



Delaware Valley
Regional Planning
Commission



PA 663

Road Safety Audit

November 2007

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



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

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

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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.

PA 412 ROAD SAFETY AUDIT

1.0 BACKGROUND

This document represents the final report for the PA 663 (Layfield Road) Road Safety Audit. This corridor is classified as a “high risk rural” road in the Pennsylvania Department of Transportation (PennDOT) District 6 Safety Plan. This project represents the coordination of the Delaware Valley Regional Planning Commission’s (DVRPC) Planning Work Program and PennDOT District 6 Safety Plan. DVRPC’s planning work program includes a RSA Program. All state departments of transportation are required to develop a Strategic Highway Safety Plan (SHSP) in order to draw on safety funds according to SAFETEA-LU, the federal transportation legislation. In Pennsylvania each district is required to have a Safety Plan to be incorporated in the state’s SHSP. In PennDOT’s District 6 Safety Plan several corridors are identified under Section 148 Planned Safety Projects eligible for Highway Safety Improvement Program funding. This was an opportunity to analyze corridors which were already on the plan and eligible for dedicated funding.

Whereas, the goal of this project is to improve and promote transportation safety on the region’s roadways while maintaining mobility, the main objective is to address the safe operation of the roadway and ensure a high level of safety for all road users. The road safety audit program is conducted to generate improvement recommendations and countermeasures for roadway segments demonstrating a history of, or potential for a high incidence of motor vehicle crashes. The emphasis is placed on identifying low cost, quick turnaround safety projects to address the issues where possible but will not exclude the more complex projects.

1.1 The Audit

A road safety audit (RSA) is a formal safety performance examination of an existing or future road or intersection by an audit team. Road safety audits can be used on any size project, from minor maintenance to mega-projects. There are eight major steps involved in conducting a road safety audit but these can be simplified in a three step process – identify the corridor/intersection and audit team; conduct the RSA and report on the findings; and follow-up on RSA findings where feasible. Major benefits of road safety audits include – it is a proactive tool, not solely dependent on crash data; a planning tool to identify safety issues to be considered in improvement projects; can determine if the needs of all road users are adequately met; adaptable to local needs and conditions; and recommendations can be implemented in small stages as time and resources permit.

Prior to the road safety audit activities on site, DVRPC collected, reviewed and analyzed relevant data (video of roadway under different conditions, traffic volume data, turning movement counts, maps, aerial photographs, and crash data).

Using the crash data, crash clusters were identified and mapped for locations along the corridor. These locations were the main focus of the road safety audit.

The Road Safety Audit was conducted on October 17th and 18th, 2007. The Pre-Audit meeting was conducted on the first day and involved the definition of road safety audit and how it differs from the corridor study process; the required steps of an audit; presentation of the corridor issues and an exchange of ideas and knowledge of the roadway. A video showing the corridor under night time conditions was also shown. The field view followed where the audit team made up of federal, state, and local officials and other stakeholders walked the corridor and identified transportation safety issues. See **Appendix A** for the list of audit team members. On the second day, the post-audit meeting was spent discussing the findings from the field view, identifying strategies to address issues and determining priorities.

1.2 Overview of the Study Area

The study area consists of approximately 5 miles of PA 663 (Layfield Road) from PA 73 (Big Road) in New Hanover Township to Kutztown Road in Upper Hanover Township in Montgomery County. During the data collection process, it was discovered that the section of PA 73 (Big Road) which connects both sections of PA 663 had experienced 53 crashes over the four year period 2003 to 2006. This portion of PA 73 was incorporated into the study area; see **Appendix B** for *Study Area Map*. The study roadway is functionally classified as a principal arterial. PA 663 runs in a north-west to south-easterly direction and PA 73 at this location runs east-west. The land use in the corridor is a mix of residential, agricultural and institutional uses. Overall, the area is rural in character.

The corridor has two lanes throughout its length, one travel lane in each direction with shoulders but no curbs. The roadway consists of numerous curves and steep grades. There are no sidewalks in the study area. There are fourteen intersections within the study corridor, three of which are signalized. The signalized intersections are Hoffmansville Road, Hill Road and Kutztown Road. The signals at Hoffmansville Road and Hill Road have recently been installed.

Traffic volumes along PA 663 vary. Traffic volumes taken in 2007 along PA 663 show volumes decrease moving south. In the north above Kutztown Road volumes are highest recording AADT of 9,799 vehicles, while in the middle of the corridor 9,057 vehicles were recorded just north of Little Road. AADT between PA 73 and Hoffmansville Road were 8,269 in 2007. Traffic volumes for 2007 were not available for the portion of PA 73 included in the study area but in 2001 and 2004 AADTs of 12,279 and 9,311 were recorded, respectively. From Kutztown Road to south of Deep Creek Road the posted speed limit is 45 MPH with curve warning speed limit of 35 MPH. The remaining portion of the corridor had no posted speed limit.

1.3 Crash Data

According to PennDOT's crash data there were 125 reportable crashes between 2003 and 2006 along PA 663 (Layfield Road). Reportable crashes are crashes which may result in a fatality, injury and/or property damage rendering the vehicle disabled, requiring it be towed from the scene. A comprehensive analysis of the crash data is shown in **Appendix C**. Of the reportable crashes, there were 30 crashes in 2003 (24%); 33 crashes in 2004 (26%); 27 crashes in 2005 (21%); and 35 crashes in 2006 (28%). When analyzing crash frequency by month, October had the highest number of crashes with 22 (18%), July and August were next with 14 crashes each. Crashes occurred in every month of the year with September having the lowest number of crashes at 4.

Angle (52), hit fixed object (31) and rear end (27) crashes represented 88% of the 125 reportable crashes. There were two (1.6%) fatal crashes during the study period resulting in two fatalities. There were 64 (51%) injury crashes of varying levels of severity, and 56 (44%) property damage only crashes. The majority of the crashes occurred during fair weather (79%) with 21% occurring during rainy, snowy, sleeting or foggy conditions. In an analysis of roadway surface conditions during the occurrence of crashes, 73% occurred on dry road surface. Sixty-six percent of the crashes occurred during daylight hours.

PennDOT's crash data showed 53 reportable crashes on PA 73 (Big Road) between North Charlotte Street (PA 663) and Layfield Road (PA 663). As shown in **Appendix C**, there were 12 crashes in 2003 (22%); 14 crashes in 2004 (26%); 13 crashes in 2005 (24%); and 14 crashes in 2006 (26%). When analyzing crash frequency by month, July had the highest number of crashes with 10 (18%), January was next with 9 crashes. Crashes occurred in every month of the year with April having the lowest number of crashes at 1.

Rear end crashes represented the highest collision type with 21 crashes (39%). Hit fixed object and angle crashes were next with 18 (33%) and 8 (15%) respectively. There were no fatalities recorded during the four year period but there were 29 (53%) injury and 22 (41%) property damage only crashes. Seventy-seven percent of the crashes occurred during daylight, 62% occurred on dry road surface and 69% occurred during clear weather.

2.0 FINDINGS AND RECOMMENDATIONS

The following represents the findings and recommendations of the PA 663 Road Safety Audit. Shaded areas represent recommended strategies requiring low level of effort for implementation with high potential safety benefits.

Corridor-Wide Issues

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Delineation ○ Lack of roadway delineation throughout the corridor.	○ Install raised pavement markers to better delineate the centerline of the roadway.	Medium	High
Crashes ○ Large percentage of “hit fixed object” crashes.	○ Install edge-line rumble strips as appropriate.	Medium	High
Speed Limit ○ Inconsistent speed limit throughout the corridor.	○ Evaluate the need to make the speed limit 45 MPH throughout the corridor.	Low	Medium
Lighting ○ Corridor is extremely dark at night.	○ Add street lighting where appropriate, especially at intersections.	Medium	High
Guide rail ○ Inconsistent guide rail and some end treatments are obsolete (turn down).	○ Evaluate and upgrade to current standards.	Low	High
Passing Zones ○ Passing zones in the corridor.	○ Evaluate the need and location of passing zones in the corridor and eliminate as appropriate.	Low	High
Utility Poles ○ Utility poles are in the clear zone on both sides of the road.	○ Coordinate with the utility companies to investigate the potential of having utility poles only on one side of the roadway and outside the clear zone.	High	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
<p><i>Signage</i></p> <ul style="list-style-type: none"> o Inconsistent signage. 	<ul style="list-style-type: none"> o Conduct sign inventory and update signage throughout the corridor. Consider: <ul style="list-style-type: none"> o Location of advance warning signs; o Install street name signs on the “intersection ahead” signs; o Consistent sign sizes as appropriate; o Consistency in including distance plaques to warning signs; and o Location of hazard signs at guide rail. 	Low	High

Specific Locations

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663)			
<ul style="list-style-type: none"> o Drivers are reluctant to reduce their travel speeds when approaching the T-intersection (west leg of PA 663) despite seeing the existing extremely over-sized warning signs. 	<ul style="list-style-type: none"> o Consider traffic calming measures that will effectively reduce travel speeds by 20 mph prior to this intersection so they can safely negotiate the horizontal curve and better deal with the Ludwig Road traffic. o Consider “tightening up” the intersection by revising the pavement markings. 	Medium	High
<ul style="list-style-type: none"> o The configuration (horizontal alignment and crest vertical curve) of PA 73 (Big Road) makes left turns on to Ludwig Road unsafe. 	<ul style="list-style-type: none"> o Install tubular delineators along the centerline of PA 73 from just west of the North Charlotte Street intersection approach of the intersection to just east of Ludwig Road. 	Low	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663) – (continued)			
<ul style="list-style-type: none"> ○ Left turns have been prohibited using signage but illegal left turns continue to be made resulting in conflicts. ○ Sight distance is compromised looking to the left at the Ludwig Road approach due to the building on the northwest corner of the intersection. 	<p><u><i>PennDOT will be doing this on a short term basis to evaluate its effect</i></u></p> <ul style="list-style-type: none"> ○ With left turns prohibited at Ludwig Road the existing oversized advance warning signs located prior to the PA73 (Big Road)/PA 663 (North Charlotte Street) intersection, eastbound on PA 73 are no longer warranted. They should be removed. 	Low	Medium
	<p>Longer term strategies identified –</p> <ul style="list-style-type: none"> ○ Acquire right of way to add a left turn lane eastbound on PA 73 (Big Road) at Ludwig Road; or 	High	High
	<ul style="list-style-type: none"> ○ Add a channelizing island at the Ludwig Road intersection to limit right in/right out movements only. 	Low	High
<ul style="list-style-type: none"> ○ Flexible delineators on the eastbound side of PA 73 (Big Road) east of the PA 663 (North Charlotte Street) intersection are knocked down. 	<ul style="list-style-type: none"> ○ Replace flexible delineators. 	Low	High
<ul style="list-style-type: none"> ○ Stonewall opposite Ludwig Road is crumbling and a fixed object hazard. 	<ul style="list-style-type: none"> ○ Remove stonewall. This can be incorporated with any long term widening. 	Medium	High
<ul style="list-style-type: none"> ○ The road is paved up to the rub rail on the guide rail on PA 73 (Big Road). This may result in drainage problems. 	<ul style="list-style-type: none"> ○ Remove rub rail. 	Low	High
<ul style="list-style-type: none"> ○ Guide rail has obsolete end treatments. 	<ul style="list-style-type: none"> ○ Upgrade end treatments to current standards. 	Low	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663) – (continued)			
<ul style="list-style-type: none"> ○ Motorists often do not reduce their travel speeds westbound prior to Ludwig Road before having to negotiate the substandard horizontal curve. 	<ul style="list-style-type: none"> ○ Despite the 11-foot travel lanes, the paved shoulders are wide at the bridge and narrow down in the historic area. Consider the use of 24” white traverse markings in the shoulders. 	Low	Medium
<ul style="list-style-type: none"> ○ Guide rail on the westbound side of PA 73 (Big Road) stops at the bridge. There is a drop-off with three culverts west of where the guide rail ends. 	<ul style="list-style-type: none"> ○ Evaluate the need for guide rail west of the bridge on the westbound side of PA 73(Big Road) and install as appropriate. 	Medium	High
<ul style="list-style-type: none"> ○ The restaurant/campground driveway is not defined. This can be confusing to motorists and pedestrians. 	<ul style="list-style-type: none"> ○ Conduct access management in this area to define the driveway. 	Low	High
<ul style="list-style-type: none"> ○ High number of left turns from PA 73 (Big Road) onto PA 663 (Layfield Road) north. 	<ul style="list-style-type: none"> ○ Consider adding a left lane at PA 73 (Big Road) eastbound approach of the intersection. This separates left turn movement from through movements and minimizes conflicts. <p><u>Future plans include a shift of this intersection east with a traffic signal and realigned to 90 degrees. A roundabout application for the intersection should also be considered.</u></p>	Low	High
<ul style="list-style-type: none"> ○ PA 73/PA 663 is a t-intersection with no warning for southbound PA 663 motorists. 	<ul style="list-style-type: none"> ○ Add large double arrow warning sign on PA 73 for the PA 663 southbound approach. 	Low	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Between Hoffmansville Road and PA 73			
○ Narrow bridge, with evidence of guide rail having been hit.	○ Widen the bridge.	Medium	Medium
○ Passing Zone extends to the narrow bridge.	○ Extend the No Passing Zone to beyond the bridge.	Low	High
At Hoffmansville Road			
○ “No Passing Zone” sign on southbound PA 663, south of the intersection is loose and leaning.	○ Re-install sign.	Low	High
○ Drainage inlet on the northeast corner of the intersection has skid/scrape marks from vehicles turning right.	○ Adjust to prevent this action. <i>Township will conduct this task.</i>	Low	Medium
○ Headwall for the drainage inlet on the southeast corner of the intersection presents a hazard in the clear zone.	○ Replace headwall with manhole or make flush with the pavement.	Low	High
○ The overhead advance “signal ahead” sign north of the intersection is hardly visible during day light hours.	○ Replace bulbs with LEDs <i>Township will conduct this task.</i>	Low	High
○ North of the intersection on the east side of PA 663 there is a deep drainage rut.	○ Fill it in with rocks and dirt.	Low	High
○ Pavement on Hoffmansville Road is in poor condition.	○ Mill and repave Hoffmansville Road.	Medium	High
At Colflesh Road			
○ Pavement on Colflesh Road is in poor condition.	○ Mill and repave Colflesh Road. <i>Colflesh Road is on the township’s schedule for pavement improvement in 2008</i>	Medium	High
○ No intersection warning signs on PA 663 for Colflesh Road.	○ Install “intersection ahead” warning sign with street name plaque in both directions.	Low	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
At Colflesh Road (continued)			
Intersection is difficult to see while traveling on PA 663.	Highlight intersection with tubular delineators and replace damaged ones. Consider using two-way white raised pavement markers along the edge line.	Low	High
Street name signs are not visible, especially at night.	Upgrade street name signs <i>Township is in the process of upgrading all street name signs.</i>	Low	High
North of intersection, large rocks on the right side of PA 663. This is a hazard.	Remove the rock.	Low	High
At Little Road			
<ul style="list-style-type: none"> ○ Site line problem on both approaches to Little Road. 	<ul style="list-style-type: none"> ○ Needs regular maintenance of the brush on the southbound side of the road, north of the intersection. ○ Relocate the southbound “intersection ahead” sign further in advance of the intersection and add the street name sign. 	Low	High
<ul style="list-style-type: none"> ○ Flexible delineators are knocked down and leaning. 	<ul style="list-style-type: none"> ○ Replace flexible delineators. 	Low	High
Box culvert at Deep Creek			
<ul style="list-style-type: none"> ○ Narrow bridge at deep creek. 	<ul style="list-style-type: none"> ○ Make box culvert larger by widening and upgrade guide rail. ○ Install white raised pavement markers in advance of both approaches to the culvert to delineate edge line. 	High	High
<ul style="list-style-type: none"> ○ Guide rail has obsolete end treatment. 	<ul style="list-style-type: none"> ○ Upgrade guide rail end treatment to current standards. Add delineators along the guide rail to enhance visibility. 	Low	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Box culvert at Deep Creek (continued)			
○ Hazard markers are behind the guide rail.	○ Relocate the hazard markers prior to the guide rail according to current guidelines.	Low	Medium
○ “Narrow bridge” warning sign on the southbound side of the road is too close to the bridge.	○ Relocate the narrow bridge warning sign further in advance of bridge.	Low	High
Deep Creek Road			
○ Utility pole on the northeast corner of the intersection is in the clear zone directly behind the SRT end treatment.	○ The end treatment should wrap around the intersection or use ET-2000 or similar end treatment.	Low	High
○ Pavement on Deep Creek Road is in poor condition.	○ Mill and repave Deep Creek Road.	Medium	Medium
○ Utility pole on the southeast corner is abutting the guide rail panel.	○ Relocate the pole outside the deflection of the guide rail. There should be nothing behind the end treatment.	Medium	High
○ “School bus stop ahead” sign located north of intersection may be redundant.	○ Evaluate the need for the “school bus stop ahead” sign and add distance plaque if appropriate. <i>Township will contact school district</i>	Low	Medium
Between Deep Creek Road and Hill Road			
○ Rocks located to the north of intersection along the southbound paved shoulder.	○ Remove rocks as appropriate from clear zone. ○ Evaluate the need for guide rail to reduce crash severity from hitting the rocks.	High Medium	High Medium
○ Section of roadway is very dark.	○ Install street lights.	Medium	High

SAFETY ISSUES	POSSIBLE STRATEGIES	LEVEL OF EFFORT	POTENTIAL SAFETY BENEFIT
Between Deep Creek Road and Hill Road (continued)			
○ Roadway in this section is covered by tree canopy. This prolongs icy conditions in the winter because of lack of sunlight.	○ Trim tree canopy to allow more sunlight.	Medium	High
At Hill Road			
○ Southwest corner have a drop off into the cross pipe.	○ Install inlet and grate.	Low	Medium
○ On the southeast corner of the intersection the head wall sticks out as a hazard.	○ Remove head wall so storm water enters in through grate.	Low	High
○ Hill Road has poor pavement.	○ Upgrade pavement.	Medium	Medium
○ There are a high number of right turns during the peak period.	○ Evaluate the need to add right turn lane on PA 663 at intersection.	Low	High
○ Sign post on the northeast corner with no sign.	○ Remove post. <i>Township will conduct this task.</i>	Low	Medium
At Kutztown/Knight Road			
○ High number of angle crashes.	○ Evaluate the clearance (Red/Yellow) interval.	Low	Medium
	○ Consider split phase for the PA 663 traffic.	Low	High
	○ Redesign signal so that the masts are further apart and the mast arms are perpendicular to the travel lanes.	Medium	High
○ Drivers lose sight of the signal heads when nearing or at the top of the crest vertical curve on PA 663.	○ Add supplemental signal heads on far side of intersection.	Medium	High
○ White strobe in the red light of the signal head is not MUTCD ¹ compliant.	○ Remove the white strobe from red light in the signal.	Low	Low

¹ Manual of Uniform Traffic Control Devices

3.0 CONCLUSION

As discussed earlier, the road safety audit program is conducted to generate improvement recommendations and countermeasures for roadway segments demonstrating a history of, or potential for a high incidence of motor vehicle crashes. The safety issues identified during the audit and documented in this report along with recommended strategies should improve the overall safety of PA 663. These remedial strategies can be implemented as time and budget limitations permit. The study area is identified under PennDOT's Section 148 Planned Safety Projects and therefore, implementation is eligible for Highway Safety Improvement Program funding. Additionally, many of the strategies identified can be implemented through routine maintenance.

