



Delaware Valley
Regional Planning
Commission

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CONESTOGA ROAD

Road Safety Audit

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.

CONESTOGA ROAD - ROAD SAFETY AUDIT

1.0 BACKGROUND

This project represents the coordination of the Delaware Valley Regional Planning Commission's (DVRPC) Planning Work Program and Pennsylvania Department of Transportation (PennDOT) District 6 Safety Plan. DVRPC's planning work program includes a Road Safety Audit 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

Prior to the road safety audit activities on site, DVRPC collected, reviewed and analyzed data (video of roadway under different conditions, traffic volume data, turning movement counts, maps, aerial photographs, previous traffic reports and crash data). Using the crash data, crash clusters were identified and mapped for several locations along Conestoga Road. These locations were the main focus of the road safety audit along with areas identified by Radnor Township police and engineer.

The Road Safety Audit was conducted on May 9, 2007 (Pre-Audit Meeting); May 10, 2007 (Field View); and May 14, 2007 (Post-Audit Meeting).

The Pre-Audit meeting involved the definition of road safety audit and how it differs from a corridor study process; the required steps of an audit; presentation of the corridor issues and an exchange of ideas and knowledge of the roadway. Two videos showing the corridor under day and night time conditions were also shown.

The field view involved the audit team which was made up of federal, state, and local officials and other stakeholders walking the corridor and identifying transportation safety problems. See **Appendix A** for list of audit team members.

The post-audit meeting was spent discussing the findings from the field view and determining priorities.

1.2 Overview of the Study Area

The study area is the length of Conestoga Road (SR 1019), (approximately 5 miles) between US 30 (Lancaster Avenue) and County Line Road in Radnor Township, Delaware County; see **Appendix B** for *Study Area Map*. Conestoga Road is functionally classified as an urban minor arterial and runs in a north-west to south-east direction. The land use in the corridor is predominantly residential with spots of commercial and institutional uses. The area is distinctly suburban in character.

Conestoga Road has two lanes throughout its length, one travel lane in each direction, except for the intersection with Sproul Road where there are additional left turning lanes. The roadway consists of numerous curves and steep grades; and shoulders vary in width. Sidewalks are available in a few spots along the corridor, and vary in width. There are three bridges over Conestoga Road; two railroad bridges (one carries the SEPTA Route 100 Trolley Line and the other converted to a trail), I-476 bridge.

In 2003, the average annual daily traffic was approximately 12,000 vehicles, as shown in the *Traffic Count Map* in **Appendix B**. There is only a slight variation in the traffic counts at different sections of the corridor. The speed limit along the corridor is 30MPH but dropped to 25MPH in some sections. There are 41 intersections in the study area, of which 9 are signalized. Un-signalized intersections were all stop-controlled with Conestoga Road having the preferred movement.

There are no bike lanes in the corridor and the corridor is not served by transit. However, the SEPTA Route 100 Trolley Line is accessible from the corridor. Parking is permitted curbside in a few select locations.

1.3 Crash Data

According to PennDOT's crash data there were 144 reportable crashes between 2003 and 2005. 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 51 crashes in 2003 (35%); 44 crashes in 2004 (31%); and 49 crashes in 2005 (34%). When analyzing crash frequency by month, a trend is apparent during the period from September to November when the highest three month

crash total occurred accounting for 38% (55 crashes) of all crashes (by month: September – 19, October – 23, November – 13.) April and August experienced the fewest crashes with 8 and 7 respectively.

Angle (58), rear-end (38), and hit fixed object (23) crashes represented 82% of the 144 reportable crashes. There were two fatal crashes during the study period, 69 injury crashes of varying levels of severity, 71 property damage only crashes, and two reported as unknown injury. The majority of the crashes occurred during fair weather (74%), on dry road surface conditions (66%), and during daytime (67%) light conditions.

2.0 FINDINGS AND RECOMMENDATIONS

The following represents the findings and recommendations of the Allegheny Avenue Road Safety Audit.

CORRIDOR WIDE

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Signage</i></p> <ul style="list-style-type: none"> ○ Street signs are not mounted on break-away post assembly and do not have reflectivity ○ Many of the yellow warning signs are faded ○ Many signs along the corridor are too low ○ Sign visibility is hampered due to foliage and setback at intersections ○ “Conestoga Road” signs are missing from many intersections ○ Pedestrian signs are missing at crosswalks ○ Inconsistency in the placement of curve warning signs and advisory speed limit signs 	<ul style="list-style-type: none"> ○ Upgrade signs and posts to conform to official MUTCD requirement. Realign signs to make them visible to motorists ○ Upgrade signs ○ The bottom of the signs should be 7’-0” from the ground. ○ Trim trees and bushes and place street name signs on existing mast arms as appropriate (require amendment to permit from PennDOT) ○ Add “Conestoga Rd” sign on side roads ○ Add pedestrian signs at crosswalks ○ Maintain consistency in the placement of curve warning signs (advance warning and advisory speed limit) <p><i>Conduct a complete sign inventory of corridor-wide signage and upgrade, add and remove signs as appropriate</i></p>	<p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><i>Trees & Vegetation</i></p> <ul style="list-style-type: none"> ○ Branches are low over the roadway ○ Trees cover signs and utilities 	<ul style="list-style-type: none"> ○ Cut trees back from shoulder edge ○ Conduct an inventory of the signs affected and coordinate with utility company on maintenance 	<p>Low</p> <p>Low</p>	<p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Shoulders</p> <ul style="list-style-type: none"> ○ Inconsistency shoulder widths ○ Edge lines not clearly delineated ○ Shoulder drop offs are prevalent through out the corridor 	<ul style="list-style-type: none"> ○ Provide consistent painted shoulder width with pavement throughout the corridor and curb the road. 	<p>Medium</p>	<p>High</p>
<p>Utilities</p> <ul style="list-style-type: none"> ○ Utility poles in some locations are too close to the roadway 	<ul style="list-style-type: none"> ○ Coordinate with utility company on relocating the affected poles or make them more visible to the motorists by providing some type of delineation as appropriate 	<p>Medium</p>	<p>High</p>
<p>Drainage</p> <ul style="list-style-type: none"> ○ Inlets top units present a hazard to all road users. Inlet blunt curb ends are unprotected and numerous inlet top units are not flush with pavement gutter line. Some inlet grates are also rotted. ○ Grates/Inlets are clogged 	<ul style="list-style-type: none"> ○ Replace inlet top units and address untreated inlet blunt curb ends. Install inlet top units flush with roadway gutter line. ○ Unclog drainage grates/inlets 	<p>Medium</p> <p>Low</p>	<p>High</p> <p>High</p>
<p>Crosswalks</p> <ul style="list-style-type: none"> ○ Faded and hardly visible ○ Inconsistent style of crosswalk ○ Missing crosswalk ahead signs and yield to pedestrian signs in crosswalk ○ Long crosswalks due to skewed intersections 	<ul style="list-style-type: none"> ○ Re-stripe crosswalks along the corridor ○ Install same crosswalk style at all locations ○ Install signs as appropriate ○ Reduce the skew to as close as 90 degrees ○ Utilize bulb-outs to shorten crossing distance and increase the visibility of pedestrians visibility at key locations 	<p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Sidewalks</p> <ul style="list-style-type: none"> ○ Inconsistent width ○ Sidewalk missing in several areas ○ Sidewalk in poor condition (uneven, cracks, vegetation) <p>Sidewalks (continued)</p> <ul style="list-style-type: none"> ○ Curb ramps are not flush with pavement, not available at all crossings and cannot be easily navigated by the sight impaired or physically challenged ○ Curb and no reveal, sidewalk is flushed with the paved surface (operates as a paved shoulder) 	<ul style="list-style-type: none"> ○ Upgrade and install sidewalks as appropriate with curb. ○ Upgrade curb ramps and install truncated domes <p>Conestoga Road has been identified as a primary route for sidewalks in the Township Sidewalk Plan – given it provides access to the Radnor Trail</p>	<p>Medium</p> <p>Medium</p>	<p>High</p> <p>High</p>
<p>Bicycle Accommodations</p> <ul style="list-style-type: none"> ○ Conestoga Road is not bicycle compatible ○ Insufficient signs for Radnor Trail ○ Inadequate lighting in tunnels for bicyclist 	<ul style="list-style-type: none"> ○ Install “Share the Road” signs along the corridor ○ When resurfacing the roadway, it should be paved “out to out” and striped with 11’ lanes from the centerline. This will provide bike lane/”operating space” for bicyclists. Where this is not feasible “Share the Road” signs should be installed. ○ Install additional signs for the Radnor Trail along the corridor at appropriate locations ○ Install adequate lighting 	<p>Low</p> <p>Medium</p> <p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>Medium</p>
<p>Crossroads</p> <ul style="list-style-type: none"> ○ Inconsistency in the warning of crossroads ○ Many cross streets have wide curve radius 	<ul style="list-style-type: none"> ○ Provide more “intersection ahead” warning signage; especially at skewed and other abnormal intersections geometry ○ Tighten the turning radius as appropriate 	<p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
which facilitates negotiation at higher speeds			
<p>Access Management</p> <ul style="list-style-type: none"> ○ No curbing ○ No driveways into the development ○ No access management - delineating access into businesses 	<ul style="list-style-type: none"> ○ Curb parking areas and define driveways to restrict entrance and exits 	Medium	Medium
<p>No Stop Bars on side streets</p> <ul style="list-style-type: none"> ○ Side streets do not have stop bars markings ○ Edge of roadway are not clearly delineated, especially at intersection on the curves 	<ul style="list-style-type: none"> ○ Install stop bar on side streets to assist in directing motorist where they should be to navigate the intersection ○ Install dashed white edge line to inform motorists of the edge of the roadway 	Low Low	Medium High
<p>Speeding</p> <ul style="list-style-type: none"> ○ Many motorist were observed and the township confirmed speeding is an issue along the corridor 	<ul style="list-style-type: none"> ○ Target enforcement ○ Narrow lanes, install soft transverse rumble-strips 	Medium Medium	High High
<p>Lighting</p> <ul style="list-style-type: none"> ○ Lighting is an issue along the corridor 	<ul style="list-style-type: none"> ○ Upgrade street lights at specific locations – areas of heavier pedestrians traffic, commercial districts, and tunnel areas as appropriate 	Medium	High
<p>Transit</p> <ul style="list-style-type: none"> ○ No Trailblazers for the Route 100 Trolley 	<ul style="list-style-type: none"> ○ Install trailblazer signs for the Route 100 Trolley corridor wide 	Low	Low

