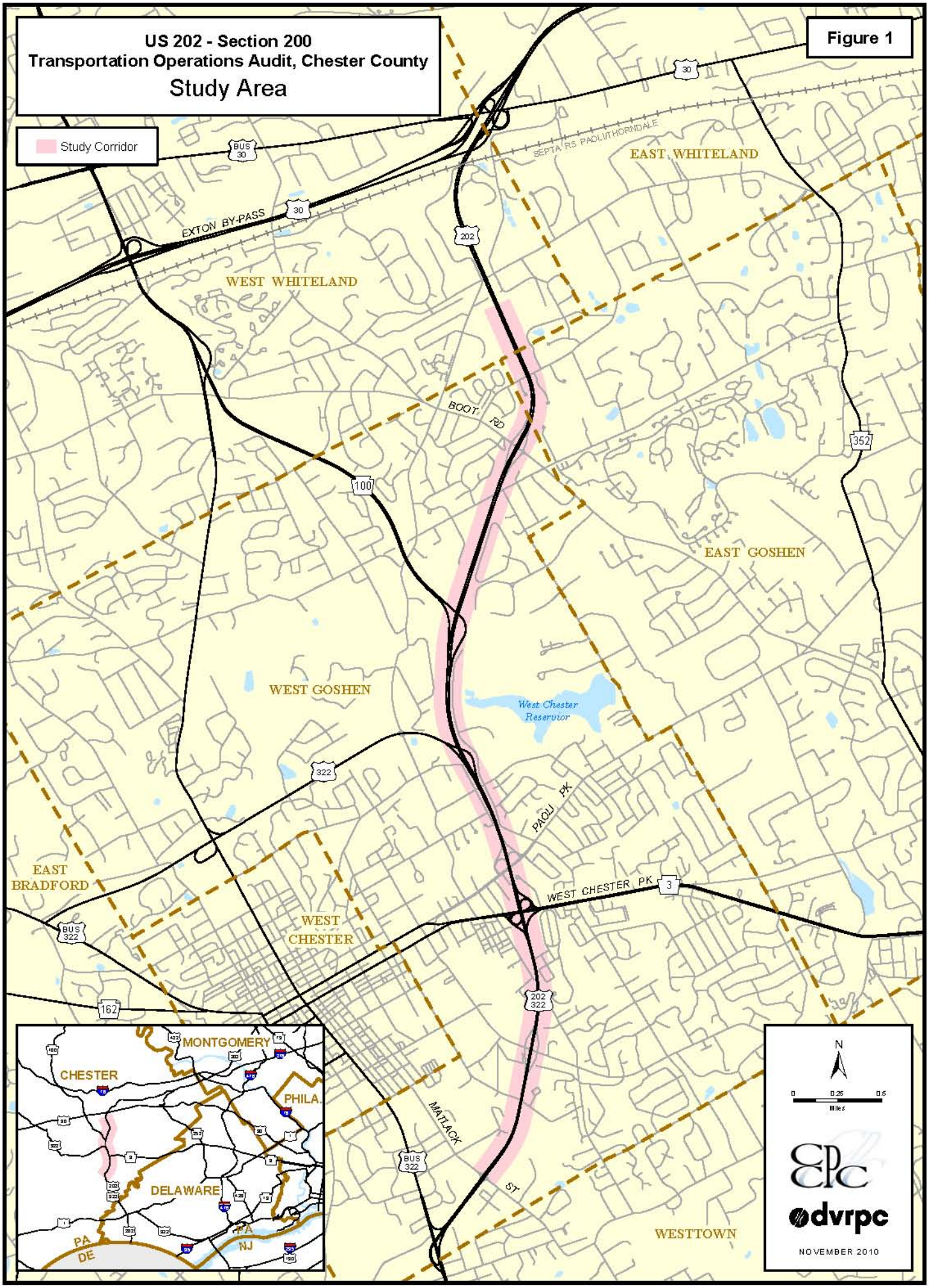
Existing Conditions

Study Area

The study area consists of approximately 10 miles of US 202, encompassing Section 200, in Chester County, Pennsylvania, including the municipalities of West Whiteland, East Goshen, and West Goshen. It is generally a four-lane, limited-access highway in this section, with interchanges at US 30, Boot Road, PA 100, US 322, Paoli Pike, PA 3, Westtown Road, and Matlack Street. The study area begins just south of the US 202/US 30 interchange, and terminates at the US 202/Matlack Street intersection, as shown in **Figure 1**.

Traffic Volumes

Annual Average Daily Traffic (AADT) volumes for the years 2005 to 2009 were obtained through DVRPC's database and are shown in **Figure 2**. Traffic levels vary throughout the corridor with traffic being higher in the central part of the study area near the West Chester exits. In the northern section of the corridor, between US 30 and PA 100, the traffic levels in both the northbound and southbound direction, range from 22,000 to 24,000 vehicles per day. Traffic through the corridor picks up significantly as both PA 100 and US 322 feed directly onto US 202. South of the PA 100 ramps; the AADT levels increase to 41,900 southbound and 37,100 northbound. Between US 322 and the Paoli Pike interchanges, traffic levels continue to increase in both the south and northbound directions to 46,000 vehicles and 43,000 respectively. South of Paoli Pike on US 202, volumes decrease to about 40,000 vehicles per day in each direction and continue to drop off slightly to about 36,000 vehicles south of the PA 3 interchange. At the southern end of the corridor, there are about 26,000 vehicles per day in each direction.


US 202 - Section 200
Transportation Operations Audit, Chester County
Study Area
Figure 1
Study Corridor
EAST WHITELAND
WEST WHITELAND
EAST GOSHEN
WEST GOSHEN
EAST BRADFORD
WEST CHESTER
WESTTOWN
EXTON BY-PASS
BOOT RD
PAOLI PK
WEST CHESTER PK
MATLACK ST
West Chester Reservoir
SEPTA R5 PAOLI/THORNDALE
BUS 30
30
202
100
352
322
BUS 322
162
3
202 322
MONTGOMERY
CHESTER
PHILA.
DELAWARE
PA
NJ
DE
N
0 0.25 0.5
Miles
EPC
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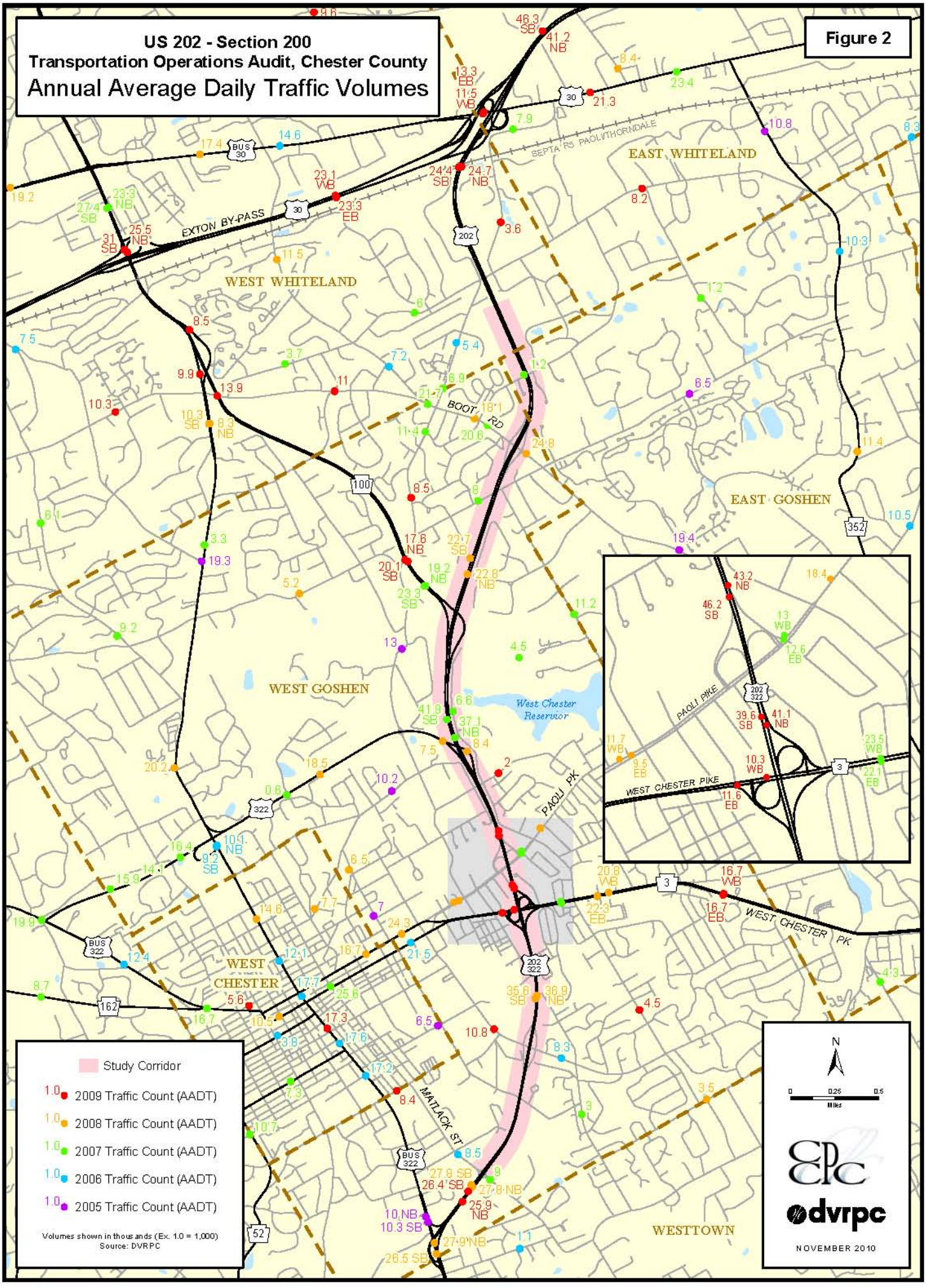
NOVEMBER 2010


US 202 - Section 200
Transportation Operations Audit, Chester County
Annual Average Daily Traffic Volumes
Figure 2
EAST WHITELAND
WEST WHITELAND
EAST GOSHEN
WEST GOSHEN
WEST CHESTER
WESTTOWN
EXTON BY-PASS
BOOT RD
PAOLI PK
WEST CHESTER PK
MATLACK ST
SEPTA RS PAOLI/THORNDALE
West Chester Reservoir
PAOLI PIKE
WEST CHESTER PIKE
Study Corridor
2009 Traffic Count (AADT)
2008 Traffic Count (AADT)
2007 Traffic Count (AADT)
2006 Traffic Count (AADT)
2005 Traffic Count (AADT)
Volumes shown in thousands (Ex. 1.0 = 1,000)
Source: DVRPC
N
0 0.25 0.5 Miles
dvrpc
NOVEMBER 2010

General Land Uses

As depicted in **Figure 3**, there are a wide variety of land uses in this mature suburban setting. Office parks and commercial developments are located close to US 202 and are surrounded by large residential developments, including several age-restricted communities. Major employers located in the study area include QVC, UPS, and the Chester County Hospital.

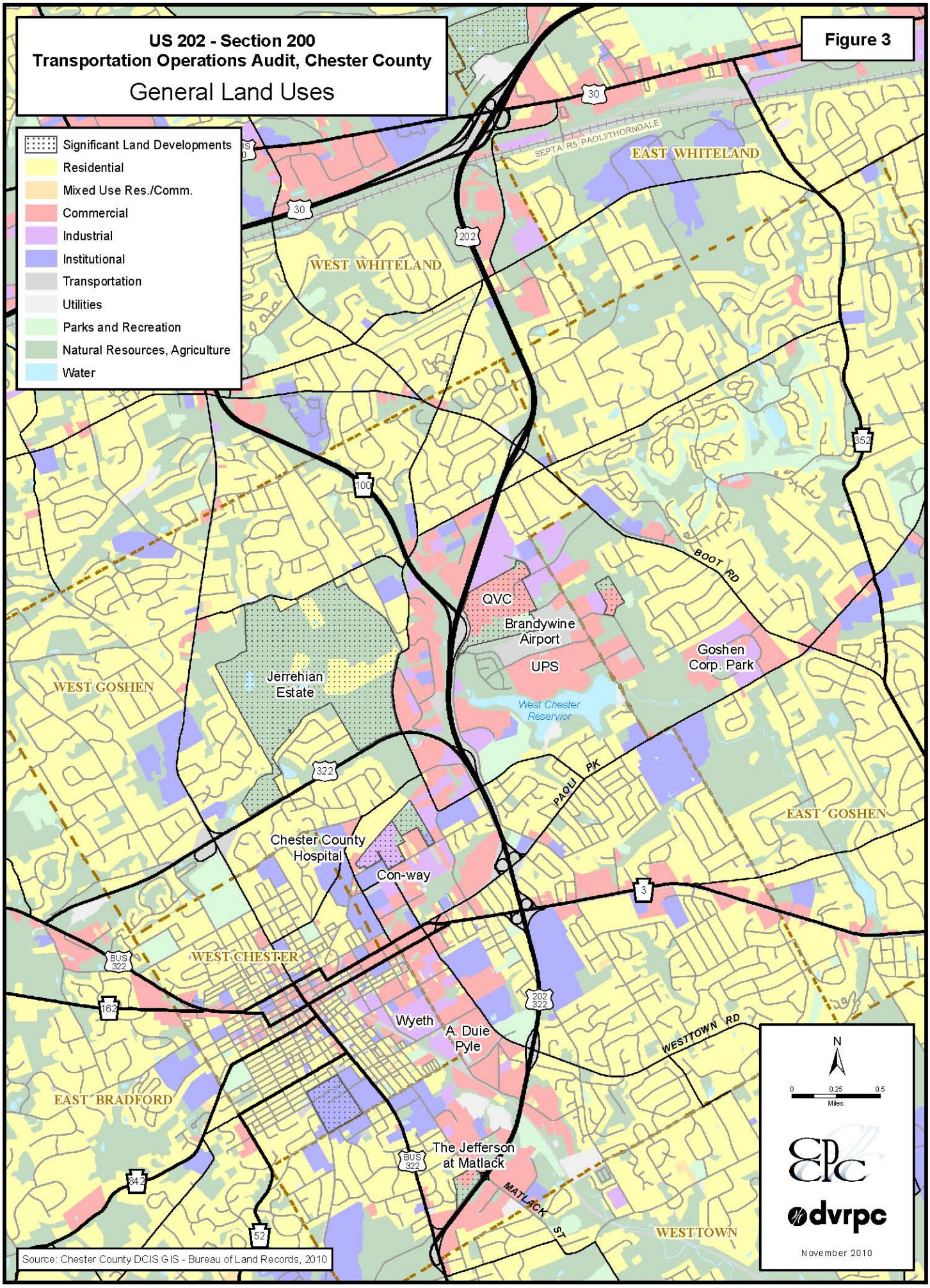
There are several proposals for development and redevelopment in this predominantly built-out corridor. Development of the Jerrehian Estate, which is one of the last open and developable properties in West Goshen Township, will add over 500 residential units. Significant redevelopment projects underway include the former sites of a Wyeth production facility and the Spaz Beverage distribution center.

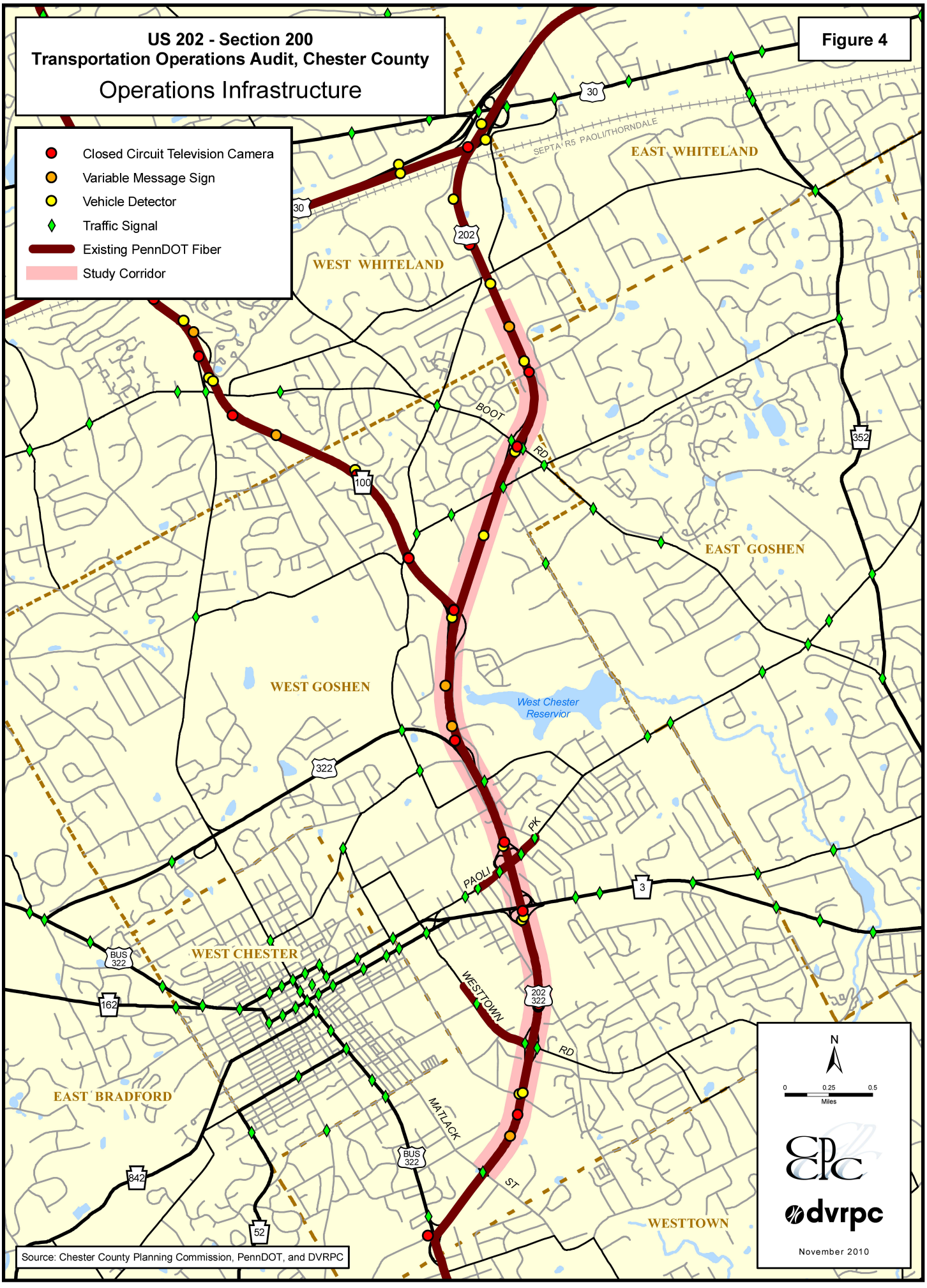
Operations Infrastructure

PennDOT has made significant investments in ITS devices along the US 202—Section 200 corridor. As **Figure 4** displays, there are a number of Closed Circuit Television cameras (CCTV) and Variable Message Sign (VMS). These devices are operated by PennDOT staff located at the Regional Traffic Management Center (RTMC) in King of Prussia and serving the five southeastern counties in Pennsylvania. The center is staffed 24 hours a day, seven days a week; operators utilize these technologies to monitor traffic conditions, assist in incident management, and disseminate traveler information to the public. In addition to CCTV and VMS, there are vehicle detectors along the roadside to help determine travel times which are posted on the VMS. Most of these devices are interconnected through a fiber optic network to allow communications with the RTMC.

PennDOT has also expanded its traveler information services by implementing 511 PA, which is a free phone and web service that provides travelers with reliable, current traffic and weather information, as well as links to other transportation services. Commuters can now access a statewide map that features traffic delays, congestion, and construction areas to better plan their daily trips to and from work. This information is also available at *www.511pa.com*.

Traffic signals on the arterial roadway network are identified in **Figure 4** as well. Each traffic signal is owned and operated by the individual municipalities.


US 202 - Section 200
Transportation Operations Audit, Chester County
General Land Uses
Figure 3
Significant Land Developments
Residential
Mixed Use Res./Comm.
Commercial
Industrial
Institutional
Transportation
Utilities
Parks and Recreation
Natural Resources, Agriculture
Water
SEPTA R5 PAOLI/THORNDALE
EAST WHITELAND
WEST WHITELAND
WEST GOSHEN
EAST GOSHEN
WEST CHESTER
EAST BRADFORD
WESTTOWN
Jerrehian Estate
QVC
Brandywine Airport
UPS
Goshen Corp. Park
West Chester Reservoir
Chester County Hospital
Con-way
Wyeth
A. Duie Pyle
The Jefferson at Matlack
BOOT RD
PAOLI PK
WESTTOWN RD
MATLACK ST
30
202
100
352
322
3
162
842
52
BUS 322
N
0 0.25 0.5
Miles
dvrpc
November 2010
Source: Chester County DCIS GIS - Bureau of Land Records, 2010


US 202 - Section 200
Transportation Operations Audit, Chester County
Operations Infrastructure
Figure 4
Closed Circuit Television Camera
Variable Message Sign
Vehicle Detector
Traffic Signal
Existing PennDOT Fiber
Study Corridor
SEPTA R5 PAOLI/THORNDALE
EAST WHITELAND
WEST WHITELAND
EAST GOSHEN
WEST GOSHEN
West Chester Reservior
WEST CHESTER
EAST BRADFORD
WESTTOWN
BOOT RD
PAOLI PK
WESTTOWN RD
MATLACK ST
30
202
100
352
322
3
BUS 322
162
842
52
202 322
N
0 0.25 0.5
Miles
CPC
dvrpc
November 2010
Source: Chester County Planning Commission, PennDOT, and DVRPC

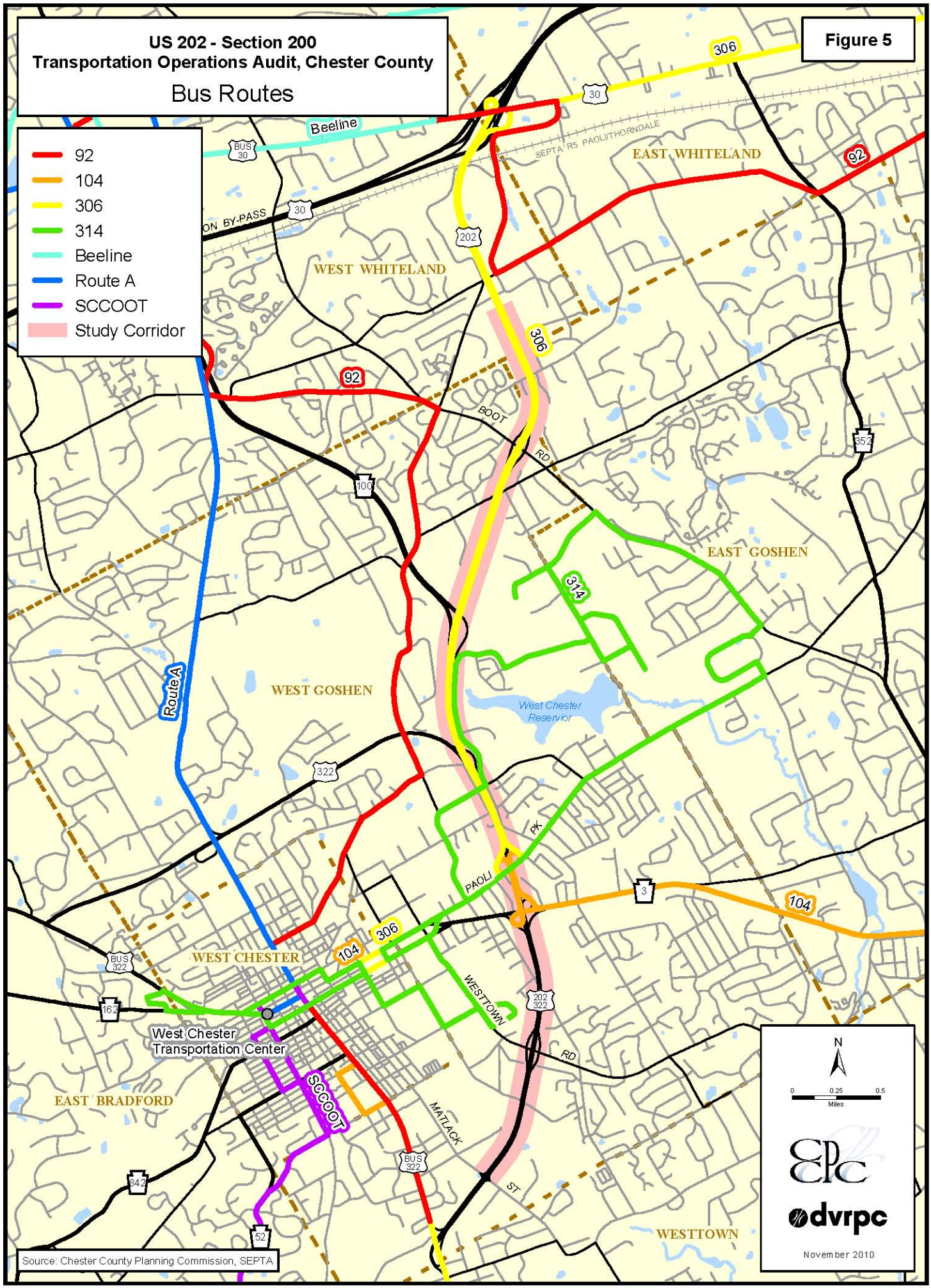
Transit

Bus transportation within the study area is comprised of four SEPTA routes and several other non-SEPTA bus services, shown in **Figure 5**. Also located near the corridor in West Chester is the West Chester Transportation Center bus terminal and parking garage. Each of the SEPTA routes listed below utilize the Transportation Center.