Evaluating the contributing factor for the recorded crashes, a large number are due to human error therefore engineering strategies alone cannot effectively address the traffic safety issues identified along the corridor. Therefore, enforcement and education are necessary components to address the human behavioral aspects to effectively reduce the number of crashes occurring. This requires coordination between PennDOT, Pennsylvania State Police, local police and other local officials.

APPENDIX A
Audit Team

PA 663 – Road Safety Audit

Audit Team

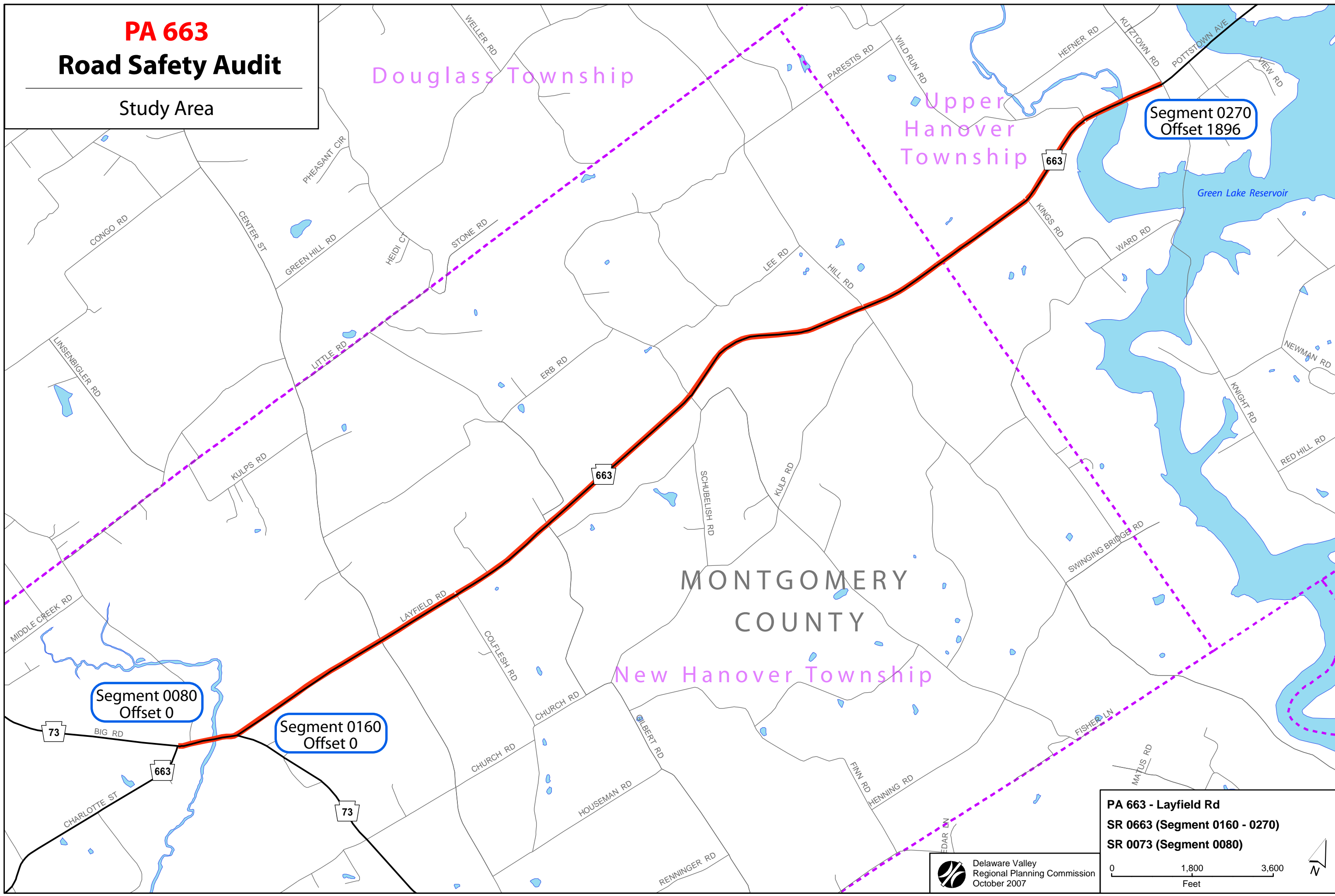
Name	Organization
Rosemarie Anderson	Delaware Valley Regional Planning Commission
Ray Batchelder	New Hanover Public Works
Larry Bucci	Pennsylvania Department of Transportation – District 6
Michael Castellano	Federal Highway Administration
Mike Dykie	New Hanover Police Department
Howard Houseknecht	Pennsylvania Department of Transportation - Maintenance
Regina Moore	Delaware Valley Regional Planning Commission
Kevin Murphy	Delaware Valley Regional Planning Commission
Michael Ropski	Pennsylvania Department of Transportation - Maintenance
Derrick Sexton	Delaware Valley Regional Planning Commission

APPENDIX B

Maps

PA 663 Road Safety Audit

Study Area



Segment 0080
Offset 0

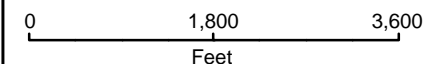
Segment 0160
Offset 0

Segment 0270
Offset 1896

MONTGOMERY
COUNTY

PA 663 - Layfield Rd
SR 0663 (Segment 0160 - 0270)
SR 0073 (Segment 0080)

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Study Area

DVRPC Traffic Count

● AADT (Year)

Dougllass Township

Upper
Hanover
Township

New Hanover Township

MONTGOMERY
COUNTY

Segment 0270
Offset 1896

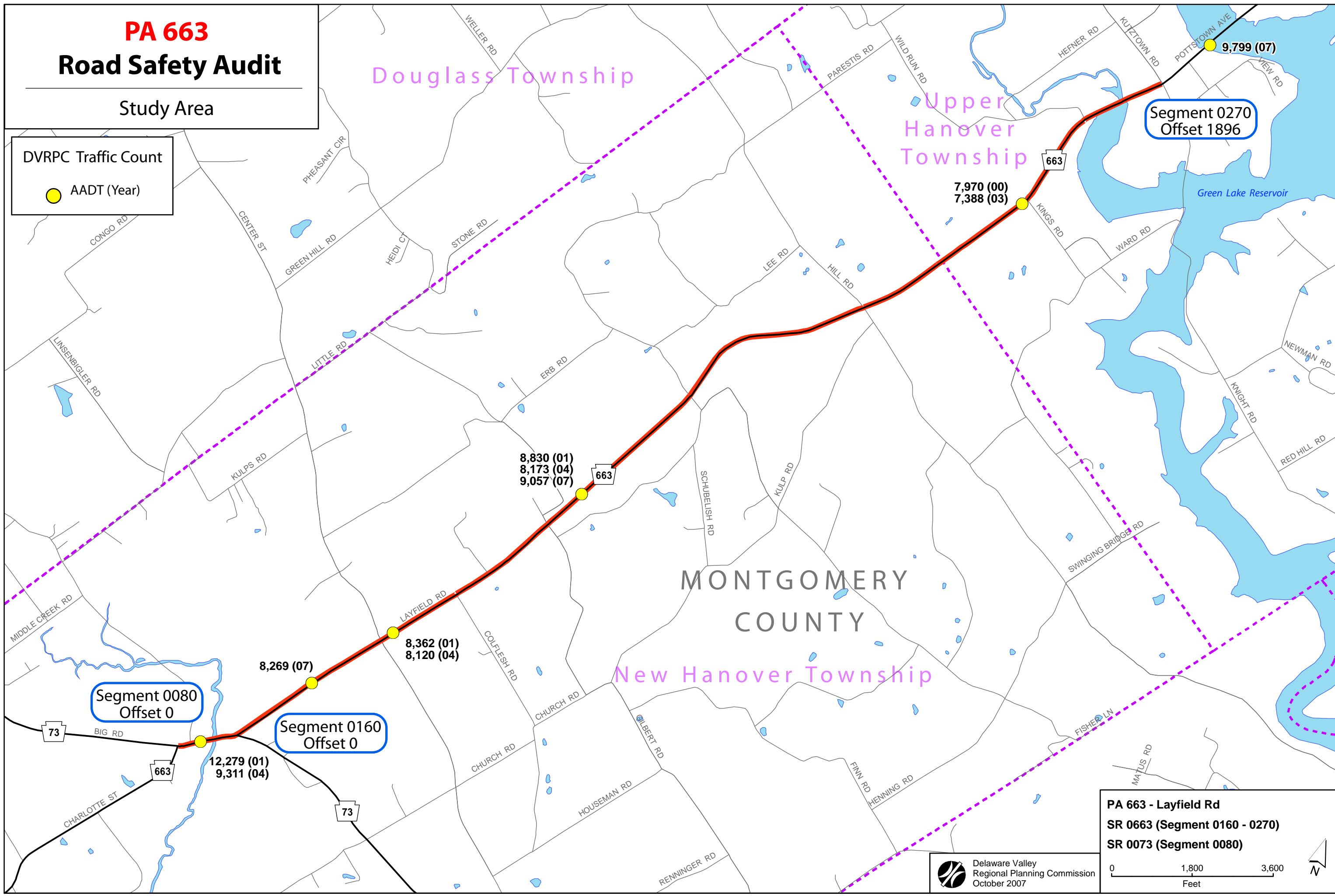
Segment 0080
Offset 0

Segment 0160
Offset 0

PA 663 - Layfield Rd
SR 0663 (Segment 0160 - 0270)
SR 0073 (Segment 0080)

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0 1,800 3,600
Feet



APPENDIX C

Traffic Data

mont co 663 corridor 0160/0000 to 0280/1247



Date Range: 1/1/2003 to 12/31/2006

USER_ID/QUERY_ID:

Area of (In County 46 On State Route 0663(P) Between Segment 0160 Offset 0 and Segment 0280 Offset 1247)

Ikubli/ 0620071003002

Interest:

MONTH OF YEAR													DAY OF WEEK								
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		SUN	MON	TUE	WED	THR	FRI	SAT	
CRASHES	11	9	7	10	6	9	14	14	4	22	10	9	125	15	19	8	22	21	16	24	125
PCT	8%	7%	5%	8%	4%	7%	11%	11%	3%	17%	8%	7%	100%	12%	15%	6%	17%	16%	12%	19%	100%

HOUR OF DAY																									
	00	01	02	03	04	05	06	07	08	09	11	12	13	14	15	16	17	18	19	20	21	22	23	99	
CRASHES	3	3	1	1	2	4	5	10	8	4	5	7	4	8	7	10	12	10	7	3	3	5	2	1	125
PCT	2%	2%	0%	0%	1%	3%	4%	8%	6%	3%	4%	5%	3%	6%	5%	8%	9%	8%	5%	2%	2%	4%	1%	0%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT		DRIVER ACTIONS				
	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	PERSONS		ACTIONS		PCT
2003	30	24%	ANGLE	52 41%	FATAL	2 1%	FATALITIES		NO CONTRIBUTING ACTION		190 40%
2004	33	26%	HIT FIX OBJ	31 24%	MAJOR	2 1%	MAJOR		OTHER IMPROPER DRIVING		44 9%
2005	27	21%	REAR END	27 21%	MODERATE	15 12%	MODERATE		TOO FAST FOR CONDITION		35 7%
2006	35	28%	UNKNOWN	6 4%	MINOR	45 36%	MINOR		IMPROPER/CARELESS TURN		33 7%
TOTAL	125	100%	HEAD ON	5 4%	UNK SEVERITY	2 1%	UNK SEVERITY		PROCEED W/O CLEARANCE		29 6%
			NON COLL	4 3%	UNK IF INJURED	3 2%	UNK IF INJURED		RUNNING RED LIGHT		20 4%
			TOTAL	125 100%	PDO	56 44%			FAILURE TO RESPOND TCD		19 4%
					TOTAL	125 100%			TAILGATING		19 4%
									AFFECTED PHYSICAL COND		15 3%
									DRIVER WAS DISTRACTED		13 2%
									WRONG SIDE OF ROADWAY		9 1%
									SUDDEN SLOWING/STOP		7 1%
									OTHERS		32 6%
									TOTAL		465 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER		ENVIR/ROADWAY FACTORS			
	VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	130	59%	DRY	92 73%	DAYLIGHT	83 66%	CLEAR	99 79%	NONE	117 87%
SMALL TRUCK	36	16%	WET	21 16%	DARK	26 20%	RAIN	18 14%	DEER IN ROADWAY	7 5%
SUV	26	11%	ICE PATCH	5 4%	STREET LIGHTS	8 6%	SNOW	3 2%	SLIPPERY ICE/SNOW	4 3%
VAN	16	7%	SNOW	3 2%	DAWN	3 2%	UNK	2 1%	OTHER WEATHER COND	2 1%
MOTORCYCLE	8	3%	ICE	2 1%	DUSK	3 2%	FOG	1 0%	GLARE	1 0%
LARGE TRUCK	7	3%	UNK	2 1%	UNK	2 1%	OTHER	1 0%	OTHER ENVIR FACTOR	1 0%
BUS	1	0%	TOTAL	125 100%	TOTAL	125 100%	RAIN/FOG	1 0%	SHLDR SOFT/DROPOFF	1 0%
PEDALCYCLE	1	0%					TOTAL	125 100%	TOTAL	133 100%
UNK VEHICLE	1	0%								
TOTAL	220	100%								

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

- 1 The data available in this application is dynamic and should be used with care. Please take note of the following data alerts:

- 2 2007 crash records are incomplete
Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006

REPORT PARAMETERS:

Query ID: [0620071003002](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0160 Offset 0 and Segment 0280 Offset 1247)

Date Range: 1/1/2003 to 12/31/2006

Criteria: STATE ROAD

MONTGOMERY CO SR 73 SEG 80 AND 663 INTERSECTIONS



Date Range: 1/1/2003 to 12/31/2006

USER ID/QUERY ID:

Ikubli/ 0620070924002

Area of (In County 46 On State Route 0073(P) Between Segment 0080 Offset 0 and Segment 0080 Offset 1245) or (In County 46

Interest: On State Route 0663(P) Between Segment 0150 Offset 2269 and Segment 0160 Offset 100)

MONTH OF YEAR													DAY OF WEEK								
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		SUN	MON	TUE	WED	THR	FRI	SAT	
CRASHES	9	2	5	1	4	2	10	5	4	4	2	5	53	10	7	10	3	5	11	7	53
PCT	16%	3%	9%	1%	7%	3%	18%	9%	7%	7%	3%	9%	100%	18%	13%	18%	5%	9%	20%	13%	100%

HOUR OF DAY																				
	00	01	03	06	07	08	09	11	12	13	14	15	16	17	18	19	21			
CRASHES	2	2	1	1	4	1	2	2	2	2	7	5	9	5	2	3	3	53		
PCT	3%	3%	1%	1%	7%	1%	3%	3%	3%	3%	13%	9%	16%	9%	3%	5%	5%	100%		