SPECIFIC LOCATIONS

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Lancaster Avenue Intersection</p> <ul style="list-style-type: none"> ○ There are stairs located at the southeast corner of the intersection which would be challenging for the disabled ○ Sidewalks are narrow and utility poles are located in the middle. ○ Long crosswalk over Lancaster Avenue on the eastside due to intersection skew. ○ Soft curve from eastbound approach of Lancaster Avenue to eastbound Conestoga Road allow vehicles to travel at higher speeds. ○ Faded pavement markings ○ Street name signs are not visible ○ Too much black in 12” heads ○ Minimal lighting 	<ul style="list-style-type: none"> ○ Remove the stairs and construct ADA compliant ramp. ○ Relocate utility poles as appropriate or widen sidewalk ○ Consider re-orienting the crosswalk to make it shorter or installing bulb-out ○ Reduce the radius of the curve ○ Upgrade pavement markings throughout the intersection ○ Place street name signs on existing signal mast arms at the intersection ○ Maintenance is needed ○ Add additional lighting 	<p>Medium</p> <p>Medium</p> <p>Low</p> <p>Medium</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p>Between Lancaster Avenue and Devon Avenue</p> <ul style="list-style-type: none"> ○ Poor access management at Flag Lady store ○ Sidewalk on eastbound side of Conestoga is limited ○ No curb in front of residence on eastbound side of Conestoga Road and parking is permitted ○ No U-turn sign is faded ○ Missing junctions sign 	<ul style="list-style-type: none"> ○ Consider pull-in curb side parking at the Flag Lady store ○ Formalize the sidewalk ○ Install curb and define shoulder area for parking ○ Replace existing sign with new one. ○ Add junction sign 	<p>Low</p> <p>Low</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>Medium</p> <p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Devon Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ Pedestrian crosswalk is faded ○ There are no pedestrians crossing signs at the crosswalk ○ No stop bar on Devon Avenue ○ No curbing and sidewalks on the eastbound side of the intersection ○ Heavy left turning traffic from Conestoga Road onto Devon Avenue cause major conflicts with Conestoga Road through traffic ○ Large boulders present fixed object hazard ○ Tree hanging over the road west corner of Devon Avenue. 	<ul style="list-style-type: none"> ○ Upgrade pedestrian crosswalk ○ Add pedestrian crossing signs ○ Add a painted stop bar at Devon Avenue ○ Formalize corner with curb and sidewalk to protect the pedestrians ○ A more detailed study should be undertaken with the option of prohibiting left turns ○ Replace boulders with drilled wood posts ○ Trim tree branches back to shoulder edge 	<p>Low Low</p> <p>Low Medium</p> <p>Medium</p> <p>Medium</p> <p>Low</p>	<p>High High</p> <p>Medium High</p> <p>High</p> <p>High</p> <p>Medium</p>
<p><i>Between Devon Avenue and Doyle Road</i></p> <ul style="list-style-type: none"> ○ There is a shoulder drop off and ditch on the eastbound side of Conestoga Road 	<ul style="list-style-type: none"> ○ Pave shoulder and curb 	<p>Medium</p>	<p>Medium</p>
<p><i>Doyle Road Intersection</i></p> <ul style="list-style-type: none"> ○ Eastbound Conestoga Road traffic is using the grassy area to go around left turning traffic onto Doyle ○ No stop bar on Doyle ○ Culvert delineation is missing ○ Culvert northwest side is too high ○ At Doyle unprotected inlet hoods on the curve radius 	<ul style="list-style-type: none"> ○ Construct 8 foot bypass lane, this will also slow speeds ○ Add a painted stop bar at Doyle Road ○ Replace delineation ○ Replace inlet top units and install flush to roadway gutter line. Treat blunt curb ends. 	<p>Medium</p> <p>Low Low</p> <p>Medium</p>	<p>Medium</p> <p>Medium High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Lantoga Road Intersection</i></p> <ul style="list-style-type: none"> ○ Wooden fence on eastbound side between Lantoga Road and Lenoir Avenue is in the clear zone ○ Inlet not bicycle friendly ○ There are no curb at the intersection 	<ul style="list-style-type: none"> ○ According to Radnor Township the fence was installed without permit. The fence should be moved out of the clear zone ○ Replace inlets, bike hazard ○ Install curbing 	<p style="text-align: center;">Medium</p> <p style="text-align: center;">Medium Medium</p>	<p style="text-align: center;">High</p> <p style="text-align: center;">High Medium</p>
<p><i>Between Lantoga Road and Lenoir Avenue</i></p> <ul style="list-style-type: none"> ○ “School Crossing” sign located on the eastbound side of Conestoga Road 	<ul style="list-style-type: none"> ○ Remove sign 	<p style="text-align: center;">Low</p>	<p style="text-align: center;">Low</p>
<p><i>Lenoir Avenue Intersection.</i></p> <ul style="list-style-type: none"> ○ Street name sign is located too far back from Conestoga Road ○ The “DO NOT ENTER” and “ONE WAY” signs are not properly oriented ○ “ONE WAY” sign missing in the westbound direction of Conestoga Rd. ○ Speed limit sign too low (height of sign) ○ Shoulder/grassy area used to pass turning vehicles 	<ul style="list-style-type: none"> ○ Relocate street name sign closer to edge of Conestoga Road roadway ○ Re-orient signs ○ Install “ONE WAY” sign ○ Re-install sign at least a height of 7 feet from the bottom of the sign ○ Construct 8 foot bypass lane, this will also slow speeds 	<p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p>	<p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Medium</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>W. Wayne Avenue Intersection</p> <ul style="list-style-type: none"> ○ Poor access management at driveway on the northwest corner of the intersection ○ Pedestrian push button is located on the signal post where there is no sidewalk ○ Pedestrian access is restricted to two legs of the intersection ○ Sidewalks are missing in some areas ○ Crosswalks are faded ○ Black backplate missing on traffic signal ○ At the northwest corner of intersection the curb ramp is in the active driveway 	<ul style="list-style-type: none"> ○ Close driveway and use driveway located on Conestoga Road west of the intersection ○ Install pedestrian signal at the crosswalk with push button ○ “No pedestrian” signs should be removed ○ Radnor Township proposed project of extending existing sidewalk closer to the Radnor Trail should consider adding missing sidewalks ○ Re-stripe crosswalks ○ Re-install missing back plate ○ Close driveway or construct new ramp to the north 	<p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p>	<p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p>
<p>Between W. Wayne Avenue and Bloomingdale Avenue</p> <ul style="list-style-type: none"> ○ Angled parking in front of businesses creates a problem backing into traffic and facing the wrong way 	<ul style="list-style-type: none"> ○ Consider reverse angle parking 	<p style="text-align: center;">Low</p>	<p style="text-align: center;">Medium</p>
<p>Greythorne Woods Intersection</p> <ul style="list-style-type: none"> ○ Before Greythorne Woods, Conestoga Road is striped but not signed ○ At eastbound Conestoga Road boulders on the side of the road presents a safety hazard ○ At Greythorne Woods, there is no stop sign 	<ul style="list-style-type: none"> ○ Add regulatory sign “RIGHT LANE MUST TURN RIGHT” ○ Remove boulders ○ Install stop sign at the intersection approaching Conestoga Road 	<p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Low</p>	<p style="text-align: center;">Medium</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Greythorne Woods Intersection (continued)</i></p> <ul style="list-style-type: none"> ○ East of the intersection speed limit sign has no reflectivity and post is not breakaway 	<ul style="list-style-type: none"> ○ Upgrade sign with reflectivity and install on breakaway post 	<p>Low</p>	<p>High</p>
<p><i>Bloomington Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ West of Bloomington Avenue curb hazard, sidewalk eliminated as part of HOP ○ No curb ramps ○ Sight distance obstructed at northeast corner by shrubbery and fence ○ East of Bloomington Avenue, no curve warning (chevrons needed) 	<ul style="list-style-type: none"> ○ Install dashed edge line and curb ○ Install ADA compliant curb ramps and sidewalk ○ Trim shrubbery and move back fence ○ Add curve warning sign 	<p>Low</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><i>Maplewood Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ Drainage grate problem ○ Poor sight distance leaving Maplewood Avenue ○ Street sign blocked “bridge height” sign and lights blocked by trees ○ Boulder hazards at southeast corner 	<ul style="list-style-type: none"> ○ Replace inlet top units and place untreated blunt end to curb. Install flush to roadway ○ Add dashed edge line. Add advance intersection warning sign ○ Relocate sign and trim tree ○ Remove boulders 	<p>Medium</p> <p>Low</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><i>Audobon Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ Poor sight distance of eastbound Conestoga Road traffic because of curve ○ East of Audobon Avenue no curve warning sign 	<ul style="list-style-type: none"> ○ Add advance warning signs for curve ○ Add advance warning signs for the intersection ○ Reevaluate corner sight distance 	<p>Low</p> <p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>S. Wayne Avenue Intersection</p> <ul style="list-style-type: none"> ○ Stop bar faded on S. Wayne Avenue ○ Trees are close to edge of curb on eastbound side of Conestoga Road ○ Intersection is too wide ○ Sidewalk stops before Conestoga Road 	<ul style="list-style-type: none"> ○ Install stop bar at the intersection ○ Remove trees as appropriate ○ Reconfigure the intersection to make perpendicular ○ Consider painted median island on S. Wayne Avenue for pedestrian and vehicle guidance ○ Install dashed white line across S. Wayne Avenue ○ Continue sidewalk along westbound side of Conestoga Road to Brook Road to connect to trail. 	<p>Low</p> <p>High</p> <p>High</p> <p>Medium</p> <p>Low</p> <p>High</p>	<p>Medium</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p>Brook Road Intersection</p> <ul style="list-style-type: none"> ○ Hedge blocks sights on the traffic exiting Brook Road. ○ Sight distance problems with traffic making left turn from Brook Road. Drivers positioned at 90 degrees onto Conestoga Road before pulling out ○ No sidewalk 	<ul style="list-style-type: none"> ○ Trim hedge ○ Use pavement marking to formalize this movement ○ Paint dashed white lines across Brook Road ○ Install sidewalk along Brook Road to connect to trail and install crosswalk over Conestoga Road from proposed sidewalk on the westbound side of roadway. ○ Radnor Township is proposing a signal at this location 	<p>Low</p> <p>Medium</p> <p>Low</p> <p>High</p> <p>High</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Church Road/Aberdeen Avenue/Iven Road Intersection</i></p> <ul style="list-style-type: none"> ○ Foliage obstructs sight distance ○ Tree obstruction on northwest corner ○ Tree obstruction of signal (over Iven Road.) ○ At the southbound Aberdeen Avenue approach there is big hole in the shoulder ○ Signal heads are too high over Aberdeen Avenue ○ No delineation for road separation between Iven Road. and Aberdeen Avenue ○ Drop off curve at Church Road used to make turns ○ Street signs are hardly visible ○ “Slippery when Wet” signs are redundant ○ The intersection is on a curve and there are no advance “signal ahead” warning signs prior to intersection eastbound ○ There are no “curve ahead” warning sign westbound 	<ul style="list-style-type: none"> ○ Trim trees as appropriate ○ Fill the hole in the shoulder ○ Re-install signal heads at appropriate height ○ Add directional signage on island between the two roads ○ Curb the edge of roadway ○ Place street name signs on signal mast arms as appropriate ○ Remove “Slippery when Wet” signs ○ Add “signal ahead” warning sign in both directions on Conestoga Road ○ Consider intersection directional sign indicating geometry both east and westbound Conestoga Road ○ Add curve ahead warning sign westbound 	<p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">Low</p>	<p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">Medium</p> <p style="text-align: center;">High</p> <p style="text-align: center;">Low</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p> <p style="text-align: center;">High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Church Road/Aberdeen Avenue/Iven Road Intersection (continued)</p> <ul style="list-style-type: none"> ○ Due to the awkward configuration of this 5-legged intersection there is some level of confusion 	<ul style="list-style-type: none"> ○ Reevaluate signal design for phasing change - and consider changing the phasing from Church Road /Aberdeen Avenue to Church Road/Iven Road because they align and this would improve sight distance 	<p>Medium</p>	<p>Medium</p>
<p>Between Aberdeen Avenue and Brookside Avenue</p> <ul style="list-style-type: none"> ○ Guide rail appears unwarranted 	<ul style="list-style-type: none"> ○ Evaluate need; remove guide rail if unwarranted 	<p>Low</p>	<p>Low</p>
<p>Brookside Avenue Intersection</p> <ul style="list-style-type: none"> ○ Large boulder presents a safety hazard ○ Sign clutter on the eastbound side approaching the intersection ○ “Arrow” warning sign is too large ○ Speeding on the downgrade into the intersection ○ No curve warning signage away from bridge 	<ul style="list-style-type: none"> ○ Remove boulder ○ Upgrade signage and standardize. ○ Upgrade pedestrian advance sign to fluorescent green ○ Install “soft rumble strips” to slow traffic ○ Consider other traffic calming techniques (milling) <p><i>Township is considering placing flashing lights on top of pedestrian signs</i></p> <p><i>Consider roundabout at this location –long term</i></p> <ul style="list-style-type: none"> ○ Install curve warning signs 	<p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Parks Run Lane Intersection</i></p> <ul style="list-style-type: none"> ○ Sign blocked by trees on westbound Conestoga Road. Sign is tied to a tree ○ Unprotected culvert on southwest corner ○ Rocks on southwest corner ○ West of intersection there is a drop off curve with ditch boulder and tree at curve ○ Westbound Conestoga Road there is a stream culvert at ditch drop off ○ Westbound “bridge” signs for the trail bridge is too far ○ East of the intersection there is a curve with no chevron 	<ul style="list-style-type: none"> ○ Trim trees, relocate and install sign ○ Add a delineator, provide protection for culvert ○ Delineate to make visible ○ Remove the rocks ○ Install guide rail to provide positive protection ○ Install guide rail to provide positive protection ○ Relocate “bridge” sign ○ Install chevron signs 	<p>Low</p> <p>Medium</p> <p>Medium</p> <p>Low</p> <p>Medium</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>Medium</p> <p>High</p>
<p><i>Between Parks Run Lane and Chaumont Drive</i></p> <ul style="list-style-type: none"> ○ Wetlands slope away from the roadway, no barriers 	<ul style="list-style-type: none"> ○ Re-evaluate the need for barrier 	<p>Medium</p>	<p>Medium</p>
<p><i>Chaumont Drive Intersection</i></p> <ul style="list-style-type: none"> ○ Curve warning sign, opposite Chaumont Drive is too far away from severe curves 	<ul style="list-style-type: none"> ○ Relocate and upgrade warning sign 	<p>Low</p>	<p>High</p>
<p><i>Ithan Woods Lane Intersection</i></p> <ul style="list-style-type: none"> ○ Inadequate sight distance ○ The fence on northeast corner of intersection blocks sight distance 	<ul style="list-style-type: none"> ○ Re-evaluate sight distance 	<p>Medium</p>	<p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Radnor Chester Road Intersection</p> <ul style="list-style-type: none"> ○ Rear end crash problem for Conestoga Road eastbound ○ Signals are mounted on poles which results in problems seeing them ○ Stop bars are faded ○ Intersection is a safety issue for bicyclists 	<ul style="list-style-type: none"> ○ Re-design and add left turn lane eastbound ○ Due to limitation with widening intersection, reconfigure intersection and use Newtown Rd for jughandle for eastbound left turn movement ○ Mount signals on mast arms to make more visible ○ Re-paint stop bars 	<p>High</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p>Between Radnor Chester Road and Sproul Road</p> <ul style="list-style-type: none"> ○ Need access management in front of gas station and store 	<ul style="list-style-type: none"> ○ Define access and egress points for these businesses 	<p>Medium</p>	<p>High</p>
<p>Sproul Road Intersection</p> <ul style="list-style-type: none"> ○ Junction signs on the eastbound side of Conestoga Road are too low ○ The intersection is congested during peak periods 	<ul style="list-style-type: none"> ○ Re-install signs at the correct height – 7 foot from the bottom of the sign ○ Widen on the north side of Conestoga Road to provide more space for the eastbound approach of Sproul Road and extend the W-beam guide rail ○ Extend culvert on northbound Sproul Road to provide a better through lane for signal ○ Add green time to Conestoga Road in the PM peak 	<p>Low</p> <p>High</p> <p>High</p> <p>Low</p>	<p>Medium</p> <p>High</p> <p>High</p> <p>Medium</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Sproul Road Intersection (continued)</i></p> <ul style="list-style-type: none"> ○ Motorists are driving over W-beam guide rail on northbound Sproul Road ○ “Slippery when Wet” signs are redundant ○ There are no bicycle or pedestrian amenities (pedestrians are discouraged) 	<ul style="list-style-type: none"> ○ Add a dedicated left turn lane to the southbound approach of Sproul Road ○ Add a dedicated left turn lane on Conestoga Road westbound for southbound Sproul Rd ○ W-beam guide rail on northbound Sproul Road, turn down, truncate and use end post treatment ○ Remove “Slippery when Wet” signs ○ Consider providing pedestrian and bicyclist amenities at this intersection 	<p>Low</p> <p>Low</p> <p>Medium</p> <p>Low</p> <p>Medium</p>	<p>Medium</p> <p>Medium</p> <p>High</p> <p>Low</p> <p>High</p>
<p><i>Spring Mill Road Intersection</i></p> <ul style="list-style-type: none"> ○ Broken sign post near Radnor Avenue ○ There is no crosswalk across Spring Mill Road. ○ Intersection is skewed and very wide 	<ul style="list-style-type: none"> ○ Replace broken sign post ○ Install crosswalk at Spring Mill Road. ○ Realign Spring Mill Road to meet Conestoga Road at a right angle 	<p>Low</p> <p>Low</p> <p>Medium</p>	<p>Medium</p> <p>High</p> <p>High</p>
<p><i>Mill Road Intersection</i></p> <ul style="list-style-type: none"> ○ Hard time making a left form Mill Road ○ Speeding from eastbound Conestoga Road on to Mill Road because of soft curve 	<ul style="list-style-type: none"> ○ Consider prohibiting left turns from Mill Road during peak hours ○ Reduce the radius of the curve 	<p>Medium</p> <p>Medium</p>	<p>High</p> <p>High</p>
<p><i>Between Mill Road and Hardwicke Lane</i></p> <ul style="list-style-type: none"> ○ Tree branches hang over travel lane ○ Flashing “SLOW” sign needs to be upgraded 	<ul style="list-style-type: none"> ○ Trim tree branches back to edge of shoulder ○ Upgrade flashing “SLOW” sign 	<p>Low</p> <p>Medium</p>	<p>High</p> <p>Medium</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Between Mill Road and Hardwicke Lane (continued)</i></p> <ul style="list-style-type: none"> ○ Inlet at eastbound Conestoga Road is blocked ○ Edge drop on eastbound Conestoga Road presents a safety hazard ○ Roadway is on a downhill curve 	<ul style="list-style-type: none"> ○ Clear blocked inlet ○ Pave shoulder and curb roadway ○ Install raised pavement markers along centerline of curve ○ Improve delineation ○ Consider installing edge and centerline rumble strip (other traffic calming techniques) and address concerns of the bicycle community 	<p>Low</p> <p>Medium</p> <p>Medium</p> <p>Medium</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><i>Hardwicke Lane Intersection</i></p> <ul style="list-style-type: none"> ○ Sight distance is compromised due to the bushes on the northwest corner of the intersection. 	<ul style="list-style-type: none"> ○ Trim the bushes 	<p>Low</p>	<p>High</p>
<p><i>Ithan Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ Traffic congestion at the intersection ○ There are no sidewalks or crosswalks at the intersection 	<ul style="list-style-type: none"> ○ Add a dedicated left turn lane in both directions on Conestoga Road and add dotted lines through intersection with new alignment ○ Install sidewalk and crosswalks with above improvements 	<p>High</p> <p>Medium</p>	<p>High</p> <p>High</p>
<p><i>Barclay Road area</i></p> <ul style="list-style-type: none"> ○ Driveway sign is too low and too close to driveway ○ Curve west of Barclay Road is not delineated 	<ul style="list-style-type: none"> ○ Relocate sign and install at proper height ○ Delineate curve with chevrons 	<p>Low</p> <p>Low</p>	<p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Strathmore Drive Intersection</i></p> <ul style="list-style-type: none"> ○ Sight distance issue to the west (utility pole, shrubbery and sign) ○ Wheel rut damage to pavement edge on east side of intersection ○ West of Strathmore Drive guide rail over culvert/stream is too short and weak. On the opposite side of the road there is no protection for the culvert/stream 	<ul style="list-style-type: none"> ○ Trim shrubbery and relocate sign ○ Pave shoulder and curb roadway ○ Extend and strengthen guide rail to adequate shield hazards. Add guide rail to the opposite side of the roadway to adequately shield hazards 	<p>Low</p> <p>Medium</p> <p>Medium</p>	<p>High</p> <p>High</p> <p>High</p>
<p><i>Lowrys Lane Intersection</i></p> <ul style="list-style-type: none"> ○ Crosswalk is faded ○ Sight poor due to skew ○ Left turning movement is difficult ○ Intersection is too wide 	<ul style="list-style-type: none"> ○ Repaint crosswalk ○ Correct the skew with pavement marking. Channel vehicles to a 90 degree angle 	<p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p>
<p><i>Playground Area</i></p> <ul style="list-style-type: none"> ○ Inadequate pedestrian warning signs ○ Crosswalks are inadequate ○ “Playground” sign can be misleading ○ High spot, water crosses road (vehicles hydroplane) 	<ul style="list-style-type: none"> ○ Add fluorescent green pedestrian warning and crossing signs ○ Upgrade crosswalk pavement markings to continental striping ○ Replace “playground” sign with pedestrian crossing sign ○ Consider the use of transverse rumble strips to slow traffic ○ Improve drainage in the area 	<p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>High</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>
<p><i>Rockingham Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ There are no pedestrian warning signs ○ Crosswalks are faded 	<ul style="list-style-type: none"> ○ Install pedestrian warning signs ○ Re-paint crosswalks 	<p>Low</p> <p>Low</p>	<p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Between Good Shepherd Terrace and Meredith Avenue</i></p> <ul style="list-style-type: none"> ○ Parking spaces are not long enough to keep vehicles out of travel lane 	<ul style="list-style-type: none"> ○ Restrict parking in this area 	<p>Low</p>	<p>High</p>
<p><i>Bailey Road Intersection</i></p> <ul style="list-style-type: none"> ○ Street sign is bent ○ Pavement markings are faded (crosswalks) 	<ul style="list-style-type: none"> ○ Replace sign ○ Upgrade crosswalk pavement markings 	<p>Low Low</p>	<p>Medium High</p>
<p><i>Garrett Avenue and Vicinity</i></p> <ul style="list-style-type: none"> ○ Pavement markings are faded ○ Lack of curbing of the eastside of intersection ○ There is no access management exercised ○ Parking is not regulated ○ Signal heads not over the travel lane ○ There are no pedestrian signal heads ○ There are curb ramps on east side of Summit Terrace but no crosswalk ○ Parking signs located east of Garrett Avenue on westbound Conestoga Road are faded ○ Pedestrian button is missing at Garret Avenue and Williams Road. ○ Crosswalk at Summit Terrace is aligned with the driveway of the business across the street 	<ul style="list-style-type: none"> ○ Upgrade pavement markings ○ Curb eastside of intersection ○ Establish defined driveways for businesses ○ The shortage of available parking for the businesses is evident. Available parking needs to be regulated to avoid confusion by road users to promote safety ○ Align signal heads over travel lane ○ Add pedestrian signals ○ Match up curb ramps with crosswalk ○ Replace existing parking signs ○ Install a pedestrian button ○ Relocate crosswalk 	<p>Low Medium Medium Medium Medium Medium Low Low Medium Low</p>	<p>High High High Medium High High High Medium Medium High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>Between Callahan Avenue and Locust Grove Road</i></p> <ul style="list-style-type: none"> ○ Triangular piece of guide rail at westbound Conestoga Road is a fixed object hazard ○ Chevrons knocked down ○ Lane width is reduced into the curve 	<ul style="list-style-type: none"> ○ Remove guide rail ○ Replace Chevrons ○ Re-paint to right width 	<p>Low</p> <p>Low Medium</p>	<p>High</p> <p>High High</p>
<p><i>Locust Grove Road Intersection</i></p> <ul style="list-style-type: none"> ○ Clogged inlets ○ Warning sign is too low at Locust Grove Road ○ “Road Narrows” sign is redundant 	<ul style="list-style-type: none"> ○ Clear inlets to facilitate run-off ○ Re-install sign at required height ○ Remove “Road Narrows” sign 	<p>Low</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p>
<p><i>Roadway under the bridge</i></p> <ul style="list-style-type: none"> ○ Unsafe sidewalks ○ There are exposed posts on the W-beam guide rail ○ This is downgrade and into curves on both east and west sides of the bridge ○ Too dark (especially for bicyclists) 	<ul style="list-style-type: none"> ○ Close sidewalk on the westbound side ○ Add rub rail element strip to the exposed posts of the W-beam guide rail on the eastbound side ○ Add rub rails to the W-beam guide rail ○ Add centerline rumble strips, raised pavement markers underneath the bridge and at the entrance and exit ○ Add reflectors on the guide rail ○ Install additional lighting ○ Consider painting the interior of bridge anti-graffiti white to brighten it up 	<p>Low</p> <p>Medium</p> <p>Medium Medium</p> <p>Low Medium Medium</p>	<p>High</p> <p>High</p> <p>High High</p> <p>High Medium Medium</p>
<p><i>East of Locust Grove to Bridge entrance</i></p> <ul style="list-style-type: none"> ○ Tree obscures the view of the overhead flashing warning sign; sign is too high 	<ul style="list-style-type: none"> ○ Consider adding a post mounted sign; trim the tree 	<p>Low</p>	<p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p><i>East of Locust Grove to Bridge entrance (continued)</i></p> <ul style="list-style-type: none"> ○ No “ONE WAY” sign at entrance/exit of condos 	<ul style="list-style-type: none"> ○ Supplement “DO NOT ENTER” sign with “ONE WAY” sign at entrance/exit of condos ○ Install raised pavement markers and centerline rumble strips in the curve to prevent head on collisions 	<p>Low</p> <p>Medium</p>	<p>High</p> <p>High</p>
<p><i>Montrose Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ Eastbound Conestoga Road drainage inlet in wheel path ○ No stop bar on Montrose Avenue ○ Motorist have to pull out into the intersection to see westbound approaching traffic to make a turn ○ A big tree on the northeast corner of intersection obscures sight distance 	<ul style="list-style-type: none"> ○ Install stop bar on Montrose Avenue ○ Re-align the intersection with pavement marking to 90 degrees ○ Remove tree 	<p>Low</p> <p>Medium</p> <p>Medium</p>	<p>Medium</p> <p>High</p> <p>High</p>
<p><i>Petrie Avenue Intersection</i></p> <ul style="list-style-type: none"> ○ “DO NOT ENTER” is facing the wrong way ○ There is no “ONE WAY” sign 	<ul style="list-style-type: none"> ○ Re-orient “DO NOT ENTER” sign ○ Install “ONE WAY” sign 	<p>Low</p> <p>Low</p>	<p>High</p> <p>High</p>
<p><i>Roberts Road Intersection</i></p> <ul style="list-style-type: none"> ○ Inadequate crosswalks ○ No sidewalks on the north side of Conestoga Road ○ No pedestrian amenities on Roberts Road South of Conestoga Road ○ Curb ramps but no sidewalk on the north side of Roberts Road 	<ul style="list-style-type: none"> ○ Add pedestrian amenities ○ Align curb ramps and sidewalk 	<p>Low</p> <p>Low</p>	<p>High</p> <p>High</p>