- **Bus Route 92**: Connects West Chester with the Exton Square Mall and King of Prussia via Malvern Borough and the Paoli Train Station.
- **Bus Route 104**: Connects West Chester University with Upper Darby's 69th Street Terminal. This route generally traverses PA 3, but uses US 202 between West Chester Pike and Paoli Pike to access local commercial uses.
- **Bus Route 306**: Connects West Chester University with the the Great Valley Corporate Center and the Main Line Industrial Park area in East Whiteland Township. This route utilizes US 202 from Paoli Pike north to US 30.
- **Bus Route 314**: Connects downtown West Chester with the Chester County Government Services Building and corporate parks in West Goshen.

In addition to the SEPTA-operated routes, other bus services provide public transportation alternatives in the study area.

- **Krapf's Coaches' "A" bus**: Connects West Chester with Downingtown and Coatesville**.**
- **SCCOOT**: Bus service operated by TMACC, connect West Chester and Southern Chester County with stops in West Grove, Lincoln University, Kennett Square, and Longwood Gardens.
- **Beeline:** Operating in the northern portion of the study area, the Beeline operates during peak commuting periods from the Coatesville, Downingtown, and Exton areas to Great Valley Corporate Center. It is the only bus route in the study area that does not use the Transportation Center.


US 202 - Section 200
Transportation Operations Audit, Chester County
Bus Routes
Figure 5
92
104
306
314
Beeline
Route A
SCCOOT
Study Corridor
WEST WHITELAND
EAST WHITELAND
EAST GOSHEN
WEST GOSHEN
WEST CHESTER
EAST BRADFORD
WESTTOWN
West Chester Reservoir
West Chester Transportation Center
SEPTA R5 PAOLI/THORNDALE
BOOT RD
PAOLI PK
WESTTOWN RD
MATLACK ST
Route A
SCCOOT
Source: Chester County Planning Commission, SEPTA
N
0 0.25 0.5 Miles
EPC
dvrpc
November 2010

Crash Analysis

A crash analysis was conducted along the US 202 corridor. This analysis utilizes data collected from PennDOT's crash database. The data set used for this report focuses on US 202 within the study limits for the years 2004 through 2008.

The initial focus of the crash analysis was directly on the US 202 mainline. Selected statistics are summarized in **Table 2**. According to PennDOT's crash data, there were 191 reportable crashes between 2004 and 2008. Reportable crashes are crashes that resulted in a fatality, injury, and/or property damage rendering the vehicle disabled, requiring it to be towed from the scene. It was noted by local police attending the audit that there are also many non-reportable crashes along the corridor that were therefore not included in the database.

Of all the reportable crashes in the corridor, there were 35 crashes in 2004 (18 percent); 33 crashes in 2005 (17 percent); 33 crashes in 2006 (17 percent); 35 crashes in 2007 (18 percent) and 55 crashes in 2008 (29 percent). Crash totals have remained fairly consistent over this time frame, except for a 66% increase between 2007 and 2008. Crashes are also broken down based on direction, and approximately 60 percent of the incidents occurred on the northbound direction. During this timeframe, 62 percent (119) of all crashes did not involve any injuries; 26 percent (49) were minor injury accidents; and there were two fatalities along the corridor. The two fatal crashes both occurred on US 202 southbound at the PA 100 interchange area.

The two most common reportable crash collision types occurring on US 202 in both directions are hitting fixed objects (46 percent) and rear-end collisions (31 percent). Hit-fixed-object crashes generally involve hitting the guardrails or signs on US 202. Rear-end crashes tend to be common along roadways that experience congestion. Either cars are hitting the rear of a queue, or crashing due to stop and go traffic conditions. Other types of crashes occurring in the corridor include angle (5 percent), sideswipes (4 percent), and non-collision crashes (4 percent).

Weather and illumination do not seem to play a role in these crashes. The majority of the crashes occurred during fair weather with no adverse conditions (82 percent), while ten percent occurred during rainy conditions. Typically the majority of crashes occur during the daylight (58 percent), with another 37 percent of the crashes taking place in the dark where there are no street lights, such as areas around the interchanges.

Considering crashes by month, October and November were the two highest in terms of crash frequency with 26 and 22 crashes, respectively. The fewest crashes occurred in July (eight). The remainder of the year was fairly consistent. The crashes are also somewhat evenly distributed throughout the days of the week with the fewest occurring on Wednesday (22) and the most on Tuesday (36).

In evaluating the time of day of crashes, it was determined that the morning peak traffic volume is 6 AM to 9 AM, mid-day peak is 11 AM to 1 PM, and the afternoon peak is 4 PM to 7 PM. Fifty percent of the total crashes on US 202 took place during these three timeframes: morning (18 percent), mid-day (16 percent), and afternoon (16 percent).

Table 2: US 202—Section 200 Mainline Crash Analysis, 2004 to 2008

	Northbound		Southbound		Total	
YEAR						
2004	14	12%	21	27%	35	18%
2005	19	17%	14	18%	33	17%
2006	20	18%	13	17%	33	17%
2007	23	20%	12	16%	35	18%
2008	38	34%	17	22%	55	29%
Total	**114**		**77**		**191**	
SEVERITY LEVEL						
Not injured	70	61%	49	64%	119	62%
Fatal	0	0%	2	3%	2	1%
Major injury	2	2%	3	4%	5	3%
Moderate injury	0	0%	3	4%	3	2%
Minor injury	35	31%	15	19%	50	26%
Injury / unknown severity	5	4%	3	4%	8	4%
Unknown	2	2%	2	3%	4	2%
Total	**114**		**77**		**191**	
COLLISION TYPE						
Hit -fixed-object	52	46%	35	45%	87	46%
Rear-end	39	34%	21	27%	60	31%
Other or Unknown	8	7%	6	8%	14	7%
Angle	6	5%	3	4%	9	5%
Non collision	3	3%	5	6%	8	4%
Sideswipe (same dir.)	4	4%	4	5%	8	4%
Head-on	1	0%	3	4%	4	2%
Hit pedestrian	1	1%	0	0%	1	1%
Total	**114**		**77**		**191**	
WEATHER						
No adverse conditions	89	78%	68	88%	157	82%
Rain	15	13%	5	6%	20	10%
Sleet (hail)	3	3%	2	3%	5	3%
Snow	6	5%	1	1%	7	4%
Other	1	1%	0	0%	1	1%
Unknown	0	0%	1	1%	1	1%
Total	**114**		**77**		**191**	
ILLUMINATION						
Daylight	71	62%	39	51%	110	58%
Dark— no street lights	37	32%	33	43%	70	37%
Dusk	4	4%	2	3%	6	3%
Dark— street lights	1	1%	1	1%	2	1%
Dawn	1	1%	1	1%	2	1%
Dark—unknown roadway	0	0%	1	1%	1	1%
Total	**114**		**77**		**191**	

Source: PennDOT Crash Data, 2008

Vehicle type data was also examined; 73 percent of the vehicles involved in the crashes were automobiles. SUVs were involved in 11 percent of the total crashes on US 202, while trucks (small and large) make up most of the remainder with 11 percent.

Appendix A provides a closer examination of the crash data and focuses on specific locations in the corridor. The analysis includes looking at the locations of the crashes that occurred, not only on US 202, but also on the ramps and the arterials at the interchange areas.

These locations are:

- US 202 Northbound at US 30 Interchange;
- US 202 at Boot Road Interchange;
- Boot Road at Greenhill Road Intersection;
- US 202 at PA 100 Interchange;
- US 202 at US 322 Interchange;
- US 202 at Paoli Pike Interchange;
- US 202 at PA 3 Interchange (West Chester Pike);
- US 202 at Westtown Road Interchange; and
- US 202 at Matlack Street Intersection.

Identified Transportation Needs

According to CCPC, the 2009 Transportation Improvements Inventory (TII) is a comprehensive record of known transportation needs and projects within Chester County. The TII is updated biennially and contains projects that have been recommended to the planning commission by municipalities and other stakeholders over time. The 2009 TII includes 450 proposed roadway, bridge, bicycle and pedestrian, freight, and transit projects with a total estimated cost of $5.4 billion. An updated TII was presented to the CCPC Board for adoption in July 2011.

As shown in **Figure 6**, US 202—Section 200 has been identified as a major corridor in need of funding for operational and safety improvements. The TII also includes several identified needs for the connecting arterials. **Table 3** provides additional information on select projects located within one mile of US 202. Refer to the Chester County Transportation Improvements Inventory, July 2009 for a more detailed explanation of projects.


US 202 - Section 200
Transportation Operations Audit, Chester County
Identitfied Transportation Needs
Figure 6
Transportation Improvement Projects
Major Corridors
Public Transportation
Bicycle / Pedestrian
Roadways & Operations
Bridges
EAST WHITELAND
WEST WHITELAND
WEST GOSHEN
EAST GOSHEN
WEST CHESTER
EAST BRADFORD
WESTTOWN
West Chester Reservoir
SEPTA R5 PAOLI/THORNDALE
MCF 1
MCF 2
MCF 3
MCN 2
MCN 6
INT 16
INT 18
INT 34
INT 35
INT 39
INT 47
INT 56
INT 64
INT 87
INT 91
INT 105
INT 122
RW 2
RW 4
RW 14
RW 16
RW 27
RW 44
OP 3
BP 22
BP 23
BP 27
BP 30
BP 46
NC 10
NC 12
PTF 2
PTN 2
PTS 3
MB 11
MB 35
SB 29
BOOT RD
PAOLI PK
WESTTOWN RD
MATLACK ST
N
0 0.25 0.5
Miles
dvrpc
November 2010
Source: Chester County Planning Commission
2009 Transportation Improvements Inventory (TII)
www.chesco.org/planning/transportation

Table 3: 2009 Chester County Transportation Improvements Inventory

Category	2009 TII Number	Project Name	Project Type
Bicycle / Pedestrian	BP 22	Rosedale Avenue: College Avenue to High Street	Pedestrian and traffic improvements
Intersections	INT 18	PA 3 at Five Points Road	Add turn lanes
	INT 47	Boot Road at Ship Road	Safety improvements
	INT 56	Montgomery Avenue at Gay Street	Drainage improvements
	INT 87	Westtown Road at Union St	Cul-de-sac
Major Corridor	MCF 1	US 202: US 30 to North Valley Road (Section 300)	Widen to six lanes
	MCF 2	US 202: Matlack Street to Delaware state line (Section 100)	Capacity / safety improvements
	MCF 3	US 30 Bypass: PA 10 to US 202	Reconstruct, widening, interchange ramps
	MCN 2	US 202: Matlack Street to US 30 (Section 200)	Operational and safety improvements
	MCN 6	US 202 / US 322 Interchange (Airport Road Access)	Interchange ramps
Municipal Bridges	MB 11	Oakbourne Road over Chester Creek	Replacement
	MB 35	Ravine Road under Frazer railroad	Removal
New Connections	NC 12	West Chester University Access Road: New Street to High Street	Road reconstruction
Operations	OP 3	East Goshen Closed Loop System	Closed loop system
Public Transportation	PTF 2	Amtrak / SEPTA Keystone Line	Upgrade infrastructure and equipment
	PTN 2	Media / Elwyn Line Extension to West Chester	Extend to West Chester / upgrade infrastructure
	PTS 3	PA 3 Transit Prioritization	Install transit signal pre-emption
Reconstruction / Widening	RW 14	Paoli Pike: Boot Road to Five Points Road	Capacity / safety improvements
	RW 16	Boot Road: Wilson Drive to Greenhill Road	Safety / operational improvements
	RW 4	PA 3: US 202 to PA 352	Capacity / safety improvements
	RW 44	Westtown Road: US 202 to Nields Street	Capacity improvements

Source: Chester County Transportation Improvements Inventory, July 2009

PennDOT Detour Routes

PennDOT has established official detour routes throughout the region for all of its limited access expressways, including US 202. The detours are to be used in case an emergency (crash, weather, etc.) forces the closure of a section of an expressway. PennDOT has installed color detour signs along interstates and major expressways throughout the state to help police, emergency crews, and PennDOT personnel handle traffic diversions more efficiently and safely in the event of an emergency highway closure. When motorists are directed off the highway at the nearest interchange, they can follow the detours that are designed to get around the closed expressway area and back onto the main highway at the next open interchange. In the study area, the detour routes generally utilize a combination of arterials such as Boot Road, PA 100, Phoenixville Pike, Paoli Pike, West Chester Pike, Westtown Road and High Street (US 322 Business). Maps of each of the detour routes on US 202 by segment are included in **Appendix B**.

CHAPTER 3

Issues and Recommendations

This chapter focuses on observations, recommendations, and priorities for the US 202—Section 200 TOA. The following tables describe corridor-wide and site-specific issues. To address these issues, a list of potential projects or improvement strategies were recommended, and then classified as either a near-term, intermediate or long-term improvement. Recommendations for the ARRA project are indicated as such, where applicable. Advancing these recommendations will contribute to the overall safety and efficient operations of the corridor.

The recommendations listed are in a series of tables with **Table 4** describing corridor-wide recommendations and **Tables 5 through 14** displaying recommendations for site-specific locations that generally focus around the interchanges along the corridor. For some of the locations with multiple recommendations, a map is included to help identify the specific location of each recommendation. For each strategy identified, a timeframe (Ongoing, Short-term of one to three years, Mid-term of three to eight years, or Long-term of more than eight years), priority and lead agency(s) are listed. The short-term, high priority projects are highlighted in bold, while completed projects are marked in italics.

Table 4: Corridor-Wide Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Poor warning and guidance for travelers, inadequate or illegible signage and markings due to: ■ incomplete lane delineation and lane designation ■ non-standard, missing signs and markings ■ overgrown vegetation	Improve signage to meet current standards, designate lanes (such as "Exit Only"), and indicate distance to ramps	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT**
	Clearly define acceleration lanes, deceleration lanes, and gore areas with striping and/or signage	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT**
	Remove vegetation that reduces sign visibility and motorist sight distance	**Short-term**	**High**	■ **PennDOT Maintenance**
Significant conflicting movements in merge areas due to: ■ seven interchanges within four miles of each other	Install or maintain small dashed lines on the roadway to separate auxiliary lanes from travel lanes	**Short-term**	**High**	■ **Recommended in ARRA project**
	Provide additional signs advising through traffic to use the left lane	Mid-term	High	■ PennDOT Maintenance

Table 4: Corridor-Wide Recommendations Continued

Issues	Recommendations	Time-frame	Priority	Lead Agency
■ limited number of through travel lanes ■ short acceleration and deceleration lanes	Extend acceleration and deceleration lanes by utilizing shoulder areas	Mid-term	Medium	■ Recommended in ARRA project ■ PennDOT
	Provide additional through travel lanes on US 202, particularly between PA 100 and Westtown Road	Long-term	Low	■ PennDOT
Peak-hour congestion increases travel times and causes safety issues along US 202 mainline and connecting arterials	Promote 511PA, which is the state's official travel information service, and available by dialing "5-1-1" in PA, or at *www.511pa.com*	Short-term	Medium	■ PennDOT ■ TMACC
	Optimize signal timings and/or coordination and improve intersection lane configurations at interchanges and along connecting arterials	Mid-term	Medium	■ PennDOT ■ Municipalities
	Encourage alternative work schedules that allow for staggered start times or telecommuting	Mid-term	Medium	■ TMACC ■ Municipalities ■ Local businesses
	Promote the use of Park and Ride lots, carpooling, vanpooling and telecommuting to reduce the number of vehicles on the roadways	Mid-term	Medium	■ DVRPC ■ TMACC ■ Local businesses
Communication challenges between local police and PennDOT	Provide local police with TMC contact information	**Short-term**	**High**	■ **PennDOT**
	Provide CCTV feeds to local police departments/municipalities	Mid-term	Medium	■ PennDOT
Lack of bicycle and pedestrian facilities along heavily traveled connecting arterials limits mobility and creates safety issues	Update municipal ordinances with provisions to require sidewalks and other pedestrian, bicycle, and public transportation amenities	**Short-term**	**High**	■ **Municipalities**
	Develop bicycle and pedestrian plans through coordination with neighboring municipalities to identify key routes and guide implementation of needed improvements	Short-term	Medium	■ PennDOT ■ CCPC ■ Municipalities
	Construct sidewalks, bike lanes and/or multi-use trails to address identified needs where applicable	Long-term	Medium	■ PennDOT ■ Municipalities

Table 4: Corridor-Wide Recommendations Continued

Issues	Recommendations	Time-frame	Priority	Lead Agency
Excessive speeding creates unsafe conditions, further complicating merge areas	Continue to enforce speed limits	**On-going**	**High**	■ **Municipalities**
	Install shoulder pull-off areas to provide support for police enforcement efforts	Mid-term	Medium	■ PennDOT
	Determine the feasibility of lowering the speed limit between Boot Road and Westtown Road on US 202	Mid-term	Medium	■ PennDOT
Missing milepost markers	Install enhanced shield and mile markers, preferably with 1/10th markers	**Short-term**	**High**	■ **PennDOT**
There are few median openings for use by emergency responders	Investigate opportunities to maintain current median openings, including the opening near Fernhill Road	**Short-term**	**High**	■ **PennDOT**
Occasional illegal movements at interchange ramps, such as backing up or turning around	Install one-way signs at the entrance to ramps	Short-term	Medium	■ PennDOT Maintenance
Disabled vehicles create congestion, especially where there is not an adequate shoulder for vehicles to pull off the roadway	Initiate Emergency Service Patrol Vehicles along the corridor with a minimum of AM and PM peak-period coverage	Mid-term	High	■ PennDOT

Sources: DVRPC and CCPC, 2010.

Table 5: US 30 Interchange to Boot Road Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Peak-hour congestion in the AM on US 202 Northbound backs up to the bridge carrying US 202 over King Road	US 202, Section 300 construction project will alleviate this situation	**Short-term**	**High**	■ **PennDOT**
Park and ride lot is underutilized	Provide additional signs on arterials/ramps, possibly to be implemented as part of US 202, Section 300 project	Short-term	Medium	■ PennDOT
	Promote the use of carpooling or vanpool services	Short-term	Medium	■ TMACC

Sources: DVRPC and CCPC, 2010.

Figure 7 displays the location of several recommendations from **Table 6** on an aerial map.

Table 6: Boot Road Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Safety issues at ramp intersections and queuing on US 202 Southbound off-ramp and mainline during AM peak due to substandard signal operations and existing lane configurations	**1 —** Retime interchange signals and coordinate with signals at Greenhill Road	*Completed*	*Mid-April 2010*	■ *West Goshen Township*
	2 — Install spill back loop/video detection devices that identify queuing, and modify signal timing to clear ramp	*Completed*	*Mid-April 2010*	■ *West Goshen Township*
	3 — Trim vegetation on approach to US 202 Southbound off-ramp	**Short-term**	**High**	■ **PennDOT Maintenance**
	4 — Monitor changes in traffic flow due to traffic signal improvements at interchange and Greenhill Road	Mid-term	High	■ Municipalities
	5 — Evaluate the incorporation of signals at Phoenixville Pike and Wilson Drive to signal system	Mid-term	High	■ Municipalities
	6 — Extend off-ramp by upgrading and striping the shoulder	Mid-term	Medium	■ PennDOT
	7 — Study needs and opportunities of reducing congestion issues by reconfiguring the interchange	Long-term	Low	■ PennDOT
Insufficient signage, markings, and short deceleration lane for US 202 Northbound off-ramp	**8 —** Add cross hatching in gore area of Northbound off-ramp	**Short-term**	**High**	■ **PennDOT Maintenance**
	9 — Install "Boot Road, ¼ Mile" advanced notice sign for exit on US 202 Northbound	**Short-term**	**High**	■ **PennDOT Maintenance**
	10 — Extend off-ramp by upgrading and striping the shoulder and/or gore area	Mid-term	Medium	■ PennDOT Maintenance
Inadequate signage for US 202 Southbound off-ramp	**11 —** Install "Boot Road, ¼ Mile" advanced notice sign for exit on US 202 Southbound	**Short-term**	**High**	■ **PennDOT Maintenance**
Peak-hour commuter traffic creates congestion	**12 —** Based on analysis in the *US202/US 322 Interchange Completion Study* (DVRPC, Publication TM08009, 2008), pursue a Point-of-Access study to evaluate alternative access points for the proposed slip ramp connecting Ward Avenue to US 202 Northbound	Short-term	Medium	■ PennDOT ■ Municipalities
	13 — Encourage use of travel demand management strategies by employers, such as staggered work hours and telecommuting	Mid-term	Medium	■ TMACC

Sources: DVRPC and CCPC, 2010.