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT	DRIVER ACTIONS		
	CRASHES	PCT	CRASHES	PCT		PERSONS	ACTIONS	PCT
2003	12	22%	REAR END	21 39%	MAJOR	3 5%	FATALITIES	69 44%
2004	14	26%	HIT FIX OBJ	18 33%	MODERATE	4 7%	MAJOR	24 15%
2005	13	24%	ANGLE	8 15%	MINOR	22 41%	MODERATE	11 7%
2006	14	26%	NON COLL	3 5%	UNK IF INJURED	2 3%	MINOR	10 6%
TOTAL	53	100%	HEAD ON	1 1%	PDO	22 41%	UNK SEVERITY	10 6%
			SAME DIR SS	1 1%	TOTAL	53 100%	UNK IF INJURED	10 6%
			UNKNOWN	1 1%			IMPROPER/CARELESS TURN	7 4%
			TOTAL	53 100%			IMPROPER EXIT FROM HWY	4 2%
							CARELESS PASS/LN CHNG	2 1%
							DRIVER WAS DISTRACTED	2 1%
							RUNNING STOP SIGN	2 1%
							WRONG SIDE OF ROADWAY	2 1%
							OTHERS	1 0%
							TOTAL	154 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER	ENVIR/ROADWAY FACTORS		
	VEHICLES	PCT	CRASHES	PCT		FACTORS	PCT	
AUTOMOBILE	42	50%	DRY	33 62%	CLEAR	37 69%	NONE	45 84%
SMALL TRUCK	14	16%	WET	11 20%	RAIN	9 16%	OTHER RDWY FACTOR	2 3%
SUV	13	15%	SNOW	5 9%	SNOW	4 7%	SLIPPERY ICE/SNOW	2 3%
VAN	8	9%	ICE PATCH	2 3%	FOG	2 3%	ANIMAL IN RDWY	1 1%
MOTORCYCLE	4	4%	ICE	1 1%	SLEET	1 1%	DEER IN ROADWAY	1 1%
LARGE TRUCK	2	2%	UNK	1 1%	TOTAL	53 100%	GLARE	1 1%
BUS	1	1%	TOTAL	53 100%			POTHoles	1 1%
OTHER VEHICLE	1	1%					TOTAL	53 100%
TOTAL	84	100%						

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

- 1 The data available in this application is dynamic and should be used with care. Please take note of the following data alerts:

- 2 2007 crash records are incomplete
Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006


REPORT PARAMETERS:

Query ID: [0620070924002](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0073(P) Between Segment 0080 Offset 0 and Segment 0080 Offset 1245) or (In County 46 On State Route 0663(P) Between Segment 0150 Offset 2269 and Segment 0160 Offset 100)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD


1. SR 73 Between SR 663 South and SR 663 North
 Segment 80, Offset 0 to Segment 80, Offset 1245



COLLISION TYPE	
Rear-end	21
Hit Fixed Object	18
Angle	8
Non Collision	3
Head-on	1
Sideswipe (same dir)	1
Unknown	1
Total	53
ILLUMINATION	
Daylight	41
Dark	7
Street Lights	5
Total	53
WEATHER	
Clear	37
Rain	9
Snow	4
Fog	2
Sleet	1
Total	53
SEVERITY COUNT	
Fatalities	0
Major	3
Moderate	6
Minor	25
Unk Severity	0
Unk If Injured	2



● **Crash Location**



Delaware Valley
Regional Planning Commission
October 2007

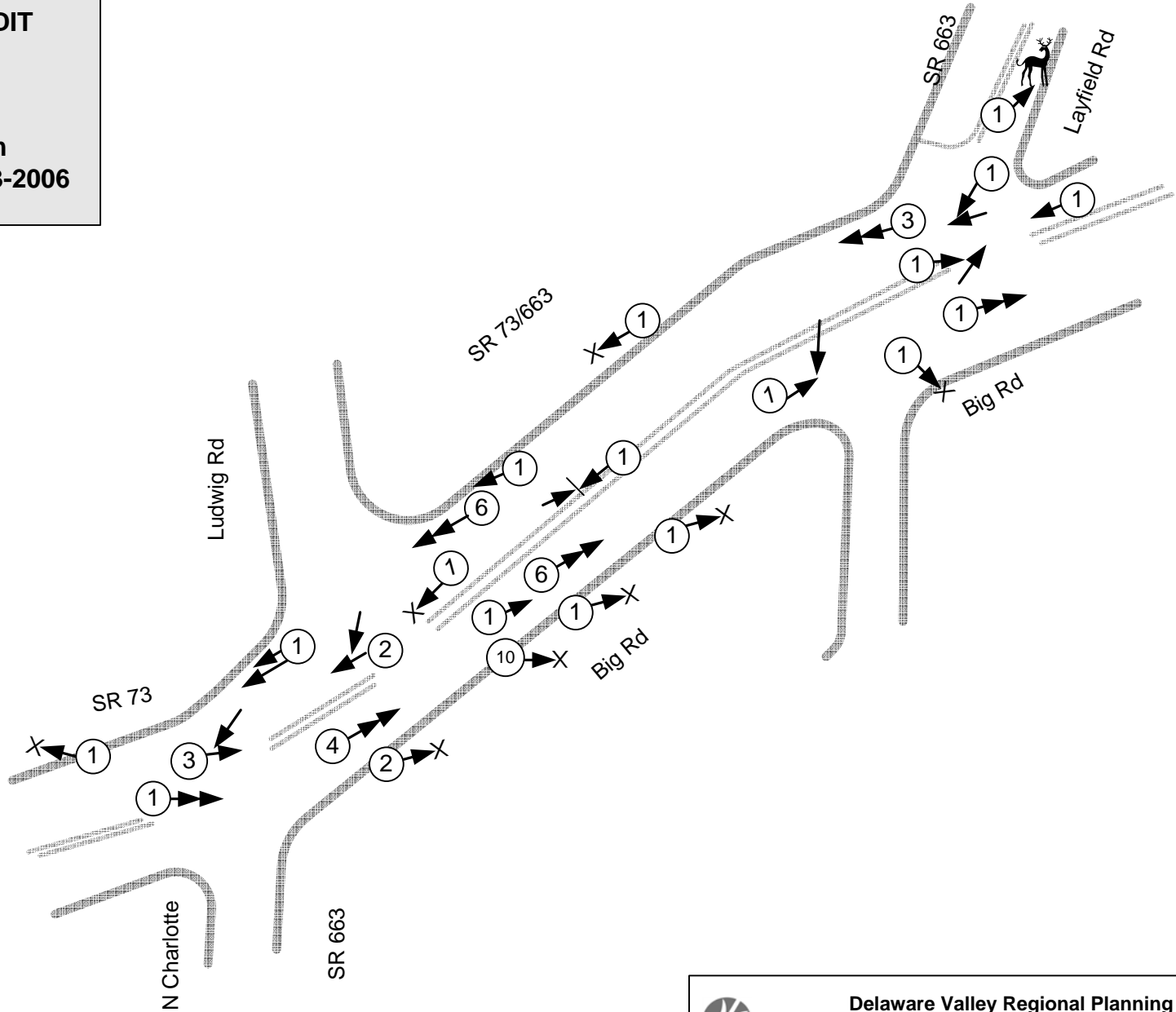
ROAD SAFETY AUDIT
Site 1
SR 73 / SR 663

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 53
 Pedestrian Crashes = 0

LEGEND

- ① = # crashes
- ↙ ↘ Angle
- ↙ ↘ Hit Deer
- ↔ Rear End
- ↙ ↘ Hit Fixed Object
- ↙ ↘ Same Direction Side Wipe
- Non-Collision
- ↔ Head On



SCHEMATIC NOT TO SCALE

montgomery co sr 663 @ Hoffmansville



Date Range: 1/1/2003 to 12/31/2006

USER_ID/QUERY_ID:

lkubli/ 0620070828001

Area of (In County 46 On State Route 0663(P) Between Segment 0180 Offset 0 and Segment 0180 Offset 0) or (In County 46 On

Interest: State Route 0663(S) Between Segment 0181 Offset 0 and Segment 0181 Offset 0)

MONTH OF YEAR													DAY OF WEEK							
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	OCT	NOV	DEC	TOTAL	SUN	MON	TUE	WED	THUR	FRI	SAT	TOTAL
CRASHES	3	1	2	2	2	1	4	1	4	3	1	24	3	3	4	3	5	4	2	24
PCT	12%	4%	8%	8%	8%	4%	16%	4%	16%	12%	4%	100%	12%	12%	16%	12%	20%	16%	8%	100%

HOUR OF DAY													
	07	08	11	12	13	14	15	16	17	19	22	TOTAL	
CRASHES	2	2	3	1	1	5	2	3	2	1	2	24	
PCT	8%	8%	12%	4%	4%	20%	8%	12%	8%	4%	8%	100%	

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT		DRIVER ACTIONS			
	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	PERSONS	ACTIONS	PCT	
2003	6	25%	ANGLE	21 87%	MODERATE	4 16%	FATALITIES	0	NO CONTRIBUTING ACTION	51 48%
2004	5	20%	REAR END	2 8%	MINOR	12 50%	MAJOR	0	PROCEED W/O CLEARANCE	15 14%
2005	7	29%	HIT FIX OBJ	1 4%	PDO	8 33%	MODERATE	4	FAILURE TO RESPOND TCD	13 12%
2006	6	25%	TOTAL	24 100%	TOTAL	24 100%	MINOR	15	IMPROPER/CARELESS TURN	10 9%
TOTAL	24	100%					UNK SEVERITY	0	OTHER IMPROPER DRIVING	4 3%
							UNK IF INJURED	2	RUNNING STOP SIGN	4 3%
									PASS IN NO PASSING ZN	2 1%
									TAILGATING	2 1%
									TOO FAST FOR CONDITION	2 1%
									WRONG SIDE OF ROADWAY	2 1%
									TOTAL	105 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER		ENVIR/ROADWAY FACTORS			
	VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	31	62%	DRY	18 75%	DAYLIGHT	22 91%	CLEAR	19 79%	NONE	23 95%
SMALL TRUCK	8	16%	WET	5 20%	DARK	1 4%	RAIN	4 16%	SLIPPERY ICE/SNOW	1 4%
SUV	6	12%	SNOW	1 4%	STREET LIGHTS	1 4%	SNOW	1 4%	TOTAL	24 100%
LARGE TRUCK	2	4%	TOTAL	24 100%	TOTAL	24 100%	TOTAL	24 100%		
VAN	2	4%								
MOTORCYCLE	1	2%								
PEDALCYCLE	1	2%								
TOTAL	50	100%								

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

- 1 The data available in this application is dynamic and should be used with care. Please take note of the following data alerts:

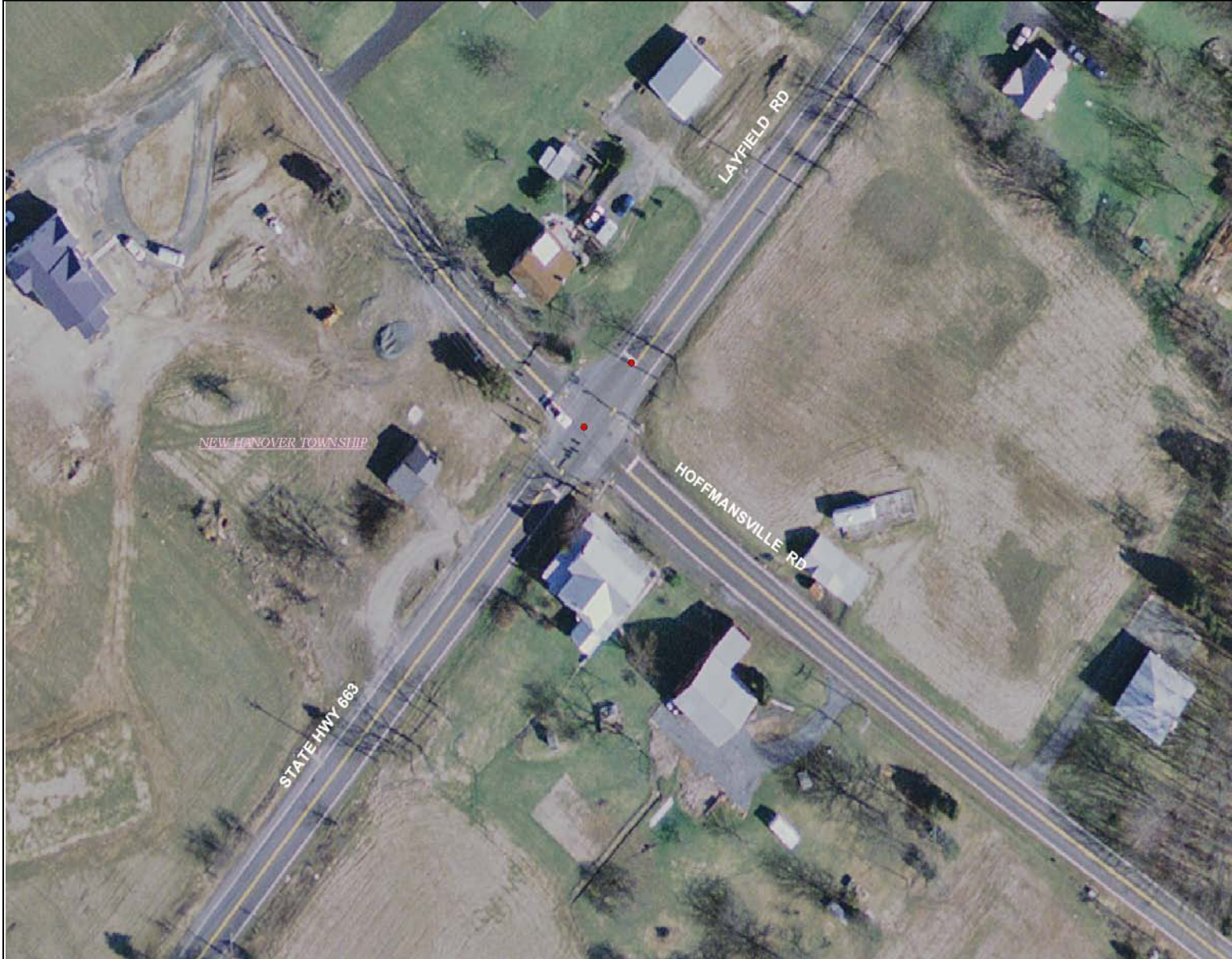
- 2 2007 crash records are incomplete
Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006


REPORT PARAMETERS:


Query ID: [0620070828001](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0180 Offset 0 and Segment 0180 Offset 0) or (In County 46 On State Route 0663(S) Between Segment 0181 Offset 0 and Segment 0181 Offset 0)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD


2. SR 663 at Hoffmansville Rd.
Segment 180, Offset 0



COLLISION TYPE	
Angle	21
Rear-end	2
Hit Fixed Object	1
Total	24
ILLUMINATION	
Daylight	22
Dark	1
Street Lights	1
Total	24
WEATHER	
Clear	19
Rain	4
Snow	1
Total	24
SEVERITY COUNT	
Fatalities	0
Major	0
Moderate	4
Minor	15
Unk Severity	0
Unk If Injured	2



 **Crash Location**

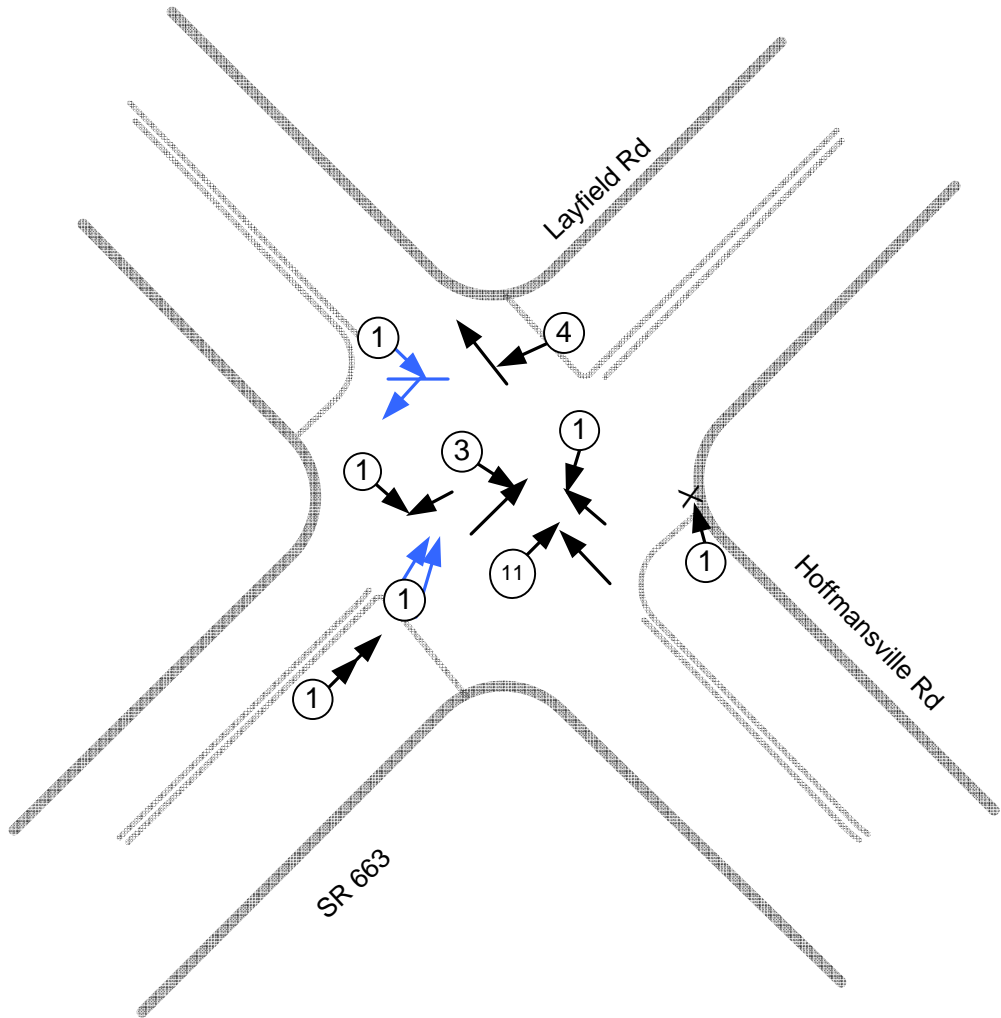


Delaware Valley
Regional Planning Commission
October 2007

ROAD SAFETY AUDIT
Site 2
SR 663 at Hoffmansville Rd.