ISSUES	RECOMMENDATIONS	LEVEL OF EFFORT REQUIRED	POTENTIAL SAFETY BENEFITS
<p>Roberts Road Intersection (continued)</p> <ul style="list-style-type: none"> ○ Crosswalks are not aligned to ramps ○ No pedestrian signal head ○ Wires obstruct signal head for Conestoga Road ○ West of Roberts Road the curve warning sign is blocked by vegetation ○ East of Roberts Road, Conestoga Road eastbound shows evidence of cars hitting the curve ○ Eastbound Conestoga Road, east of Roberts Road the retaining wall has broken away and the dirt is falling 	<ul style="list-style-type: none"> ○ Install pedestrian signal heads ○ Remove wires obstructing the signal ○ Trim the vegetation ○ Re-enforce the retaining wall 	<p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p>	<p>Medium</p> <p>High</p> <p>High</p> <p>High</p>
<p>County Line Road Intersection</p> <ul style="list-style-type: none"> ○ Sidewalks are narrow ○ Utility poles are obstructing the sidewalk ○ Too many utility poles ○ Pavement markings are faded ○ Curb ramps are steep ○ Due to the awkward configuration of the intersection there is confusion among some motorist navigation the intersection ○ “No Left Turn” sign onto Glenbrook Avenue is difficult to see 	<ul style="list-style-type: none"> ○ Widen sidewalks as appropriate ○ Place street light on top of traffic signal poles to decrease the number of poles ○ Upgrade pavement markings ○ Consider skip lines through intersection to delineate traffic patterns ○ Upgrade the crosswalks throughout the intersection ○ Construct curb ramps that are ADA compliant ○ Install advance directional street name signs ○ Relocate “No Left Turn” sign 	<p>Medium</p> <p>Medium</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Medium</p> <p>Low</p> <p>Low</p>	<p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p> <p>High</p>

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 Conestoga Road. These remedial strategies can be implemented as time and budget limitations permit. Additionally, many of the strategies identified can be implemented through routine maintenance.

Engineering strategies alone cannot effectively address the traffic safety issues identified along Conestoga Road; therefore, enforcement and education is a necessary component to address the human behavioral aspects to effectively reduce the number of crashes in the study area.

APPENDIX A

Audit Team

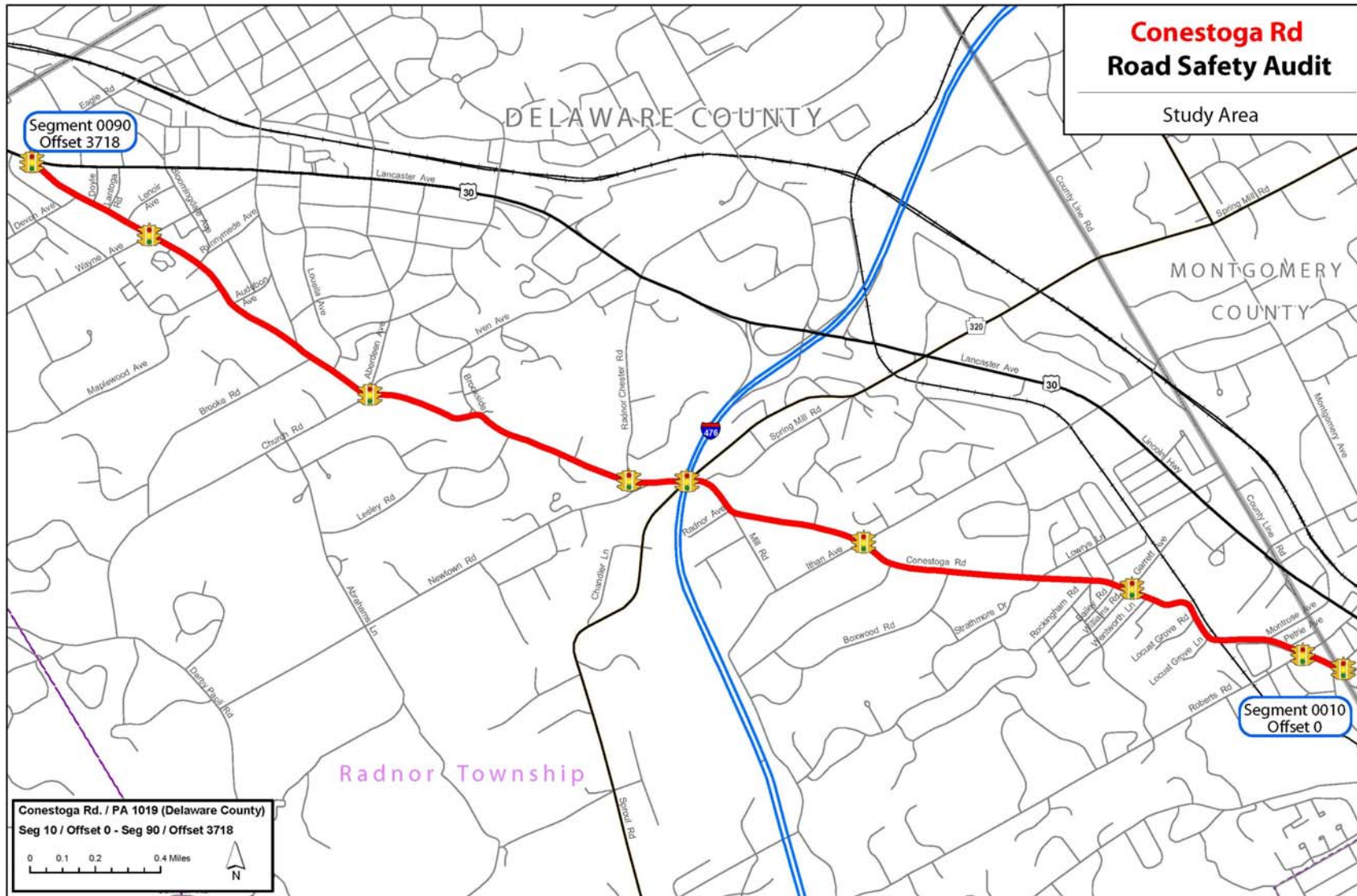
Allegheny Avenue Road Safety Audit

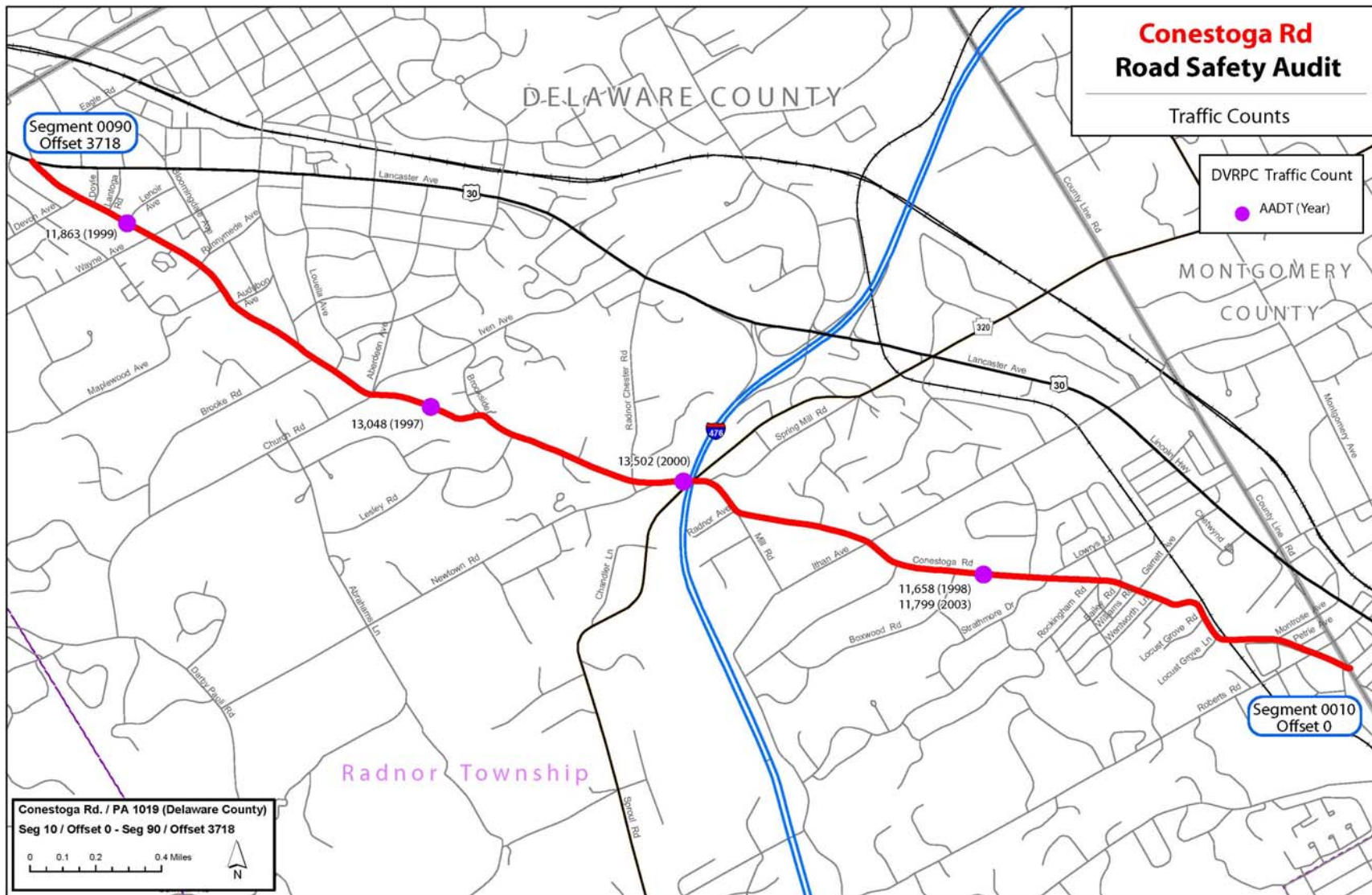
Audit Team

Name	Organization	Pre Audit Meeting	Field Audit	Post Audit Meeting
Rosemarie Anderson	Delaware Valley Regional Planning Commission	X	X	X
Officer Andy Block	Radnor Township Police Department	X	X	X
Matt Bochanski	Pennsylvania Department of Transportation	X	X	X
John Boyle	Greater Philadelphia Bicycle Coalition			X
Larry Bucci	Pennsylvania Department of Transportation	X	X	X
Michael Castellano	Federal Highway Administration	X	X	X
Justin Dula	Delaware County Planning Commission	X	X	X
Carmine Fiscina	Federal Highway Administration	X	X	X
James Johnson	Delaware Valley Regional Planning Commission		X	X
Dan Malloy	Radnor Township Engineering Department	X	X	X
Regina Moore	Delaware Valley Regional Planning Commission	X	X	X
Kevin Murphy	Delaware Valley Regional Planning Commission	X	X	X
Officer John Ruty	Radnor Township Police Department	X	X	X