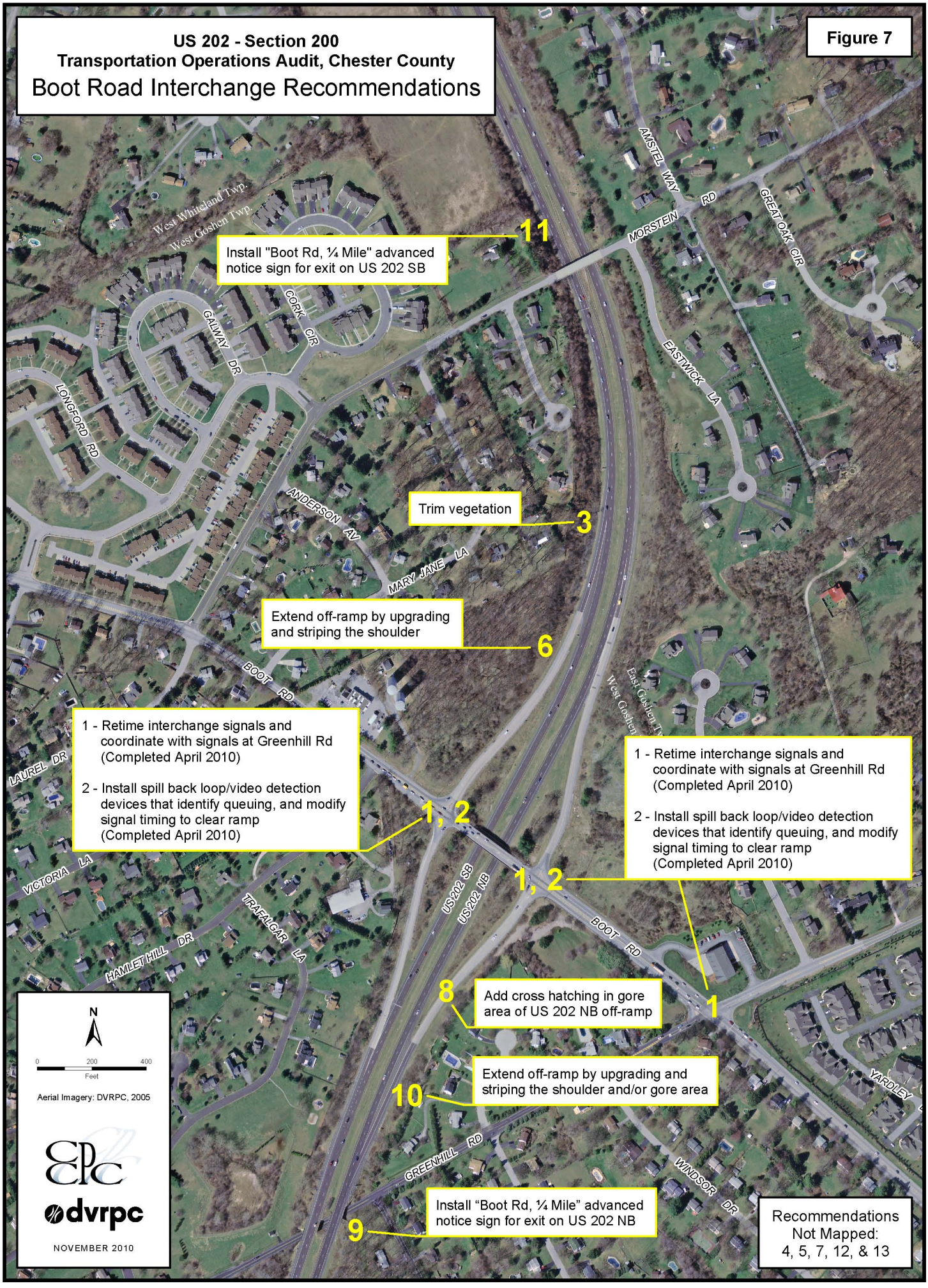

US 202 - Section 200
Transportation Operations Audit, Chester County
Boot Road Interchange Recommendations
Figure 7
Install "Boot Rd, ¼ Mile" advanced notice sign for exit on US 202 SB
11
Trim vegetation
3
Extend off-ramp by upgrading and striping the shoulder
6
1 - Retime interchange signals and coordinate with signals at Greenhill Rd (Completed April 2010)
2 - Install spill back loop/video detection devices that identify queuing, and modify signal timing to clear ramp (Completed April 2010)
1, 2
1 - Retime interchange signals and coordinate with signals at Greenhill Rd (Completed April 2010)
2 - Install spill back loop/video detection devices that identify queuing, and modify signal timing to clear ramp (Completed April 2010)
1, 2
1
8
Add cross hatching in gore area of US 202 NB off-ramp
Extend off-ramp by upgrading and striping the shoulder and/or gore area
10
Install "Boot Rd, ¼ Mile" advanced notice sign for exit on US 202 NB
9
Recommendations Not Mapped: 4, 5, 7, 12, & 13
N
0 200 400
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
West Whiteland Twp.
West Goshen Twp.
East Goshen Twp.
MORSTEIN RD
AMSTEL WAY
GREAT OAK CIR
EASTWICK LA
CORK CIR
GALWAY DR
LONGFORD RD
ANDERSON AV
MARY JANE LA
BOOT RD
LAUREL DR
VICTORIA LA
HAMLET HILL DR
TRAFALGAR LA
US202 SB
US202 NB
GREENHILL RD
WINDSOR DR
YARDLEY

Figure 8 displays the exact location of several recommendations from **Table 7** on an aerial map.

Table 7: Boot Road at Greenhill Road Recommendations

Issues	Recommendations	Time - frame	Priority	Lead Agency
High number of crashes within the intersection due to heavy traffic volumes and turning movements	**1 —** Evaluate opportunity to extend all-red phase while minimizing impacts to Boot Road traffic	Short-term	Medium	■ PennDOT ■ Municipalities
Wilson Drive signal not coordinated with Greenhill and US 202 interchange signals	**2 —** Expand coordinated signal system along Boot Road from Phoenixville Pike to Wilson Drive and consider using GPS timing devices	Mid-term	High	■ PennDOT ■ Municipalities
	3 — Construct closed loop signal system on Boot Road between Phoenixville Pike and Wilson Drive	Long-term	Medium	■ PennDOT ■ Municipalities
Steep slope limits visibility of oncoming traffic	**4 —** Reconstruct to reduce vertical curve	Long-term	Low	■ PennDOT

Sources: DVRPC and CCPC, 2010.

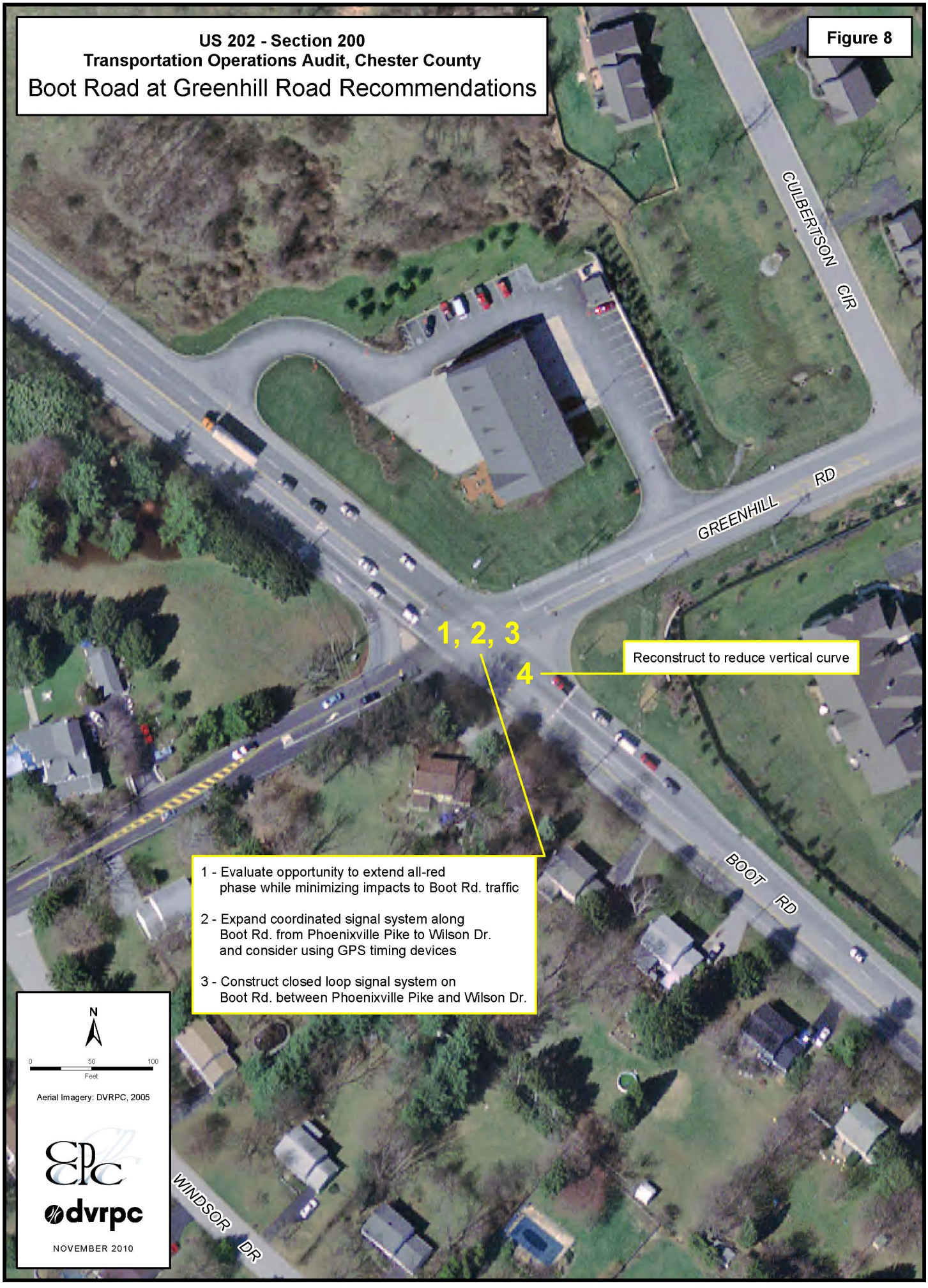

US 202 - Section 200
Transportation Operations Audit, Chester County
Boot Road at Greenhill Road Recommendations
Figure 8
CULBERTSON CIR
GREENHILL RD
1, 2, 3
4
Reconstruct to reduce vertical curve
1 - Evaluate opportunity to extend all-red phase while minimizing impacts to Boot Rd. traffic
2 - Expand coordinated signal system along Boot Rd. from Phoenixville Pike to Wilson Dr. and consider using GPS timing devices
3 - Construct closed loop signal system on Boot Rd. between Phoenixville Pike and Wilson Dr.
BOOT RD
WINDSOR DR
N
0 50 100
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010

Figure 9 displays the location of recommendations from **Table 8** on an aerial map.

Table 8: PA 100 Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Safety issues due to the sharp curve of PA 100 Southbound ramp, high speeds entering curve, lack of delineation/signage, and roadway super elevation	**1 —** Construct safety improvements that advise lower speeds and reduce run-off-the-road crashes such as: ■ Flexible post delineators ■ "Reduce Speed Ahead" advisory signs ■ Guardrail ■ Edge line rumble strips ■ Raised pavement markers ■ Chevrons ■ Reconstruct to reduce roadway superelevation	**Short-term**	**High**	■ **PennDOT Maintenance**
Short merge lane from PA 100 Southbound to US 202	**2 —** Lengthen acceleration lane by striping the shoulder	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT marked-up design plans to further investigate** ■ **Follow-up with PennDOT Traffic Unit is needed to determine if the shoulders can be reduced in width**
The merge area from PA 100 Southbound to US 202 is complicated by limited visibility due to overgrown vegetation	**3 —** Continually trim and maintain the overgrowth area	**Short-term**	**High**	■ **PennDOT Maintenance**

Table 8: PA 100 Interchange Recommendations Continued

Issues	Recommendations	Time-frame	Priority	Lead Agency
Short deceleration lane from US 202 Northbound to PA 100	**4 —** Extend off-ramp by reconstructing and striping the shoulder and/or gore area	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT marked-up design plans to further investigate** ■ **Follow-up with PennDOT Traffic Unit is needed to determine if the shoulders can be reduced in width**
On US 202 Northbound, drivers have a tendency to make last-minute merges from the passing lane to the off-ramp for PA 100	**5 —** ARRA project may update signage. Change text on overhead sign from "202 North, King of Prussia" to "PA 100 North, Exit 7/8 mile"	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT made changes to signage design plans to accommodate request, but follow-up with Design Unit is needed to ensure structure designs support additional weight/wind loads**
Unauthorized vehicles use the maintenance area just north of the off-ramp to PA 100 from US 202 Northbound as a cut-through back to PA 100 after they miss their exit	**6 —** Post "Emergency and Authorized Vehicles Only" sign	Short-term	Low	■ PennDOT Maintenance ■ Follow-up is needed to see if contractor will clean up area and re-seed after US 202 project completed

Sources: DVRPC and CCPC, 2010.

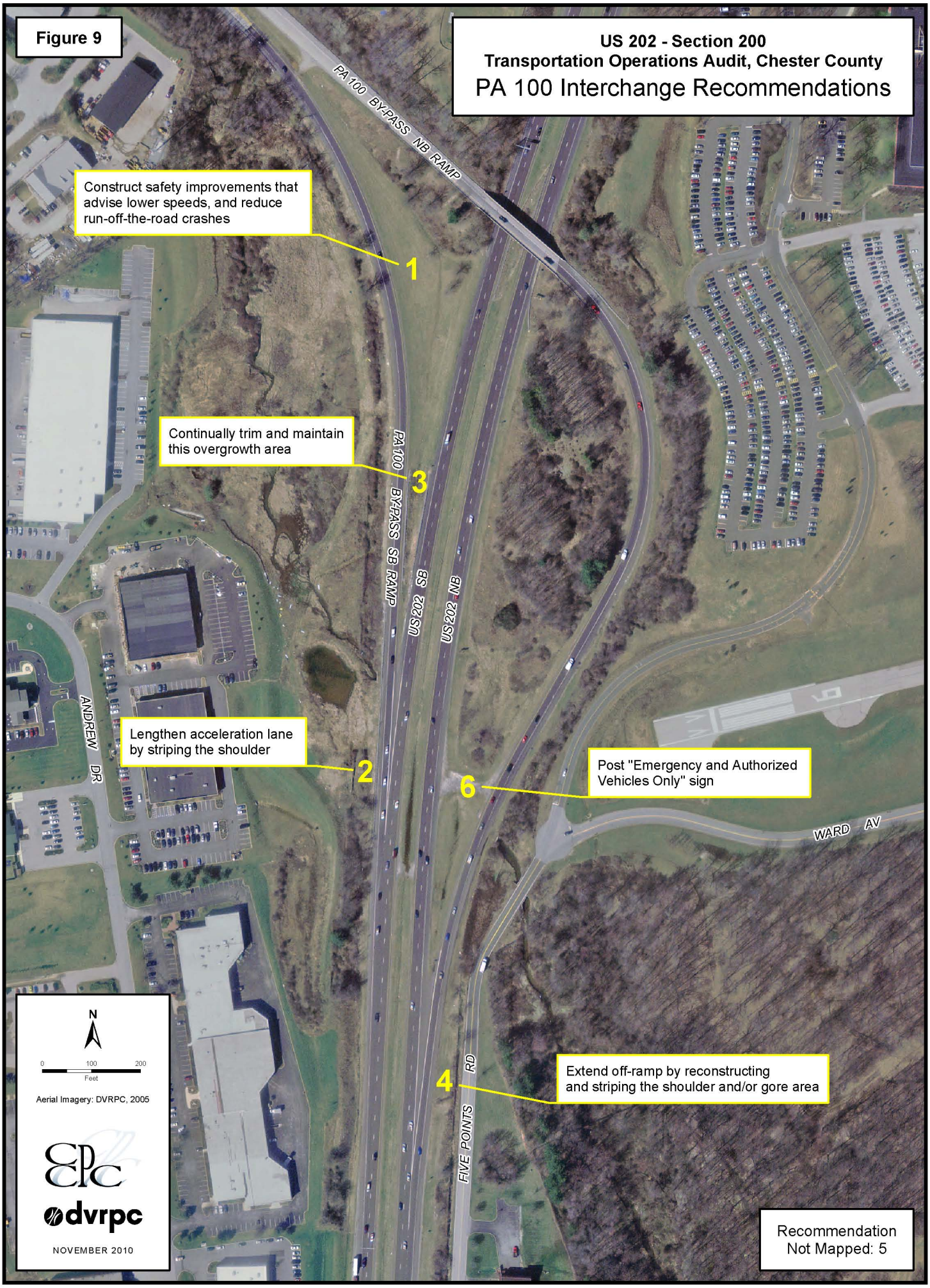


Figure 9
US 202 - Section 200
Transportation Operations Audit, Chester County
PA 100 Interchange Recommendations
PA 100 BY-PASS NB RAMP
Construct safety improvements that advise lower speeds, and reduce run-off-the-road crashes
1
Continually trim and maintain this overgrowth area
3
PA 100 BY-PASS SB RAMP
US 202 SB
US 202 NB
ANDREW DR
Lengthen acceleration lane by striping the shoulder
2
Post "Emergency and Authorized Vehicles Only" sign
6
WARD AV
FIVE POINTS RD
4
Extend off-ramp by reconstructing and striping the shoulder and/or gore area
N
0 100 200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Recommendation Not Mapped: 5

Figure 10 displays the location of recommendations from **Table 9** on an aerial map.

Table 9: US 322 Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Complex merging area between US 322 and Paoli Pike on US 202 in both directions. The shared merge lane is sometimes used as a through lane.	**1 —** Add small dashed lines to indicate a separation between the auxiliary merge lanes and through travel lanes	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **Follow-up needed**
	2 — Add merge sign to gore area for US 322 Southbound to US 202 Southbound	**Short-term**	**High**	■ **PennDOT Maintenance**

Sources: DVRPC and CCPC, 2010.

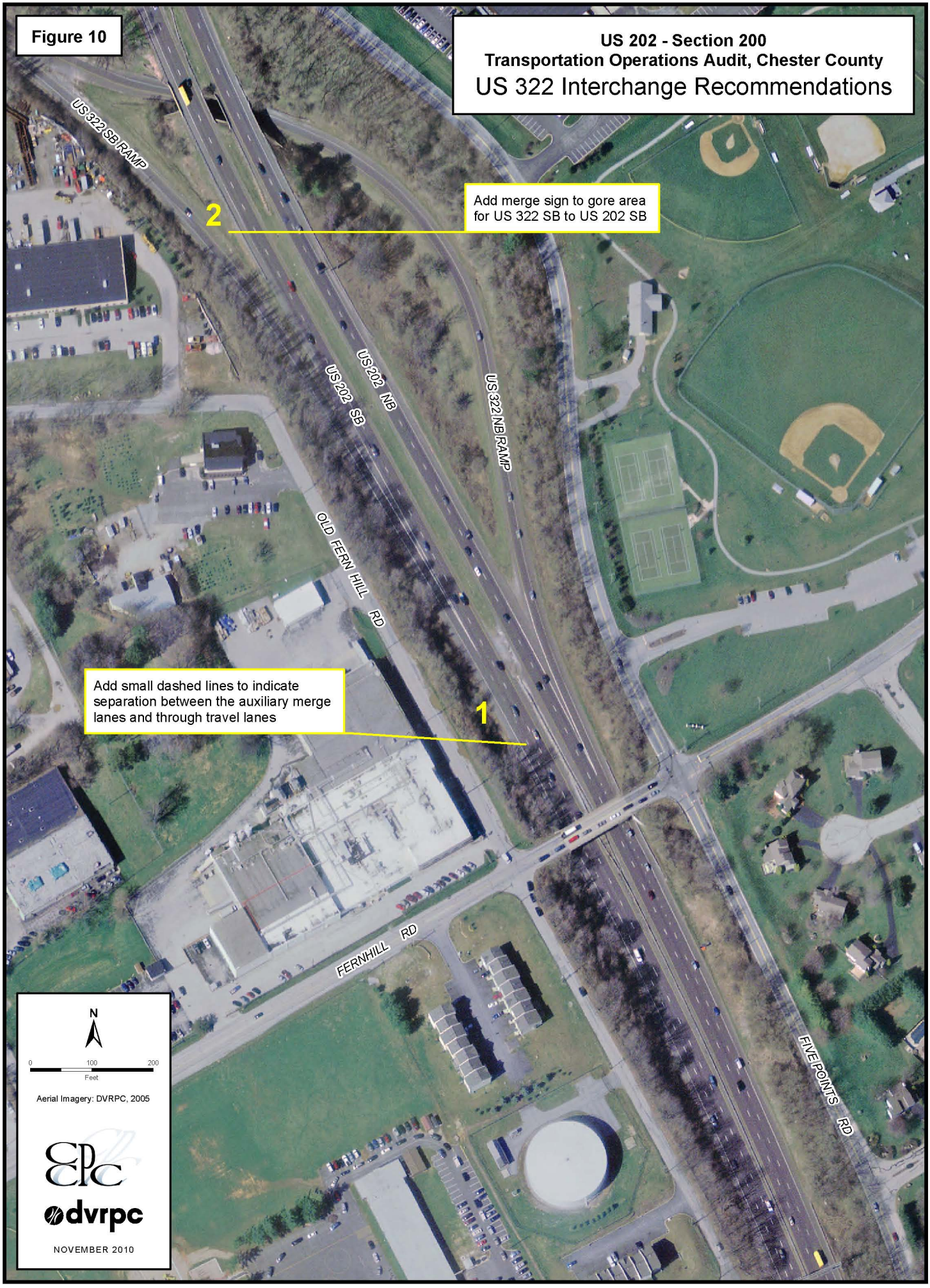


Figure 10
US 202 - Section 200
Transportation Operations Audit, Chester County
US 322 Interchange Recommendations
US 322 SB RAMP
2
Add merge sign to gore area for US 322 SB to US 202 SB
US 202 NB
US 202 SB
US 322 NB RAMP
OLD FERN HILL RD
Add small dashed lines to indicate separation between the auxiliary merge lanes and through travel lanes
1
FERNHILL RD
FIVE POINTS RD
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010

Figure 11 displays the location of several recommendations from **Table 10** on an aerial map.

Table 10: Paoli Pike Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
	1 — Add small dashed lines to indicate a separation between the auxiliary merge lanes and through travel lanes	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **Follow-up needed**
There are complex merging areas on US 202 in both directions between interchanges: ■ US 322 and Paoli Pike. ■ Paoli Pike and PA 3 The shared merge lanes are sometimes used as through lanes.	**2 —** Add "Exit Only" sign to Northbound US 202 over the deceleration lane for the Paoli Pike exit	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT made changes to signage design plans, but follow-up with Design Unit is needed to ensure structure designs support additional weight/wind loads**
Delineation of US 202 Southbound off-ramp gore area is unclear	**3 —** Add gore area markings	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **Follow-up needed**
Excessive queuing on US 202 Southbound off-ramp	**4 —** Extend turning lanes on the ramp	Short-term	Medium	■ PennDOT
Inaccurate directional signs and improperly placed destination signs are confusing. Sign clutter near the interchange is distracting.	**5 —** Switch route signs and directional/lane arrows for Northbound and Southbound US 202 on Paoli Pike	Short-term	Low	■ PennDOT Maintenance
	6 — Move the Paoli/West Chester destination sign on US 202 Southbound off-ramp closer to Paoli Pike intersection	Short-term	Low	■ PennDOT Maintenance
Park and Ride lot underutilized	**7 —** Additional signage may be provided as part of the US 202 Section 320 project.	Short-term	Medium	■ PennDOT
	8 — Provide a roadway connection with the lot to the West Goshen Shopping Center parking lot to improve access and provide a safe exit, especially for vehicles heading east on Paoli Pike	Long-term	Low	■ PennDOT ■ Shopping Center Management

Table 10: Paoli Pike Interchange Recommandations Continued

Issues	Recommendations	Time-frame	Priority	Lead Agency
Incomplete system of sidewalks limits pedestrian mobility	**9 —** Develop and implement a pedestrian/bicycle improvement project to provide infrastructure along Paoli Pike to West Chester	Mid-term	High	■ PennDOT ■ Municipalities
During rainy conditions, the right-turn lane is flooded on the US 202 Southbound off-ramp.	**10 —** Improve drainage area and trench between park and ride lot and US 202 Southbound off-ramp.	Mid-term	Medium	■ PennDOT
Insufficient public transit infrastructure to support transit demand	**11—** Support transit recommendations from *Boosting The Bus: Better Transit Integration Along West Chester Pike* (DVRPC, Pub # 10033) which suggests strategies to improve the attractiveness, speed, and cost effectiveness of bus service along West Chester Pike including transit signal priority, bus stop consolidation, limited station stops, far-side bus stops, and enhanced passenger information.	Mid-term	High	■ SEPTA ■ PennDOT ■ Municipalities
	12— Improve the westbound bus stop near the West Goshen Shopping Center by building a larger shelter enclosure with enhanced passenger information, relocating this stop to the far side of the intersection, providing enhanced crosswalks for Paoli Pike, and providing improved walkway connections into the shopping center.	Mid-term	High	■ SEPTA ■ PennDOT ■ Municipalities

Sources: DVRPC and CCPC, 2010.