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 24
 Pedestrian Crashes = 0



LEGEND

① = # crashes

← Rear-End

↙ Angle

↘ Hit Fixed Object

Possible Miscoding

↔ Rear-End

↗ Angle

SCHEMATIC NOT TO SCALE

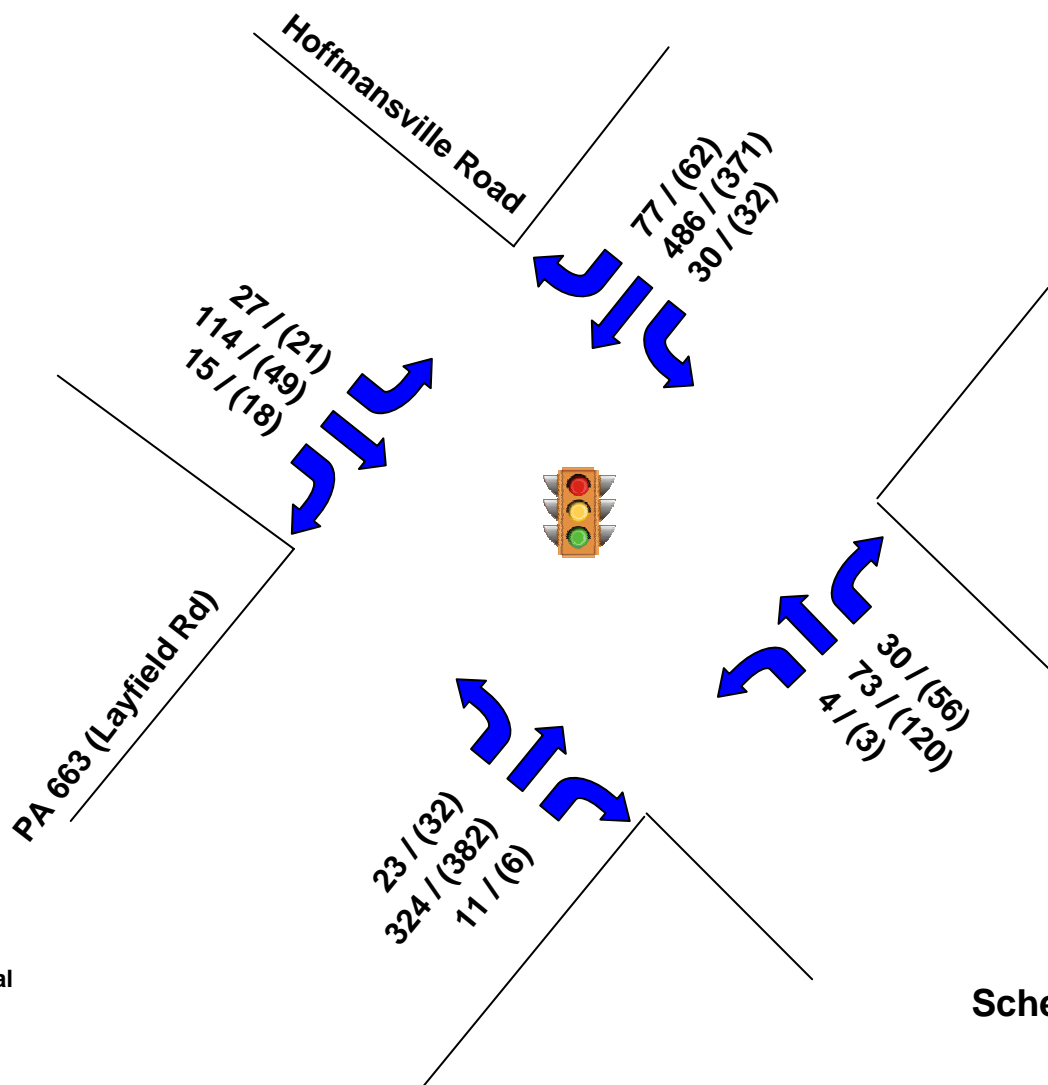
N ↑

PA 663 and Hoffmansville Road Peak Hour Turning Movement Counts AM / (PM)

Peak Hours

AM: 7:45 – 8:45

PM: 4:45 – 5:45



Schematic not to scale

SR 663 at Hoffmansville Rd.

New Hanover Township

Date Range: 1/1/2003 to 12/31/2006

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
ANGLE	MINOR INJURY	VEH1 EB HOFFMANSVILLE RD GOING STRAIGHT HIT VEH2 NB 663	4WAY	8/30/2004
REAR-END	MODERATE	VEH1 EB HOFFMANSVILLE RD GOING STRAIGHT REAR ENDED VEH2 EB	4WAY	7/4/2003
ANGLE	MINOR INJURY	VEH1 EB HOFFMANSVILLE RD GOING STRAIGHT WAS HIT BY VEH2 NB 663	4WAY	10/21/2003
ANGLE	MINOR INJURY	VEH1 EB HOFFMANSVILLE RD GOING STRAIGHT WAS HIT BY VEH2 NB 663	4WAY	7/13/2006
ANGLE	PROP DMG	VEH1 EB HOFFMANSVILLE RD TURNING LEFT HIT VEH2 NB 663	4WAY	11/30/2005
ANGLE	MINOR INJURY	VEH1 EB HOFFMANSVILLE RD TURNING LEFT WAS HIT BY VEH2 SB	4WAY	12/26/2004
ANGLE	PROP DMG	VEH1 EB HOFFMANSVILLE RD TURNING LEFT WAS HIT BY VEH2 SB 663	4WAY	10/2/2003
ANGLE	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT VEH2 EB HOFFMANSVILLE RD	4WAY	10/29/2003
ANGLE	PROP DMG	VEH1 NB 663 GOING STRAIGHT HIT VEH2 EB HOFFMANSVILLE RD	4WAY	4/11/2004
ANGLE	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT VEH2 EB HOFFMANSVILLE RD	4WAY	4/13/2006
ANGLE	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT VEH2 WB HOFFMANSVILLE RD	4WAY	7/5/2003
ANGLE	MODERATE	VEH1 NB 663 GOING STRAIGHT WAS HIT BY VEH2 EB HOFFMANSVILLE RD	4WAY	3/7/2006
ANGLE	MODERATE	VEH1 NB 663 GOING STRAIGHT WAS HIT BY VEH2 WB HOFFMANSVILLE RD	4WAY	5/15/2006
ANGLE	MINOR INJURY	VEH1 NB 663 TURNING LEFT HIT VEH2 SB 663	4WAY	1/9/2004
ANGLE	PROP DMG	VEH1 NB 663 TURNING LEFT WAS HIT BY VEH2 SB HOFFMANSVILLE RD	4WAY	1/11/2005
REAR-END	MINOR INJURY	VEH1 SB 663 GOING STRAIGHT HIT VEH2 SB 663	4WAY	7/9/2006
ANGLE	PROP DMG	VEH1 SB 663 GOING STRAIGHT HIT VEH2 WB HOFFMANSVILLE RD	4WAY	3/27/2003
ANGLE	MINOR INJURY	VEH1 SB 663 TURNING LEFT WAS HIT BY VEH2 NB HOFFMANSVILLE RD	4WAY	2/24/2006
ANGLE	MINOR INJURY	VEH1 SB 663 TURNING RIGHT HIT PEDACYCLE SB HOFFMANSVILLE RD	4WAY	6/11/2005
ANGLE	PROP DMG	VEH1 WB HOFFMANSVILLE RD GOING STRAIGHT HIT VEH2 NB 663	4WAY	1/19/2005
ANGLE	PROP DMG	VEH1 WB HOFFMANSVILLE RD GOING STRAIGHT HIT VEH2 SB 663	4WAY	5/13/2005
ANGLE	MODERATE	VEH1 WB HOFFMANSVILLE RD GOING STRAIGHT WAS HIT BY VEH2 NB 663	4WAY	11/30/2004
ANGLE	MINOR INJURY	VEH1 WB HOFFMANSVILLE RD GOING STRAIGHT WAS HIT BY VEH2 NB 663	4WAY	11/3/2005
HIT FIXED	PROP DMG	VEH1 WB HOFFMANSVILLE RD TURNING RIGHT HIT FIXED OBJ	4WAY	10/3/2005

MONTGOMERY CO SR 663 @ COLEFISH ROAD



Date Range: 1/1/2003 to 12/31/2006

USER ID/QUERY ID:

lkubli/ 0620070828002

Area of (In County 46 On State Route 0663(P) Between Segment 0180 Offset 1909 and Segment 0190 Offset 519) or (In County

Interest: 46 On State Route 0663(S) Between Segment 0181 Offset 1909 and Segment 0191 Offset 519)

MONTH OF YEAR								DAY OF WEEK				
	JAN	FEB	APR	MAY	JUL	OCT		MON	THR	FRI	SAT	
CRASHES	1	1	1	1	2	1	7	1	3	2	1	7
PCT	14%	14%	14%	14%	28%	14%	100%	14%	42%	28%	14%	100%

HOUR OF DAY								
	03	07	08	15	19	20	22	
CRASHES	1	1	1	1	1	1	1	7
PCT	14%	14%	14%	14%	14%	14%	14%	100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT	DRIVER ACTIONS				
	CRASHES	PCT	CRASHES	PCT		PERSONS	ACTIONS	PCT		
2003	2	28%	REAR END	3 42%	MINOR	1 14%	FATALITIES	0	NO CONTRIBUTING ACTION	11 50%
2004	3	42%	HIT FIX OBJ	2 28%	PDO	6 85%	MAJOR	0	DRIVER WAS DISTRACTED	4 18%
2006	2	28%	NON COLL	1 14%	TOTAL	7 100%	MODERATE	0	OTHER IMPROPER DRIVING	4 18%
TOTAL	7	100%	UNKNOWN	1 14%			MINOR	1	TAILGATING	2 9%
			TOTAL	7 100%			UNK SEVERITY	0	AFFECTED PHYSICAL COND	1 4%
							UNK IF INJURED	0	TOTAL	22 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER	ENVIR/ROADWAY FACTORS			
VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	5 38%	DRY	4 57%	DAYLIGHT	3 42%	CLEAR	5 71%	NONE	4 57%
SUV	2 15%	WET	2 28%	DARK	2 28%	RAIN	2 28%	DEER IN ROADWAY	1 14%
VAN	2 15%	ICE	1 14%	STREET LIGHTS	2 28%	TOTAL	7 100%	SHLDR SOFT/DROPOFF	1 14%
MOTORCYCLE	1 7%	TOTAL	7 100%	TOTAL	7 100%			SLIPPERY ICE/SNOW	1 14%
BUS	1 7%							TOTAL	7 100%
SMALL TRUCK	1 7%								
LARGE TRUCK	1 7%								
TOTAL	13 100%								

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

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Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006

REPORT PARAMETERS:

Query ID: [0620070828002](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0180 Offset 1909 and Segment 0190 Offset 519) or (In County 46 On State Route 0663(S) Between Segment 0181 Offset 1909 and Segment 0191 Offset 519)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD

3. SR 663 at Colflesh Rd.

Segment 180, Offset 1909 to Segment 190, Offset 519



COLLISION TYPE	
Rear-end	3
Hit Fixed Object	2
Non Collision	1
Unknown	1
Total	7
ILLUMINATION	
Daylight	3
Dark	2
Street Lights	2
Total	7
WEATHER	
Clear	5
Rain	2
Total	7
SEVERITY COUNT	
Fatalities	0
Major	0
Moderate	0
Minor	1
Unk Severity	0
Unk If Injured	0

North arrow pointing up.

● Crash Location

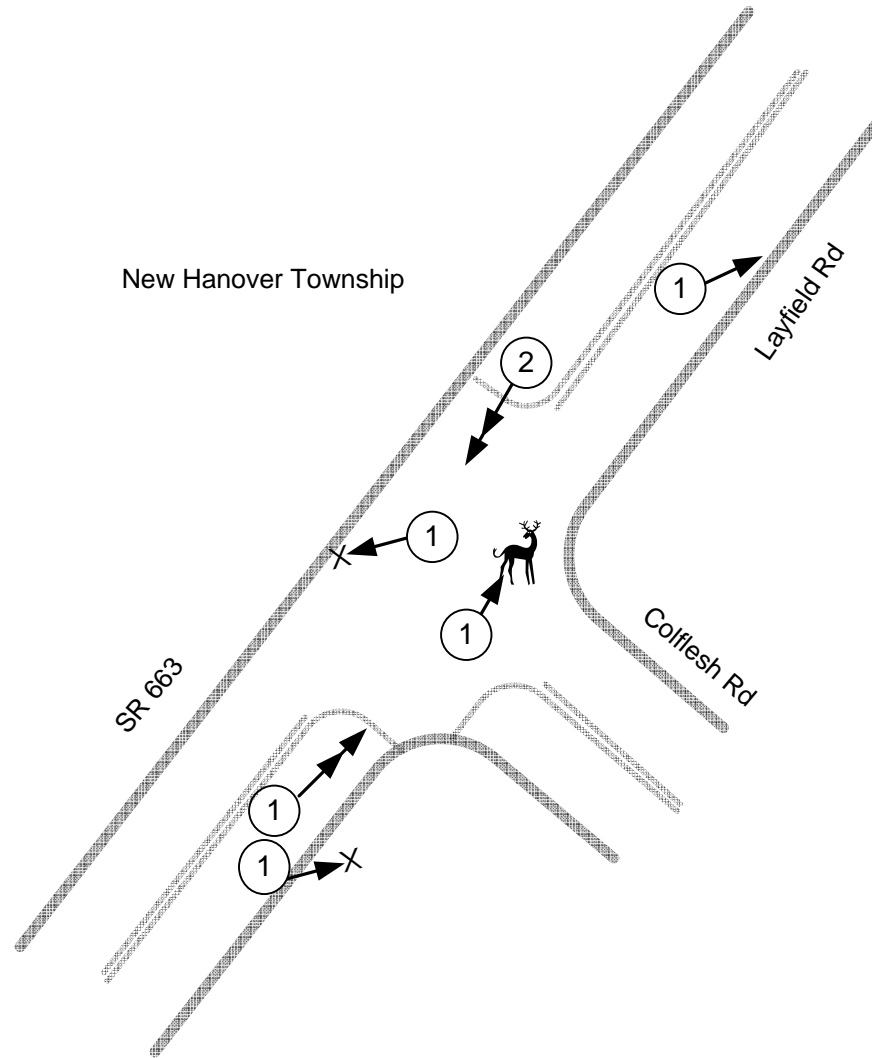
Delaware Valley
Regional Planning Commission
October 2007

ROAD SAFETY AUDIT
Site 3
SR 663 at Colflesh Rd.

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 7

Pedestrian Crashes = 0



LEGEND

① = # crashes

↗ Angle

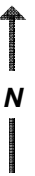
→→ Rear End

↘ X Hit Fixed Object

→ Non-Collision

↘ Deer Hit Deer

SCHEMATIC NOT TO SCALE



Delaware Valley Regional Planning Commission
 October 2007

SR663 at Colflesh Rd.
New Hanover Township
Date Range: 1/1/2003 to 12/31/2006

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
NON-COLLISION	PROP DMG ONLY	VEH1 NB 663 GOING STRAIGHT HAD NON COLLISION	MIDB	7/13/2006
UNKNOWN	PROP DMG ONLY	VEH1 NB 663 GOING STRAIGHT HIT DEER	MIDB	10/4/2004
HIT FIXED OBJ	PROP DMG ONLY	VEH1 NB 663 GOING STRAIGHT HIT FIXED OBJECT(Ditch)	MIDB	7/10/2003
REAR-END	PROP DMG ONLY	VEH1 NB 663 GOING STRAIGHT REAR ENDED VEH2 NB IN RIGHT LANE SLOWING OR STOPPING	MIDB	1/16/2004
HIT FIXED OBJ	PROP DMG ONLY	VEH1 SB 663 GOING STRAIGHT HIT FIXED OBJECT(Tree or Shubbery)	MIDB	2/7/2004
REAR-END	PROP DMG ONLY	VEH1 SB 663 GOING STRAIGHT REAR ENDED VEH2 AND 3	T-INT	4/20/2006
REAR-END	MINOR INJURY	VEH1 SB 663 GOING STRAIGHT REAR ENDED VEH2, 3 AND 4	T-INT	5/16/2003

montgomery co sr 663 north of Deep Creek Road



Date Range: 1/1/2003 to 12/31/2006

USER ID/QUERY ID:

lkubli/ 0620070828003

Area of (In County 46 On State Route 0663(P) Between Segment 0210 Offset 2157 and Segment 0220 Offset 2402) or (In

Interest: County 46 On State Route 0663(S) Between Segment 0211 Offset 2157 and Segment 0221 Offset 2402)

MONTH OF YEAR												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	
CRASHES	1	1	2	1	1	1	1	2	1	1	2	14
PCT	7%	7%	14%	7%	7%	7%	7%	14%	7%	7%	14%	100%

DAY OF WEEK						
	SUN	MON	WED	FRI	SAT	
CRASHES	1	4	4	2	3	14
PCT	7%	28%	28%	14%	21%	100%

HOUR OF DAY												
	01	02	05	06	07	08	12	16	17	18	22	
CRASHES	1	1	2	1	1	1	1	1	2	2	1	14
PCT	7%	7%	14%	7%	7%	7%	7%	7%	14%	14%	7%	100%