APPENDIX B

Maps





APPENDIX C

Traffic Data

Road Safety Audit - 2007
 SR 1019 Conestoga Road - Corridorwide Crash Summary, 2003 - 2005

Year Range: 2003 - 2005	County 23	On Route 1019
Between: Segment 10 , Offset 0	and Segment 90 ,	Offset 3718

COLLISION TYPE

Non collision	6	4%
Rear-end	38	26%
Head-on	8	6%
Angle	58	40%
Sideswipe (same dir.)	2	1%
Sideswipe (opposite dir.)	5	3%
Hit fixed object	23	16%
Hit pedestrian	4	3%
Total	144	

SEVERITY LEVEL

Not injured	71	49%
Killed	2	1%
Moderate injury	12	8%
Minor injury	44	31%
Injury/ Unknown Severity	13	9%
Unknown	2	1%
Total	144	

SEVERITY COUNT

Fatalities:	3	
Major	1	
Moderate	13	
Minor	57	
UNK Severity	27	
UNK If Injured	9	

ENVIR/ROADWAY FACTORS

Glare	5	3%
None	113	78%
Other environmental factor	1	1%
Other roadway factor	4	3%
Other weather conditions	14	10%
Slippery road conditions	6	4%
Sudden weather	1	1%
Total	144	

ROAD CONDITION Crash

Dry		66%
Wet	43	30%
Sand/ mud/ dirt/ oil/ or gravel	1	1%
Snow covered	3	2%
Slush	1	1%
Water – standing or moving	1	1%
Total	144	

WEATHER

No adverse conditions	106	74%
Rain	34	24%
Sleet (hail)	1	1%
Snow	2	1%
Rain and fog	1	1%
Total	144	

ILLUMINATION

Daylight	97	67%
Dark – no street lights	4	3%
Dark – street lights	38	26%
Dusk	3	2%
Dark – unknown roadway	1	1%
Other	1	1%
Total	144	

VEHICLE TYPE

Automobile	231	83%
Motorcycle	3	1%
Small truck	6	2%
Large truck	4	1%
SUV	20	7%
Van	6	2%
Construction Equipment	1	0%
Unicycle, bicycle or	2	1%
Other vehicle	3	1%
Unknown vehicle	4	1%
Total	280	

DRIVER ACTIONS

Driver was distracted	20	10%
Driving using hand-held phone	5	2%
Making improper or careless turn	30	15%
Turning from wrong lane	1	0%
Proceeding w/o clearance after stop	16	8%
Running stop sign	7	3%
Running red light	11	5%
Failure to respond to TCD	5	2%
Tailgating	5	2%
Sudden slowing or stopping	2	1%
Illegally stopped on road	1	0%
Careless passing or lane change	2	1%
Driving on the wrong side of roadway	2	1%
Making improper entrance to highway	5	2%
Making improper exit from highway	2	1%
Over or under compensation at curve	6	3%
Speeding	3	1%
Driving too fast for conditions	33	16%
Driver inexperienced	10	5%
Affected by Physical Condition	5	2%
Other improper driving actions	22	11%
Unknown	8	4%
Total	201	

Road Safety Audit - 2007
 SR 1019 Conestoga Road - Corridorwide Crash Summary, 2003 - 2005

Year Range:	2003	to	2005	Area of: In County	23	On Route	1019
Between: Segment	10	Offset	0	and Segment	90	Offset	3718

YEAR

2003	2004	2005	Total
51	44	49	144
35%	31%	34%	

MONTH

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
10	10	9	8	15	11	9	7	19	23	13	10	144
7%	7%	6%	6%	10%	8%	6%	5%	13%	16%	9%	7%	

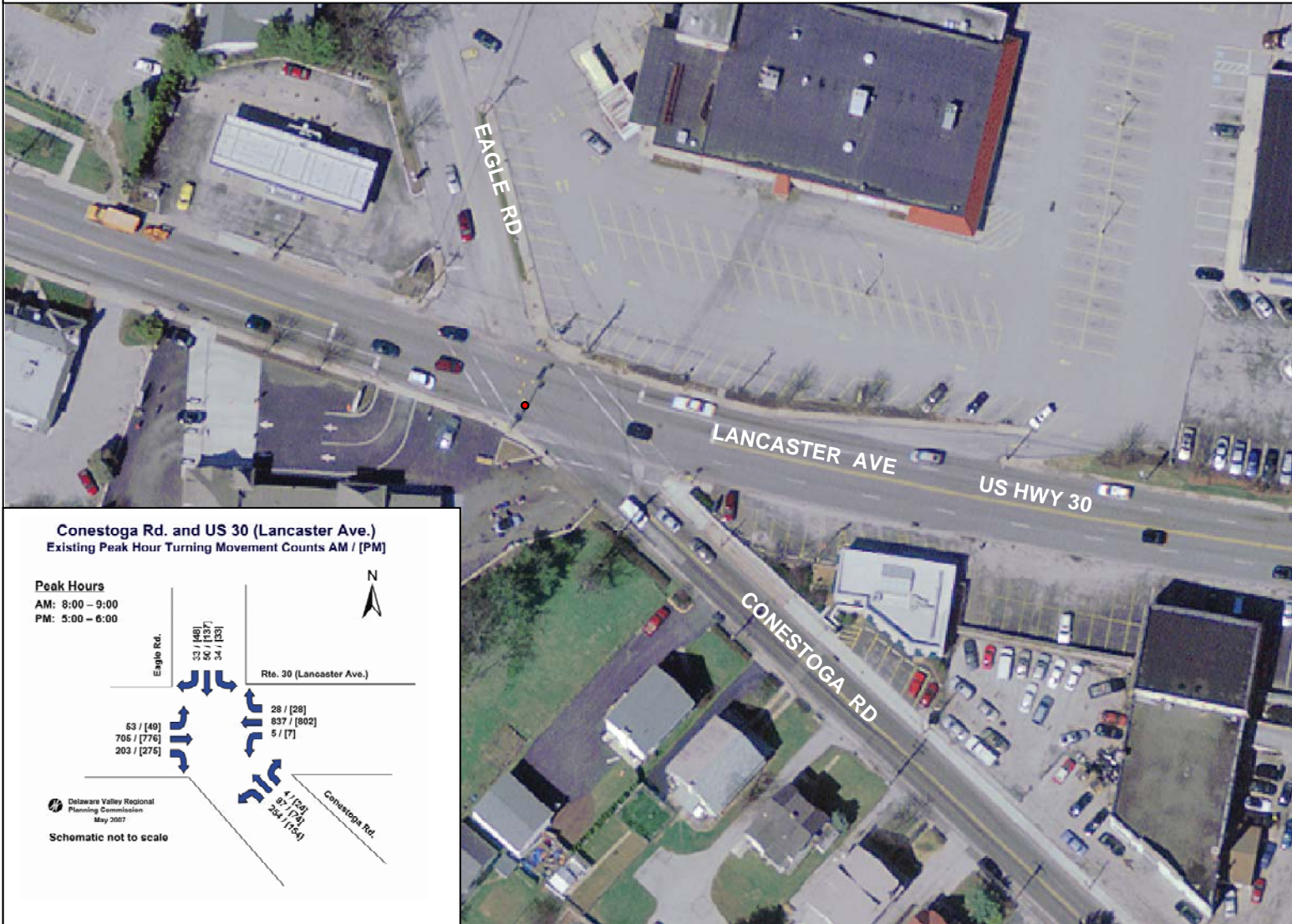
Day of Week

SUN	MON	TUE	WEC	THR	FRI	SAT	Total
11	17	25	23	24	22	22	144
8%	12%	17%	16%	17%	15%	15%	

Hour of Day

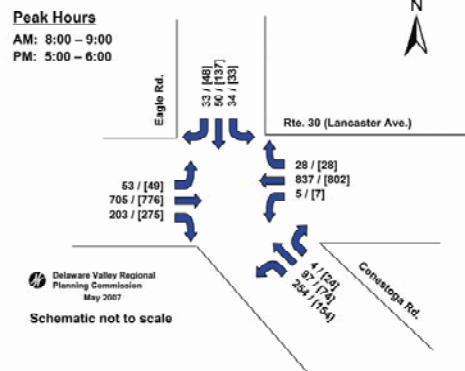
0	1	2	3	4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	99	Total
2	3	2	2	4	1	9	13	7	9	7	8	6	11	13	7	10	4	5	9	8	2	2	144
1%	2%	1%	1%	3%	1%	6%	9%	5%	6%	5%	6%	4%	8%	9%	5%	7%	3%	3%	6%	6%	1%	1%	

1. Conestoga Rd. at US 30 Lancaster Ave.
 Segment 90, Offset 3718 to Segment 90, Offset 3718



COLLISION TYPE	
Angle	7
Rear-end	1
Hit pedestrian	1
Total	9
ILLUMINATION	
Daylight	6
Dark - street lights	3
Total	9
WEATHER	
Clear	8
Rain	1
Total	9
SEVERITY COUNT	
Fatalities	0
Minor	5
UNK If Injured	1

Conestoga Rd. and US 30 (Lancaster Ave.)
 Existing Peak Hour Turning Movement Counts AM / [PM]



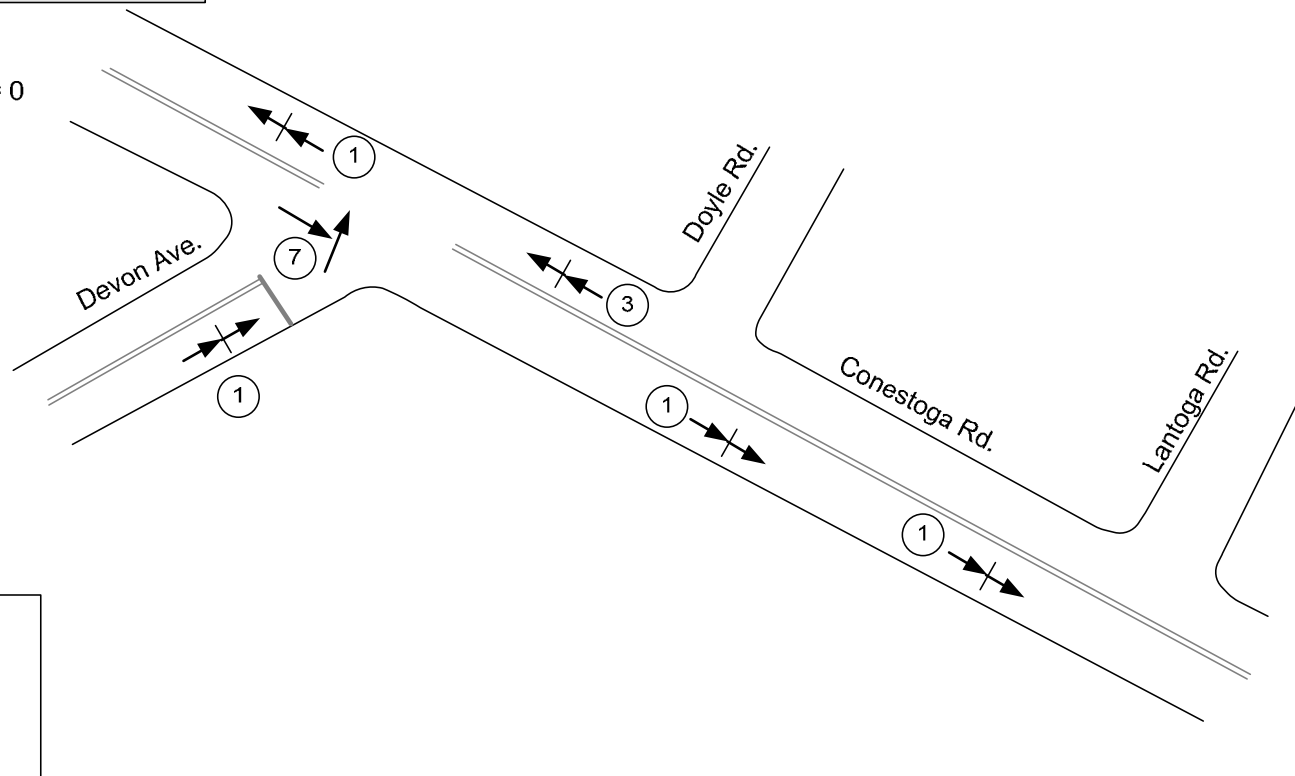
2. Conestoga Rd. from Devon Ave. to Lantoga Rd.
 Segment 90, Offset 2212 to Segment 90, Offset 2901



COLLISION TYPE	
Rear-end	7
Angle	7
Total	14
ILLUMINATION	
Daylight	11
Dark - street lights	2
Dusk	1
Total	14
WEATHER	
Clear	9
Rain	5
Total	14
SEVERITY COUNT	
Fatalities	0
Moderate	1
Minor	3
UNK Severity	5
UNK If Injured	1

ROAD SAFETY AUDIT
Conestoga Rd.
from
Devon Ave. to Lantoga Rd.
Collision Diagram
Crash Data Years 2003-2005

Total Crashes = 14
Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- ↙ Angle
- ⇌ Rear End

SCHEMATIC NOT TO SCALE

Delaware Valley Regional Planning Commission
April 2007

3. Conestoga Rd. at Wayne Ave.

Segment 90, Offset 1038 to Segment 90, Offset 1779



COLLISION TYPE	
Rear-end	3
Angle	1
Head-on	1
Hit fixed object	1
Sideswipe (opp. dir)	1
Total	7
ILLUMINATION	
Daylight	5
Dark - street lights	1
Dark	1
Total	7
WEATHER	
Clear	5
Rain	2
Total	7
SEVERITY COUNT	
Fatalities	0
Moderate	1
Minor	2

4. Conestoga Rd. from S. Wayne Ave. to Louella Ave.
Segment 80, Offset 506 to Segment 80, Offset 1392



COLLISION TYPE	
Angle	4
Rear-end	2
Hit fixed object	1
Sideswipe (opp. dir)	1
Total	8
ILLUMINATION	
Daylight	6
Dark - street lights	2
Total	8
WEATHER	
Clear	5
Rain	3
Total	8
SEVERITY COUNT	
Fatalities	0
Moderate	2
Minor	4
UNK Severity	1

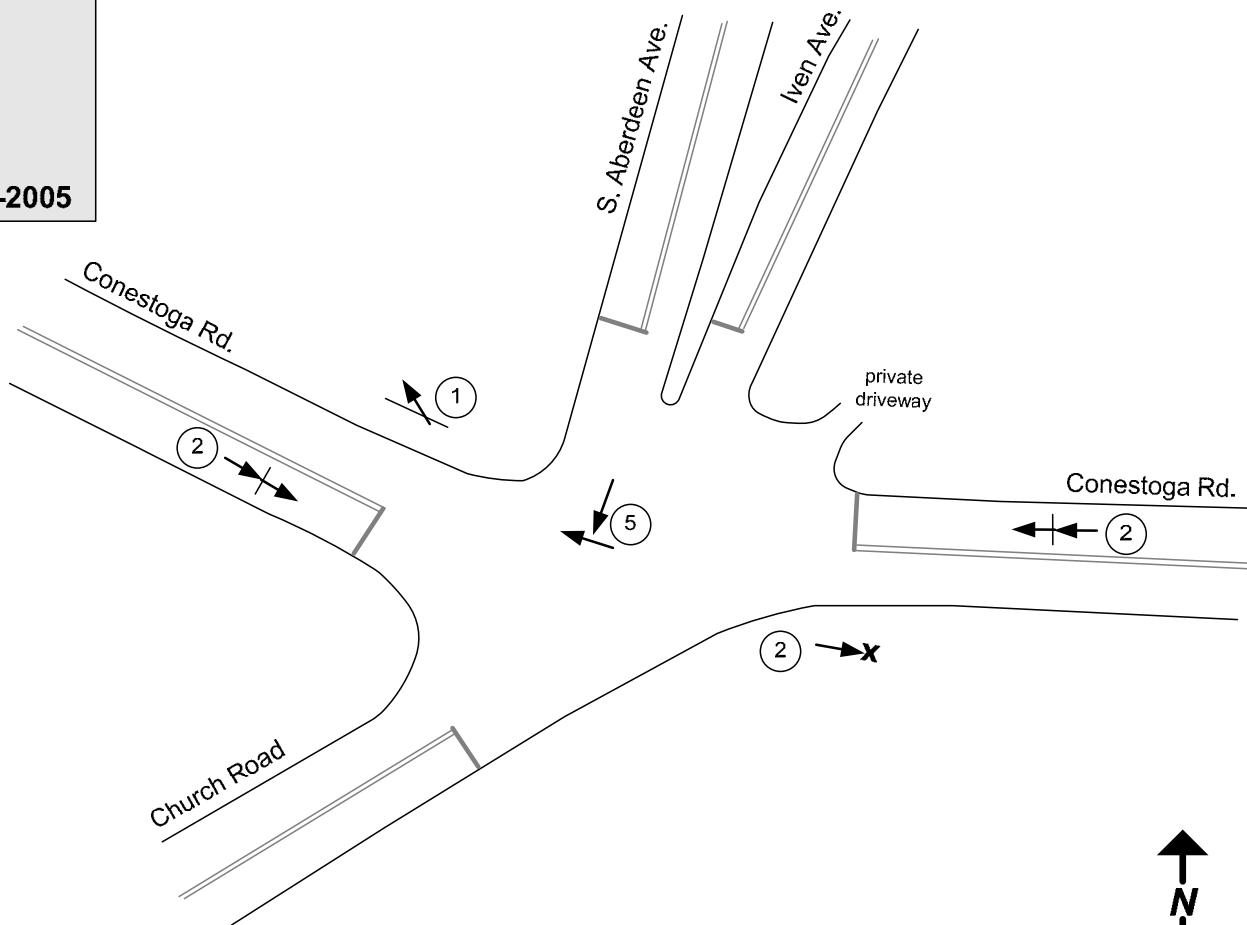
5. Conestoga Rd. at Church Rd.
 Segment 70, Offset 1675 to Segment 80, Offset 0