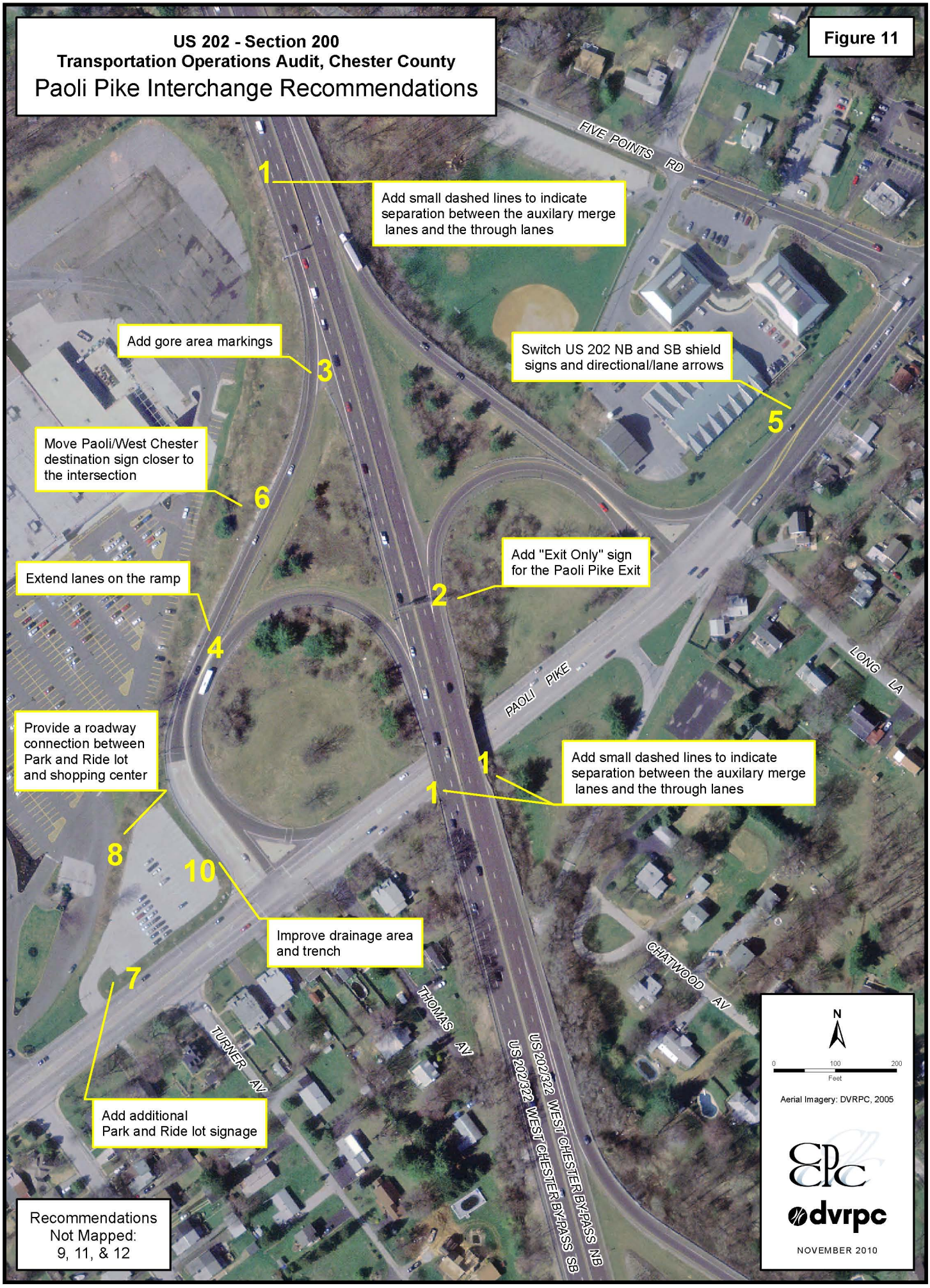

US 202 - Section 200
Transportation Operations Audit, Chester County
Paoli Pike Interchange Recommendations
Figure 11
1
Add small dashed lines to indicate separation between the auxilary merge lanes and the through lanes
Add gore area markings
3
Switch US 202 NB and SB shield signs and directional/lane arrows
5
Move Paoli/West Chester destination sign closer to the intersection
6
Add "Exit Only" sign for the Paoli Pike Exit
2
Extend lanes on the ramp
4
Provide a roadway connection between Park and Ride lot and shopping center
8
1
1
Add small dashed lines to indicate separation between the auxilary merge lanes and the through lanes
10
Improve drainage area and trench
7
Add additional Park and Ride lot signage
FIVE POINTS RD
PAOLI PIKE
LONG LA
CHATWOOD AV
THOMAS AV
TURNER AV
US 202/322 WEST CHESTER BYPASS SB
US 202/322 WEST CHESTER BYPASS NB
Recommendations Not Mapped: 9, 11, & 12
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
CPC
dvrpc
NOVEMBER 2010

Table 11: PA 3 (West Chester Pike) Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Complex merging area between Paoli Pike and PA 3 on US 202 in both directions. The shared merge lanes are sometimes used as through travel lanes.	**1 —** Add small dashed lines separating auxiliary merge lane from through travel lanes	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **Follow Up Needed**
	2 — Add "Exit Only" sign to US 202 Southbound over the deceleration lane for PA 3 exit	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **PennDOT made changes to signage design plans, but follow-up with Design Unit is needed to ensure structure designs support additional weight/wind loads**
Conflict areas at merge for the ramp from PA 3 to Northbound US 202. Although PA 3 Eastbound movement has more traffic, this movement currently must yield to PA 3 Westbound	**3 —** Add additional yield signs on the ramp from PA 3 Westbound to US 202 Northbound	Short-term	Medium	■ PennDOT Maintenance ordered additional signage for this location ■ Follow Up Needed
	4 — Add pavement markings (shark teeth) to emphasize yield movement	Short-term	Medium	■ PennDOT Maintenance
There are no bicycle or pedestrian facilities	**5 —** Develop a bicycle and pedestrian improvement plan to identify and develop safe facilities to connect the West Goshen Town Center, West Goshen Shopping Center, and West Chester	Mid-term	Medium	■ PennDOT ■ Municipalities
Overhead signs between Westtown Road and PA 3 exits are faded and outdated	**6 —** Replace and update wording on overhead signs between Westtown Road and PA 3 exits	**Short-term**	**High**	■ **Recommended in ARRA project**
The mountable curb on US 202 Southbound on/off-ramp is deteriorated	**7 —** Replace or repair curb	**Short-term**	**High**	■ **Recommended in ARRA project**
Short merge lane from US 202 Northbound off-ramp to PA 3	**8 —** Use shoulder to extend ramp from US 202 Northbound to PA 3 Eastbound	Mid-term	Low	■ PennDOT

Table 11: PA 3 (West Chester Pike) Interchange Recommendations Continued

Issues	Recommendations	Time-frame	Priority	Lead Agency
No directional signs to West Chester currently exist on the overpass	**9 —** Reinstall signage on the US 202 overpass to indicate PA 3 Westbound to West Chester	Mid-term	Low	■ PennDOT Maintenance
Vehicular movements generated by businesses along PA 3 Westbound create conflict points in the interchange area. The median along PA 3 restricts many left turns onto PA 3 Eastbound and drivers often use the intersection at the interchange to make a U-turn.	**10 —** Conduct a study to evaluate modified lane configurations, including a potential road diet between Five Points Road and Westtown Road to reduce conflict points, calm traffic, and accommodate bicyclists and pedestrians	Mid-term	Medium	■ PennDOT ■ West Goshen Township ■ CCPC
	11 — Consolidate driveways to reduce the amount of weaving and merging movements approaching the interchange area	Long-term	Low	■ West Goshen Township ■ Local businesses

Sources: DVRPC and CCPC, 2010.

Figure 12 displays the location of several recommendations from **Table 11** on an aerial map, while several recommendations from **Table 12** are presented on **Figure 13.**

Table 12: Westtown Road Interchange Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
US 202 Southbound to Westtown Road exit sign covered by brush	**1 —** Clear brush covering the sign	**Short-term**	**High**	■ **PennDOT Maintenance**
Short acceleration lane from Westtown Road to US 202 Northbound	**2 —** Extend acceleration lane by reconstructing and striping the shoulder	*Completed*	*Fall 2010*	■ *Recommended in ARRA project*
At the bottom of the US 202 Southbound off-ramp, guide rail is frequently damaged by truck traffic making right turns	**3 —** Adjust guide rail radius for right turns of tractor trailers	*Completed*	*Fall 2010*	■ *Recommended in ARRA project*
The Westtown Road left turn lanes to US 202 are difficult to see	**4 —** Install a signs on the approach to the intersection that shows the lane configuration under the bridge	Mid-term	Low	■ PennDOT Maintenance
Proposed Wyeth development may increase traffic using this interchange	**5 —** Institute multi-municipal coordination of plan review and mitigation of impacts through the development process	**Short-term**	**High**	■ **PennDOT** ■ **Municipalities**

Sources: DVRPC and CCPC, 2010.

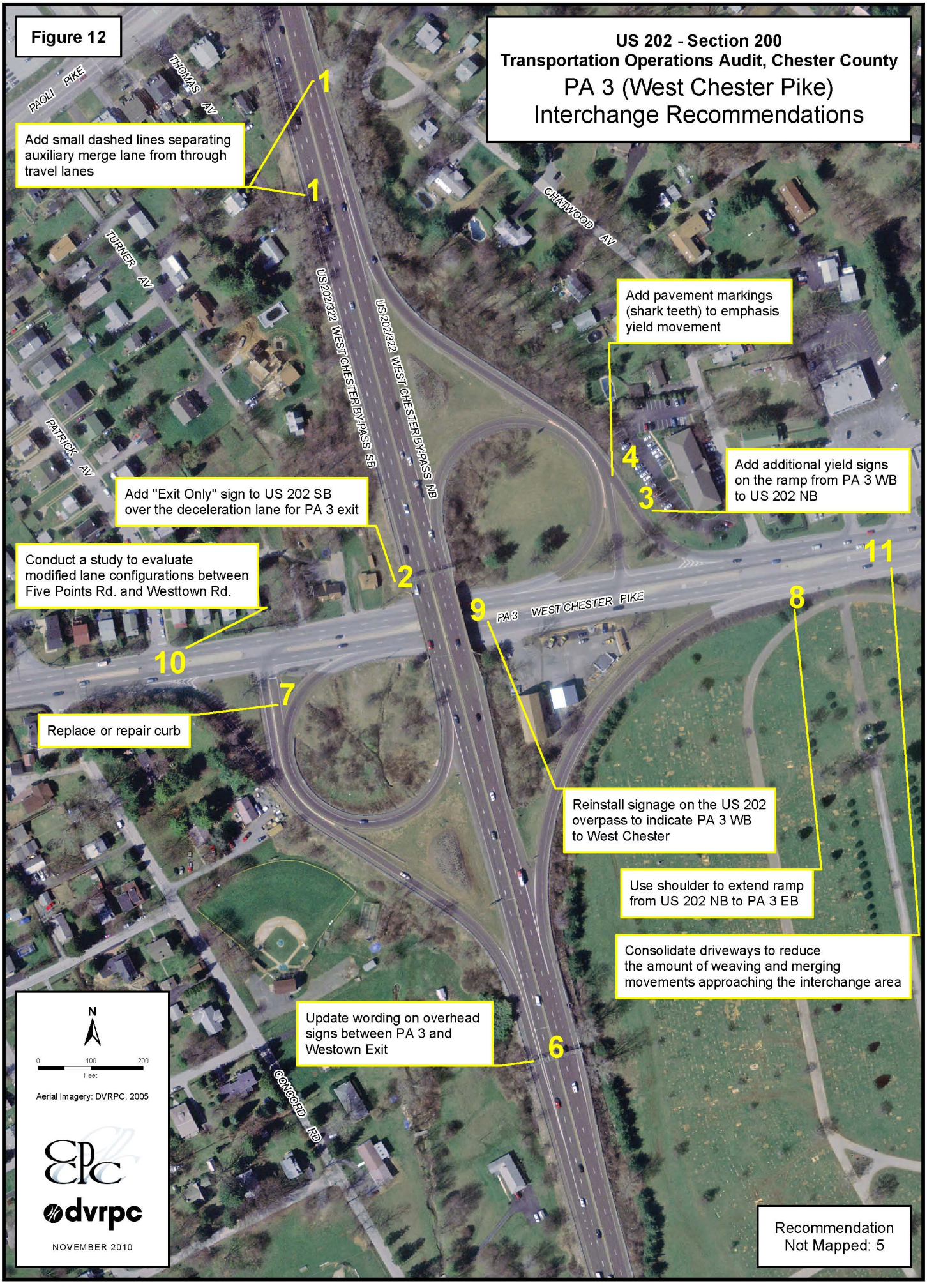


Figure 12
US 202 - Section 200
Transportation Operations Audit, Chester County
PA 3 (West Chester Pike)
Interchange Recommendations
PAOLI PIKE
THOMAS AV
TURNER AV
PATRICK AV
CHATWOOD AV
US 202/322 WEST CHESTER BY-PASS SB
US 202/322 WEST CHESTER BY-PASS NB
PA 3 WEST CHESTER PIKE
CONCORD RD
1
Add small dashed lines separating auxiliary merge lane from through travel lanes
2
Add "Exit Only" sign to US 202 SB over the deceleration lane for PA 3 exit
3
Add additional yield signs on the ramp from PA 3 WB to US 202 NB
4
Add pavement markings (shark teeth) to emphasis yield movement
6
Update wording on overhead signs between PA 3 and Westown Exit
7
Replace or repair curb
8
Use shoulder to extend ramp from US 202 NB to PA 3 EB
9
Reinstall signage on the US 202 overpass to indicate PA 3 WB to West Chester
10
Conduct a study to evaluate modified lane configurations between Five Points Rd. and Westtown Rd.
11
Consolidate driveways to reduce the amount of weaving and merging movements approaching the interchange area
N
0 100 200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Recommendation Not Mapped: 5

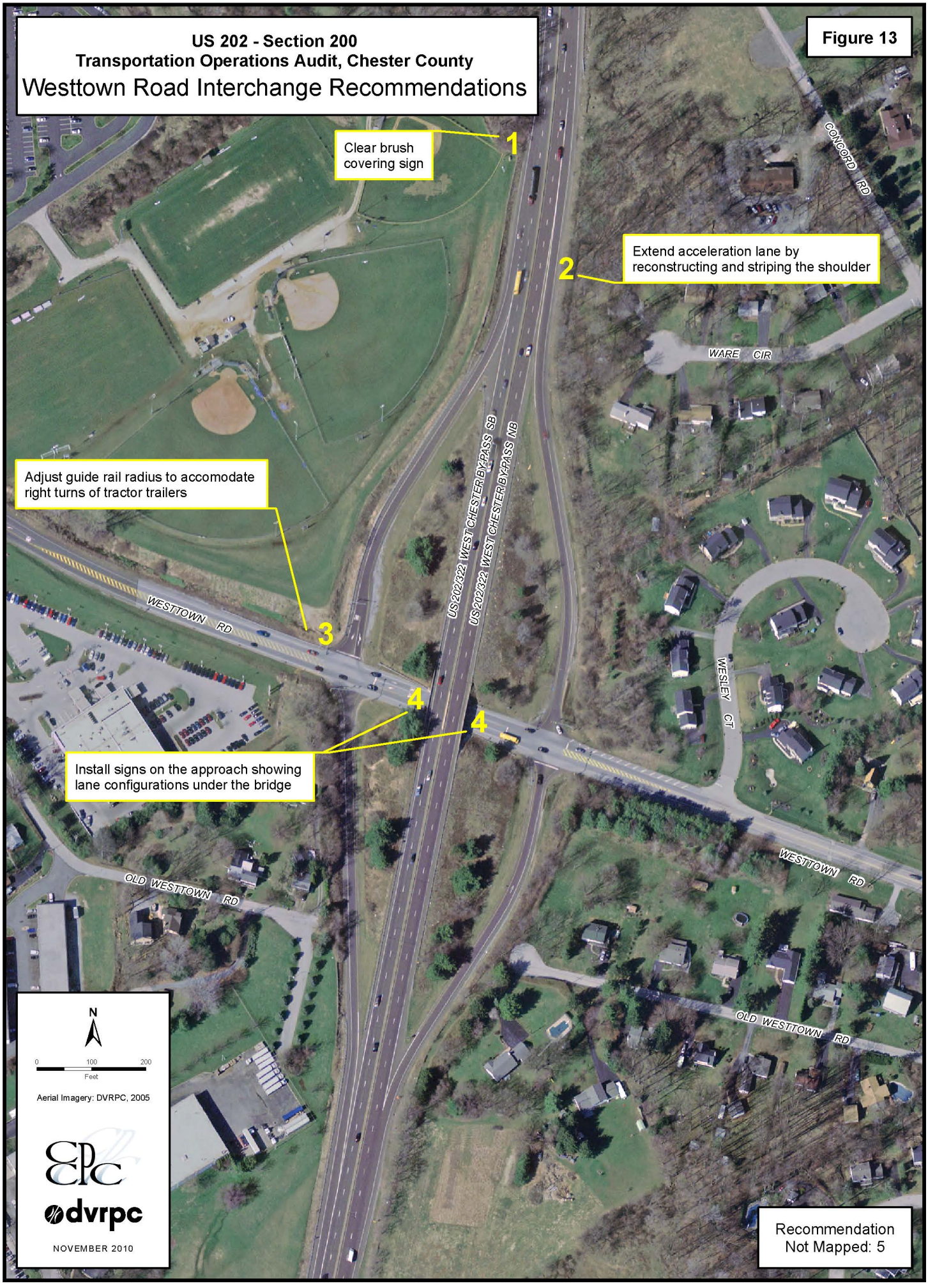

US 202 - Section 200
Transportation Operations Audit, Chester County
Westtown Road Interchange Recommendations
Figure 13
Clear brush covering sign
1
Extend acceleration lane by reconstructing and striping the shoulder
2
Adjust guide rail radius to accomodate right turns of tractor trailers
3
Install signs on the approach showing lane configurations under the bridge
4
4
CONCORD RD
WARE CIR
US 202/322 WEST CHESTER BY-PASS SB
US 202/322 WEST CHESTER BY-PASS NB
WESTTOWN RD
WESLEY CT
OLD WESTTOWN RD
WESTTOWN RD
OLD WESTTOWN RD
N
0 100 200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Recommendation Not Mapped: 5

Figure 14 displays the location of several recommendations from **Table 13** on an aerial map.

Table 13: Matlack Street Intersection Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
Poor signal timing and lane configurations at the intersection cause queuing of US 202 Southbound in the PM peak-hour, and other operational issues	**1 —** Install updated signal timing plans and modify lane configurations on Matlack Street when the new development proposed for the southwest corner of the intersection is built	**Short-term**	**High**	■ **PennDOT** ■ **West Goshen Township** ■ **Developer**
	2 — Resurface US 202 to eliminate rutting on US 202 Southbound approaching the intersection	**Short-term**	**High**	■ **Recommended in ARRA project** ■ **Follow up needed**
	3 — Evaluate the need for a queue detection system on US 202 Southbound	**Short-term**	**High**	■ **PennDOT** ■ **West Goshen Township**
	4 — Extend the US 202 Southbound left-turn lane to where the guardrail meets the Jersey barrier	Mid-term	High	■ Recommended in ARRA project ■ Follow needed ■ PennDOT marked up design plans to further investigate, but will not be able to determine the feasibility until the old road surface is removed
There is limited advanced warning of the Matlack Street signal on US 202 Southbound	**5 —** Add an additional "Signal Ahead" sign on US 202 Southbound	Short-term	Medium	■ PennDOT Maintenance ordered new signage ■ Follow up needed
There are currently no bicycle or pedestrian facilities	**6 —** Conduct a feasibility study to determine the need to develop a bicycle and pedestrian plan to include improved connections of residential developments to West Chester University	Mid-term	Medium	■ PennDOT ■ West Goshen Township ■ Developer

Sources: DVRPC and CCPC, 2010.

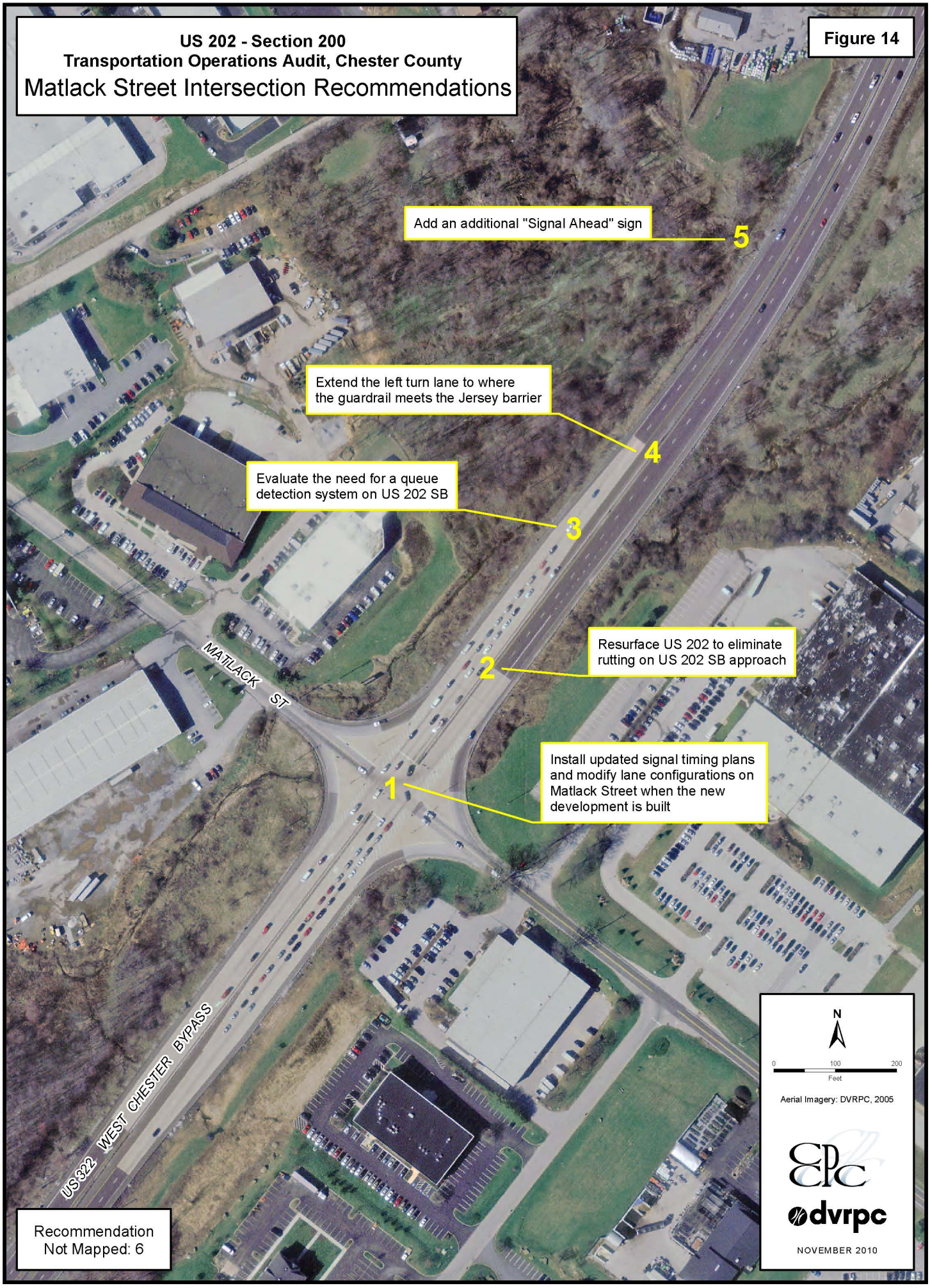

US 202 - Section 200
Transportation Operations Audit, Chester County
Matlack Street Intersection Recommendations
Figure 14
Add an additional "Signal Ahead" sign
5
Extend the left turn lane to where the guardrail meets the Jersey barrier
4
Evaluate the need for a queue detection system on US 202 SB
3
Resurface US 202 to eliminate rutting on US 202 SB approach
2
Install updated signal timing plans and modify lane configurations on Matlack Street when the new development is built
1
MATLACK ST
US 322 WEST CHESTER BYPASS
Recommendation Not Mapped: 6
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010

Table 14: US 202 South of Matlack Street Recommendations

Issues	Recommendations	Time-frame	Priority	Lead Agency
On US 202 Southbound south of Matlack St., congestion is caused by poor delineation of travel lanes and exit ramp	Evaluate extending the two US 202 Southbound lanes using the existing gore area and shoulder from the Matlack Street exit ramp to High Street	Mid-term	Medium	■ Recommended in ARRA project ■ Follow up needed ■ PennDOT marked up design plans to further investigate

Sources: DVRPC and CCPC, 2010.