YEAR		
	CRASHES	PCT
2003	6	42%
2004	3	21%
2005	3	21%
2006	2	14%
TOTAL	14	100%

COLLISION TYPE		
	CRASHES	PCT
HIT FIX OBJ	9	64%
REAR END	3	21%
ANGLE	1	7%
HEAD ON	1	7%
TOTAL	14	100%

CRASH SEVERITY LEVEL		
	CRASHES	PCT
MAJOR	1	7%
MODERATE	2	14%
MINOR	4	28%
UNK IF INJURED	1	7%
PDO	6	42%
TOTAL	14	100%

SEVERITY COUNT	
	PERSONS
FATALITIES	0
MAJOR	1
MODERATE	2
MINOR	5
UNK SEVERITY	0
UNK IF INJURED	1

DRIVER ACTIONS		
	ACTIONS	PCT
NO CONTRIBUTING ACTION	13	36%
TOO FAST FOR CONDITION	6	16%
OTHER IMPROPER DRIVING	4	11%
AFFECTED PHYSICAL COND	3	8%
TAILGATING	3	8%
FAILURE TO RESPOND TCD	2	5%
PROCEED W/O CLEARANCE	2	5%
WRONG SIDE OF ROADWAY	2	5%
USING HAND-HELD PHONE	1	2%
TOTAL	36	100%

VEHICLE TYPE		
	VEHICLES	PCT
AUTOMOBILE	12	60%
SMALL TRUCK	3	15%
SUV	3	15%
MOTORCYCLE	2	10%
TOTAL	20	100%

ROAD CONDITION		
	CRASHES	PCT
DRY	7	50%
ICE PATCH	4	28%
WET	2	14%
SNOW	1	7%
TOTAL	14	100%

ILLUMINATION		
	CRASHES	PCT
DAYLIGHT	8	57%
DARK	5	35%
DAWN	1	7%
TOTAL	14	100%

WEATHER		
	CRASHES	PCT
CLEAR	11	78%
RAIN	1	7%
RAIN/FOG	1	7%
SNOW	1	7%
TOTAL	14	100%

ENVIR/ROADWAY FACTORS		
	FACTORS	PCT
NONE	12	85%
OTHER WEATHER COND	1	7%
SLIPPERY ICE/SNOW	1	7%
TOTAL	14	100%

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

- 1 The data available in this application is dynamic and should be used with care. Please take note of the following data alerts:

- 2 2007 crash records are incomplete
Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006


REPORT PARAMETERS:


Query ID: [0620070828003](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0210 Offset 2157 and Segment 0220 Offset 2402) or (In County 46 On State Route 0663(S) Between Segment 0211 Offset 2157 and Segment 0221 Offset 2402)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD


4. SR 663 Vicinity of Deep Creek Rd. (and north)
 Segment 210, Offset 2157 to Segment 220, Offset 2402



COLLISION TYPE	
Hit Fixed Object	9
Rear-end	3
Angle	1
Head-on	1
Total	14
ILLUMINATION	
Daylight	8
Dark	5
Dawn	1
Total	14
WEATHER	
Clear	11
Rain	1
Rain/Fog	1
Snow	1
Total	14
SEVERITY COUNT	
Fatalities	0
Major	1
Moderate	2
Minor	5
Unk Severity	0
Unk If Injured	1



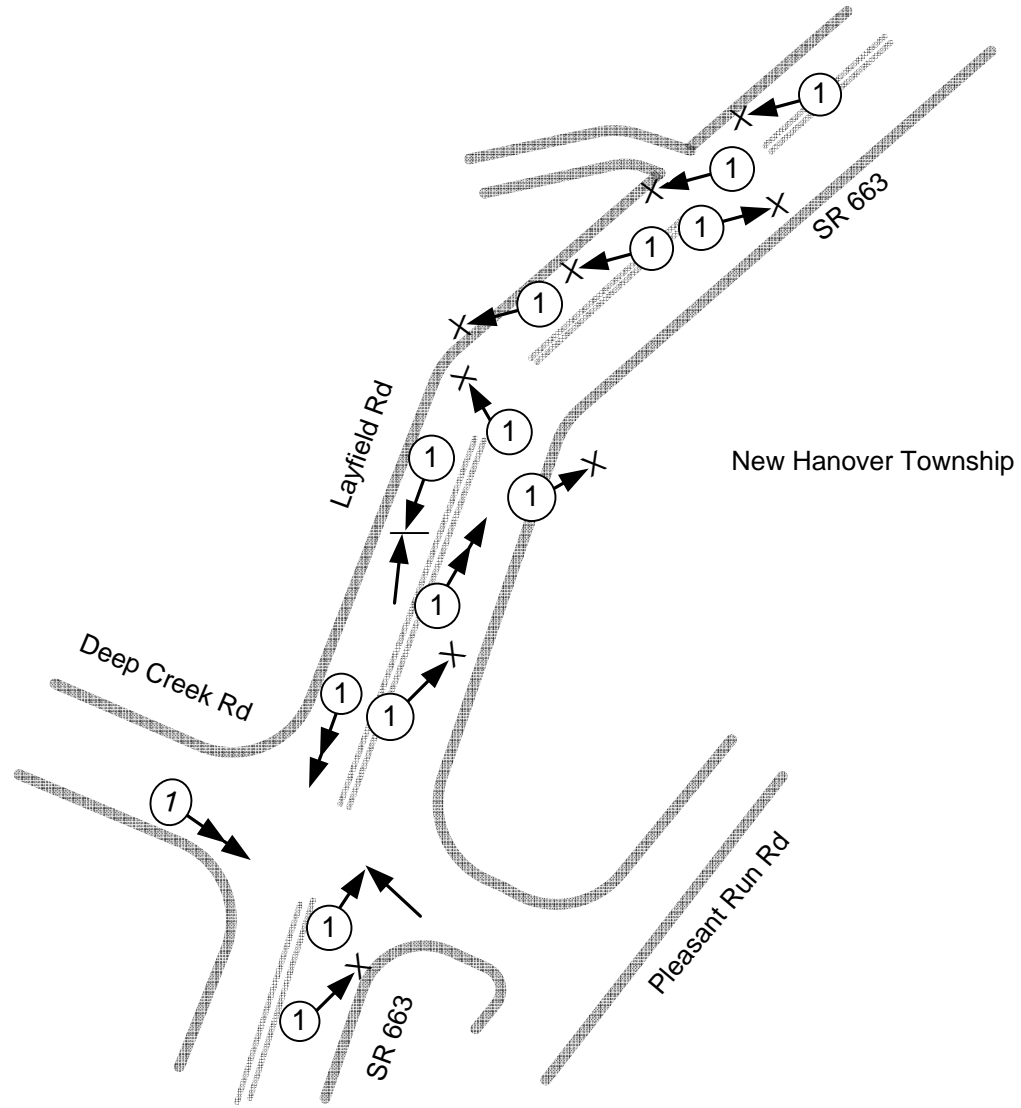
 **Crash Location**


 Delaware Valley
 Regional Planning Commission
 October 2007

ROAD SAFETY AUDIT
Site 4
SR 663 Vicinity of Deep Creek Rd
Rd (and North)

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 14
 Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- ↗ Angle
- Rear End
- ↘+ Hit Fixed Object
- ↔ Head On

SCHEMATIC NOT TO SCALE

↑
N
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SR663 at Vicinity of Deep Creek Rd. (and north)**New Hanover Township****Date Range: 1/1/2003 to 12/31/2006**

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
HIT FIXED	UNK IF INJURED	VEH1 NB 663 HIT FIXED OBJECT	MIDB	2/11/2004
REAR-END	MINOR INJURY	VEH1 NB 663 REAR ENDED VEH2	MIDB	4/28/2006
HIT FIXED	MODERATE	VEH1 NB 663 HIT FIXED OBJECT	MIDB	9/11/2005
HIT FIXED	PROP DMG	VEH1 NB 663 HIT FIXED OBJECT	MIDB	12/4/2004
ANGLE	PROP DMG	VEH1 NB 663 HIT VEH2 WB DEEP CREEK RD	4WAY	6/16/2003
HIT FIXED	MODERATE	VEH1 NB 663 IN ONCOMING TRAFFIC LANE NEGOTIATING CURVE - RIGHT HIT FIXED	MIDB	5/31/2003
HEAD-ON	MAJOR INJURY	VEH1 NB 663 IN ONCOMING TRAFFIC LANE NEGOTIATING CURVE HIT VEH2 SB	MIDB	8/16/2003
HIT FIXED	PROP DMG	VEH1 SB 663 GOING NEGOTIATING CURVE-LEFT HIT FIXED OBJECT	MIDB	3/21/2003
HIT FIXED	MINOR INJURY	VEH1 SB 663 HIT FIXED OBJECT	MIDB	7/10/2006
HIT FIXED	PROP DMG	VEH1 SB 663 HIT FIXED OBJECT	MIDB	1/29/2003
HIT FIXED	MINOR INJURY	VEH1 SB 663 HIT FIXED OBJECT	MIDB	12/21/2005
HIT FIXED	MINOR INJURY	VEH1 SB 663 NEGOTIATING CURVE HIT FIXED OBJECT	MIDB	3/10/2003
REAR-END	PROP DMG	VEH1 SB 663 REAR ENDED VEH2 SB DEEP CREEK RD	4WAY	10/5/2005
REAR-END	PROP DMG	VEH2 SB 663 REAR ENDED VEH1 SB 663	4WAY	8/23/2004

montgomery county 663 0220/4414 to 0240/0100



Date Range: 1/1/2002 to 12/31/2006

USER ID/QUERY ID:

lkubli/ 0620071015007

Area of (In County 46 On State Route 0663(P) Between Segment 0220 Offset 4414 and Segment 0240 Offset 100) or (In County

Interest: 46 On State Route 0663(S) Between Segment 0221 Offset 4414 and Segment 0241 Offset 100)

MONTH OF YEAR						DAY OF WEEK					
	JAN	APR	AUG	OCT		MON	TUE	WED	THR	SAT	
CRASHES	2	1	2	3	8	3	1	1	2	1	8
PCT	25%	12%	25%	37%	100%	37%	12%	12%	25%	12%	100%

HOUR OF DAY									
	04	06	08	11	15	18	20		
CRASHES	1	1	1	1	1	2	1	8	
PCT	12%	12%	12%	12%	12%	25%	12%	100%	

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT	DRIVER ACTIONS		
	CRASHES	PCT	CRASHES	PCT		PERSONS	ACTIONS	PCT
2002	1	12%	ANGLE	6 75%	MINOR	3 37%	NO CONTRIBUTING ACTION	14 50%
2004	1	12%	HIT FIX OBJ	2 25%	PDO	5 62%	OTHER IMPROPER DRIVING	5 17%
2005	2	25%	TOTAL	8 100%	TOTAL	8 100%	PROCEED W/O CLEARANCE	5 17%
2006	4	50%					RUNNING RED LIGHT	2 7%
TOTAL	8	100%					TOO FAST FOR CONDITION	2 7%
							TOTAL	28 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER	ENVIR/ROADWAY FACTORS			
	VEHICLES	PCT	CRASHES	PCT		CRASHES	PCT	FACTORS	PCT
AUTOMOBILE	8	53%	DRY	5 62%	DAYLIGHT	4 50%		NONE	8 100%
LARGE TRUCK	2	13%	WET	2 25%	DARK	3 37%		TOTAL	8 100%
SUV	2	13%	SNOW	1 12%	DUSK	1 12%			
VAN	2	13%	TOTAL	8 100%	TOTAL	8 100%			
SMALL TRUCK	1	6%							
TOTAL	15	100%							

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

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- 2 2007 crash records are incomplete
Data for the current year, 2007, is not fully represented in CDART. Crashes will be added for this year as they are made available to the Department. Include this year in queries with caution.

- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006

REPORT PARAMETERS:


Query ID: [0620071015007](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0220 Offset 4414 and Segment 0240 Offset 100) or (In County 46 On State Route 0663(S) Between Segment 0221 Offset 4414 and Segment 0241 Offset 100)
Date Range: 1/1/2002 to 12/31/2006
Criteria: STATE ROAD


5. SR 663 at Hill Rd.


Segment 220, Offset 4414 to Segment 240, Offset 100



COLLISION TYPE	
Angle	6
Hit Fixed Object	2
Total	8
ILLUMINATION	
Daylight	4
Dark	3
Dusk	1
Total	8
WEATHER	
Clear	5
Rain	2
Snow	1
Total	8
SEVERITY COUNT	
Fatalities	0
Major	0
Moderate	0
Minor	5
Unk Severity	0
Unk If Injured	0