COLLISION TYPE	
Angle	4
Rear-end	4
Hit fixed object	3
Non-collision	1
Total	12
ILLUMINATION	
Daylight	8
Dark - street lights	3
Dark	1
Total	12
WEATHER	
Clear	10
Rain	1
Snow	1
Total	12
SEVERITY COUNT	
Fatalities	0
Moderate	3
Minor	4
UNK Severity	4

ROAD SAFETY AUDIT
Conestoga Rd.
at
Church Rd.
Collision Diagram
Crash Data Years 2003-2005

Total Crashes = 12
 Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- Angle
- Rear End
- Hit Fixed Object
- Other/
Unknown
(ran off road)



SCHEMATIC NOT TO SCALE

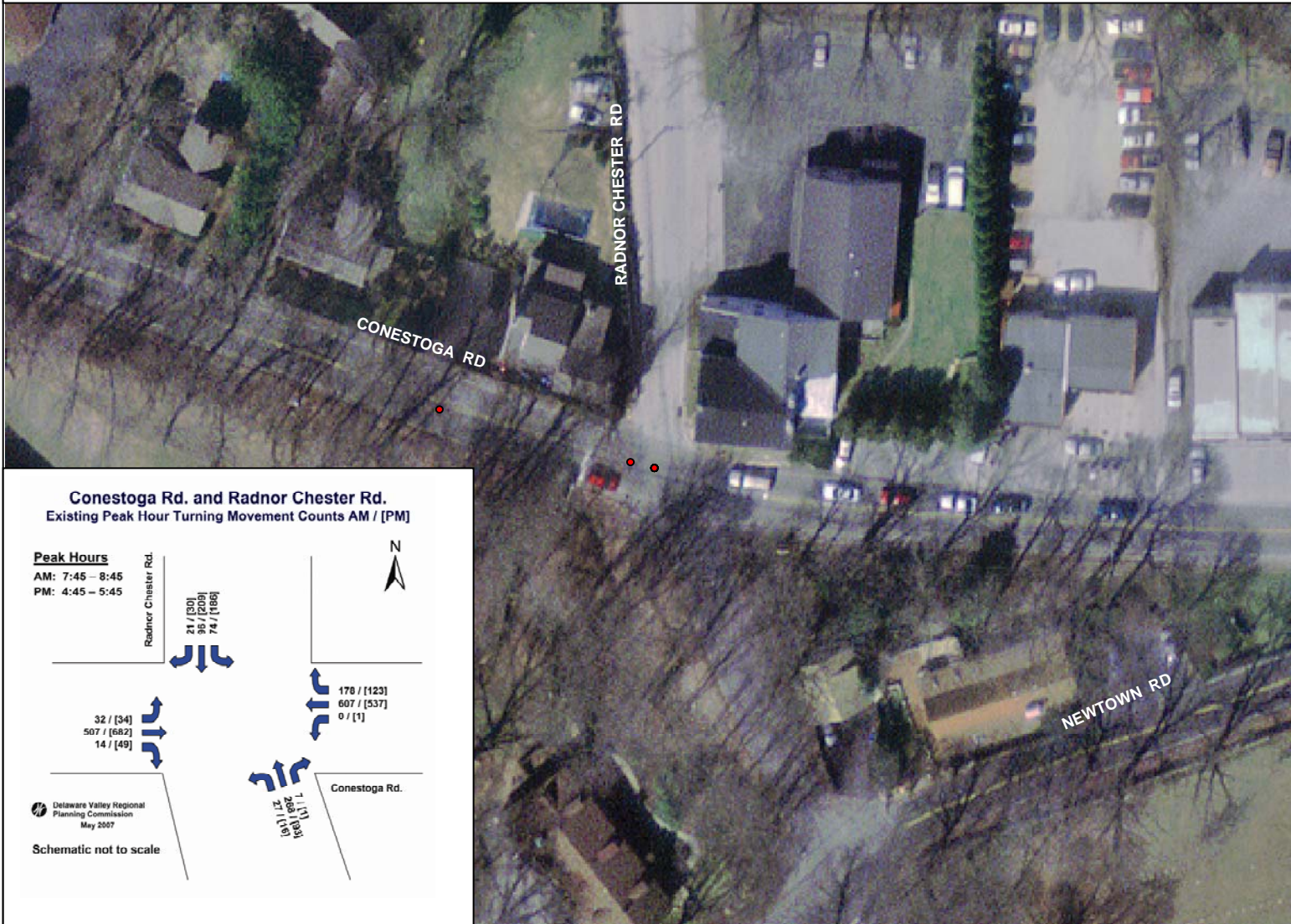
Delaware Valley Regional Planning Commission
 April 2007

6. Conestoga Rd. at Brookside Ave.
 Segment 70, Offset 9 to Segment 70, Offset 501

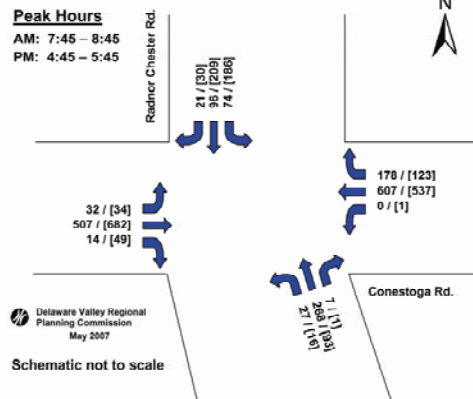


COLLISION TYPE	
Hit fixed object	4
Rear-end	2
Head-on	1
Non-collision	1
Total	8
ILLUMINATION	
Daylight	4
Dark - street lights	3
Other	1
Total	8
WEATHER	
Clear	6
Rain	2
Total	8
SEVERITY COUNT	
Fatalities	2
Major	1
Minor	1
UNK Severity	1

7. Conestoga Rd. at Radnor Chester Rd.
 Segment 50, Offset 1899 to Segment 60, Offset 99



Conestoga Rd. and Radnor Chester Rd.
 Existing Peak Hour Turning Movement Counts AM / [PM]



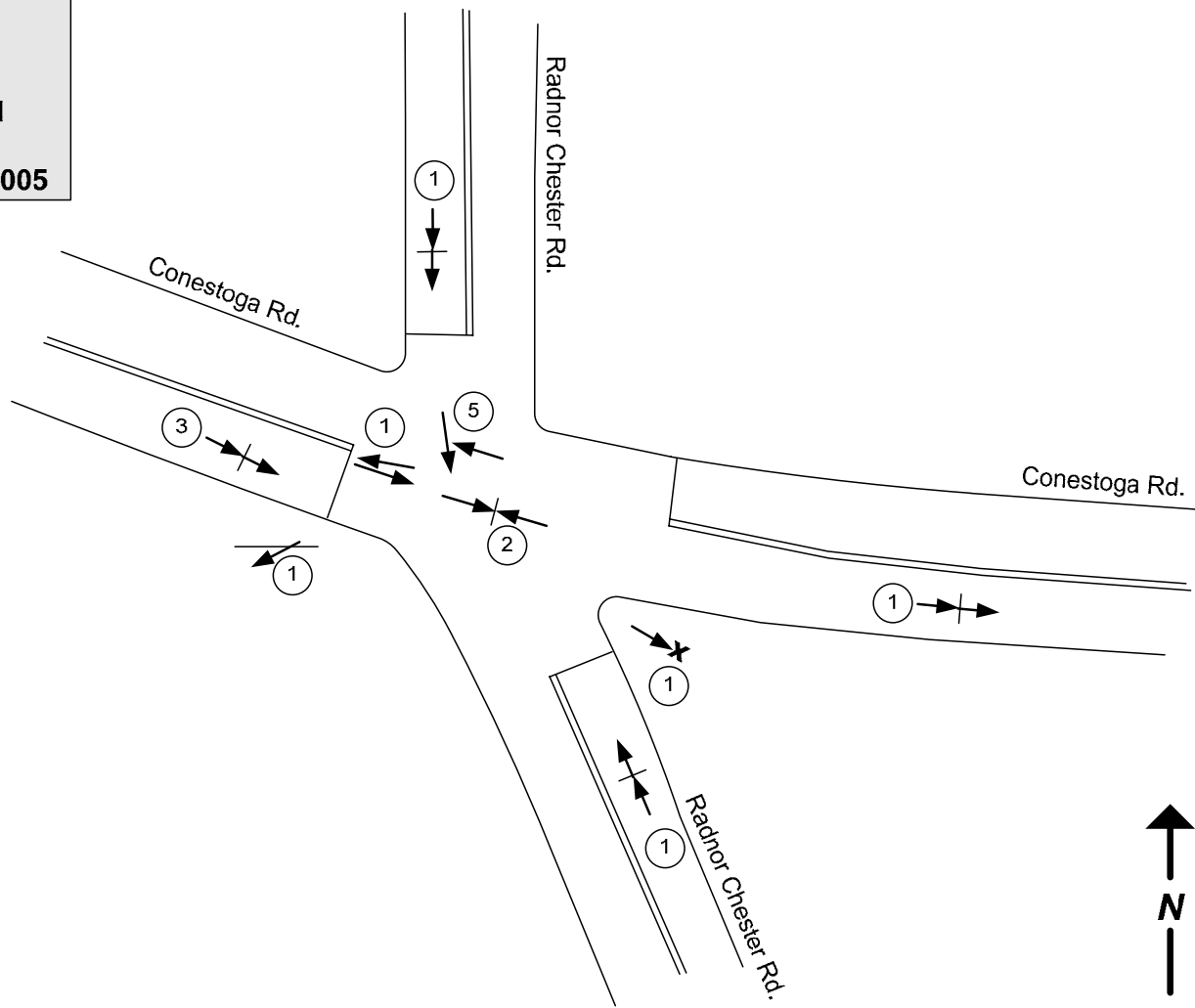
COLLISION TYPE	
Angle	5
Head-on	2
Rear-end	5
Sideswipe (same dir)	2
Hit fixed object	1
Non-collision	1
Total	16
ILLUMINATION	
Daylight	10
Dark – street lights	4
Dark	1
Unkown lighting	1
Total	16
WEATHER	
Clear	13
Rain	3
Total	16
SEVERITY COUNT	
Fatalities	0
Minor	9
UNK Severity	3
UNK If Injured	3

ROAD SAFETY AUDIT
Conestoga Rd.
at
Radnor Chester Road
Collision Diagram
Crash Data Years 2003-2005

Total Crashes = 16
 Pedestrian Crashes = 0

LEGEND

- (1) = # crashes
- Angle
- Opp Direction Sideswipe
- Head On
- Rear End
- Hit Fixed Object (utility pole)
- Run Off Road