CHAPTER 4

Conclusions

This Transportation Operations Audit (TOA) was conducted to analyze transportation operations in Chester County for the US 202—Section 200 corridor and to produce a set of recommendations. Some of the recommendations are currently being implemented through the American Recovery and Reinvestment Act (ARRA) project. Many other recommendations can be implemented through PennDOT and the municipalities. Another category of strategies can be implemented through routine PennDOT maintenance. The full implementation of the recommendations may be constrained, however, by time and budget.

It is envisioned that the audit team will reconvene in approximately 18 months to assess progress in implementing the recommendations. Depending upon which identified strategies were actually constructed as part of the ARRA project, the remaining strategies may have to be reassessed or reprioritized.

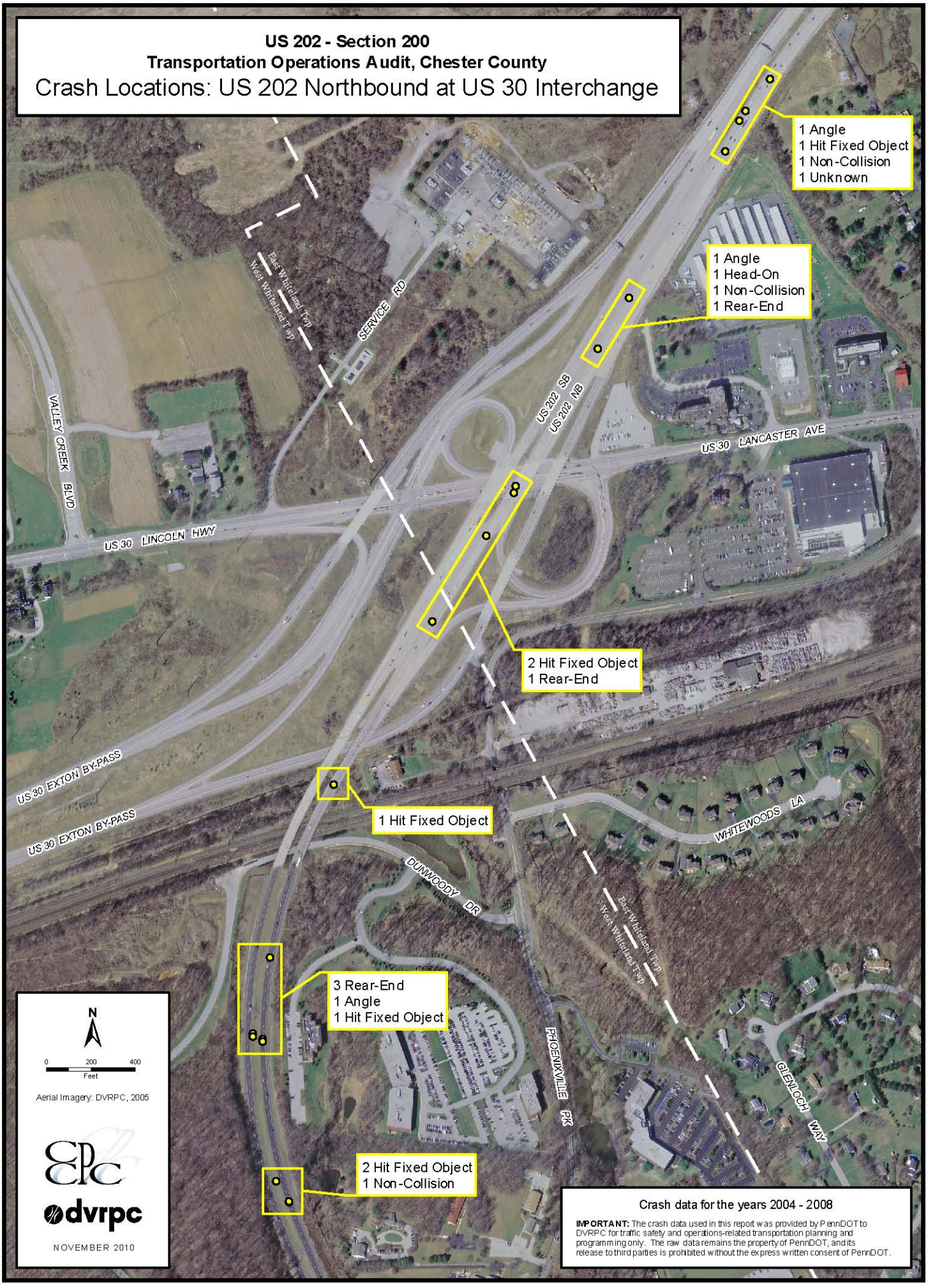
APPENDIX A

Detailed Crash Analysis

During the audit meetings, there was a detailed examination of specific locations in the corridor. The analysis included looking at where specifically the crashes occurred on US 202, the ramps, and the arterials at the interchanges from 2004 through 2008. For each location, an aerial map with the crashes and a crash summary were provided to participants. These maps and tables are included on the following pages. The detailed analysis examined the following sites:

- US 202 Northbound at US 30 Interchange;
- US 202 at Boot Road Interchange;
- Boot Road at Greenhill Road Intersection;
- US 202 at PA 100 Interchange;
- US 202 at US 322 Interchange;
- US 202 at Paoli Pike Interchange;
- US 202 at PA 3 Interchange (West Chester Pike);
- US 202 at Westtown Road Interchange; and
- US 202 at Matlack Street Intersection.

Note: Due to the nature of the crash database, on the following maps, the crash location points may represent more than one crash, and therefore may not correspond directly with the legend tagline.


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 Northbound at US 30 Interchange
1 Angle
1 Hit Fixed Object
1 Non-Collision
1 Unknown
1 Angle
1 Head-On
1 Non-Collision
1 Rear-End
2 Hit Fixed Object
1 Rear-End
1 Hit Fixed Object
3 Rear-End
1 Angle
1 Hit Fixed Object
2 Hit Fixed Object
1 Non-Collision
SERVICE RD
US 202 SB
US 202 NB
US 30 LANCASTER AVE
US 30 LINCOLN HWY
US 30 EXTON BY-PASS
US 30 EXTON BY-PASS
VALLEY CREEK BLVD
WHITEWOODS LA
DUNWOODY DR
PHOENIXVILLE PK
GLENLOCH WAY
East Whiteland Twp
West Whiteland Twp
N
0 200 400
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 Northbound at US 30 Interchange

YEAR		
2004	1	5.0%
2005	3	15.0%
2006	1	5.0%
2007	4	20.0%
2008	11	55.0%
Total	**20**	100.0%

COLLISION TYPE		
Non-collision	3	15.0%
Rear-end	5	25.0%
Head-on	1	5.0%
Angle	3	15.0%
Sideswipe (same dir.)	0	0.0%
Hit fixed object	7	35.0%
Hit pedestrian	0	0.0%
Other or unknown	1	5.0%
Total	**20**	100.0%

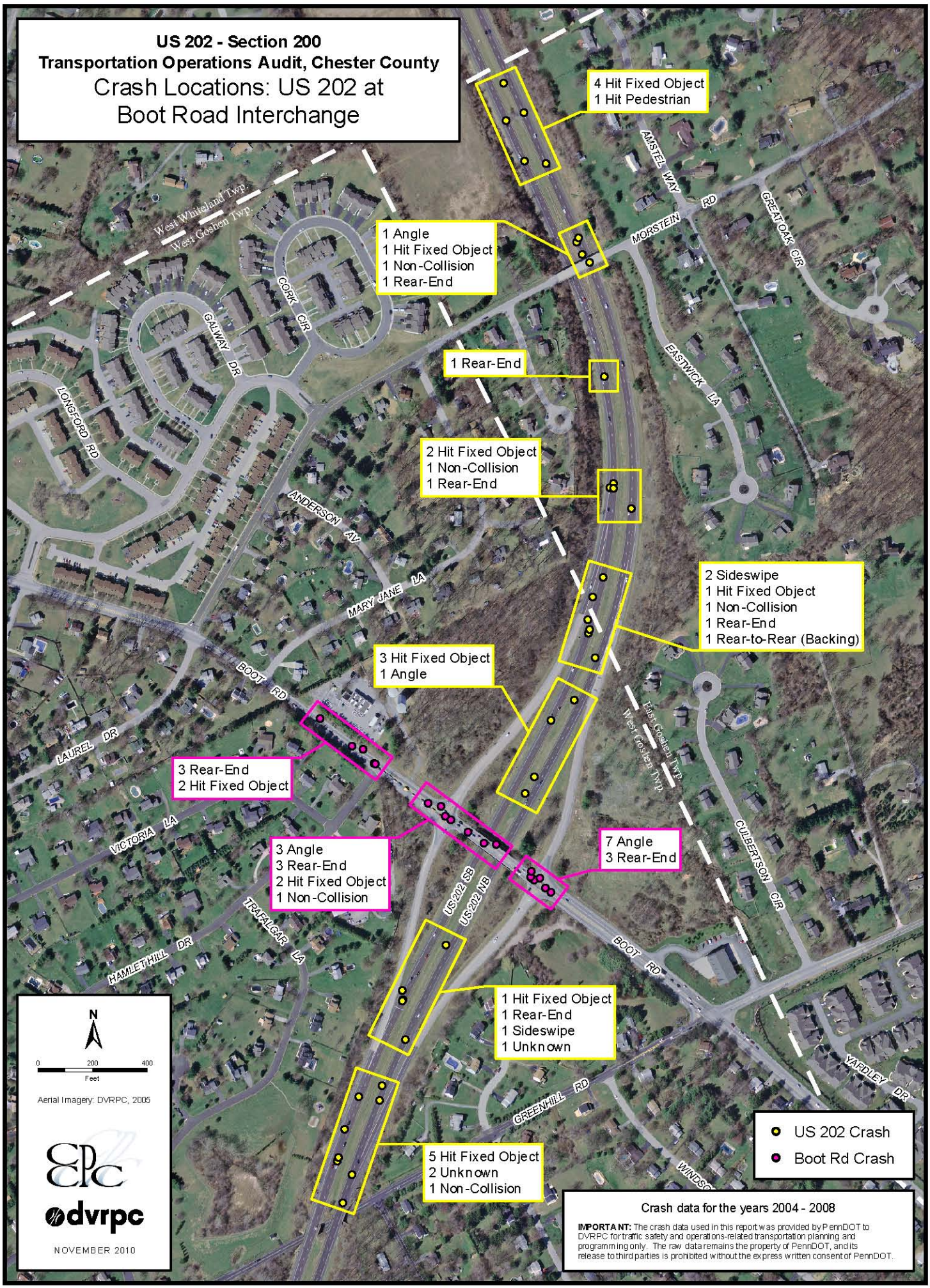
SEVERITY COUNT (persons)	
Fatalities	1
Major	0
Moderate	9
Minor	0
Unknown injury / severity	1
Total	**11**

ROAD CONDITION		
Dry	10	50.0%
Wet	3	15.0%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	3	15.0%
Slush	1	5.0%
Ice	3	15.0%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**20**	100.0%

ILLUMINATION		
Daylight	11	55.0%
Dark—no street lights	6	30.0%
Dark—street lights	3	15.0%
Dusk	0	0.0%
Dawn	0	0.0%
Total	**20**	100.0%

WEATHER		
No adverse conditions	10	50.0%
Rain	2	10.0%
Sleet	1	5.0%
Snow	6	30.0%
Unknown	1	5.0%
Total	**20**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at
Boot Road Interchange
4 Hit Fixed Object
1 Hit Pedestrian
1 Angle
1 Hit Fixed Object
1 Non-Collision
1 Rear-End
1 Rear-End
2 Hit Fixed Object
1 Non-Collision
1 Rear-End
2 Sideswipe
1 Hit Fixed Object
1 Non-Collision
1 Rear-End
1 Rear-to-Rear (Backing)
3 Hit Fixed Object
1 Angle
3 Rear-End
2 Hit Fixed Object
3 Angle
3 Rear-End
2 Hit Fixed Object
1 Non-Collision
7 Angle
3 Rear-End
1 Hit Fixed Object
1 Rear-End
1 Sideswipe
1 Unknown
5 Hit Fixed Object
2 Unknown
1 Non-Collision
West Whiteland Twp.
West Goshen Twp.
East Goshen Twp.
AMSTEL WAY
MORSTEIN RD
GREAT OAK CIR
EASTWICK LA
CORK CIR
GALWAY DR
LONGFORD RD
ANDERSON AV
MARY JANE LA
BOOT RD
LAUREL DR
VICTORIA LA
TRAFALGAR LA
HAMLET HILL DR
US 202 SB
US 202 NB
CULBERTSON CIR
GREENHILL RD
YARDLEY DR
N
0
200
400
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
US 202 Crash
Boot Rd Crash
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at Boot Road Interchange

YEAR		
2004	3	8.3%
2005	4	11.1%
2006	7	19.4%
2007	8	22.2%
2008	14	38.9%
Total	**36**	100.0%

COLLISION TYPE		
Non-collision	4	11.1%
Rear-end	5	13.9%
Head-on	0	0.0%
Angle	2	5.6%
Sideswipe (same dir.)	3	8.3%
Hit fixed object	17	47.2%
Hit pedestrian	1	2.8%
Other or unknown	4	11.1%
Total	**36**	100.0%

SEVERITY COUNT (persons)	
Fatalities	0
Major	3
Moderate	6
Minor	6
Unknown injury / severity	3
Total	**18**

ROAD CONDITION		
Dry	26	72.2%
Wet	1	2.8%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	3	8.3%
Slush	1	2.8%
Ice	5	13.9%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**36**	100.0%

ILLUMINATION		
Daylight	20	55.6%
Dark—no street lights	13	36.1%
Dark—street lights	0	0.0%
Dusk	2	5.6%
Dawn	1	2.8%
Total	**36**	100.0%

WEATHER		
No adverse conditions	26	72.2%
Rain	2	5.6%
Sleet	1	2.8%
Snow	6	16.7%
Unknown	1	2.8%
Total	**36**	100.0%

Boot Road at US 202 Interchange

YEAR		
2004	3	12.5%
2005	4	16.7%
2006	5	20.8%
2007	5	20.8%
2008	7	29.2%
Total	**24**	100.0%

COLLISION TYPE		
Non-collision	1	4.2%
Rear-end	9	37.5%
Head-on	0	0.0%
Angle	10	41.7%
Sideswipe (same dir.)	0	0.0%
Hit fixed object	4	16.7%
Hit pedestrian	0	0.0%
Other or unknown	0	0.0%
Total	**24**	100.0%

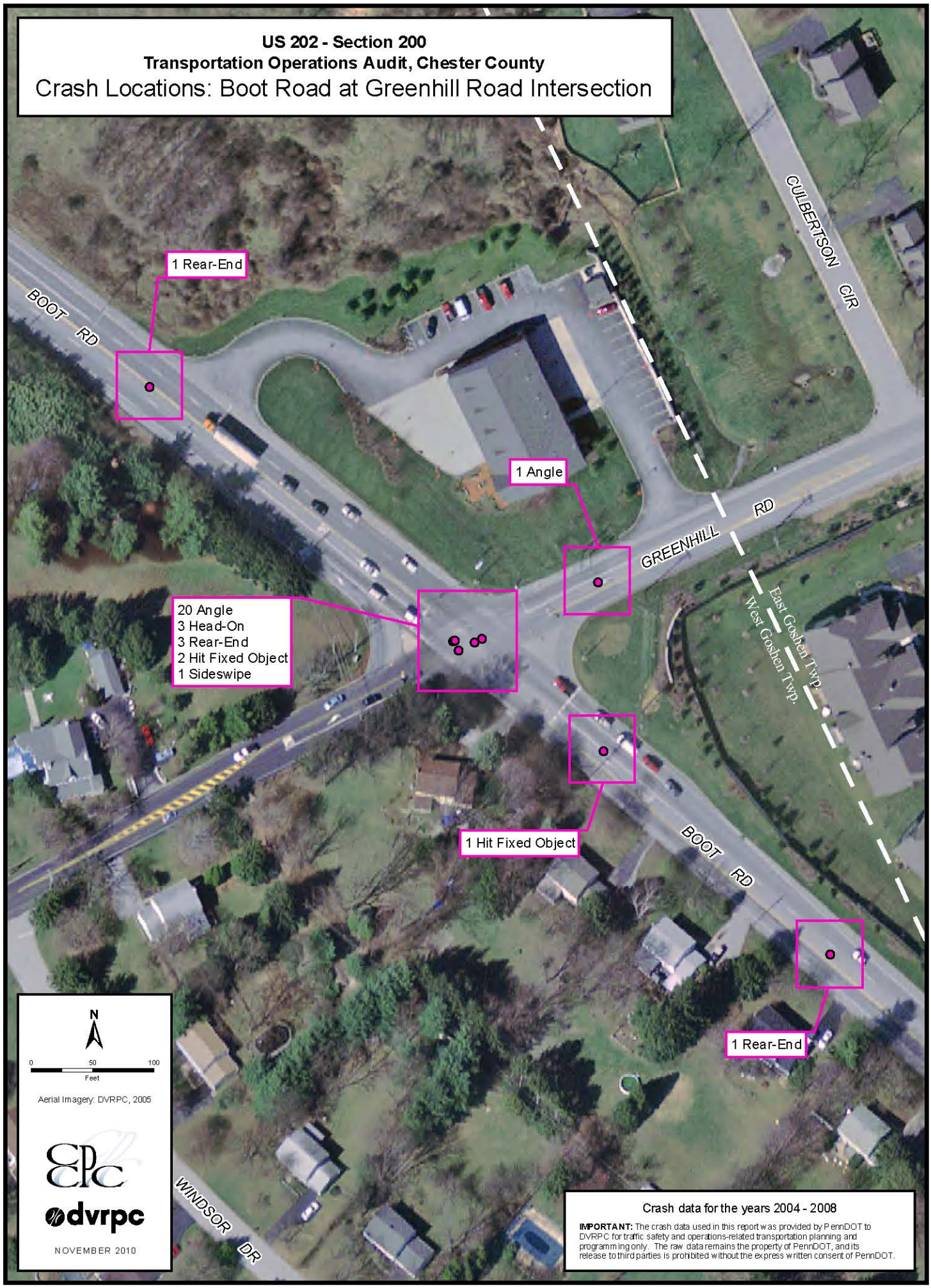
SEVERITY COUNT (persons)	
Fatalities	0
Major	2
Moderate	12
Minor	0
Unknown injury / severity	2
Total	**16**

ROAD CONDITION		
Dry	17	70.8%
Wet	7	29.2%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	0	0.0%
Slush	0	0.0%
Ice	0	0.0%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**24**	100.0%

ILLUMINATION		
Daylight	17	70.8%
Dark—no street lights	5	20.8%
Dark—street lights	0	0.0%
Dusk	1	4.2%
Dawn	1	4.2%
Total	**24**	100.0%

WEATHER		
No adverse conditions	20	83.3%
Rain	2	8.3%
Sleet	1	4.2%
Snow	0	0.0%
Unknown	1	4.2%
Total	**24**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: Boot Road at Greenhill Road Intersection
1 Rear-End
BOOT RD
CULBERTSON CIR
1 Angle
GREENHILL RD
East Goshen Twp.
West Goshen Twp.
20 Angle
3 Head-On
3 Rear-End
2 Hit Fixed Object
1 Sideswipe
1 Hit Fixed Object
BOOT RD
1 Rear-End
N
0 50 100
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
WINDSOR DR
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

Boot Road at Greenhill Road Intersection

YEAR		
2004	6	18.2%
2005	9	27.3%
2006	6	18.2%
2007	5	15.2%
2008	7	21.2%
Total	**33**	100.0%

COLLISION TYPE		
Non-collision	0	0.0%
Rear-end	5	15.2%
Head-on	3	9.1%
Angle	21	63.6%
Sideswipe (same dir.)	1	3.0%
Hit fixed object	3	9.1%
Hit pedestrian	0	0.0%
Other or unknown	0	0.0%
Total	**33**	100.0%

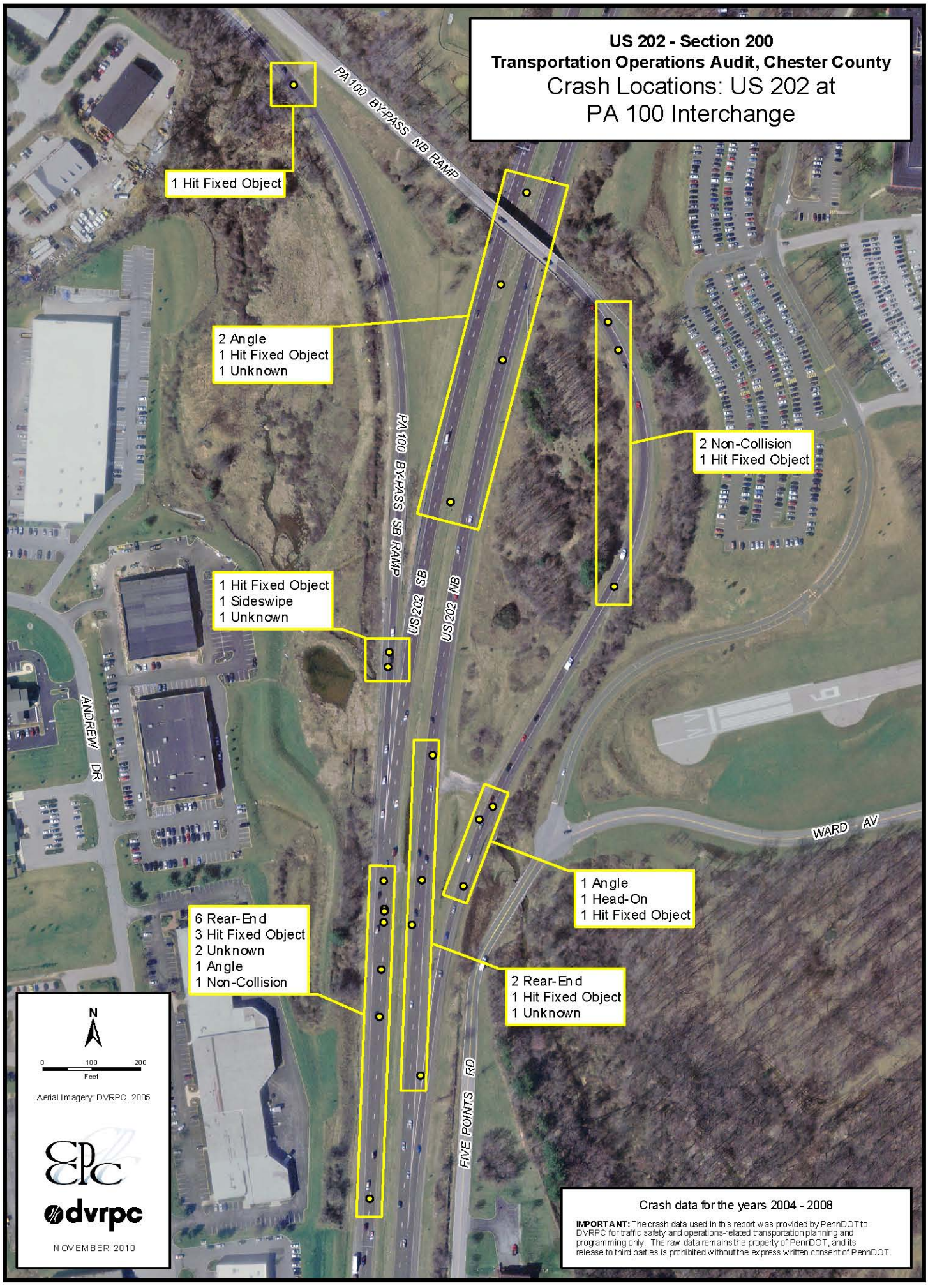
SEVERITY COUNT (persons)	
Fatalities	0
Major	0
Moderate	1
Minor	13
Unknown injury / severity	6
Total	**20**