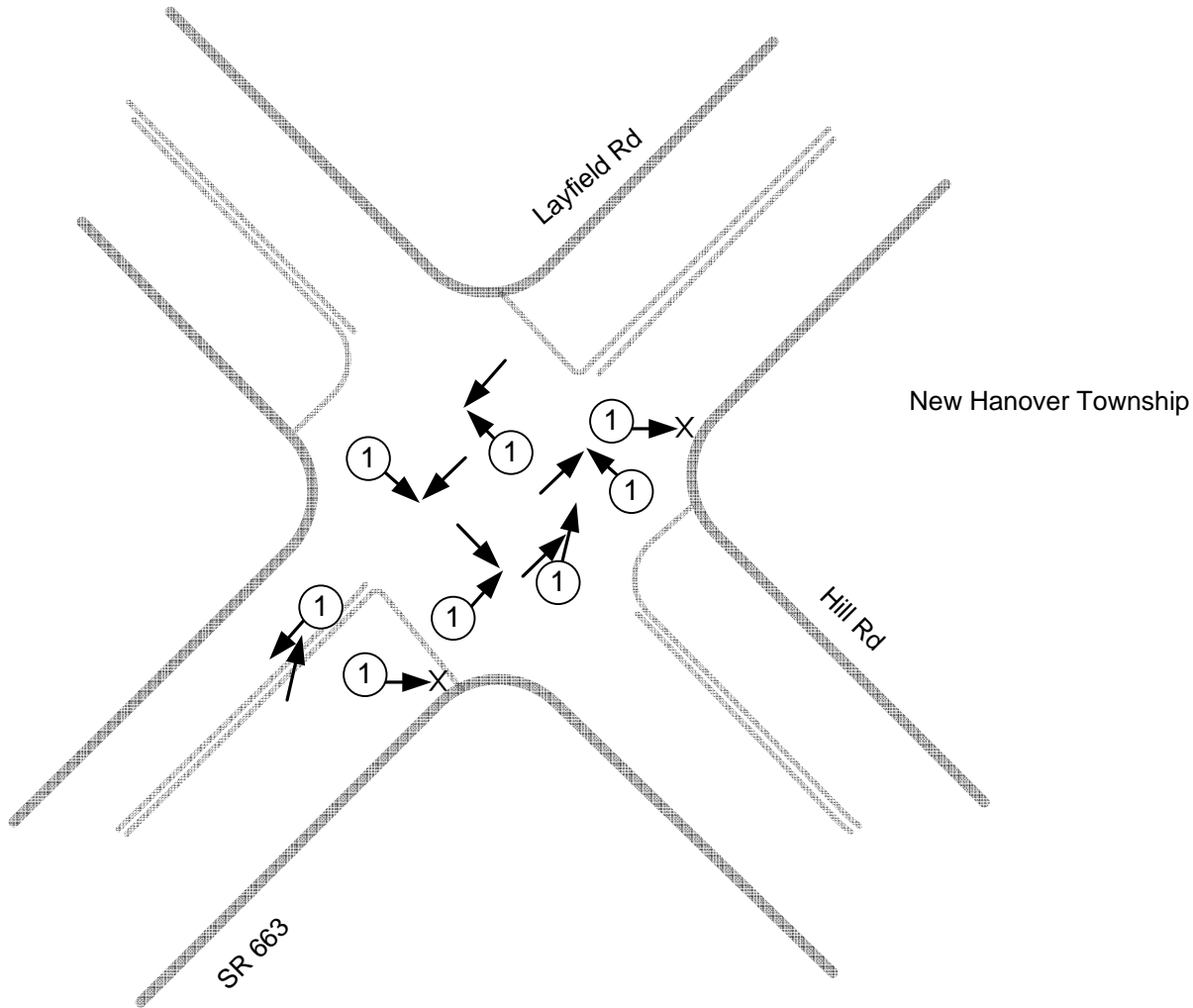
 **Crash Location**

 Delaware Valley
Regional Planning Commission
October 2007

ROAD SAFETY AUDIT
Site 5
SR 663 at Hill Rd

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 8
 Pedestrian Crashes = 0



LEGEND

① = # crashes

↘ Angle

↘ X Hit Fixed Object

SCHEMATIC NOT TO SCALE

N ↑

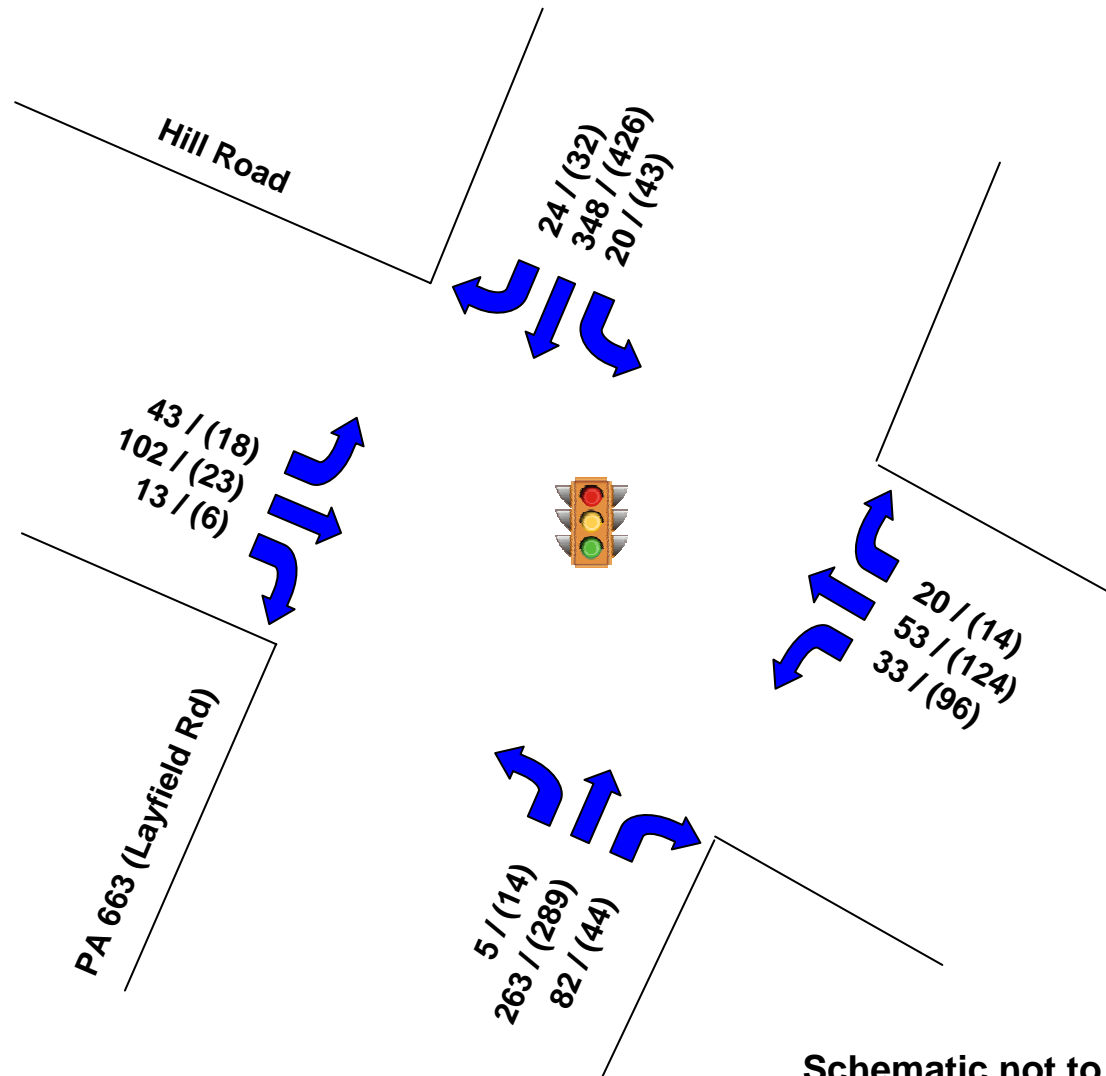
PA 663 and Hill Road

Peak Hour Turning Movement Counts AM / (PM)

Peak Hours

AM: 6:30 – 7:30

PM: 5:00 – 6:00



Schematic not to scale



Delaware Valley Regional
Planning Commission

October 2007

SR663 at Hill Rd.

New Hanover Township

Date Range: 1/1/2003 to 12/31/2006

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
ANGLE	MINOR INJURY	VEH1 EB HILL RD GOING STRAIGHT HIT VEH2 NB 663	4 WAY	4/16/2005
ANGLE	PROP DMG	VEH1 EB HILL RD SLOWING OR STOPPING HIT LARGE TRUCK (?)	4 WAY	1/7/2003
HIT FIXED OBJ	PROP DMG	VEH1 NB 663 GOING STRAIGHT HIT MAIL BOX	MIDB	10/13/2005
HIT FIXED OBJ	PROP DMG	VEH1 NB 663 GOING STRAIGHT HIT TREE OR SHRUBBERY	4 WAY	10/9/2006
ANGLE	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT VEH2 EB HILL RD	MIDB	8/29/2006
ANGLE	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT VEH2 WB HILL RD TURNING LEFT	4 WAY	8/31/2006
ANGLE	PROP DMG	VEH1 NB 663 GOING STRAIGHT WAS HIT BY VEH2 WB HILL RD	4 WAY	1/4/2006
ANGLE	PROP DMG	VEH1 WB HILL RD GOING STRAIGHT WAS HIT BY VEH2 SB 663	4 WAY	10/4/2004

montgomery co 663 @ wild run road



Date Range: 1/1/2003 to 12/31/2006

USER ID/QUERY ID:

lkubli/ 0620070828005

Area of (In County 46 On State Route 0663(P) Between Segment 0260 Offset 1948 and Segment 0270 Offset 0) or (In County 46

Interest: On State Route 0663(S) Between Segment 0261 Offset 1948 and Segment 0271 Offset 0)

MONTH OF YEAR				DAY OF WEEK			
	MAY	SEP		MON	SAT		
CRASHES	1	1	2	1	1	2	
PCT	50%	50%	100%	50%	50%	100%	

HOUR OF DAY			
	08	12	
CRASHES	1	1	2
PCT	50%	50%	100%

YEAR	CRASHES	PCT	COLLISION TYPE	CRASHES	PCT	CRASH SEVERITY LEVEL	CRASHES	PCT	SEVERITY COUNT	PERSONS	DRIVER ACTIONS	ACTIONS	PCT
2003	1	50%	HIT FIX OBJ	1	50%	MINOR	1	50%	FATALITIES	0	NO CONTRIBUTING ACTION	2	40%
2005	1	50%	REAR END	1	50%	PDO	1	50%	MAJOR	0	TAILGATING	2	40%
TOTAL	2	100%	TOTAL	2	100%	TOTAL	2	100%	MODERATE	0	TOO FAST FOR CONDITION	1	20%
									MINOR	2	TOTAL	5	100%
									UNK SEVERITY	0			
									UNK IF INJURED	0			

VEHICLE TYPE	VEHICLES	PCT	ROAD CONDITION	CRASHES	PCT	ILLUMINATION	CRASHES	PCT	WEATHER	CRASHES	PCT	ENVIR/ROADWAY FACTORS	FACTORS	PCT
AUTOMOBILE	1	33%	DRY	1	50%	DAYLIGHT	2	100%	CLEAR	1	50%	NONE	1	50%
SMALL TRUCK	1	33%	WET	1	50%	TOTAL	2	100%	RAIN	1	50%	OTHER WEATHER COND	1	50%
VAN	1	33%	TOTAL	2	100%				TOTAL	2	100%	TOTAL	2	100%
TOTAL	3	100%												

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

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- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006

REPORT PARAMETERS:

Query ID: [0620070828005](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0260 Offset 1948 and Segment 0270 Offset 0) or (In County 46 On State Route 0663(S) Between Segment 0261 Offset 1948 and Segment 0271 Offset 0)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD

6. SR 663 at Wild Run Rd.

Segment 260, Offset 1948 to Segment 270, Offset 0



COLLISION TYPE

Hit Fixed Object	1
Rear-end	1

Total 2

ILLUMINATION

Daylight	2
----------	---

Total 2

WEATHER

Clear	1
Rain	1

Total 2

SEVERITY COUNT

Fatalities	0
Major	0
Moderate	0
Minor	2
Unk Severity	0
Unk If Injured	0

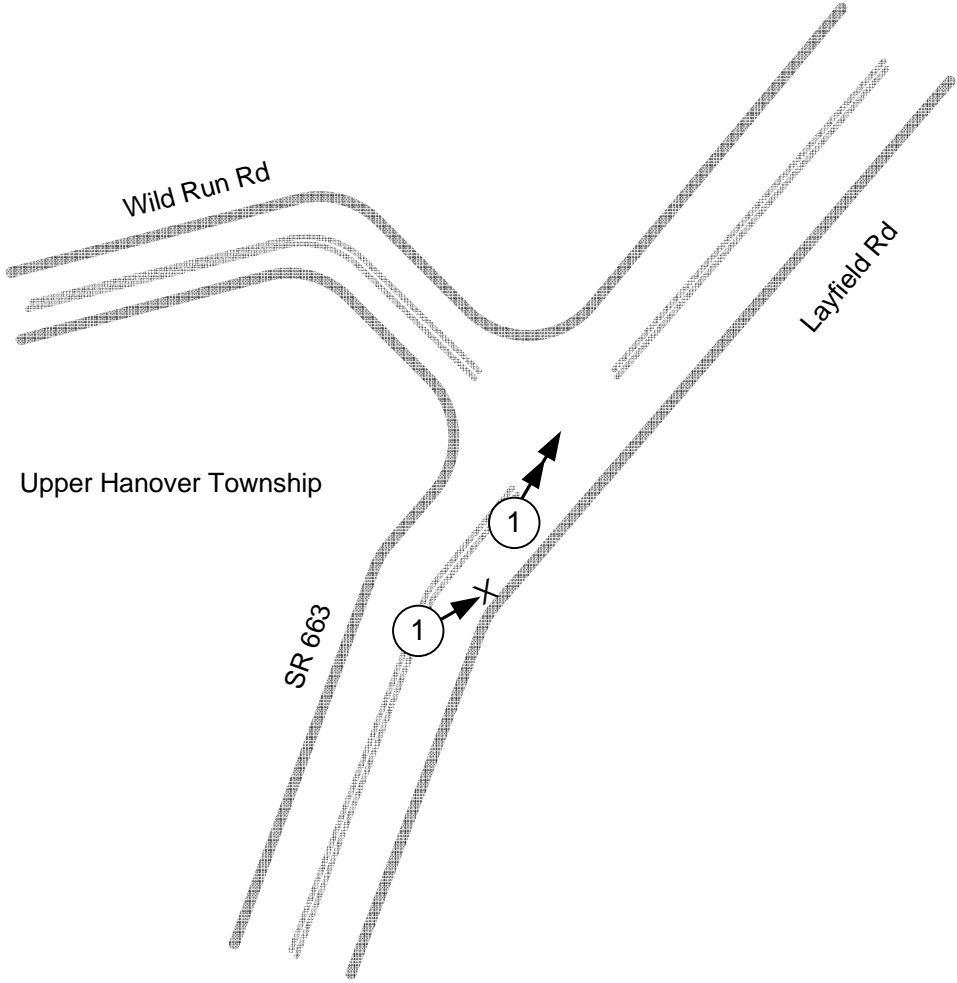


● Crash Location

ROAD SAFETY AUDIT
Site 6
SR 663 at Wild Run Rd

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 2
 Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- Rear End
- ↘ X Hit Fixed Object

SCHEMATIC NOT TO SCALE

↑
N
↓

**SR663 at Wild Run Rd.
New Hanover Township
Date Range: 1/1/2003 to 12/31/2006**

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
REAR-END	MINOR INJURY	VEH1 NB 663 NEGOTIATING CURVE - RIGHT REAR END VEH2 NB 663 TURNING	T-INT	9/1/2003
HIT FIXED	PROP DMG	VEH1 NB 663 NEGOTIATING CURVE LEFT HIT FIXED OBJECT	T-INT	5/7/2005

montgomery co 663 @ kutztown road



Date Range: 1/1/2003 to 12/31/2006

USER_ID/QUERY_ID:

Ikubli/ 0620070831001

Area of (In County 46 On State Route 0663(P) Between Segment 0270 Offset 1569 and Segment 0280 Offset 195) or (In County

Interest: 46 On State Route 0663(S) Between Segment 0271 Offset 1569 and Segment 0281 Offset 195)

MONTH OF YEAR													DAY OF WEEK							
	JAN	FEB	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		SUN	MON	TUE	WED	THR	FRI	SAT	
CRASHES	1	3	2	1	5	1	3	1	4	1	4		4	3	1	5	2	2	9	26
PCT	3%	11%	7%	3%	19%	3%	11%	3%	15%	3%	15%		15%	11%	3%	19%	7%	7%	34%	100%

HOUR OF DAY																			
	04	06	07	08	09	12	13	14	15	16	17	18	19	20	21	23			
CRASHES	1	1	2	1	3	2	1	1	1	2	3	3	1	1	2	1			26
PCT	3%	3%	7%	3%	11%	7%	3%	3%	3%	7%	11%	11%	3%	3%	7%	3%			100%

YEAR	COLLISION TYPE		CRASH SEVERITY LEVEL		SEVERITY COUNT		DRIVER ACTIONS			
	CRASHES	PCT	CRASHES	PCT	PERSONS		ACTIONS	PCT		
2003	4	15%	ANGLE	17 65%	MODERATE	4 15%	FATALITIES	0	NO CONTRIBUTING ACTION	50 45%
2004	9	34%	REAR END	5 19%	MINOR	9 34%	MAJOR	0	RUNNING RED LIGHT	18 16%
2005	3	11%	NON COLL	2 7%	UNK SEVERITY	1 3%	MODERATE	6	IMPROPER/CARELESS TURN	16 14%
2006	10	38%	HEAD ON	1 3%	UNK IF INJURED	1 3%	MINOR	14	TOO FAST FOR CONDITION	8 7%
TOTAL	26	100%	HIT FIX OBJ	1 3%	PDO	11 42%	UNK SEVERITY	2	OTHER IMPROPER DRIVING	6 5%
			TOTAL	26 100%	TOTAL	26 100%	UNK IF INJURED	1	TAILGATING	4 3%
									PROCEED W/O CLEARANCE	3 2%
									DRIVER WAS DISTRACTED	2 1%
									FAILURE TO RESPOND TCD	2 1%
									TURN FROM WRONG LANE	2 1%
									TOTAL	111 100%

VEHICLE TYPE	ROAD CONDITION		ILLUMINATION		WEATHER		ENVIR/ROADWAY FACTORS			
	VEHICLES	PCT	CRASHES	PCT	CRASHES	PCT	FACTORS	PCT		
AUTOMOBILE	37	69%	DRY	24 92%	DAYLIGHT	18 69%	CLEAR	25 96%	NONE	32 94%
SMALL TRUCK	8	15%	WET	2 7%	DARK	4 15%	RAIN	1 3%	DEER IN ROADWAY	1 2%
VAN	3	5%	TOTAL	26 100%	STREET LIGHTS	4 15%	TOTAL	26 100%	GLARE	1 2%
LARGE TRUCK	2	3%			TOTAL	26 100%			TOTAL	34 100%
SUV	2	3%								
MOTORCYCLE	1	1%								
TOTAL	53	100%								

CDART - CRASH SUMMARY REPORT (09-06)

NOTES:

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- 3 Complete data years
Complete records of reportable crashes are available in CDART for the following years: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005,2006


REPORT PARAMETERS:


Query ID: [0620070831001](#)
User ID: lkubli
Area of Interest: (In County 46 On State Route 0663(P) Between Segment 0270 Offset 1569 and Segment 0280 Offset 195) or (In County 46 On State Route 0663(S) Between Segment 0271 Offset 1569 and Segment 0281 Offset 195)
Date Range: 1/1/2003 to 12/31/2006
Criteria: STATE ROAD


7. SR 663 at Kutztown and Knight Roads
 Segment 270, Offset 1569 to Segment 280, Offset 195



COLLISION TYPE	
Angle	17
Rear-end	5
Non Collision	2
Head-on	1
Hit Fixed Object	1
Total	26
ILLUMINATION	
Daylight	18
Dark	4
Street Lights	4
Total	26
WEATHER	
Clear	25
Rain	1
Total	26
SEVERITY COUNT	
Fatalities	0
Major	0
Moderate	6
Minor	14
Unk Severity	2
Unk If Injured	1



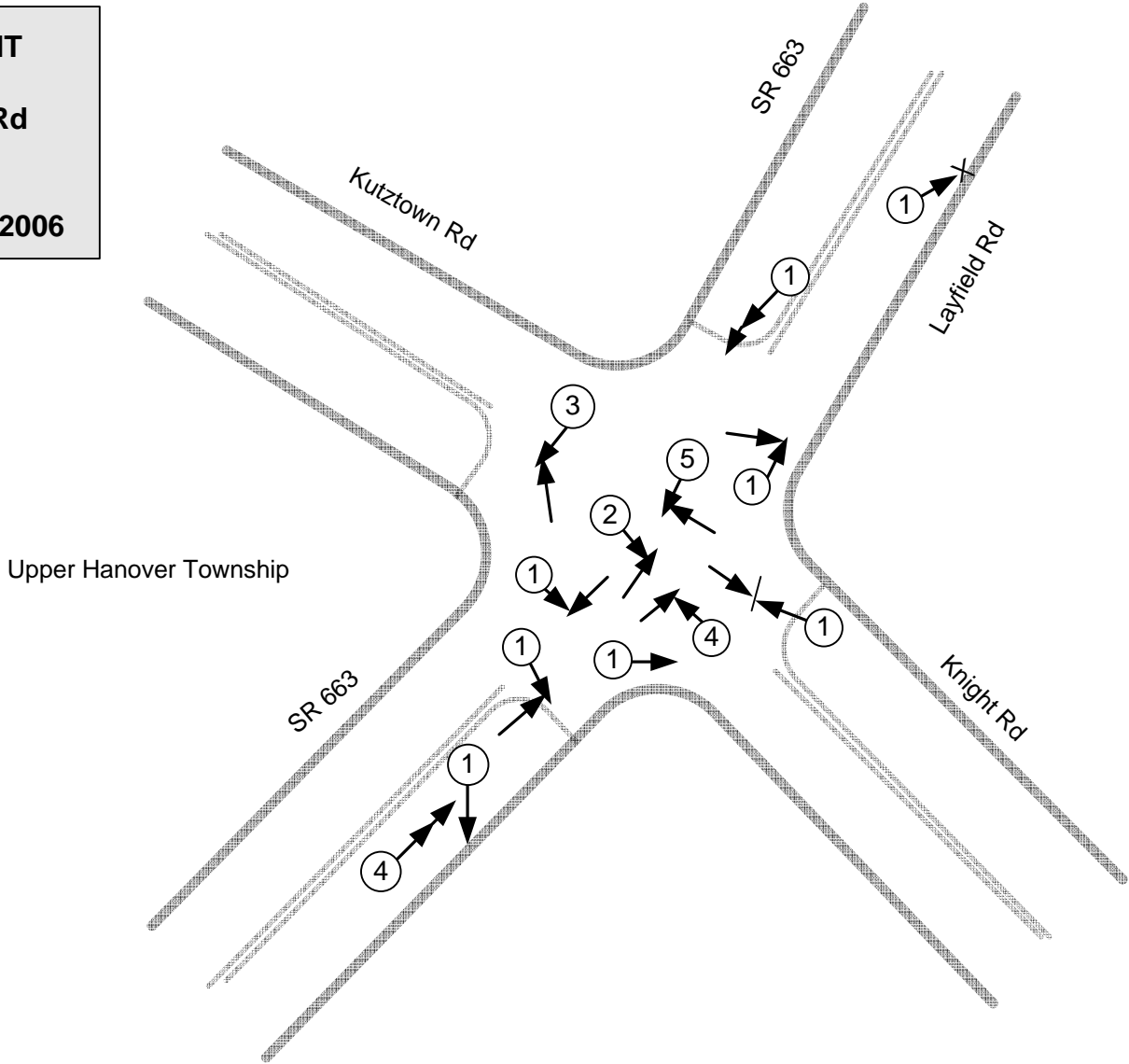

Crash Location


Delaware Valley
Regional Planning Commission
October 2007

ROAD SAFETY AUDIT
Site 7
SR 663 at Kutztown Rd

Collision Diagram
Crash Data Years 2003-2006

Total Crashes = 26
 Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- ↙ Angle
- Non-Collision
- ⇨ Rear End
- ↙ X Hit Fixed Object
- ⇤ Head On