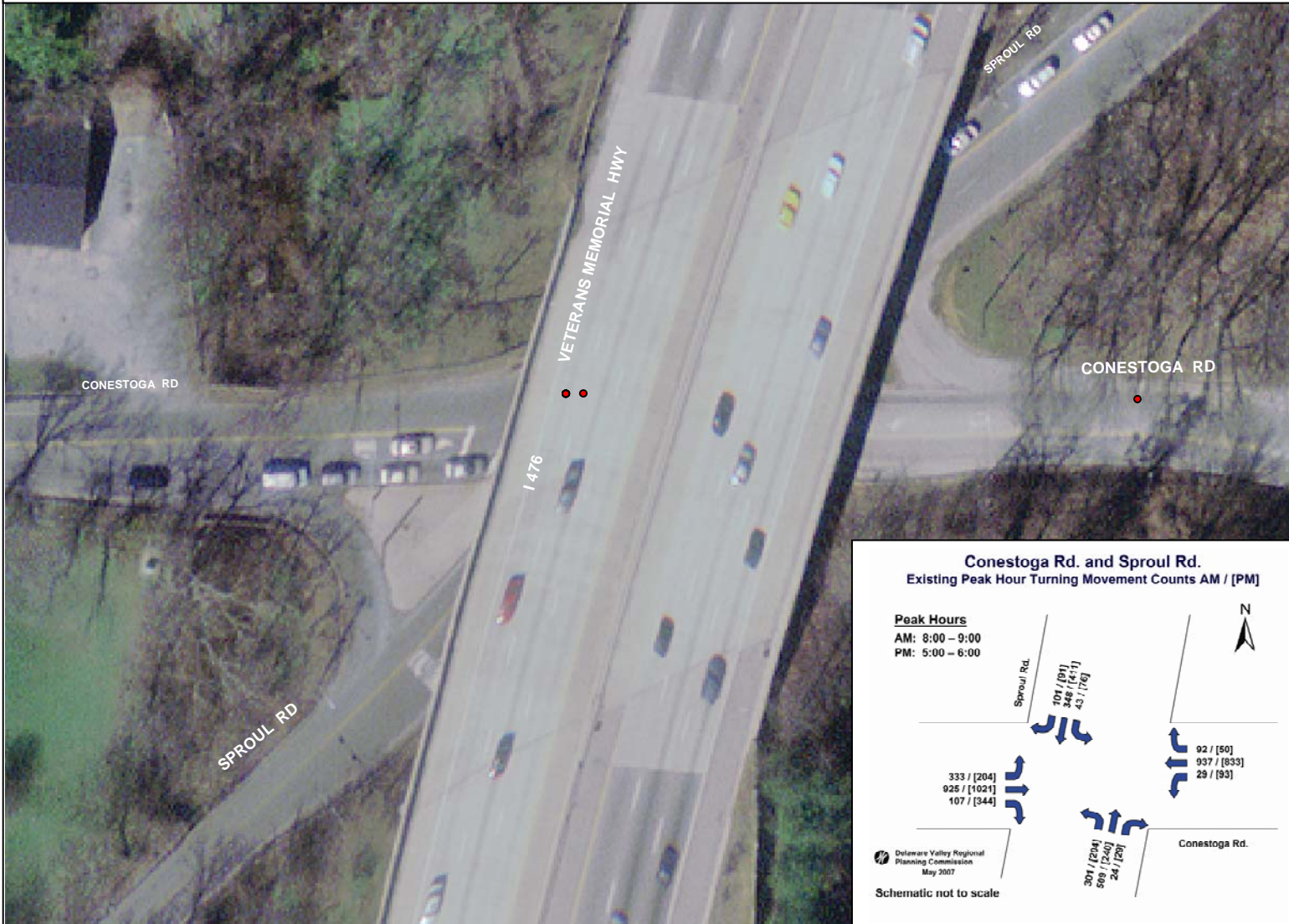


SCHEMATIC NOT TO SCALE

Delaware Valley Regional Planning Commission
 April 2007

8. Conestoga Rd. at Sproul Rd.

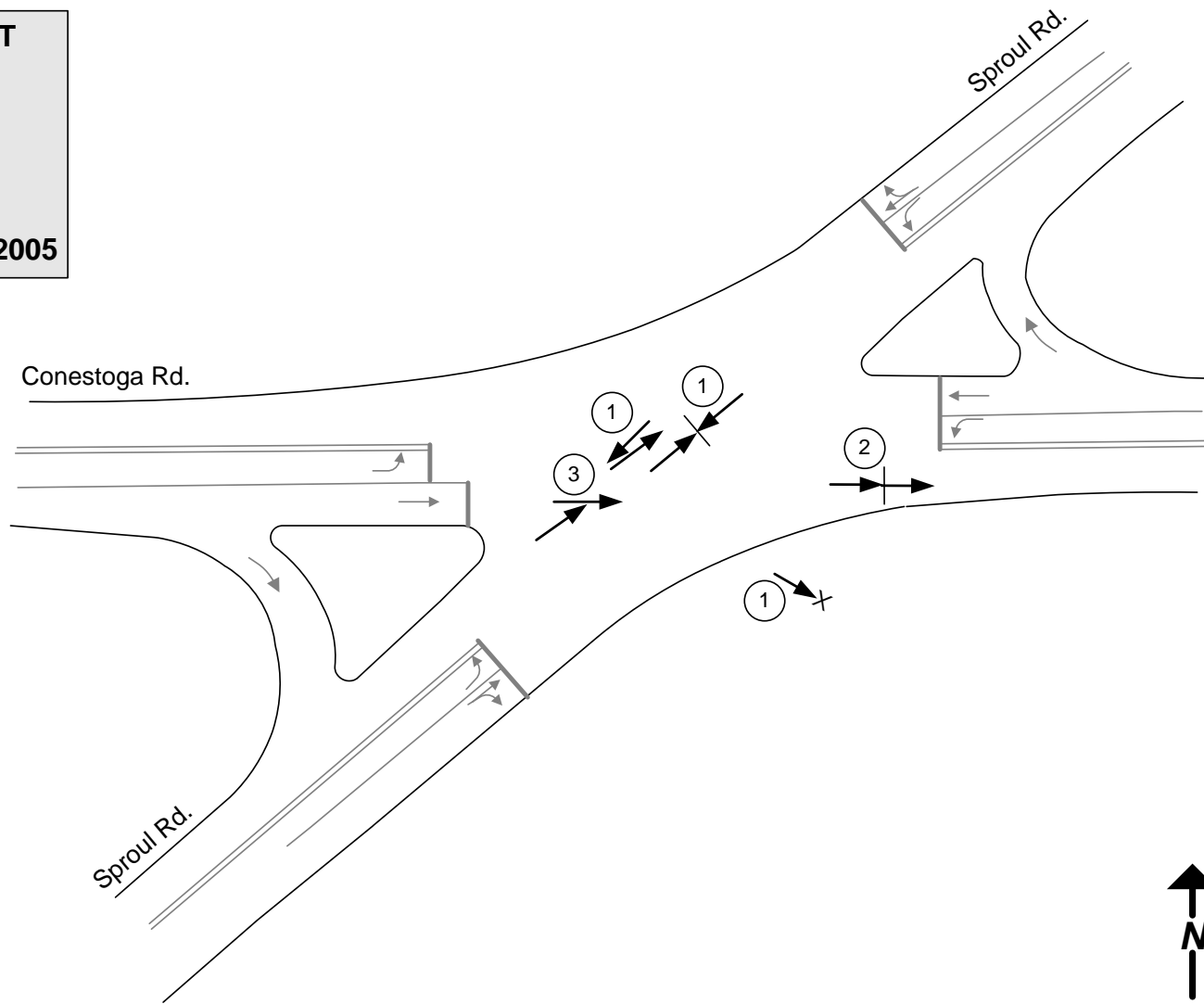
Segment 50, Offset 688 to Segment 50, Offset 916



COLLISION TYPE	
Angle	3
Head-on	1
Non-collision	1
Rear-end	2
Sideswipe (opp. dir)	1
Total	8
ILLUMINATION	
Daylight	7
Dark – street lights	1
Total	8
WEATHER	
Clear	7
Rain	1
Total	8
SEVERITY COUNT	
Fatalities	0
Moderate	1
Minor	3
UNK Severity	3

ROAD SAFETY AUDIT
Conestoga Rd.
at
Sproul Rd.
Collision Diagram
Crash Data Years 2003-2005

Total Crashes = 8
 Pedestrian Crashes = 0



LEGEND

- ① = # crashes
- Angle
- ↔ Opp Direction Sideswipe
- ↔ Head On
- ↔ Rear End
- ↔ Non-collision (ran into ditch)

SCHEMATIC NOT TO SCALE

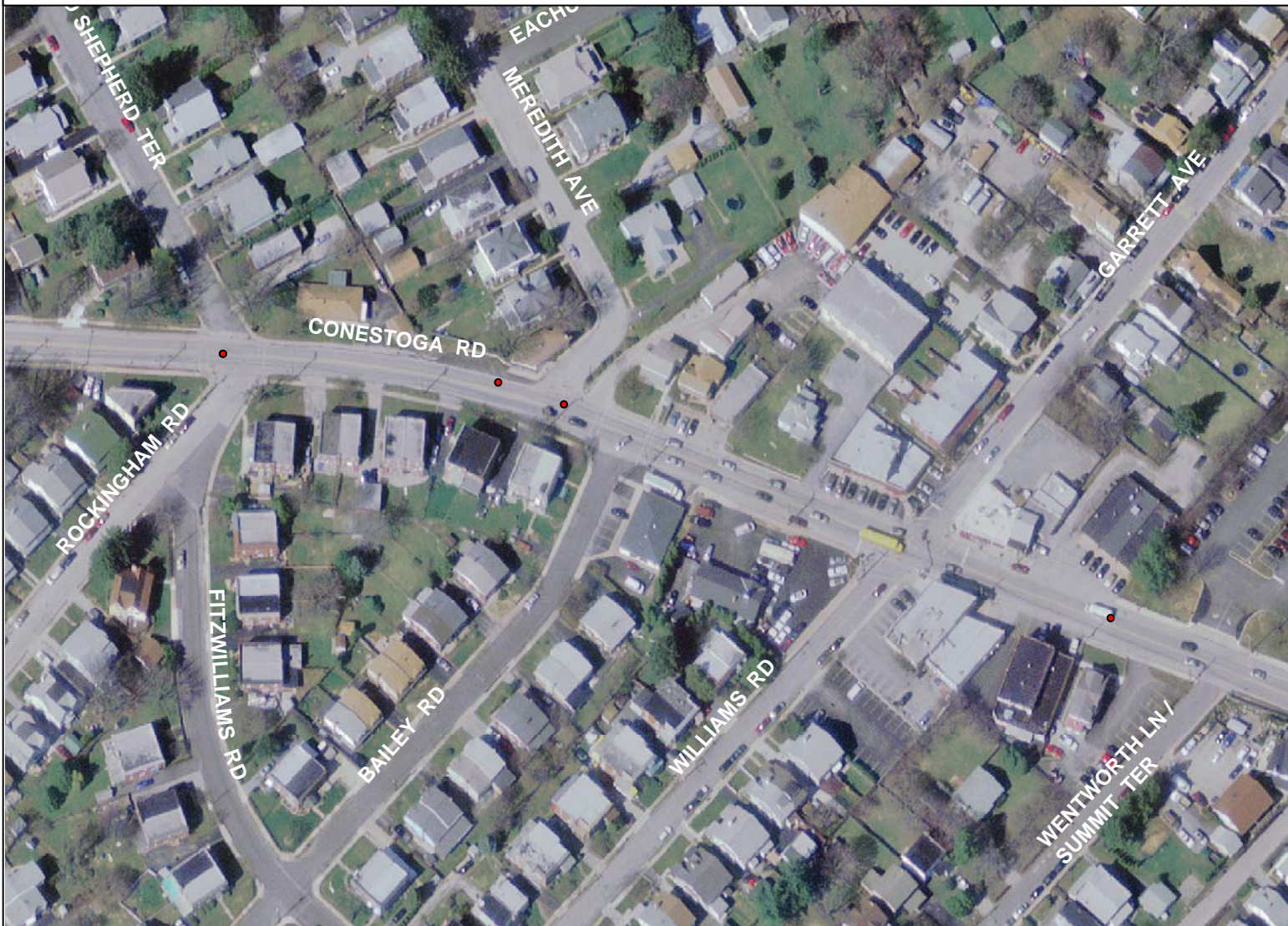
Delaware Valley Regional Planning Commission
 April 2007

9. Conestoga Rd. at Ithan Ave.
Segment 40, Offset 0 to Segment 40, Offset 0



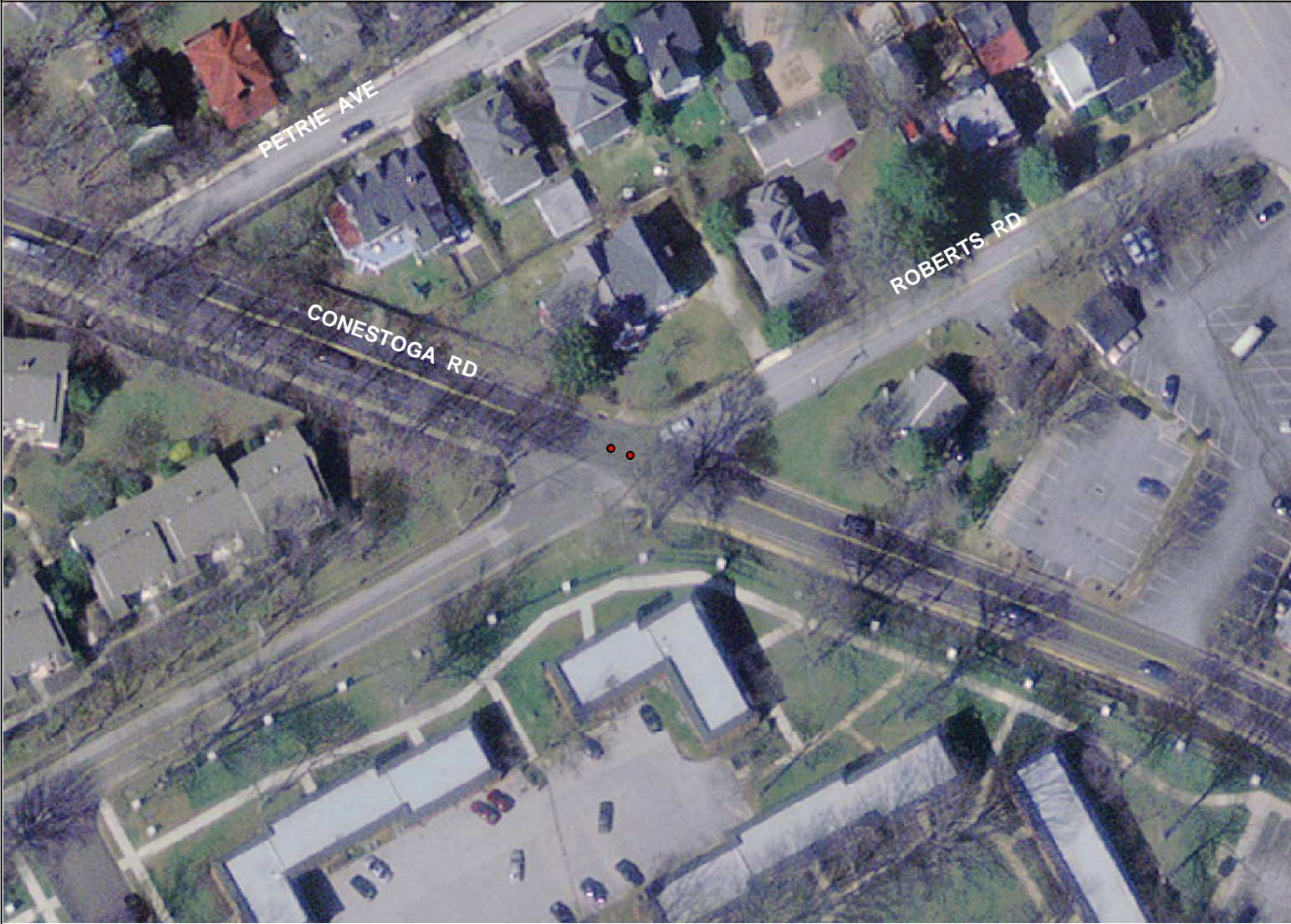
COLLISION TYPE	
Angle	3
Hit Fixed Object	2
Non-collision	1
Rear-end	1
Total	7
ILLUMINATION	
Daylight	5
Dark – street lights	2
Total	7
WEATHER	
Clear	4
Rain	2
Sleet	1
Total	7
SEVERITY COUNT	
Fatalities	1
Minor	1
UNK Severity	2
UNK If Injured	1

10. Conestoga Rd. from Rockingham Rd. to Wentworth Ln.
 Segment 20, Offset 1385 to Segment 30, Offset 0



COLLISION TYPE	
Angle	4
Hit pedestrian	1
Total	5
ILLUMINATION	
Daylight	4
Dark - street lights	1
Total	5
WEATHER	
Clear	4
Rain	1
Total	5
SEVERITY COUNT	
Fatalities	0
Minor	3

11. Conestoga Rd. at Roberts Ave.
Segment 10, Offset 632 to Segment 10, Offset 642







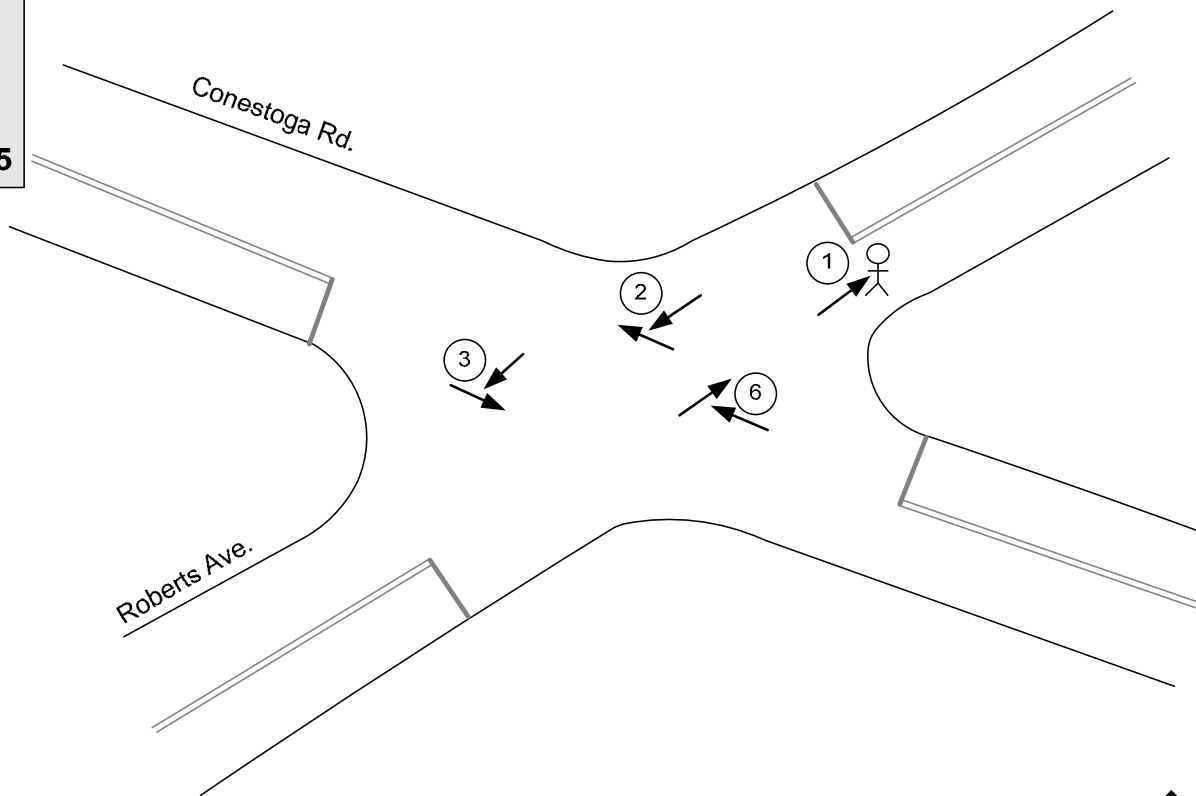
COLLISION TYPE	
Angle	11
Hit pedestrian	1
Total	12
ILLUMINATION	
Daylight	11
Dark - street lights	1
Total	12
WEATHER	
Clear	11
Rain/Fog	1
Total	12
SEVERITY COUNT	
Fatalities	0
Moderate	3
Minor	2
UNK Severity	7