ROAD CONDITION		
Dry	24	72.7%
Wet	7	21.2%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	1	3.0%
Slush	1	3.0%
Ice	0	0.0%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**33**	100.0%

ILLUMINATION		
Daylight	24	72.7%
Dark—no street lights	5	15.2%
Dark—street lights	4	12.1%
Dusk	0	0.0%
Dawn	0	0.0%
Total	**33**	100.0%

WEATHER		
No adverse conditions	25	75.8%
Rain	6	18.2%
Sleet	0	0.0%
Snow	1	3.0%
Unknown	1	3.0%
Total	**33**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at
PA 100 Interchange
PA 100 BY-PASS NB RAMP
1 Hit Fixed Object
2 Angle
1 Hit Fixed Object
1 Unknown
PA 100 BY-PASS SB RAMP
US 202 SB
US 202 NB
2 Non-Collision
1 Hit Fixed Object
1 Hit Fixed Object
1 Sideswipe
1 Unknown
ANDREW DR
WARD AV
1 Angle
1 Head-On
1 Hit Fixed Object
6 Rear-End
3 Hit Fixed Object
2 Unknown
1 Angle
1 Non-Collision
2 Rear-End
1 Hit Fixed Object
1 Unknown
FIVE POINTS RD
N
0 100 200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Crash data for the years 2004 - 2008
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US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at PA 100 Interchange

YEAR		
2004	7	22.6%
2005	8	25.8%
2006	3	9.7%
2007	4	12.9%
2008	9	29.0%
Total	**31**	100.0%

COLLISION TYPE		
Non-collision	3	9.7%
Rear-end	9	29.0%
Head-on	1	3.2%
Angle	4	12.9%
Sideswipe (same dir.)	1	3.2%
Hit fixed object	8	25.8%
Hit pedestrian	0	0.0%
Other or unknown	5	16.1%
Total	**31**	100%

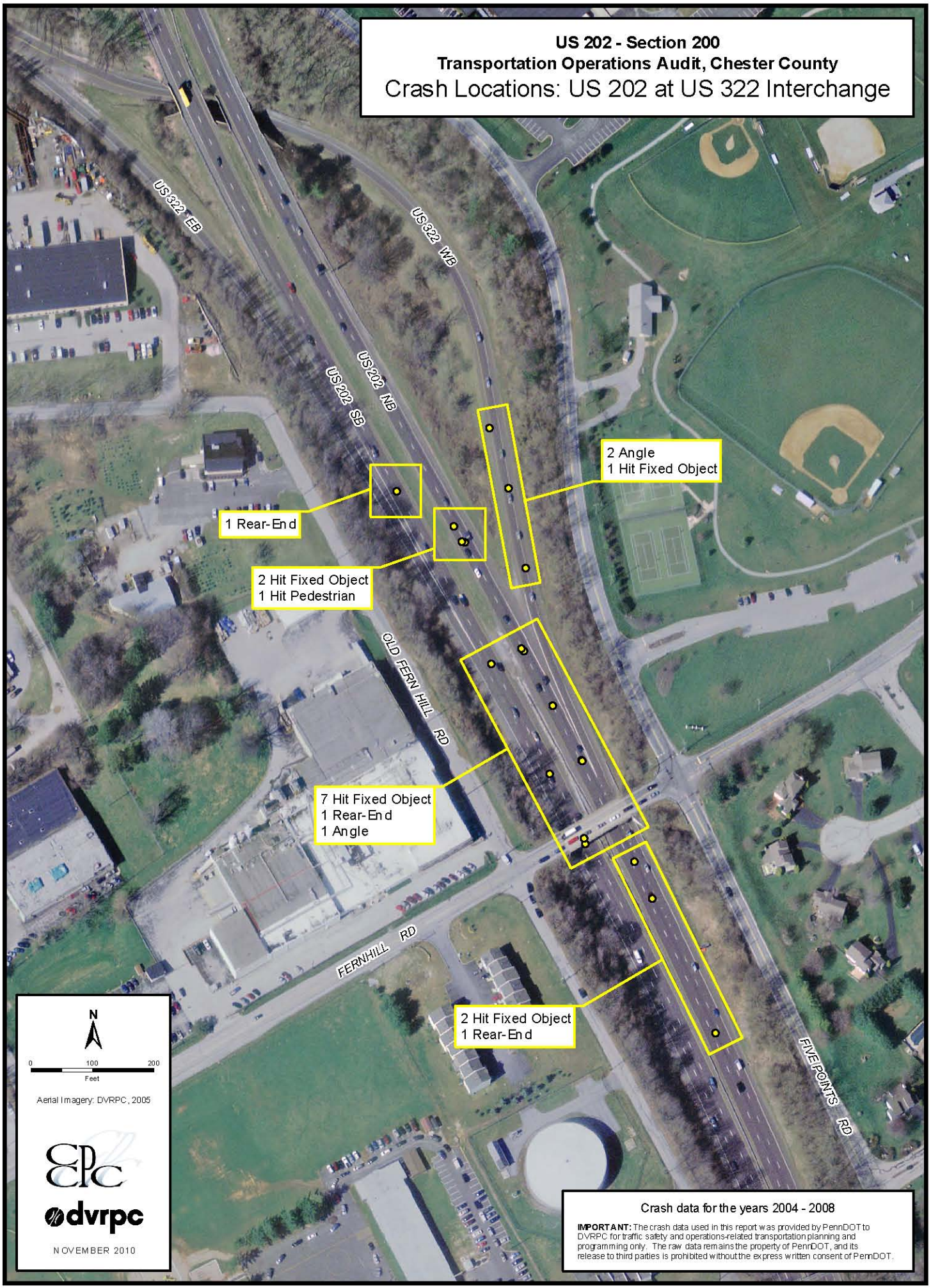
SEVERITY COUNT (persons)	
Fatalities	2
Major	2
Moderate	3
Minor	11
Unknown injury / severity	4
Total	**22**

ROAD CONDITION		
Dry	24	77.4%
Wet	3	9.7%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	1	3.2%
Slush	1	3.2%
Ice	2	6.5%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**31**	100.0%

ILLUMINATION		
Daylight	15	48.4%
Dark—no street lights	12	38.7%
Dark—street lights	2	6.5%
Dusk	0	0.0%
Dawn	2	6.5%
Total	**31**	100.0%

WEATHER		
No adverse conditions	25	80.6%
Rain	1	3.2%
Fog	0	0.0%
Snow	4	12.9%
Unknown	1	3.2%
Total	**31**	100.0%

Source: PennDOT Crash Data, 2008


US 322 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at US 322 Interchange
US 322 EB
US 322 WB
US 202 NB
US 202 SB
2 Angle
1 Hit Fixed Object
1 Rear-End
2 Hit Fixed Object
1 Hit Pedestrian
OLD FERN HILL RD
7 Hit Fixed Object
1 Rear-End
1 Angle
FERNHILL RD
2 Hit Fixed Object
1 Rear-End
FIVE POINTS RD
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at US 322 Interchange

YEAR		
2004	4	21.1%
2005	0	0.0%
2006	4	21.1%
2007	4	21.1%
2008	7	36.8%
Total	**19**	100.0%

COLLISION TYPE		
Non-collision	0	0.0%
Rear-end	3	15.8%
Head-on	0	0.0%
Angle	3	15.8%
Sideswipe (same dir.)	0	0.0%
Hit fixed object	12	63.2%
Hit pedestrian	1	5.3%
Other or unknown	0	0.0%
Total	**19**	100.0%

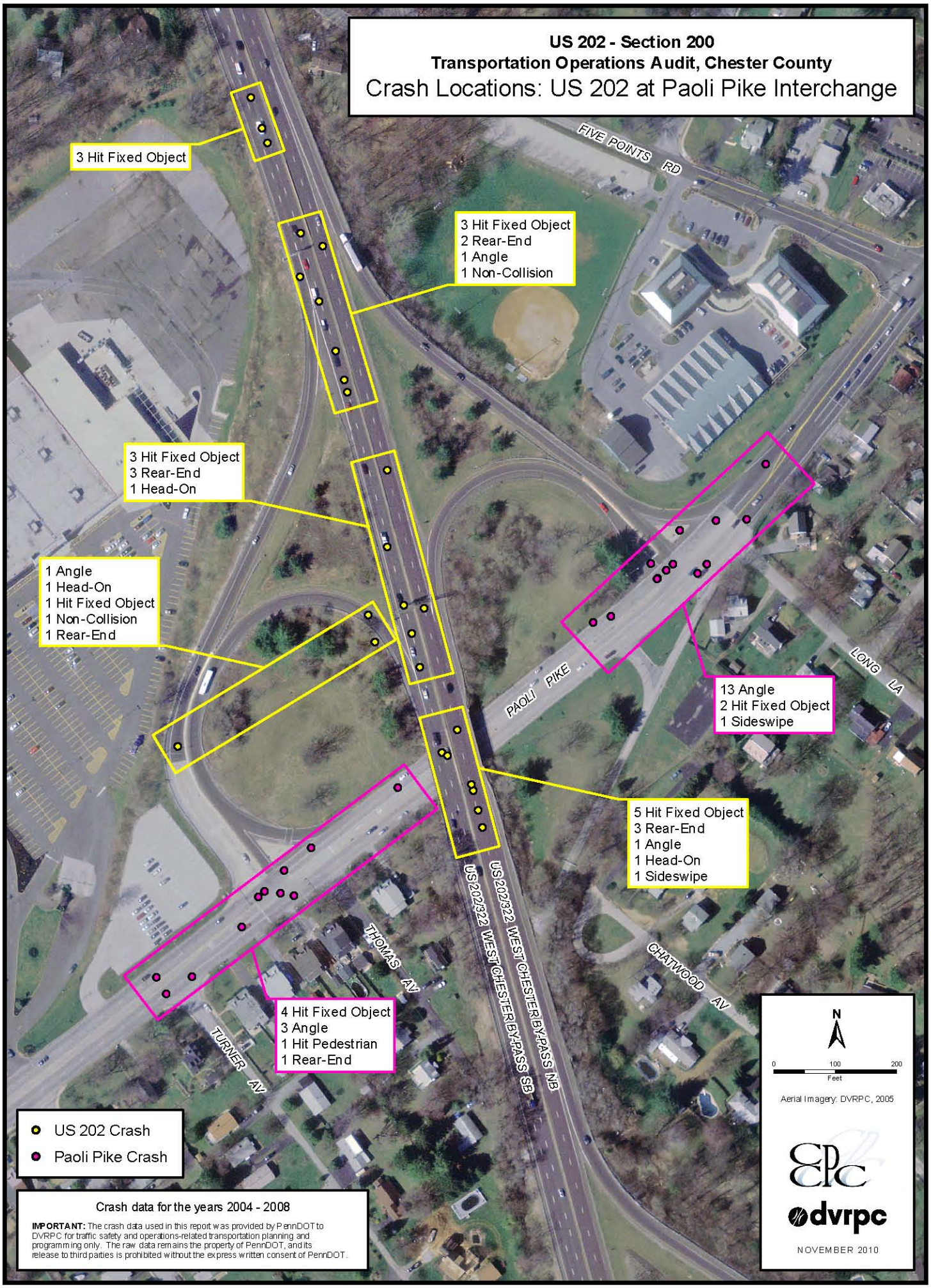
SEVERITY COUNT (persons)	
Fatalities	0
Major	1
Moderate	0
Minor	6
Unknown injury / severity	1
Total	**8**

ROAD CONDITION		
Dry	13	68.4%
Wet	3	15.8%
Sand / mud / dirt / oil / or gravel	1	5.3%
Snow covered	1	5.3%
Slush	0	0.0%
Ice	1	5.3%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**19**	100.0%

ILLUMINATION		
Daylight	10	52.6%
Dark—no street lights	4	21.1%
Dark—street lights	3	15.8%
Dusk	2	10.5%
Dawn	0	0.0%
Total	**19**	100.0%

WEATHER		
No adverse conditions	13	68.4%
Rain	3	15.8%
Sleet (hail)	1	5.3%
Snow	1	5.3%
Unknown	1	5.3%
Total	**19**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at Paoli Pike Interchange
3 Hit Fixed Object
3 Hit Fixed Object
2 Rear-End
1 Angle
1 Non-Collision
3 Hit Fixed Object
3 Rear-End
1 Head-On
1 Angle
1 Head-On
1 Hit Fixed Object
1 Non-Collision
1 Rear-End
13 Angle
2 Hit Fixed Object
1 Sideswipe
5 Hit Fixed Object
3 Rear-End
1 Angle
1 Head-On
1 Sideswipe
4 Hit Fixed Object
3 Angle
1 Hit Pedestrian
1 Rear-End
FIVE POINTS RD
PAOLI PIKE
LONG LA
US 202/322 WEST CHESTER BY-PASS SB
US 202/322 WEST CHESTER BY-PASS NB
THOMAS AV
CHATWOOD AV
TURNER AV
US 202 Crash
Paoli Pike Crash
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at Paoli Pike Interchange

YEAR		
2004	4	11.8%
2005	8	23.5%
2006	6	17.6%
2007	6	17.6%
2008	10	29.4%
Total	**34**	100.0%

COLLISION TYPE		
Non-collision	2	5.9%
Rear-end	11	32.4%
Head-on	2	5.9%
Angle	3	8.8%
Sideswipe (same dir.)	1	2.9%
Hit fixed object	15	44.1%
Hit pedestrian	0	0.0%
Other or unknown	0	0.0%
Total	**34**	100.0%

SEVERITY COUNT (persons)	
Fatalities	1
Major	1
Moderate	3
Minor	10
Unknown injury / severity	2
Total	**17**

ROAD CONDITION		
Dry	28	82.4%
Wet	2	5.9%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	3	8.8%
Slush	0	0.0%
Ice	1	2.9%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**34**	100.0%

ILLUMINATION		
Daylight	21	61.8%
Dark—no street lights	11	32.4%
Dark—street lights	0	0.0%
Dusk	2	5.9%
Dawn	0	0.0%
Total	**34**	100.0%

WEATHER		
No adverse conditions	29	85.3%
Rain	2	5.9%
Fog	0	0.0%
Snow	3	8.8%
Unknown	0	0.0%
Total	**34**	100.0%

Paoli Pike

YEAR		
2004	8	32.0%
2005	6	24.0%
2006	2	8.0%
2007	1	4.0%
2008	8	32.0%
Total	**25**	100.0%

COLLISION TYPE		
Non-collision	0	0.0%
Rear-end	1	4.0%
Head-on	0	0.0%
Angle	16	64.0%
Sideswipe (same dir.)	1	4.0%
Hit fixed object	6	24.0%
Hit pedestrian	1	4.0%
Other or unknown	0	0.0%
Total	**25**	100.0%

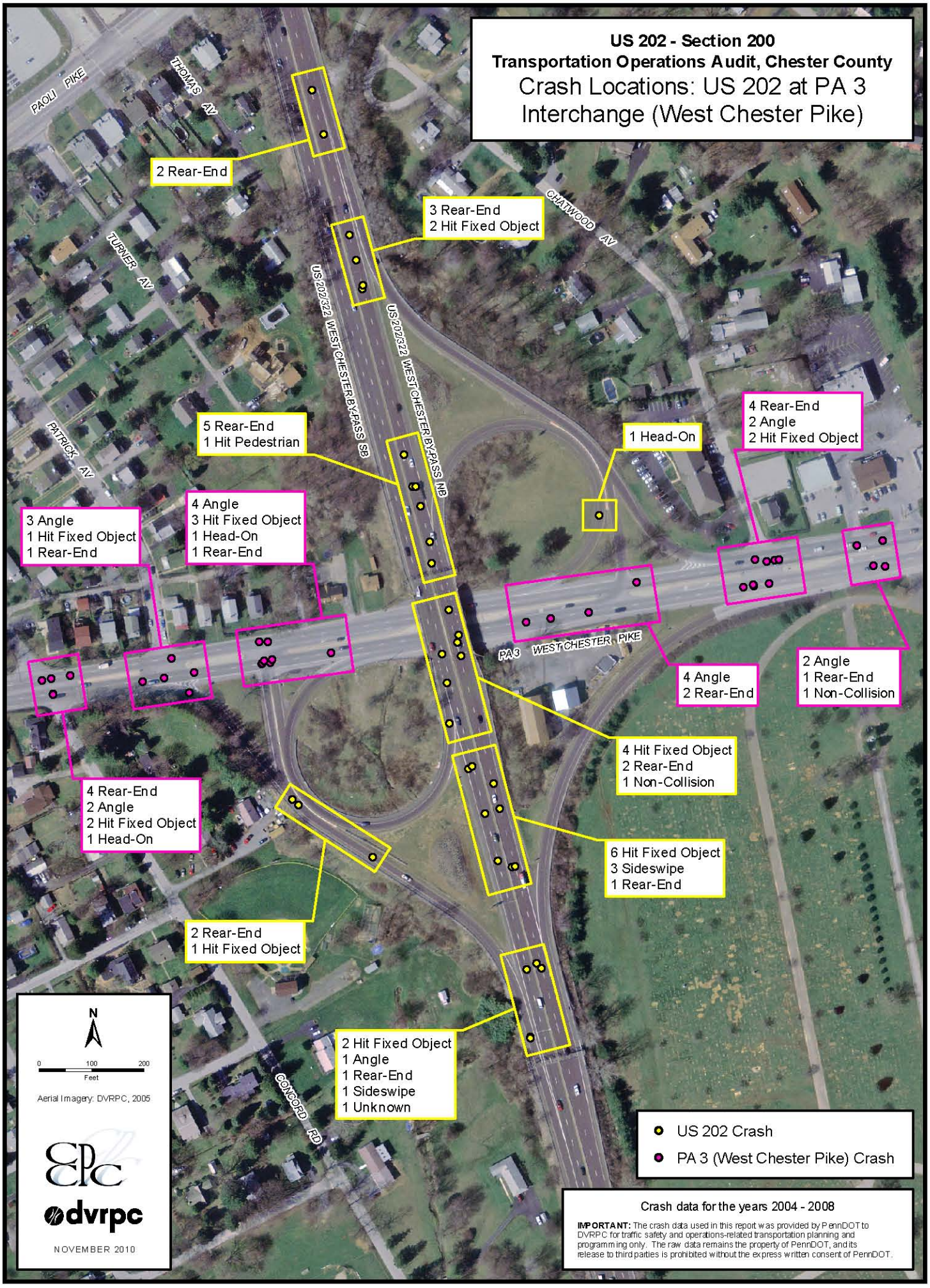
SEVERITY COUNT (persons)	
Fatalities	0
Major	0
Moderate	3
Minor	17
Unknown injury / severity	0
Total	**20**

ROAD CONDITION		
Dry	18	72.0%
Wet	7	28.0%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	0	0.0%
Slush	0	0.0%
Ice	0	0.0%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**25**	100.0%

ILLUMINATION		
Daylight	15	60.0%
Dark—no street lights	5	20.0%
Dark—street lights	5	20.0%
Dusk	0	0.0%
Dawn	0	0.0%
Total	**25**	100.0%

WEATHER		
No adverse conditions	20	80.0%
Rain	4	16.0%
Fog	0	0.0%
Snow	0	0.0%
Unknown	1	4.0%
Total	**25**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at PA 3 Interchange (West Chester Pike)
PAOLI PIKE
THOMAS AV
TURNER AV
PATRICK AV
CHATWOOD AV
US 202/322 WEST CHESTER BY-PASS SB
US 202/322 WEST CHESTER BY-PASS NB
PA3 WEST CHESTER PIKE
CONCORD RD
2 Rear-End
3 Rear-End
2 Hit Fixed Object
5 Rear-End
1 Hit Pedestrian
1 Head-On
4 Rear-End
2 Angle
2 Hit Fixed Object
3 Angle
1 Hit Fixed Object
1 Rear-End
4 Angle
3 Hit Fixed Object
1 Head-On
1 Rear-End
4 Angle
2 Rear-End
2 Angle
1 Rear-End
1 Non-Collision
4 Hit Fixed Object
2 Rear-End
1 Non-Collision
4 Rear-End
2 Angle
2 Hit Fixed Object
1 Head-On
6 Hit Fixed Object
3 Sideswipe
1 Rear-End
2 Rear-End
1 Hit Fixed Object
2 Hit Fixed Object
1 Angle
1 Rear-End
1 Sideswipe
1 Unknown
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
US 202 Crash
PA 3 (West Chester Pike) Crash
Crash data for the years 2004 - 2008
IMPORTANT: The crash data used in this report was provided by PennDOT to DVRPC for traffic safety and operations-related transportation planning and programming only. The raw data remains the property of PennDOT, and its release to third parties is prohibited without the express written consent of PennDOT.