SCHMATIC NOT TO SCALE

↑
N
↓

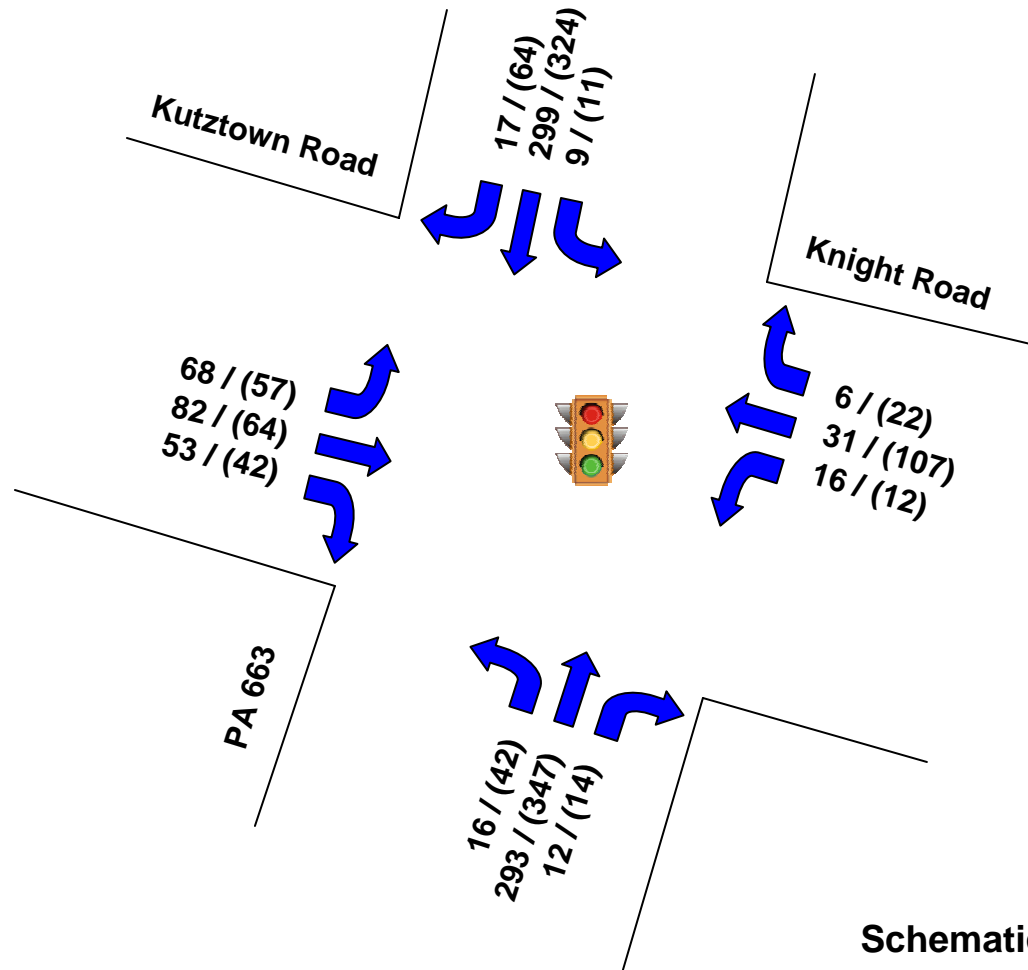
PA 663 and Kutztown Road/Knight Road

Existing Peak Hour Turning Movement Counts AM / (PM)

Peak Hours

AM: 7:45 – 8:45

PM: 5:00 – 6:00



Schematic not to scale

**SR663 at Kutztown and Knight Rds.
Upper Hanover Township
Date Range: 1/1/2003 to 12/31/2006**

Crash Type	Max Severity	Vehicle Actions	Intersection Type	Date
ANGLE	PROP DMG ONLY	VEH1 EB KNIGHT RD GOING STRAIGHT HIT VEH2 SB 663 RD GOING STRAIGHT	4WAY	6/16/2004
ANGLE	MINOR INJURY	VEH1 EB KNIGHT RD GOING STRAIGHT HIT VEH2 SB 663 RD GOING STRAIGHT	4WAY	6/29/2006
HEAD-ON	PROP DMG ONLY	VEH1 EB KNIGHT RD LEFT LANE TURNING LEFT HEAD-ON CRASH VEH2 WB KNIGHT RD GOING STRAIGHT	4WAY	10/18/2006
ANGLE	PROP DMG ONLY	VEH1 EB KNIGHT RD ONCOMING TRAFFIC LANE HIT VEH2 NB 663 RD ENTERING A PARKED POSITION TURNING LEFT	4WAY	8/13/2006
ANGLE	MINOR INJURY	VEH1 EB KNIGHT RD TURNING LEFT ON RED HIT VEH2 SB 663 RD GOING STRAIGHT	4WAY	8/4/2006
HIT FIXED OBJ	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT HIT DEER	MIDB	2/4/2006
REAR-END	PROP DMG ONLY	VEH1 NB 663 GOING STRAIGHT REAR-ENDED VEH2 NB	MIDB	8/3/2003
REAR-END	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT REAR-ENDED VEH2 NB STOPPED IN TRAFFIC LANE	MIDB	12/18/2004
REAR-END	MINOR INJURY	VEH1 NB 663 GOING STRAIGHT REAR-ENDED VEH2 NB STOPPED IN TRAFFIC LANE	MIDB	6/9/2005
REAR-END	MODERATE INJURY	VEH1 NB 663 GOING STRAIGHT VEH2 NB GOING STRAIGHT	4WAY	5/12/2006
ANGLE	MINOR INJURY	VEH1 NB 663 IN ONCOMING TRAFFIC LANE TURNING LEFT HIT VEH2 SB 663 GOING STRAIGHT	4WAY	2/23/2004
ANGLE	MINOR INJURY	VEH1 NB 663 IN OTHER FWD MOVING LANE GOING STRAIGHT HIT VEH2 WB KNIGHT RD. GOING STRAIGHT	4WAY	10/5/2003
ANGLE	PROP DMG ONLY	VEH1 NB 663 ONCOMING TRAFFIC LANE TURNING LEFT HIT VEH2 SB 1033 GOING STRAIGHT	4WAY	4/29/2006
ANGLE	PROP DMG ONLY	VEH1 NB 663 SLOWING OR STOPPING IN LANE HIT VEH2 EB 1033 GOING STRAIGHT	4WAY	12/30/2006
ANGLE	PROP DMG ONLY	VEH1 NB 663 TURNING LEFT HIT VEH SB 1033 GOING STRAIGHT	4WAY	12/7/2005
ANGLE	MODERATE INJURY	VEH1 SB 663 GOING STRAIGHT HIT VEH2 WB KNIGHT RD GOING STRAIGHT	4WAY	4/18/2006
ANGLE	PROP DMG ONLY	VEH1 SB 663 GOING STRAIGHT HIT VEH2 WB KNIGHT RD GOING STRAIGHT	4WAY	7/21/2003
REAR-END	UNK IF INJURED	VEH1 SB 663 GOING STRAIGHT REAR-ENDED VEH2 SB 663 RD TURNING LEFT	4WAY	9/30/2006
NON-COLLISION	UNK SEVERITY	VEH1 SB 663 TURNING RIGHT CAUSED PERSONAL INJURY	4WAY	10/23/2004
ANGLE	PROP DMG ONLY	VEH1 WB KNIGHT RD TURNING LEFT ON RED HIT VEH2 NB 663 GOING STRAIGHT	4WAY	2/9/2004
ANGLE	PROP DMG ONLY	VEH1 WB KNIGHT RD GOING STRAIGHT HIT VEH2 NB 663 RD GOING STRAIGHT	4WAY	11/8/2003
ANGLE	MINOR INJURY	VEH1 WB KNIGHT RD GOING STRAIGHT HIT VEH2 SB 663 RD GOING STRAIGHT	4WAY	1/21/2004
ANGLE	MODERATE INJURY	VEH1 WB KNIGHT RD ONCOMING TRAFFIC LANE TURNING LEFT HIT VEH2 SB 663 RD. GOING STRAIGHT	4WAY	12/22/2004
ANGLE	MINOR INJURY	VEH1 WB KNIGHT RD STRAIGHT HIT VEH2 NB 663 RD GOING STRAIGHT	4WAY	6/13/2004
ANGLE	MODERATE INJURY	VEH1 WB KNIGHT RD TURNING LEFT WAS HIT BY VEH SB 663 RD. GOING STRAIGHT	4WAY	6/25/2005
NON-COLLISION	PROP DMG ONLY	VEH2 SB 663 SHOULDER RIGHT HIT VEH3 EB 1033	4WAY	10/30/2004

APPENDIX D
Photo Log



Signs for eastbound PA 73 (Big Road) at the North Charlotte Street (PA 663) intersection



PA 73 (Big Road) and North Charlotte Street (PA 663) intersection



PA 73 (Big Road) looking east from North Charlotte Street (PA 663)



Ludwig Road approach looking west on to PA 73 (Big Road)



PA 73 (Big Road) looking east at the Ludwig Road intersection – crumbling rock wall and damaged delineators on the right



PA 73 (Big Road) looking west at the Ludwig Road intersection



PA 73 (Big Road) looking west signs prior to Ludwig Road intersection



PA 73 (Big Road) looking west prior to bridge – shoulder drop-off



Restaurant/camp ground driveway on PA 73 (Big Road) just west of Layfield Road (PA 663) is not defined.



Intersection of PA 73 (Big Road) and Layfield Road (PA 663) looking north – skewed



Southbound Layfield Road (PA 663) approaching Big Road (PA 73)



Narrow bridge on PA 663 between Hoffmansville Road and PA 73. Passing zone extends on to the bridge.



Passing zone on PA 663 approaching between PA 73 and Hoffmansville Road



Leaning "No Passing Zone" sign approaching Hoffmansville Road intersection



Shoulder drop-off at the southeast corner of the Hoffmansville Road intersection. Concrete headwall for drainage inlet - hazard



Traffic at the Hoffmansville Road intersection



Drainage inlet on the northeast corner of the Hoffmansville Road intersection



Drop-off and concrete blocks on northwest corner of the Hoffmansville Road intersection



Rocks in the clear zone used for landscaping north of the Hoffmansville Road intersection



Rutting at the edge of pavement on the east side of PA 663 north of the Hoffmansville Road intersection



Southbound approach of the Hoffmansville Road intersection



Southbound approach of the Hoffmansville Road intersection. Overhead advance warning sign hardly visible in the sunlight



PA 663 at the Colflesh Road intersection



Looking northbound on PA 663 from the Colflesh Road intersection



Drainage inlet south of Little Road



PA 663 looking north, south of Little Road



PA 663 advance intersection warning sign, south of Little Road



PA 663 and Little Road intersection



PA 663 at the Little Road intersection – pavement drop off damaged delineators



Little Road looking north on PA 663 south – limit sight distance due to curve



Southbound approach to box culvert over Deep Creek



Guide rail at Deep Creek with obsolete end treatment. Hazard markers located behind guide rail



Box culvert over Deep Creek – misplaced hazard signs and obsolete guide rail end treatment on the right



Advance warning “bridge” sign for box culvert over Deep Creek – too close to the culvert



Box culvert over Deep Creek



PA 663, north of box culvert over Deep Creek



Rock outcrop south of Deep Creek Road on the east side of PA 663



Rock outcrop south of Deep Creek Road on the west side of PA 663



Rock outcrop south of Deep Creek Road on the east side of PA 663



PA 663 at Deep Creek Road intersection



Guide rail at Deep Creek Road intersection



PA 663/Deep Creek Road intersection looking west



Tree canopy at PA 663/Deep Creek Road intersection



Advance school bus stop warning sign for southbound PA 663 traffic south of Deep Creek Road



Tree canopy on PA 663. Guide rail with turn down end treatment



PA 663 at the Hill Road intersection



Pavement drop off at the south east corner of the Hill Road intersection



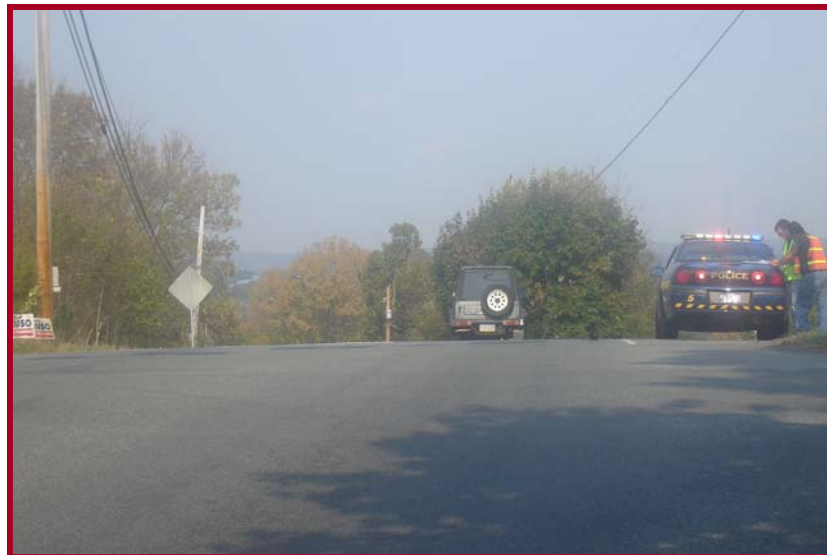
Concrete headwall for the drainage inlet at the south east corner of the Hill Road intersection



Pavement drop off at the northeast corner of the Hill Road intersection



PA 663 northbound approach to Kutztown Road



At the PA 663 northbound approach of the Kutztown Road intersection



PA 663 southbound approach to Kutztown Road



PA 663 southbound approach to Kutztown Road



Northeast corner of the PA 663/Kutztown Road intersection



Kutztown Road eastbound approach to PA 663



Signal heads and mast arms at PA 663/Kutztown Road intersection

APPENDIX E
Checklist

CHECKLIST

Audit Team Member _____

GENERAL ISSUES

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Drainage	Do drainage items seem to be adequate?		
	Are drainage items clear of debris?		
2 Landscaping	Is landscaping in accordance with guidelines (sight distance, clearances etc.)		
3 Public Utilities	Are boxes, poles, and/or posts located in a safe position?		
	Do the above items interfere with sight distance?		
4 Access Management	Are there locations where access management is problematic?		
5 Lighting	Is lighting needed in specific locations?		

ALIGNMENT AND CROSS SECTION

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Visibility	Are sight distances adequate for the speed of traffic on PA 412?		
	Is adequate sight distance provided at intersections?		

2 Driver expectation	Are there any sections of the roadway which may cause driver confusion such as:		
	a. Is alignment of roadway clearly defined?		
	b. Are crossroads or hidden driveways properly signed along corridor?		
	c. Do streetlight and tree lines conform with the road alignment?		
	d. Are curves properly delineated?		
3 Widths	Are all the traffic lanes and roadway widths adequate?		
4 Design Speed	Is the horizontal and vertical alignment suitable for traffic speed? If not:		
	a. Are advisory speed signs posted?		
	b. Are warning signs installed?		
	c. Are posted advisory speeds for curves appropriate?		
	d. Is the speed limit appropriate for all road users?		
5 Shoulders	Are shoulder widths appropriate for broken down vehicles or emergency vehicles?		
	Is the shoulder cross slope sufficient to provide proper drainage?		
	Are there locations where guide rail may		

	be appropriate?		
6 Overtaking	Are adequate passing opportunities provided?		

INTERSECTIONS

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Location	Are there any roadside objects nearby which would intrude on driver's line of sight?		
	Are the intersections adequate for all vehicular movements?		
	Are intersections located safely with respect to horizontal and vertical alignment?		
2 Controls	Are pavement markings and intersection control signing satisfactory?		
3 Signage	Is the intersection appropriately signed?		
	Are there advance warning signs indicating the intersection?		
	Are signs appropriately located and of the appropriate size?		
4 Layout	Is the intersection layout obvious to all users?		
	Are turning radii and tapers appropriate?		
	Are driveways located at or near the intersections?		