ROAD SAFETY AUDIT
Conestoga Rd.
at
Roberts Ave.
Collision Diagram
Crash Data Years 2003-2005

Total Crashes = 12
 Pedestrian Crashes = 1

LEGEND

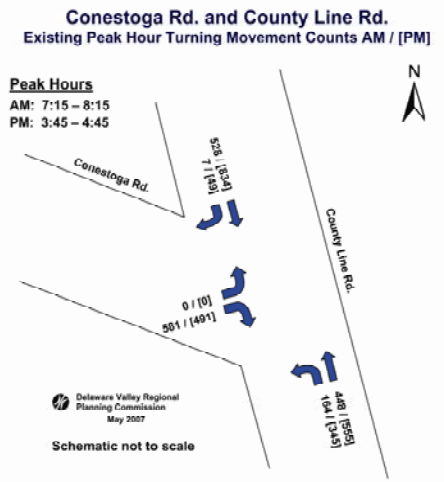
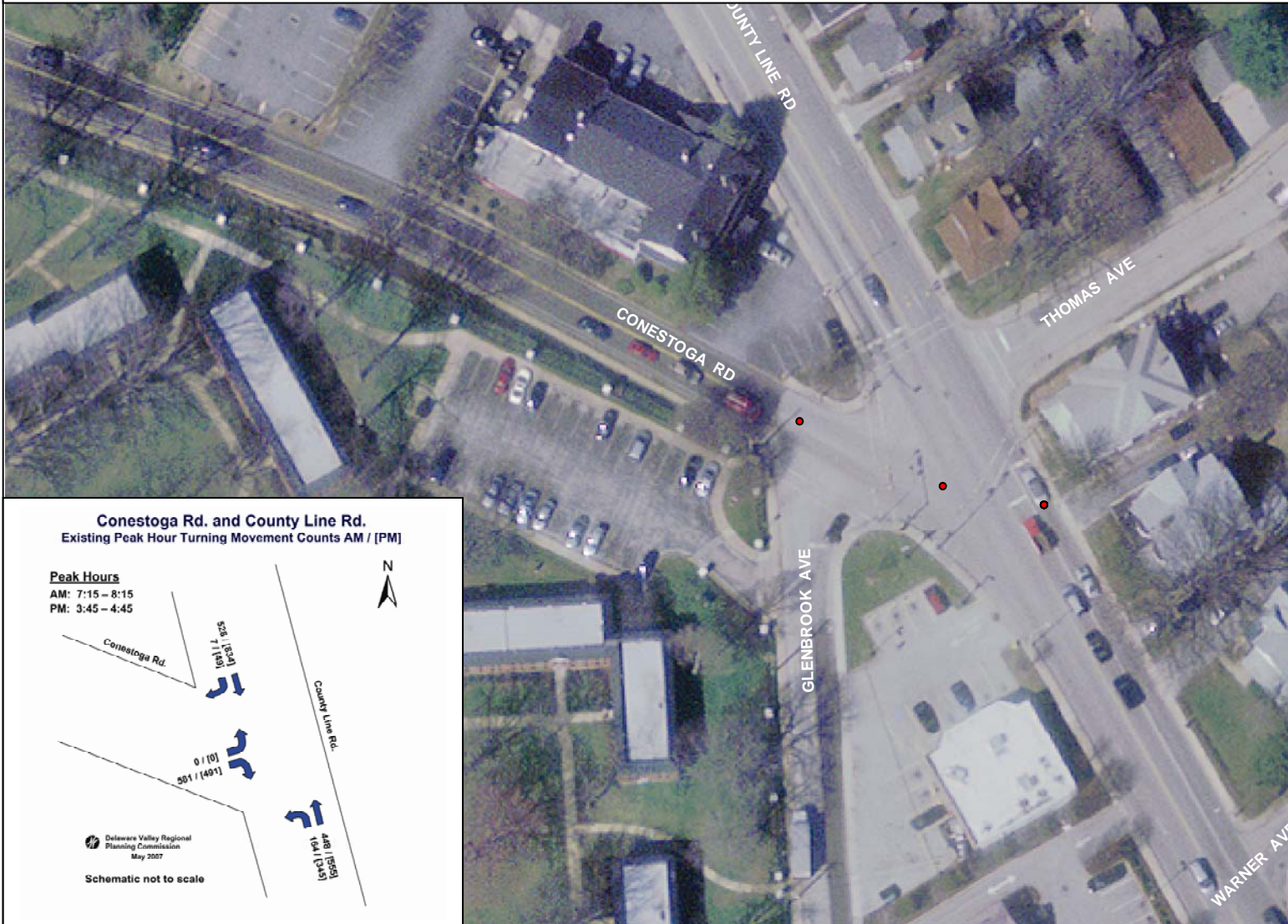
- ① = # crashes
-  Angle (SB / EB)
-  Angle (SB / WB)
-  Angle (WB / NB)
-  Hit Pedestrian



SCHEMATIC NOT TO SCALE

Delaware Valley Regional Planning Commission
 April 2007

12. Conestoga Rd. at County Line Rd.
 Segment 10, Offset 0 to Segment 10, Offset 500

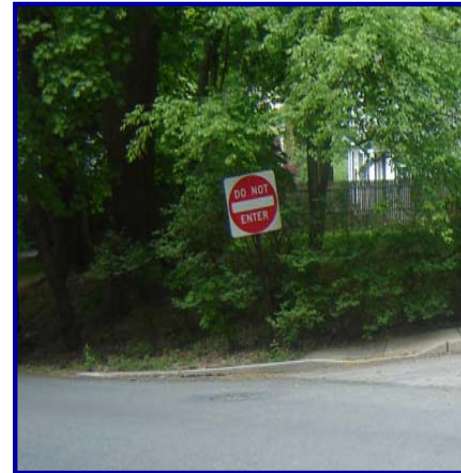


COLLISION TYPE	
Rear-end	2
Head-on	1
Hit pedestrian	1
Total	4
ILLUMINATION	
Daylight	2
Dark – street lights	2
Total	4
WEATHER	
Clear	3
Rain	1
Total	4
SEVERITY COUNT	
Fatalities	0
Minor	1
UNK Severity	1
UNK If Injured	2

APPENDIX D

Photo Log

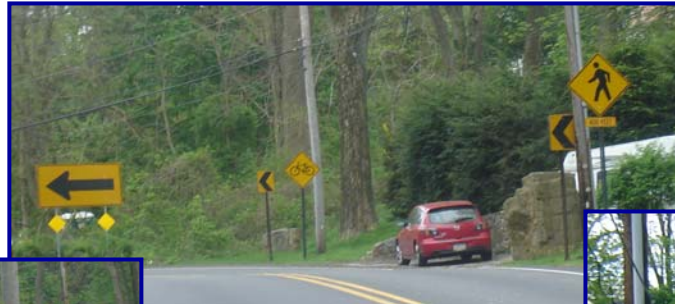
SIGNAGE



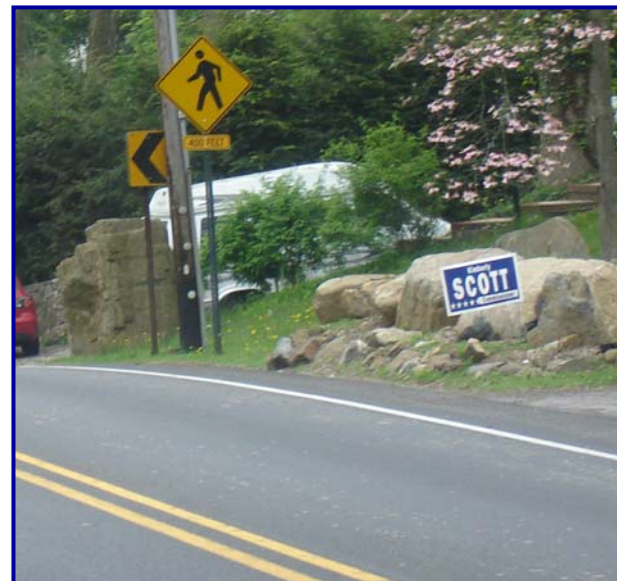
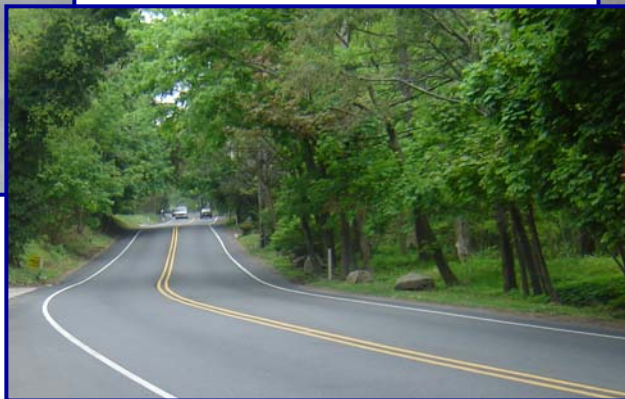
SIGNAGE



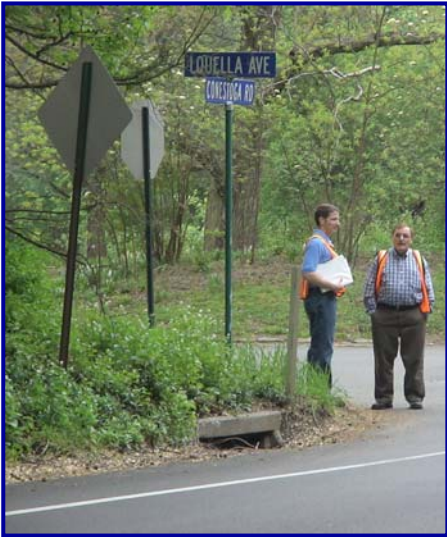
SIGNAGE



BOULDERS



INLETS



SHOULDERS



PAVEMENT MARKINGS



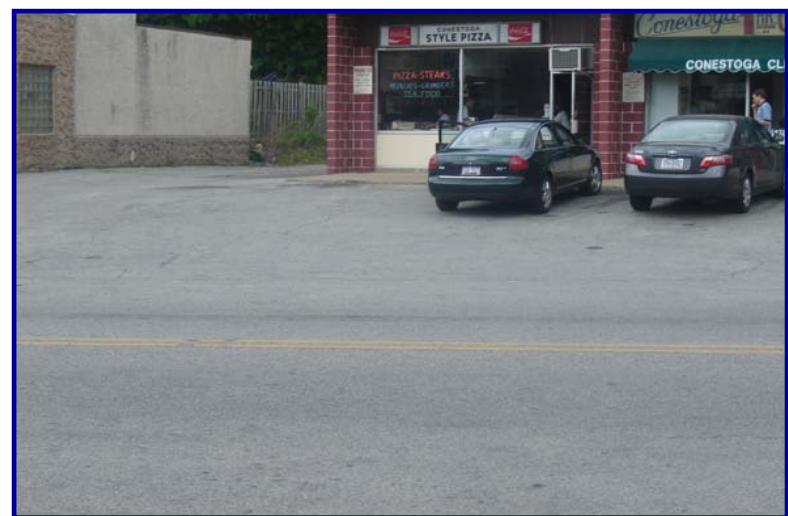
PEDESTRIAN AMENITIES



PEDESTRIAN AMENITIES



ACCESS MANAGEMENT



PARKING



LIGHTING



CROSSWALKS



RADNOR CHESTER ROAD

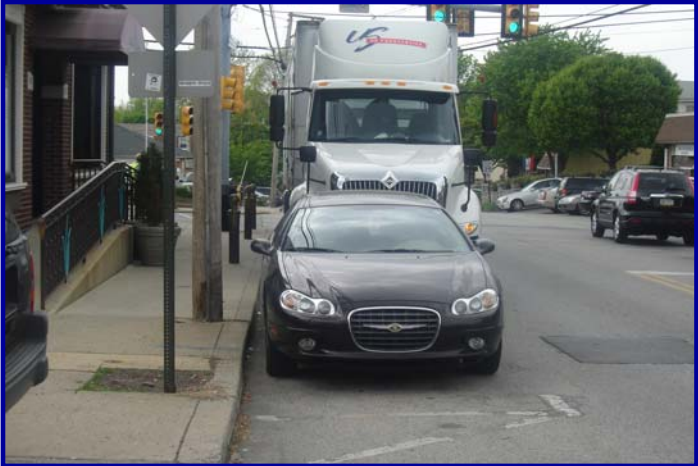


SPROUL ROAD



GARRETT AVENUE / WILLIAMS ROAD VICINITY

Utility pole placed in narrow sidewalk



Pedestrian activity



Conestoga Road – Road Safety Audit Team



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 Conestoga Rd.?		
	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. Are bicycle lanes clearly defined?		
	d. Do streetlight and tree lines conform with the road alignment?		
	e. 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?		
	e. Are there safety concerns for pedestrian crossings at unsignalized intersection?		

5 Shoulders	Are shoulder widths appropriate for broken down vehicles or emergency vehicles?		
	Is the shoulder cross slope sufficient to provided proper drainage?		
	Are there locations where guide rail may be appropriate?		

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?		
	Are there any pedestrian signals?		
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?		

	Is the alignment of curbs satisfactory?		
	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 Transit	Are there bus stops located near the intersections?		
	a. If so are the bus stops near side or far side?		
7 Turn Lanes	Do the turning lanes have sufficient storage?		
	Are there locations where a left turn lane needs 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, transit stations, parks or other pedestrian generators nearby?		
2 Sidewalks	Are sidewalks continuous throughout the corridor?		
	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?		
	Are the pedestrian ramps adequate?		
	Are there pedestrian signals located at intersections?		
	Is the intersection clearly delineated for the visually impaired?		
	Are there adequate drainage at the intersection not cause ponding?		
4 Around Schools	Is there a school zone?		
	Are there bus stop locations along the corridor?		
	Are there appropriate advance warning signs provided?		
5	Are pedestrians waiting to cross visible		

Visibility and Sight Distance	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>
	Are there share the road signs posted?		
	Is the road surface of suitable quality for bicyclists?		
	Are drainage grates bicycle friendly?		

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	Is appropriate lighting installed at intersections, pedestrian and bicycle crossings?		
	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?		