US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at PA 3 Interchange (West Chester Pike)

YEAR		
2004	9	22.5%
2005	10	25.0%
2006	5	12.5%
2007	4	10.0%
2008	12	30.0%
Total	**40**	100.0%

COLLISION TYPE		
Non-collision	1	2.5%
Rear-end	16	40.0%
Head-on	1	2.5%
Angle	1	2.5%
Sideswipe (same dir.)	4	10.0%
Hit fixed object	15	37.5%
Hit pedestrian	1	2.5%
Other or unknown	1	2.5%
Total	**40**	100.0%

SEVERITY COUNT (persons)	
Fatalities	0
Major	0
Moderate	10
Minor	19
Unknown injury / severity	1
Total	**30**

ROAD CONDITION		
Dry	30	75.0%
Wet	2	5.0%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	3	7.5%
Slush	1	2.5%
Ice	1	2.5%
Ice patches	3	7.5%
Water—standing or moving	0	0.0%
Total	**40**	100.0%

ILLUMINATION		
Daylight	27	67.5%
Dark—no street lights	9	22.5%
Dark—street lights	3	7.5%
Dusk	1	2.5%
Dawn	0	0.0%
Total	**40**	100.0%

WEATHER		
No adverse conditions	32	80.0%
Rain	1	2.5%
Sleet (Hail)	3	7.5%
Snow	4	10.0%
Unknown	0	0.0%
Total	**40**	100.0%

PA 3 (West Chester Pike)

YEAR		
2004	7	17.1%
2005	8	19.5%
2006	4	9.8%
2007	8	19.5%
2008	14	34.1%
Total	**41**	100.0%

COLLISION TYPE		
Non-collision	1	2.4%
Rear-end	13	31.7%
Head-on	2	4.9%
Angle	17	41.5%
Sideswipe (same dir.)	0	0.0%
Hit fixed object	8	19.5%
Hit pedestrian	0	0.0%
Other or unknown	0	0.0%
Total	**41**	100.0%

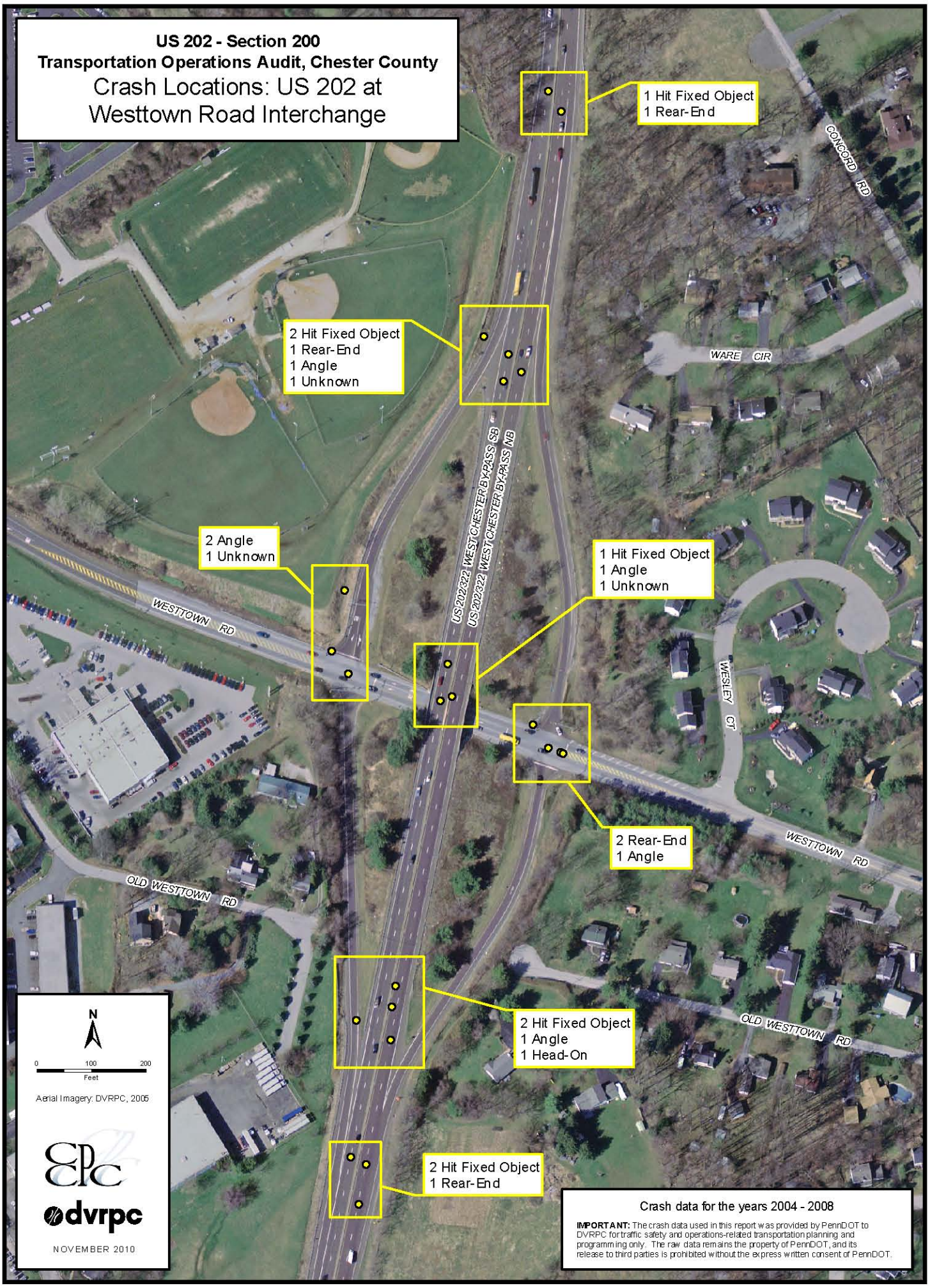
SEVERITY COUNT (persons)	
Fatalities	0
Major	0
Moderate	10
Minor	19
Unknown injury / severity	1
Total	**30**

ROAD CONDITION		
Dry	22	53.7%
Wet	11	26.8%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	5	12.2%
Slush	1	2.4%
Ice	2	4.9%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**41**	100.0%

ILLUMINATION		
Daylight	18	43.9%
Dark—no street lights	11	26.8%
Dark—street lights	12	29.3%
Dusk	0	0.0%
Dawn		0.0%
Total	**41**	100.0%

WEATHER		
No adverse conditions	26	63.4%
Rain	8	19.5%
Fog	0	0.0%
Snow	6	14.6%
Unknown	1	2.4%
Total	**41**	100.0%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at
Westtown Road Interchange
1 Hit Fixed Object
1 Rear-End
2 Hit Fixed Object
1 Rear-End
1 Angle
1 Unknown
2 Angle
1 Unknown
1 Hit Fixed Object
1 Angle
1 Unknown
2 Rear-End
1 Angle
2 Hit Fixed Object
1 Angle
1 Head-On
2 Hit Fixed Object
1 Rear-End
US 202/322 WEST CHESTER BY-PASS SB
US 202/322 WEST CHESTER BY-PASS NB
CONCORD RD
WARE CIR
WESTTOWN RD
WESLEY CT
WESTTOWN RD
OLD WESTTOWN RD
OLD WESTTOWN RD
N
0
100
200
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Crash data for the years 2004 - 2008
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US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at Westtown Road Interchange

YEAR		
2004	5	21.7%
2005	5	21.7%
2006	3	13.0%
2007	2	8.7%
2008	8	34.8%
Total	**23**	100%

COLLISION TYPE		
Non-collision	0	0.0%
Rear-end	6	26.1%
Head-on	1	4.3%
Angle	6	26.1%
Sideswipe (same dir.)	0	0.0%
Hit fixed object	7	30.4%
Hit pedestrian	0	0.0%
Other or unknown	3	13.0%
Total	**23**	100%

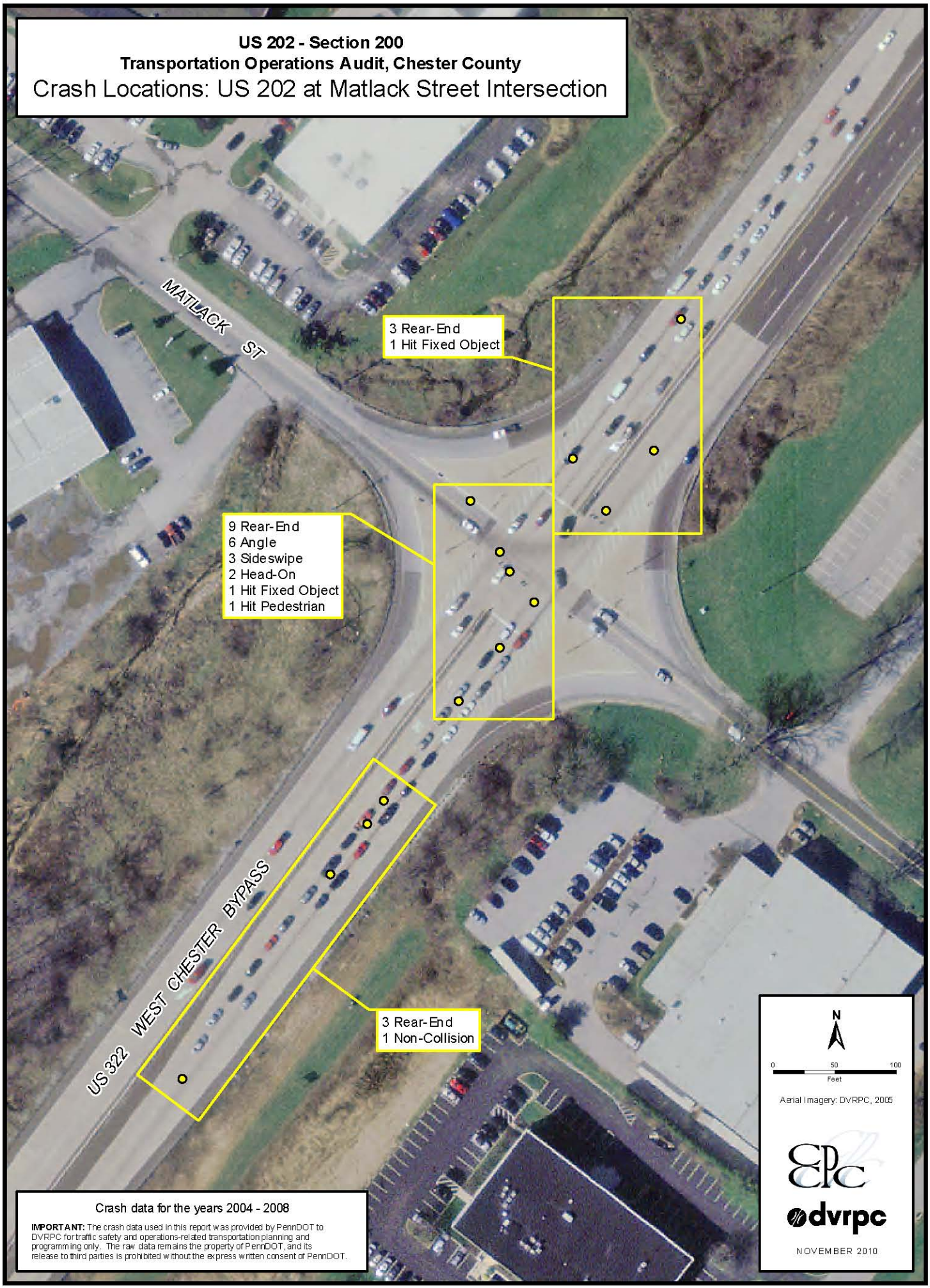
SEVERITY COUNT (persons)	
Fatalities	0
Major	0
Moderate	0
Minor	6
Unknown injury / severity	4
Total	**10**

ROAD CONDITION		
Dry	16	69.6%
Wet	5	21.7%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	1	4.3%
Slush	0	0.0%
Ice	0	0.0%
Ice patches	1	4.3%
Water—standing or moving	0	0.0%
Total	**23**	100.0%

ILLUMINATION		
Daylight	8	34.8%
Dark—no street lights	8	34.8%
Dark—street lights	3	13.0%
Dusk	3	13.0%
Dawn	1	4.3%
Total	**23**	100.0%

WEATHER		
No adverse conditions	16	69.6%
Rain	5	21.7%
Sleet (Hail)	0	0.0%
Snow	2	8.7%
Unknown	0	0.0%
Total	**23**	100%

Source: PennDOT Crash Data, 2008


US 202 - Section 200
Transportation Operations Audit, Chester County
Crash Locations: US 202 at Matlack Street Intersection
MATLACK ST
US 322 WEST CHESTER BYPASS
3 Rear-End
1 Hit Fixed Object
9 Rear-End
6 Angle
3 Sideswipe
2 Head-On
1 Hit Fixed Object
1 Hit Pedestrian
3 Rear-End
1 Non-Collision
N
0
50
100
Feet
Aerial Imagery: DVRPC, 2005
dvrpc
NOVEMBER 2010
Crash data for the years 2004 - 2008
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US 202 - Section 200
Transportation Operations Audit, Chester County
2004 to 2008 Crash Analysis

US 202 at Matlack Street Intersection

YEAR		
2004	9	30.0%
2005	5	16.7%
2006	5	16.7%
2007	7	23.3%
2008	4	13.3%
Total	**30**	100.0%

COLLISION TYPE		
Non-collision	1	3.3%
Rear-end	15	50.0%
Head-on	2	6.7%
Angle	6	20.0%
Sideswipe (same dir.)	3	10.0%
Hit fixed object	2	6.7%
Hit pedestrian	1	3.3%
Other or unknown	0	0.0%
Total	**30**	100%

SEVERITY COUNT (persons)	
Fatalities	0
Major	1
Moderate	1
Minor	24
Unknown injury / severity	8
Total	**34**

ROAD CONDITION		
Dry	24	80.0%
Wet	6	20.0%
Sand / mud / dirt / oil / or gravel	0	0.0%
Snow covered	0	0.0%
Slush	0	0.0%
Ice	0	0.0%
Ice patches	0	0.0%
Water—standing or moving	0	0.0%
Total	**30**	100.0%

ILLUMINATION		
Daylight	18	60.0%
Dark—no street lights	6	20.0%
Dark—street lights	5	16.7%
Dusk	1	3.3%
Dawn	0	0.0%
Total	**30**	100.0%

WEATHER		
No adverse conditions	24	80.0%
Rain	3	10.0%
Sleet (Hail)	1	3.3%
Snow	1	3.3%
Unknown	1	3.3%
Total	**30**	100.0%

Source: PennDOT Crash Data, 2008

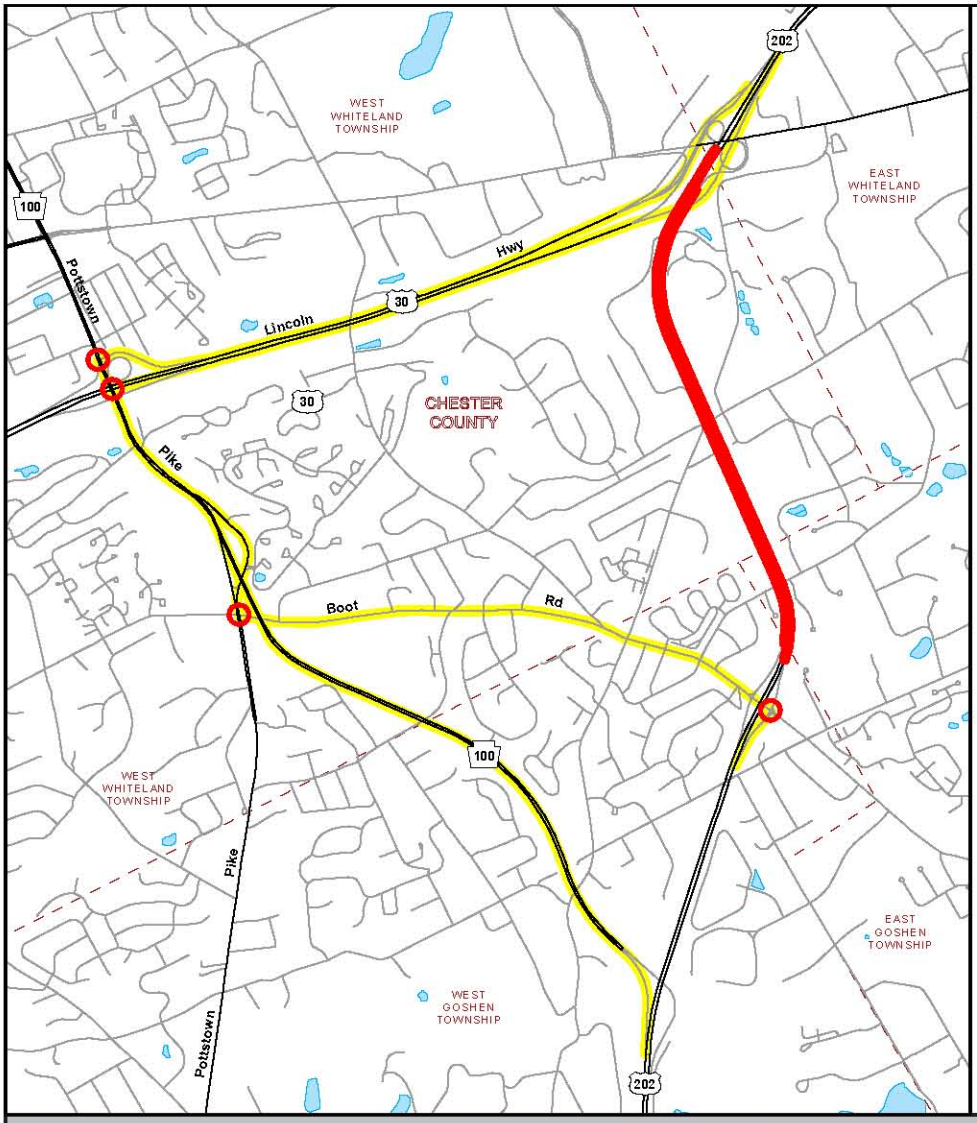
APPENDIX B

PennDOT Detour Routes

This appendix includes PennDOT's official detour routes for US 202, Section 200. They can also be accessed via the following website: www.idrum.us .

The detour route segments for US 202 are listed below::

- US 30 to Boot Road;
- Boot Road to PA 100 Connector;
- PA 100 Connector to US 322;
- US 322 to Gay Street / Paoli Pike;
- Gay Street / Paoli Pike to PA 3;
- PA 3 to Westtown Road; and
- Westtown Road to US 322 Business.



202

Incident Location: US 30 to Boot Road

- Potential Control Point
- Incident Location
- Primary Detour Route

N
W
E
S

0 1/2 1
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

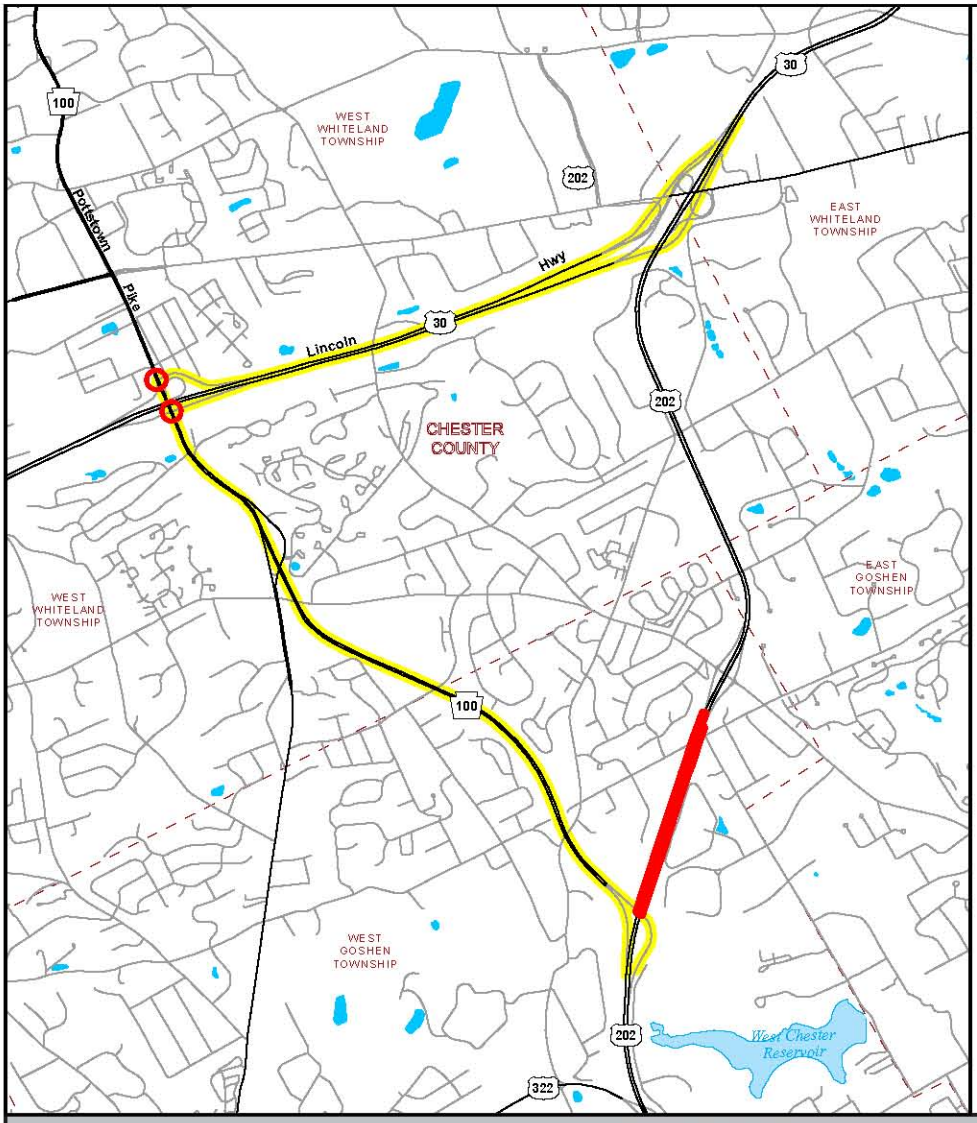
Northbound:

- Exit US 202 at Boot Road,
- Turn left at the top of the ramp onto Boot Road,
- Turn right onto northbound Pottstown Pike,
- Turn right to enter ramp onto eastbound US 30,
- Exit right to re-enter northbound US 202 at US 30 / US 202 interchange.

Southbound:

- Exit US 202 to US 30,
- Exit westbound US 30 at ramp to PA 100,
- Turn left at the bottom of the ramp onto southbound PA 100,
- Continue southbound onto PA 100 / US 202 Connector,
- Re-enter southbound US 202 at the US 202 merge.

ADDITIONAL INFORMATION



202

Incident Location: Boot Road to PA 100 Connector

- Potential Control Point
- Incident Location
- Primary Detour Route

N
W E
S

0 1/2 1
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

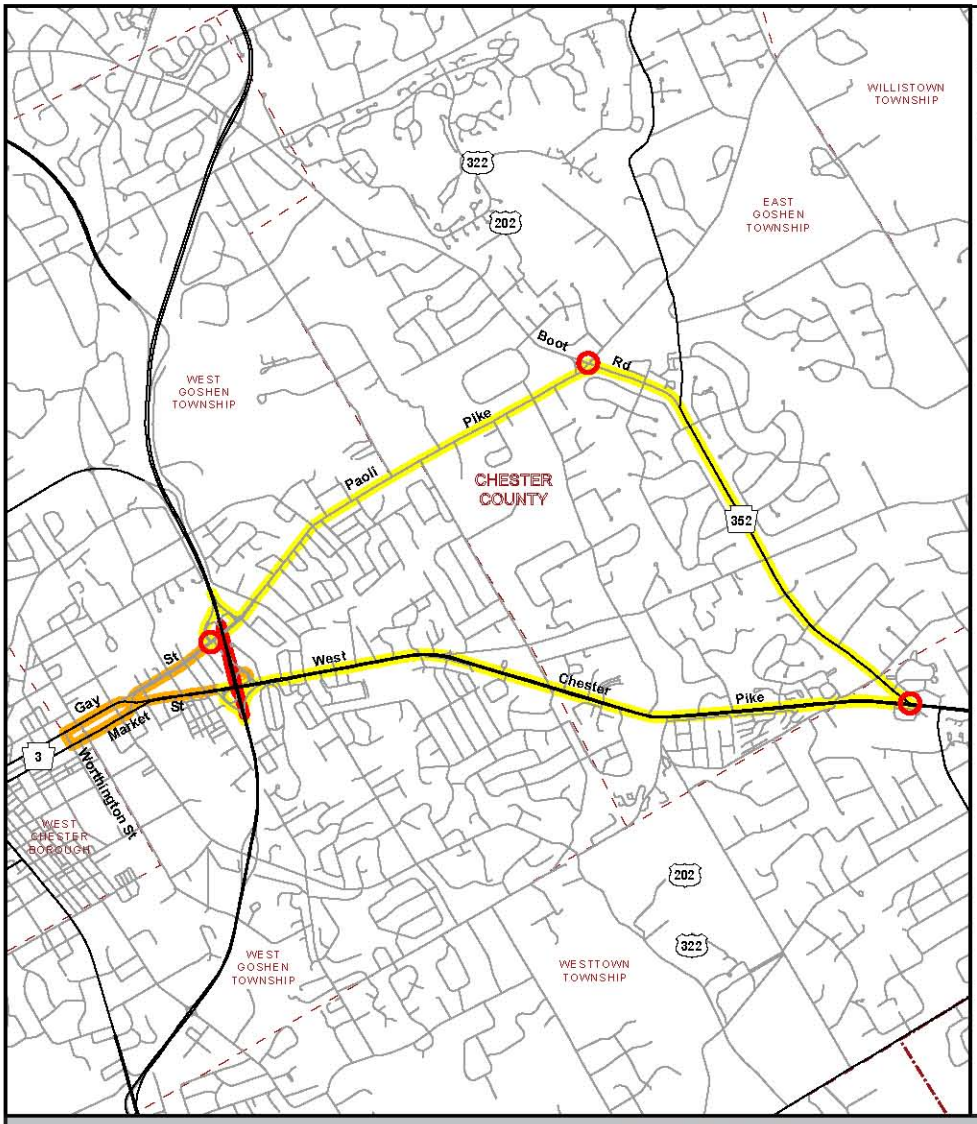
Northbound:

- Exit US 202 at the PA 100 Connector,
- Continue on PA 100,
- Turn right at the entrance ramp to US 30 Eastbound,
- Exit left to re-enter northbound US 202 at the US 202/US30 interchange.