5 Visibility, sight distance	Is sight distance adequate for all movements and all users?		
6 Turn Lanes	Do the turning lanes have sufficient storage?		
	Are there locations where left turn lanes need to be provided?		
	Are there locations where right turn lanes need to be provided?		

TRAFFIC SIGNALS

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Signal Operation	Are traffic signals operating correctly? (Example clearance time)		
2 Visibility	Are traffic signals clearly visible to approaching motorists?		

PEDESTRIANS

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Land Use Factors	Are there schools, parks, or other pedestrian generators along the corridor?		
2 Sidewalks	Are sidewalks continuous throughout the corridor as appropriate?		
	Are the sidewalks in good conditions (uneven, cracked, etc.)?		
	Are the sidewalks wide enough to		

	accommodate persons using mobility aides?		
3 Facilities at Intersections	Are crosswalks provided at intersections near the schools?		
	Are there pedestrian signals located at intersections?		
4 Around Schools	Is there a school zone?		
	Are there bus stop locations along the corridor?		
	Are there appropriate advance warning signs provided?		
5 Visibility and Sight Distance	Are pedestrians waiting to cross visible to motorists?		
	Can pedestrians see approaching vehicles?		
	Are there temporary or permanent obstructions near crosswalks (parked vehicles, vegetation, fences, etc.)		

BICYCLISTS

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Bicyclists	Are there share the road signs posted?		
	Is the road surface of suitable quality for bicyclists?		

SIGNAGE, PAVEMENT MARKINGS, DELINEATION AND LIGHTING

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Signage	Are there signs missing from key locations?		
	Are signs easy to understand?		
	Are the correct signs used for each situation, and is each sign necessary?		
	Are signs effective for all likely conditions (i.e. day, night, oncoming headlights etc)?		
	Are there locations where there is sign clutter?		
	Are all necessary regulatory, warning, and direction signs (including detours) in place? Are they conspicuous?		
	Are they redundant?		
	Are traffic signs in their correct locations, and properly positioned with respect to lateral clearance and height?		
	Do signs supports conform to guidelines?		
2 Pavement Markings and Delineation	Does existing pavement markings need to be re-painted?		
	Have raised pavement markers been installed?		
	Are pavement markings easily visible and effective for all likely conditions (i.e. at night, day, inclement weather etc.)?		

	Are guide posts correctly placed, clean, and visible?		
	Are there locations where chevrons are needed?		
3 Lighting	Are the appropriate types of poles used for all locations and correctly installed?		
	Are all locations free of any lighting which may conflict visually with signs?		
	Are there locations where lighting should be installed?		

PAVEMENT

<u>Item #</u>	<u>Description</u>	<u>Check</u>	<u>Comments</u>
1 Pavement defects	Is the pavement free of defects (i.e. excessive roughness, potholes) which could result in safety problems?		
2 Ponding	Is the pavement free of areas where ponding may occur resulting in a safety problem?		
3 Skid resistance	Does the pavement appear to have skid resistance on curves, steep grades and approach to intersection?		

APPENDIX F
Response Sheet

PA 663 (Layfield Road) – Road Safety Audit

Corridor-Wide Issues

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
<p><i>Delineation</i></p> <ul style="list-style-type: none"> ○ Lack of roadway delineation throughout the corridor. 	<ul style="list-style-type: none"> ○ Install raised pavement markers to better delineate the centerline of the roadway. 			
<p><i>Crashes</i></p> <ul style="list-style-type: none"> ○ Large percentage of “hit fixed object” crashes. 	<ul style="list-style-type: none"> ○ Install edge-line rumble strips as appropriate. 			
<p><i>Speed Limit</i></p> <ul style="list-style-type: none"> ○ Inconsistent speed limit throughout the corridor. 	<ul style="list-style-type: none"> ○ Evaluate the need to make the speed limit 45 MPH throughout the corridor. 			
<p><i>Lighting</i></p> <ul style="list-style-type: none"> ○ Corridor is extremely dark at night. 	<ul style="list-style-type: none"> ○ Add street lighting where appropriate, especially at intersections. 			
<p><i>Guide rail</i></p> <ul style="list-style-type: none"> ○ Inconsistent guide rail and some end treatments are obsolete (turn down). 	<ul style="list-style-type: none"> ○ Evaluate and upgrade to current standards. 			
<p><i>Passing Zones</i></p> <ul style="list-style-type: none"> ○ Passing zones in the corridor. 	<ul style="list-style-type: none"> ○ Evaluate the need and location of passing zones in the corridor and eliminate as appropriate. 			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
<p><i>Utility Poles</i></p> <ul style="list-style-type: none"> ○ Utility poles are in the clear zone on both sides of the road. 	<ul style="list-style-type: none"> ○ Coordinate with the utility companies to investigate the potential of having utility poles only on one side of the roadway and outside the clear zone. 			
<p><i>Signage</i></p> <ul style="list-style-type: none"> ○ Inconsistent signage. 	<ul style="list-style-type: none"> ○ Conduct sign inventory and update signage throughout the corridor. <p>Consider:</p> <ul style="list-style-type: none"> ○ Location of advance warning signs; ○ Install street name signs on the “intersection ahead” signs; ○ Consistent sign sizes as appropriate; ○ Consistency in including distance plaques to warning signs; and ○ Location of hazard signs at guide rail. 			

Specific Locations

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663)				
<ul style="list-style-type: none"> ○ Drivers are reluctant to reduce their travel speeds when approaching the T-intersection (west leg of PA 663) despite seeing the existing extremely oversized warning signs. 	<ul style="list-style-type: none"> ○ Consider traffic calming measures that will effectively reduce travel speeds by 20 mph prior to this intersection so they can safely negotiate the horizontal curve and better deal with the Ludwig Road traffic. ○ Consider “tightening up” the intersection by revising the pavement markings. 			
<ul style="list-style-type: none"> ○ The configuration (horizontal alignment and crest vertical curve) of PA 73 (Big Road) makes left turns on to Ludwig Road unsafe. 	<ul style="list-style-type: none"> ○ Install tubular delineators along the centerline of PA 73 from just west of the North Charlotte Street intersection approach of the intersection to just east of Ludwig Road. <p><u><i>PennDOT will be doing this on a short term basis to evaluate its effect</i></u></p>			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663) – (continued)				
<ul style="list-style-type: none"> ○ Left turns have been prohibited using signage but illegal left turns continue to be made resulting in conflicts. ○ Sight distance is compromised looking to the left at the Ludwig Road approach due to the building on the northwest corner of the intersection. 	<ul style="list-style-type: none"> ○ With left turns prohibited at Ludwig Road the existing oversized advance warning signs located prior to the PA73 (Big Road)/PA 663 (North Charlotte Street) intersection, eastbound on PA 73 are no longer warranted. They should be removed. <p>Longer term strategies identified –</p> <ul style="list-style-type: none"> ○ Acquire right of way to add a left turn lane eastbound on PA 73 (Big Road) at Ludwig Road; or ○ Add a channelizing island at the Ludwig Road intersection to limit right in/right out movements only. 			
<ul style="list-style-type: none"> ○ Flexible delineators on the eastbound side of PA 73 (Big Road) east of the PA 663 (North Charlotte Street) intersection are knocked down. 	<ul style="list-style-type: none"> ○ Replace flexible delineators. 			
<ul style="list-style-type: none"> ○ Stonewall opposite Ludwig Road is crumbling and a fixed object hazard. 	<ul style="list-style-type: none"> ○ Remove stonewall. This can be incorporated with any long term widening. 			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663) – (continued)				
○ The road is paved up to the rub rail on the guide rail on PA 73 (Big Road). This may result in drainage problems.	○ Remove rub rail.			
○ Guide rail has obsolete end treatments.	○ Upgrade end treatments to current standards.			
○ Motorists often do not reduce their travel speeds westbound prior to Ludwig Road before having to negotiate the substandard horizontal curve.	○ Despite the 11-foot travel lanes, the paved shoulders are wide at the bridge and narrow down in the historic area. Consider the use of 24” white traverse markings in the shoulders.			
○ Guide rail on the westbound side of PA 73 (Big Road) stops at the bridge. There is a drop-off with three culverts west of where the guide rail ends.	○ Evaluate the need for guide rail west of the bridge on the westbound side of PA 73(Big Road) and install as appropriate.			
○ The restaurant/campground driveway is not defined. This can be confusing to motorists and pedestrians.	○ Conduct access management in this area to define the driveway.			
○ High number of left turns from PA 73 (Big Road) onto PA 663 (Layfield Road) north.	○ Consider adding a left lane at PA 73 (Big Road) eastbound approach of the intersection.			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Big Road (PA 73) between North Charlotte Street (PA 663) and Layfield Road (PA 663) – (continued)				
	<i><u>Future plans include a shift of this intersection east with a traffic signal and realigned to 90 degrees. A roundabout application for the intersection should also be considered.</u></i>			
<ul style="list-style-type: none"> ○ PA 73/PA 663 is a t-intersection with no warning for southbound PA 663 motorists. 	<ul style="list-style-type: none"> ○ Add large double arrow warning sign on PA 73 for the PA 663 southbound approach. 			
Between Hoffmansville Road and PA 73				
<ul style="list-style-type: none"> ○ Narrow bridge, with evidence of guide rail having been hit. 	<ul style="list-style-type: none"> ○ Widen the bridge. 			
<ul style="list-style-type: none"> ○ Passing Zone extends to the narrow bridge. 	<ul style="list-style-type: none"> ○ Extend the No Passing Zone to beyond the bridge. 			
At Hoffmansville Road				
<ul style="list-style-type: none"> ○ “No Passing Zone” sign on southbound PA 663, south of the intersection is loose and leaning. 	<ul style="list-style-type: none"> ○ Re-install sign. 			
<ul style="list-style-type: none"> ○ Drainage inlet on the northeast corner of the intersection has skid/scrape marks from vehicles turning right. 	<ul style="list-style-type: none"> ○ Adjust to prevent this action. <p><i><u>Township will conduct this task.</u></i></p>			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
At Hoffmansville Road (continued)				
○ Headwall for the drainage inlet on the southeast corner of the intersection presents a hazard in the clear zone.	○ Replace headwall with manhole or make flush with the pavement.			
○ The overhead advance “signal ahead” sign north of the intersection is hardly visible during day light hours.	○ Replace bulbs with LEDs <i><u>Township will conduct this task.</u></i>			
○ North of the intersection on the east side of PA 663 there is a deep drainage rut.	○ Fill it in with rocks and dirt.			
○ Pavement on Hoffmansville Road is in poor condition.	○ Mill and repave Hoffmansville Road.			
At Colflesh Road				
○ Pavement on Colflesh Road is in poor condition.	○ Mill and repave Colflesh Road. <i><u>Colflesh Road is on the township’s schedule for pavement improvement in 2008</u></i>			
○ No intersection warning signs on PA 663 for Colflesh Road.	○ Install “intersection ahead” warning sign with street name plaque in both directions.			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
At Colflesh Road (continued)				
<ul style="list-style-type: none"> ○ Intersection is difficult to see while traveling on PA 663. 	<ul style="list-style-type: none"> ○ Highlight intersection with tubular delineators and replace damaged ones. ○ Consider using two-way white raised pavement markers along the edge line. 			
<ul style="list-style-type: none"> ○ Street name signs are not visible, especially at night. 	<ul style="list-style-type: none"> ○ Upgrade street name signs <i><u>Township is in the process of upgrading all street name signs.</u></i> 			
<ul style="list-style-type: none"> ○ North of intersection, large rocks on the right side of PA 663. This is a hazard. 	<ul style="list-style-type: none"> ○ Remove the rock. 			
At Little Road				
<ul style="list-style-type: none"> ○ Site line problem on both approaches to Little Road. 	<ul style="list-style-type: none"> ○ Needs regular maintenance of the brush on the southbound side of the road, north of the intersection. ○ Relocate the southbound “intersection ahead” sign further in advance of the intersection and add the street name sign. 			
<ul style="list-style-type: none"> ○ Flexible delineators are knocked down and leaning. 	<ul style="list-style-type: none"> ○ Replace flexible delineators. 			
Box culvert at Deep Creek				
<ul style="list-style-type: none"> ○ Narrow bridge at deep creek. 	<ul style="list-style-type: none"> ○ Make box culvert larger by widening and upgrade guide rail. 			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Box culvert at Deep Creek (continued)				
	<ul style="list-style-type: none"> ○ Install white raised pavement markers in advance of both approaches to the culvert to delineate edge line. 			
<ul style="list-style-type: none"> ○ Guide rail has obsolete end treatment. 	<ul style="list-style-type: none"> ○ Upgrade guide rail end treatment to current standards. Add delineators along the guide rail. 			
<ul style="list-style-type: none"> ○ Hazard markers are behind the guide rail. 	<ul style="list-style-type: none"> ○ Relocate the hazard markers prior to the guide rail according to current guidelines. 			
<ul style="list-style-type: none"> ○ “Narrow bridge” warning sign on the southbound side of the road is too close to the bridge. 	<ul style="list-style-type: none"> ○ Relocate the narrow bridge warning sign further in advance of bridge. 			
Deep Creek Road				
<ul style="list-style-type: none"> ○ Utility pole on the northeast corner of the intersection is in the clear zone directly behind the SRT end treatment 	<ul style="list-style-type: none"> ○ The end treatment should wrap around the intersection or use ET-2000 or similar end treatment. 			
<ul style="list-style-type: none"> ○ Pavement on Deep Creek Road is in poor condition. 	<ul style="list-style-type: none"> ○ Mill and repave Deep Creek Road. 			
<ul style="list-style-type: none"> ○ Utility pole on the southeast corner is abutting the guide rail panel 	<ul style="list-style-type: none"> ○ Relocate the pole outside the deflection of the guide rail. There should be nothing behind the end treatment. 			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
Deep Creek Road (continued)				
<ul style="list-style-type: none"> ○ “School bus stop ahead” sign located north of intersection may be redundant. 	<ul style="list-style-type: none"> ○ Evaluate the need for the “school bus stop ahead” sign and add distance plaque if appropriate. <p><i><u>Township will contact school district</u></i></p>			
Between Deep Creek Road and Hill Road				
<ul style="list-style-type: none"> ○ Rocks located to the north of intersection along the southbound paved shoulder. 	<ul style="list-style-type: none"> ○ Remove rocks as appropriate from clear zone. ○ Evaluate the need for guide rail to reduce crash severity from hitting the rocks. 			
<ul style="list-style-type: none"> ○ Section of roadway is very dark 	<ul style="list-style-type: none"> ○ Install street lights 			
<ul style="list-style-type: none"> ○ Roadway in this section is covered by tree canopy. This prolongs icy conditions in the winter because of lack of sunlight. 	<ul style="list-style-type: none"> ○ Trim tree canopy to allow more sunlight. 			
At Hill Road				
<ul style="list-style-type: none"> ○ Southwest corner have a drop off into the cross pipe. 	<ul style="list-style-type: none"> ○ Install inlet and grate. 			
<ul style="list-style-type: none"> ○ On the southeast corner of the intersection the head wall sticks out as a hazard. 	<ul style="list-style-type: none"> ○ Remove head wall so storm water enters in through grate. 			
<ul style="list-style-type: none"> ○ Hill Road has poor pavement. 	<ul style="list-style-type: none"> ○ Upgrade pavement. 			

SAFETY ISSUES	Solution	Decision Agree/Reject	Planned Completion Date	Comments
At Hill Road (continued)				
○ There are a high number of right turns during the peak period.	○ Evaluate the need to add right turn lane on PA 663 at intersection.			
○ Sign post on the northeast corner with no sign.	○ Remove post. <u>Township will conduct this task.</u>			
At Kutztown/Knight Road				
○ High number of angle crashes.	○ Evaluate the clearance (Red/Yellow) interval. ○ Consider split phase for the PA 663 traffic. ○ Redesign signal so that the masts are further apart and the mast arms are perpendicular to the travel lanes.			
○ Drivers lose sight of the signal heads when nearing or at the top of the crest vertical curve on PA 663.	○ Add supplemental signal heads on far side of intersection.			
○ White strobe in the red light of the signal head is not MUTCD ¹ compliant.	○ Remove the white strobe from red light in the signal.			

¹ Manual of Uniform Traffic Control Devices

Title of Report: *PA 663 - ROAD SAFETY AUDIT*

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Geographic Area Covered:

The study area includes a section of PA 663 and PA 73 in Montgomery County, Pennsylvania. It runs through the townships of New Hanover and Upper Hanover from North Charlotte Street to Kutztown Road.

Key Words:

Road, safety, audit, potential, fatalities, injuries, reportable, crashes, issues, strategies, coordination, engineering, enforcement, education, prioritize, intersection, speed limit, traffic volumes, PennDOT, stakeholders, audit team, curve, sight distance, clear zone, geometry, pavement markings, signs, raised pavement markers, rumble strip, drop-offs, drainage.

ABSTRACT: This is a documentation of the process and findings of the PA 663 Road Safety Audit (RSA) undertaken by Delaware Valley Regional Planning Commission (DVRPC) in conjunction with Pennsylvania Department of Transportation (PennDOT). The goal of the audit is to generate improvement recommendations and countermeasures for roadway segments demonstrating a history of, or potential for a high incidence of motor vehicle crashes. The emphasis is placed on identifying low cost, quick turnaround safety projects to address the issues where possible. The roadways studied are identified in the Safety Plan for PennDOT District 6. This corridor is classified as a high risk rural road with some curves and steep gradient.

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PA 663

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