Southbound:

- Exit US 202 to US 30,
- Exit westbound US 30 at ramp to PA 100,
- Turn left at the bottom of the ramp onto southbound PA 100,
- Continue southbound onto PA 100 / US 202 Connector,
- Re-enter southbound US 202 at the US 202 merge.

ADDITIONAL INFORMATION



202

Incident Location: Gay Street/Paoli Pike to PA 3

- Potential Control Point
- Incident Location
- Primary Detour Route
- Secondary Detour Route

N
W
E
S

0 1/2 1
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

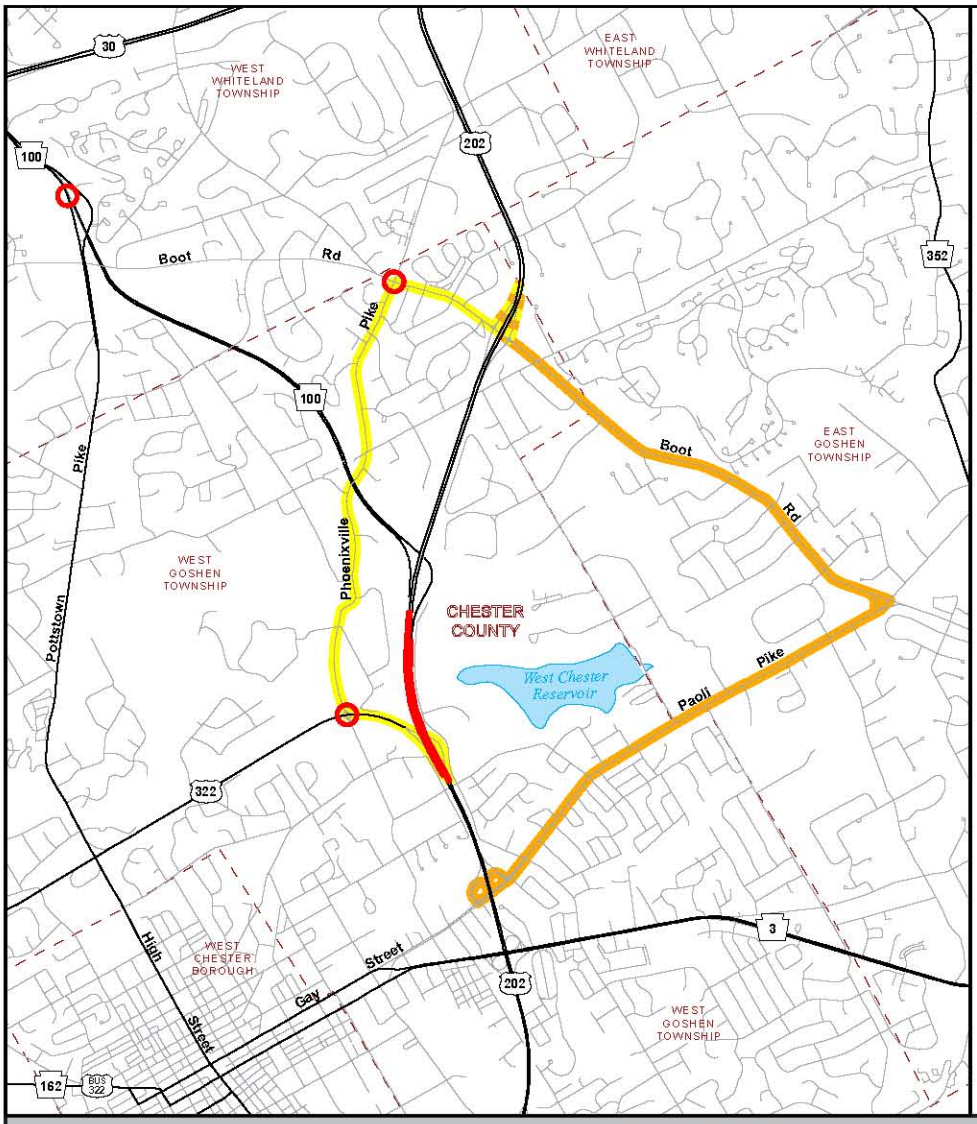
Northbound:

- Exit US 202 at Eastbound PA 3,
- Go straight at the bottom of the ramp onto Eastbound PA 3 (West Chester Pike),
- Turn left onto northbound PA 352,
- Turn left onto westbound Boot Road,
- Turn left onto Paoli Pike,
- Turn right to re-enter northbound US 202 at Paoli Pike / US 202 interchange.

Southbound:

- Exit US 202 at Paoli Pike,
- Turn right onto Boot Road,
- Turn right onto PA 352,
- Turn right onto westbound PA 3,
- Turn left to re-enter southbound US 202 at the PA 3 / US 202 interchange.

ADDITIONAL INFORMATION



202

Incident Location:
PA 100 Connector to US 322

- Potential Control Point
- Incident Location
- Primary Detour Route
- Secondary Detour Route

N
W E
S

0 1/2 1
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

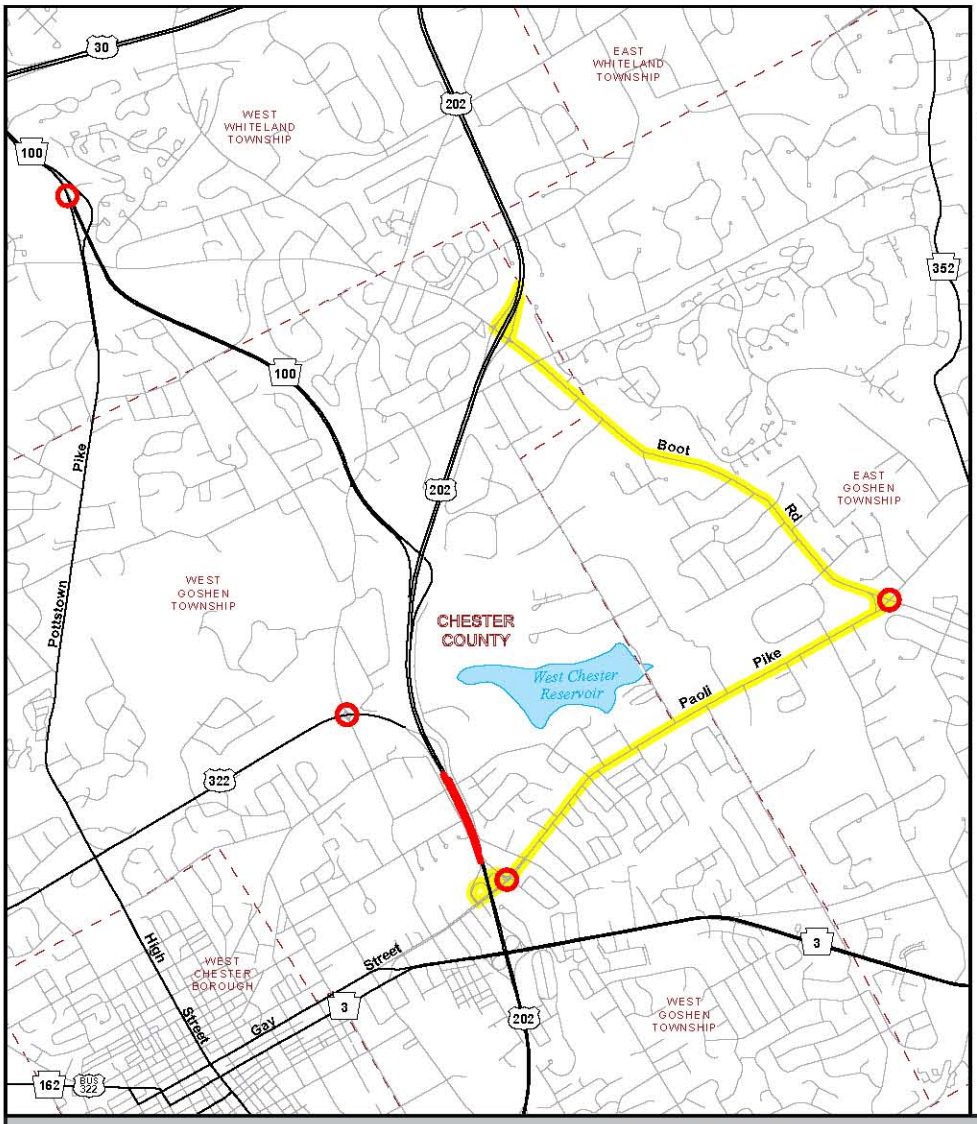
Northbound:

- **Exit US 202 at US 322 West,**
- **Continue on US 322 West,**
- **Turn right onto Phoenixville Pike,**
- **Turn right onto Boot Road,**
- **Turn left to re-enter Northbound US 202 interchange.**

Southbound:

- **Exit US 202 at Boot Road,**
- **Turn right at the top of the ramp onto Boot Road,**
- **Turn left onto Phoenixville Pike,**
- **Turn left onto US 322,**
- **Continue on US 322 to re-enter Southbound US 202 at the US 322 / US 202 merge.**

ADDITIONAL INFORMATION



202

Incident Location:
US 322
to
Gay Street/Paoli Pike

- Potential Control Point
- Incident Location
- Primary Detour Route

N
W
E
S

0 1/2 1
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

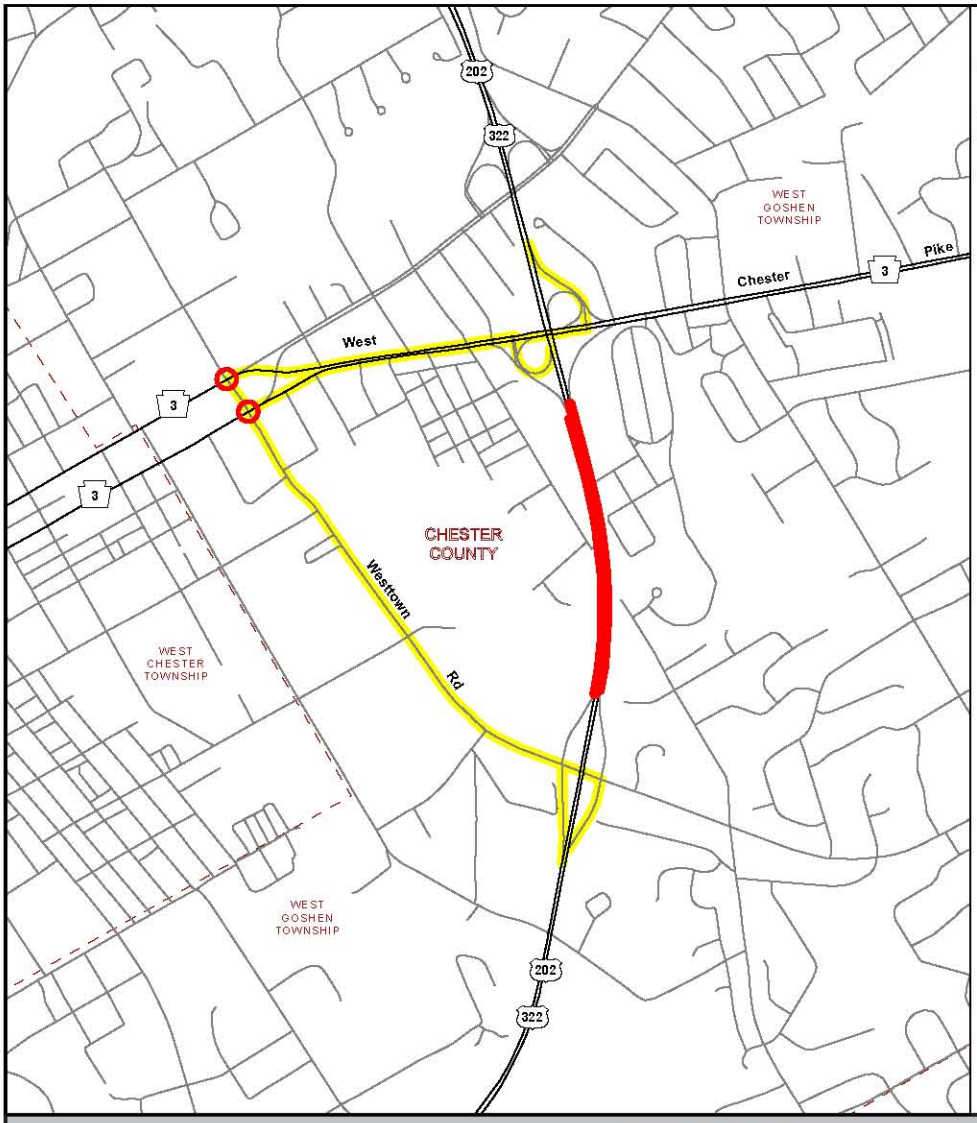
Northbound:

- **Exit US 202 at Gay Street / Paoli Pike,**
- **Turn left at the bottom of the ramp onto Paoli Pike,**
- **Turn left onto Boot Road,**
- **Turn right to re-enter Northbound US 202 at the Boot Road / US 202 interchange.**

Southbound:

- **Exit US 202 at Boot Road,**
- **Turn left at the top of the ramp onto Boot Road,**
- **Turn right onto Paoli Pike,**
- **Turn right to re-enter Southbound US 202 at the Gay Street / Paoli Pike / US 202 interchange.**

ADDITIONAL INFORMATION



202

Incident Location: PA 3 to Westtown Road

- Potential Control Point
- Incident Location
- Primary Detour Route

N
W
E
S

0 1/4 1/2
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

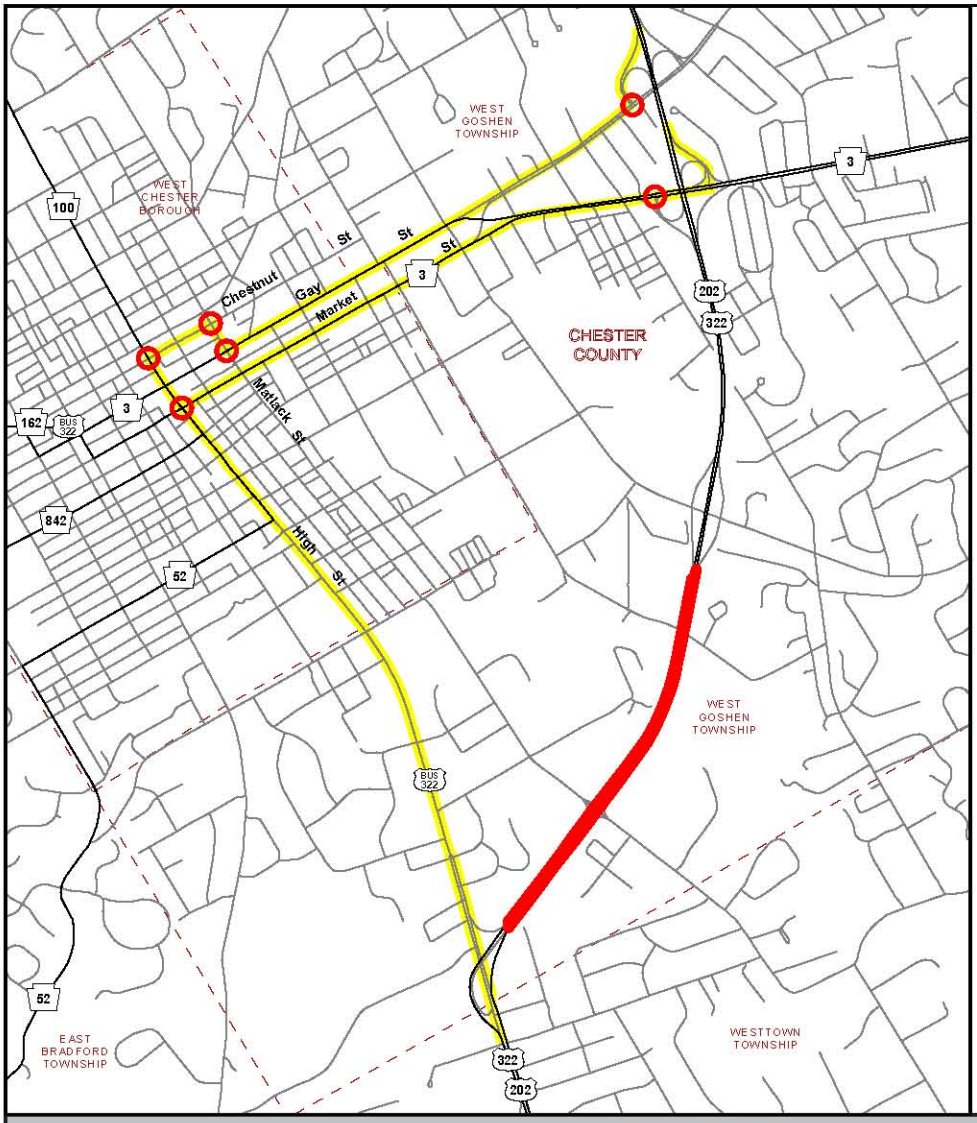
Northbound:

- Exit US 202 at Westtown Road,
- Turn left at the bottom of the ramp onto Westtown Road,
- Turn right onto West Chester Pike (PA 3),
- Turn left to re-enter northbound US 202 at the PA 3/ US 202 interchange.

Southbound:

- Exit US 202 at Eastbound West Chester Pike (PA 3),
- Turn left at the bottom of the ramp onto West Chester Pike (PA 3),
- Turn left onto Westtown Road,
- Turn right to re-enter southbound US 202 at the Westtown Road / US 202 interchange.

ADDITIONAL INFORMATION



202

Incident Location:
Westtown Road
to
US 322 Business

- Potential Control Point
- Incident Location
- Primary Detour Route

N
W E
S

0 1/4 1/2
Miles

PENNDOT

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

DRIVING DIRECTIONS

Northbound:

- **Exit US 202 at US 322 Business,**
- **Continue Northbound on High Street (US 322 Business),**
- **Turn right onto Market Street (PA 3),**
- **Continue on Market Street,**
- **Re-enter northbound US 202 at the PA 3 / US 202 interchange.**

Southbound:

- **Exit US 202 at Paoli Pike,**
- **Turn right at the bottom of the ramp onto Paoli Pike,**
- **Turn right onto Matlack Street,**
- **Turn left onto Chestnut Street,**
- **Turn left onto High Street (US 322 Business),**
- **Continue Southbound High Street (US 322 Business),**
- **Re-enter Southbound US 202 at the US 322 Business / US 202 merge.**

ADDITIONAL INFORMATION

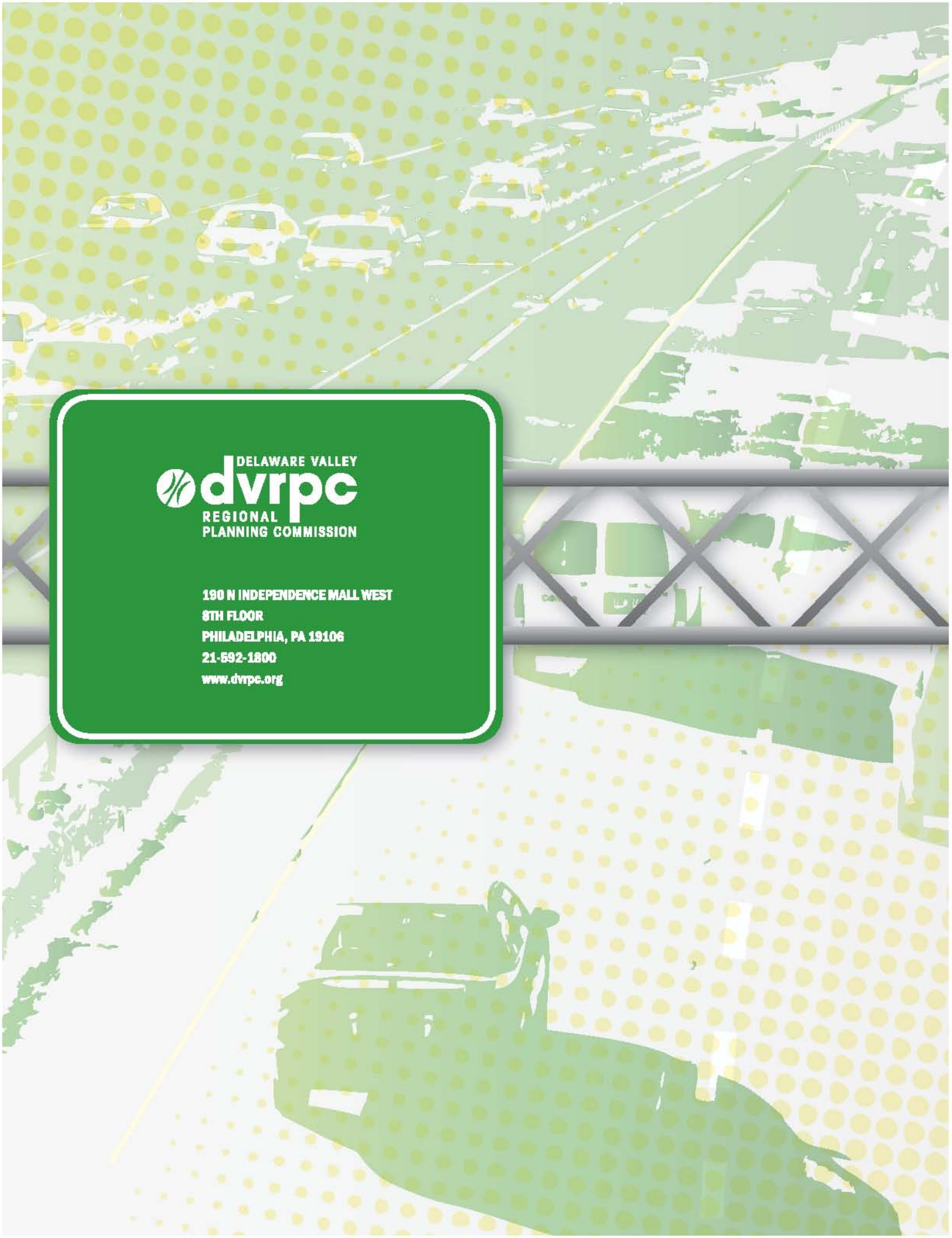
Publication Title:	US 202—Section 200 Transportation Operations Audit, Chester County
Publication Number:	10041
Date Published:	November 2011
Geographic Area Covered:	US 202 — Section 200, in Chester County, Pennsylvania, including the municipalities of West Whiteland, East Goshen, and West Goshen.
Key Words:	Transportation operations, operations audit, intelligent transportation systems (ITS), crashes, safety issues, transportation improvement strategies, US 202
Abstract:	This report documents the process and findings of the US 202—Section 200 Transportation Operations Audit, Chester County undertaken by the Delaware Valley Regional Planning Commission (DVRPC) and the Chester County Planning Commission (CCPC). The report details operational and safety issues identified by the audit team at the study location and remedial strategies to address them. The goal of the Operations Audit is to identify and document low-cost operational and safety improvements that will maintain and enhance mobility for all transportation modes.

DVRPC Staff Contacts:

Chris King
Senior Transportation Planner
☏ (215) 238-2849
cking@dvrpc.org

Laurie Matkowski
Senior Transportation Engineer
☏ (215) 238-2853
lmatkowski@dvrpc.org

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



DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

190 N INDEPENDENCE MALL WEST
8TH FLOOR
PHILADELPHIA, PA 19106
21-592-1800
www.dvrpc.org