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 E

Response Sheet

Conestoga Road – Road Safety Audit

CORRIDOR WIDE

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<p><i>Signage</i></p> <ul style="list-style-type: none"> ○ Street signs are not mounted on break-away post assembly and do not have reflectivity ○ Many of the yellow warning signs are faded ○ Many signs along the corridor are too low ○ Sign visibility is hampered due to foliage and setback at intersections ○ “Conestoga Road” signs are missing from many intersections ○ Pedestrian signs are missing at crosswalks ○ Inconsistency in the placement of curve warning signs and advisory speed limit signs 	<ul style="list-style-type: none"> ○ Upgrade signs and posts to conform to official MUTCD requirement. Realign signs to make them visible to motorists ○ Upgrade signs ○ The bottom of the signs should be 7’-0” from the ground. ○ Trim trees and bushes and place street name signs on existing mast arms as appropriate (require amendment to permit from PennDOT) ○ Add “Conestoga Rd” sign on side roads ○ Add pedestrian signs at crosswalks ○ Maintain consistency in the placement of curve warning signs (advance warning and advisory speed limit) 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Signage (continued)</i>	<i>Conduct a complete sign inventory of corridor-wide signage and upgrade, add and remove signs as appropriate</i>			
<i>Trees & Vegetation</i> <ul style="list-style-type: none"> ○ Branches are low over the roadway ○ Trees cover signs and utilities 	<ul style="list-style-type: none"> ○ Cut trees back from shoulder edge ○ Conduct an inventory of the signs affected and coordinate with utility company on maintenance 			
<i>Shoulders</i> <ul style="list-style-type: none"> ○ Inconsistency shoulder widths ○ Edge lines not clearly delineated ○ Shoulder drop offs are prevalent through out the corridor 	<ul style="list-style-type: none"> ○ Provide consistent painted shoulder width with pavement throughout the corridor and curb the road. 			
<i>Utilities</i> <ul style="list-style-type: none"> ○ Utility poles in some locations are too close to the roadway 	<ul style="list-style-type: none"> ○ Coordinate with utility company on relocating the affected poles or make them more visible to the motorists by providing some type of delineation as appropriate 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<p><i>Drainage</i></p> <ul style="list-style-type: none"> ○ Inlets top units present a hazard to all road users. Inlet blunt curb ends are unprotected and numerous inlet top units are not flush with pavement gutter line. Some inlet grates are also rotted. ○ Grates/Inlets are clogged 	<ul style="list-style-type: none"> ○ Replace inlet top units and address untreated inlet blunt curb ends. Install inlet top units flush with roadway gutter line. ○ Unclog drainage grates/inlets 			
<p><i>Crosswalks</i></p> <ul style="list-style-type: none"> ○ Faded and hardly visible ○ Inconsistent style of crosswalk ○ Missing crosswalk ahead signs and yield to pedestrian signs in crosswalk ○ Long crosswalks due to skewed intersections 	<ul style="list-style-type: none"> ○ Re-stripe crosswalks along the corridor ○ Install same crosswalk style at all locations ○ Install signs as appropriate ○ Reduce the skew to as close as 90 degrees ○ Utilize bulb-outs to shorten crossing distance and increase the visibility of pedestrians visibility at key locations 			
<p><i>Sidewalks</i></p> <ul style="list-style-type: none"> ○ Inconsistent width ○ Sidewalk missing in several areas ○ Sidewalk in poor condition (uneven, cracks, vegetation) 	<ul style="list-style-type: none"> ○ Upgrade and install sidewalks as appropriate with curb. ○ Upgrade curb ramps and install truncated domes 			

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<p><i>Sidewalks (continued)</i></p> <ul style="list-style-type: none"> ○ Curb ramps are not flush with pavement, not available at all crossings and cannot be easily navigated by the sight impaired or physically challenged ○ Curb and no reveal, sidewalk is flushed with the paved surface (operates as a paved shoulder) 	<p><i>Conestoga Road has been identified as a primary route for sidewalks in the Township Sidewalk Plan – given it provides access to the Radnor Trail</i></p>			
<p><i>Bicycle Accommodations</i></p> <ul style="list-style-type: none"> ○ Conestoga Road is not bicycle compatible ○ Insufficient signs for Radnor Trail ○ Inadequate lighting in tunnels for bicyclist 	<ul style="list-style-type: none"> ○ Install “Share the Road” signs along the corridor ○ When resurfacing the roadway, it should be paved “out to out” and striped with 11’ lanes from the centerline. This will provide bike lane/”operating space” for bicyclists. Where this is not feasible “Share the Road” signs should be installed. ○ Install additional signs for the Radnor Trail along the corridor at appropriate locations ○ Install adequate lighting 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<p><i>Crossroads</i></p> <ul style="list-style-type: none"> ○ Inconsistency in the warning of crossroads ○ Many cross streets have wide curve radius which facilitates negotiation at higher speeds 	<ul style="list-style-type: none"> ○ Provide more “intersection ahead” warning signage; especially at skewed and other abnormal intersections geometry ○ Tighten the turning radius as appropriate 			
<p><i>Access Management</i></p> <ul style="list-style-type: none"> ○ No curbing ○ No driveways into the development ○ No access management - delineating access into businesses 	<ul style="list-style-type: none"> ○ Curb parking areas and define driveways to restrict entrance and exits 			
<p><i>No Stop Bars on side streets</i></p> <ul style="list-style-type: none"> ○ Side streets do not have stop bars markings ○ Edge of roadway are not clearly delineated, especially at intersection on the curves 	<ul style="list-style-type: none"> ○ Install stop bar on side streets to assist in directing motorist where they should be to navigate the intersection ○ Install dashed white edge line to inform motorists of the edge of the roadway 			
<p><i>Speeding</i></p> <ul style="list-style-type: none"> ○ Many motorist were observed and the township confirmed speeding is an issue along the corridor 	<ul style="list-style-type: none"> ○ Target enforcement ○ Narrow lanes, install soft transverse rumble-strips 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<p><i>Lighting</i></p> <ul style="list-style-type: none"> ○ Lighting is an issue along the corridor 	<ul style="list-style-type: none"> ○ Upgrade street lights at specific locations – areas of heavier pedestrians traffic, commercial districts, and tunnel areas as appropriate 			
<p><i>Transit</i></p> <ul style="list-style-type: none"> ○ No Trailblazers for the Route 100 Trolley 	<ul style="list-style-type: none"> ○ Install trailblazer signs for the Route 100 Trolley corridor wide 			

SPECIFIC LOCATIONS

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Lancaster Avenue Intersection</i>				
○ There are stairs located at the southeast corner of the intersection which would be challenging for the disabled	○ Remove the stairs and construct ADA compliant ramp.			
○ Sidewalks are narrow and utility poles are located in the middle.	○ Relocate utility poles as appropriate or widen sidewalk			
○ Long crosswalk over Lancaster Avenue on the eastside due to intersection skew	○ Consider re-orienting the crosswalk to make it shorter or installing bulb-out			
○ Soft curve from eastbound approach of Lancaster Avenue to eastbound Conestoga Road allow vehicles to travel at higher speeds.	○ Reduce the radius of the curve			
○ Faded pavement markings	○ Upgrade pavement markings throughout the intersection			
○ Street name signs are not visible	○ Place street name signs on existing signal mast arms at the intersection			
○ Too much black in 12" heads	○ Maintenance is needed			
○ Minimal lighting	○ Add additional lighting			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<i>Between Lancaster Avenue and Devon Avenue</i>				
○ Poor access management at Flag Lady store	○ Consider pull-in curb side parking at the Flag Lady store			
○ Sidewalk on eastbound side of Conestoga is limited	○ Formalize the sidewalk			
○ No curb in front of residence on eastbound side of Conestoga Road and parking is permitted	○ Install curb and define shoulder area for parking			
○ No U-turn sign is faded	○ Replace existing sign with new one.			
○ Missing junctions sign	Add junction sign			
<i>Devon Avenue Intersection</i>				
○ Pedestrian crosswalk is faded	○ Upgrade pedestrian crosswalk			
○ There are no pedestrians crossing signs at the crosswalk	○ Add pedestrian crossing signs			
○ No stop bar on Devon Avenue	○ Add a painted stop bar at Devon Avenue			
○ No curbing and sidewalks on the eastbound side of the intersection	○ Formalize corner with curb and sidewalk to protect the pedestrians			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Devon Avenue Intersection (continued)</i>				
○ Heavy left turning traffic from Conestoga Road onto Devon Avenue cause major conflicts with Conestoga Road through traffic	○ A more detailed study should be undertaken with the option of prohibiting left turns			
○ Large boulders present fixed object hazard	○ Replace boulders with drilled wood posts			
○ Tree hanging over the road west corner of Devon Avenue.	○ Trim tree branches back to shoulder edge			
<i>Between Devon Avenue and Doyle Road</i>				
○ There is a shoulder drop off and ditch on the eastbound side of Conestoga Road	○ Pave shoulder and curb			
<i>Doyle Road Intersection</i>				
○ Eastbound Conestoga Road traffic is using the grassy area to go around left turning traffic onto Doyle	○ Construct 8 foot bypass lane, this will also slow speeds			
○ No stop bar on Doyle	○ Add a painted stop bar at Doyle Road			
○ Culvert delineation is missing ○ Culvert northwest side is too high	○ Replace delineation			
○ At Doyle unprotected inlet hoods on the curve radius	○ Replace inlet top units and install flush to roadway gutter line. Treat blunt curb ends.			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Lantoga Road Intersection</i>				
○ Wooden fence on eastbound side between Lantoga Road and Lenoir Avenue is in the clear zone	○ According to Radnor Township the fence was installed without permit. The fence should be moved out of the clear zone			
○ Inlet not bicycle friendly	○ Replace inlets, bike hazard			
○ There are no curb at the intersection	○ Install curbing			
<i>Between Lantoga Road and Lenoir Avenue</i>				
“School Crossing” sign located on the eastbound side of Conestoga Road	○ Remove sign			
<i>Lenoir Avenue Intersection</i>				
○ Street name sign is located too far back from Conestoga Road	○ Relocate street name sign closer to edge of Conestoga Road roadway			
○ The “DO NOT ENTER” and “ONE WAY” signs are not properly oriented	○ Re-orient signs			
○ “ONE WAY” sign missing in the westbound direction of Conestoga Rd.	○ Install “ONE WAY” sign			
○ Speed limit sign too low (height of sign)	○ Re-install sign at least a height of 7 feet from the bottom of the sign			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Lenoir Avenue Intersection (continued)</i>				
○ Shoulder/grassy area used to pass turning vehicles	○ Construct 8 foot bypass lane, this will also slow speeds			
<i>W. Wayne Avenue Intersection</i>				
○ Poor access management at driveway on the northwest corner of the intersection	○ Close driveway and use driveway located on Conestoga Road west of the intersection			
○ Pedestrian push button is located on the signal post where there is no sidewalk	○ Install pedestrian signal at the crosswalk with push button			
○ Pedestrian access is restricted to two legs of the intersection	○ “No pedestrian” signs should be removed			
○ Sidewalks are missing in some areas	○ Radnor Township proposed project of extending existing sidewalk closer to the Radnor Trail should consider adding missing sidewalks			
○ Crosswalks are faded	○ Re-stripe crosswalks			
○ Black backplate missing on traffic signal	○ Re-install missing back plate			
○ At the northwest corner of intersection the curb ramp is in the active driveway	○ Close driveway or construct new ramp to the north			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Between W. Wayne Avenue and Bloomingdale Avenue</i>				
○ Angled parking in front of businesses creates a problem backing into traffic and facing the wrong way	○ Consider reverse angle parking			
<i>Greythorne Woods Intersection</i>				
○ Before Greythorne Woods, Conestoga Road is striped but not signed	○ Add regulatory sign "RIGHT LANE MUST TURN RIGHT"			
○ At eastbound Conestoga Road boulders on the side of the road presents a safety hazard	○ Remove boulders			
○ At Greythorne Woods, there is no stop sign	○ Install stop sign at the intersection approaching Conestoga Road			
○ East of the intersection speed limit sign has no reflectivity and post is not breakaway	○ Upgrade sign with reflectivity and install on breakaway post			
<i>Bloomingdale Avenue Intersection</i>				
○ West of Bloomingdale Avenue curb hazard, sidewalk eliminated as part of HOP	○ Install dashed edge line and curb			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Bloomington Avenue Intersection (continued)</i>				
○ No curb ramps	○ Install ADA compliant curb ramps and sidewalk			
○ Sight distance obstructed at northeast corner by shrubbery and fence	○ Trim shrubbery and move back fence			
○ East of Bloomington Avenue, no curve warning (chevrons needed)	○ Add curve warning sign			
<i>Maplewood Avenue Intersection</i>				
○ Drainage grate problem	○ Replace inlet top units and place untreated blunt end to curb. Install flush to roadway			
○ Poor sight distance leaving Maplewood Avenue	○ Add dashed edge line. Add advance intersection warning sign			
○ Street sign blocked “bridge height” sign and lights blocked by trees	○ Relocate sign and trim tree			
○ Boulder hazards at southeast corner	○ Remove boulders			
<i>Audobon Avenue Intersection</i>				
○ Poor sight distance of eastbound Conestoga Road traffic because of curve	○ Add advance warning signs for curve ○ Add advance warning signs for the intersection			
○ East of Audobon Avenue no curve warning sign	○ Reevaluate corner sight distance			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>S. Wayne Avenue Intersection</i>				
○ Stop bar faded on S. Wayne Avenue	○ Install stop bar at the intersection			
○ Trees are close to edge of curb on eastbound side of Conestoga Road	○ Remove trees as appropriate			
○ Intersection is too wide	○ Reconfigure the intersection to make perpendicular ○ Consider painted median island on S. Wayne Avenue for pedestrian and vehicle guidance ○ Install dashed white line across S. Wayne Avenue			
○ Sidewalk stops before Conestoga Road	○ Continue sidewalk along westbound side of Conestoga Road to Brook Road to connect to trail.			
<i>Brook Road Intersection</i>				
○ Hedge blocks sights on the traffic exiting Brook Road.	○ Trim hedge			
○ Sight distance problems with traffic making left turn from Brook Road. Drivers positioned at 90 degrees onto Conestoga Road before pulling out	○ Use pavement marking to formalize this movement ○ Paint dashed white lines across Brook Road			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Brook Road Intersection (continued)</i>				
<ul style="list-style-type: none"> ○ No sidewalk 	<ul style="list-style-type: none"> ○ Install sidewalk along Brook Road to connect to trail and install crosswalk over Conestoga Road from proposed sidewalk on the westbound side of roadway. ○ <i>Radnor Township is proposing a signal at this location</i> 			
<i>Church Road/Aberdeen Avenue/Iven Road Intersection</i>				
<ul style="list-style-type: none"> ○ Foliage obstructs sight distance ○ Tree obstruction on northwest corner ○ Tree obstruction of signal (over Iven Road.) 	<ul style="list-style-type: none"> ○ Trim trees as appropriate 			
<ul style="list-style-type: none"> ○ At the southbound Aberdeen Avenue approach there is big hole in the shoulder 	<ul style="list-style-type: none"> ○ Fill the hole in the shoulder 			
<ul style="list-style-type: none"> ○ Signal heads are too high over Aberdeen Avenue 	<ul style="list-style-type: none"> ○ Re-install signal heads at appropriate height 			
<ul style="list-style-type: none"> ○ No delineation for road separation between Iven Road. and Aberdeen Avenue 	<ul style="list-style-type: none"> ○ Add directional signage on island between the two roads 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Church Road/Aberdeen Avenue/Iven Road Intersection (continued)</i>				
○ Drop off curve at Church Road used to make turns	○ Curb the edge of roadway			
○ Street signs are hardly visible	○ Place street name signs on signal mast arms as appropriate			
○ “Slippery when Wet” signs are redundant	○ Remove “Slippery when Wet” signs			
○ The intersection is on a curve and there are no advance “signal ahead” warning signs prior to intersection eastbound	○ Add “signal ahead” warning sign in both directions on Conestoga Road ○ Consider intersection directional sign indicating geometry both east and westbound Conestoga Road			
○ There are no “curve ahead” warning sign westbound	○ Add curve ahead warning sign westbound			
○ Due to the awkward configuration of this 5-legged intersection there is some level of confusion	○ Reevaluate signal design for phasing change - and consider changing the phasing from Church Road /Aberdeen Avenue to Church Road/Iven Road because they align and this would improve sight distance			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Between Aberdeen Avenue and Brookside Avenue</i>				
○ Guide rail appears unwarranted	○ Evaluate need; remove guide rail if unwarranted			
<i>Brookside Avenue Intersection</i>				
○ Large boulder presents a safety hazard	○ Remove boulder			
○ Sign clutter on the eastbound side approaching the intersection	○ Upgrade signage and standardize.			
○ “Arrow” warning sign is too large	○ Upgrade pedestrian advance sign to fluorescent green			
○ Speeding on the downgrade into the intersection	○ Install “soft rumble strips” to slow traffic ○ Consider other traffic calming techniques (milling) <i>Township is considering placing flashing lights on top of pedestrian signs Consider roundabout at this location –long term</i>			
○ No curve warning signage away from bridge	○ Install curve warning signs			
<i>Parks Run Lane Intersection</i>				
○ Sign blocked by trees on westbound Conestoga Road. Sign is tied to a tree	○ Trim trees, relocate and install sign			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Parks Run Lane Intersection (continued)</i>				
○ Unprotected culvert on southwest corner	○ Add a delineator, provide protection for culvert ○ Delineate to make visible			
○ Rocks on southwest corner	○ Remove the rocks			
○ West of intersection there is a drop off curve with ditch boulder and tree at curve	○ Install guide rail to provide positive protection			
○ Westbound Conestoga Road there is a stream culvert at ditch drop off	○ Install guide rail to provide positive protection			
○ Westbound "bridge" signs for the trail bridge is too far	○ Relocate "bridge" sign			
○ East of the intersection there is a curve with no chevron	○ Install chevron signs			
<i>Between Parks Run Lane and Chaumont Drive</i>				
○ Wetlands slope away from the roadway, no barriers	○ Re-evaluate the need for barrier			
<i>Chaumont Drive Intersection</i>				
○ Curve warning sign, opposite Chaumont Drive is too far away from severe curves	○ Relocate and upgrade warning sign			
<i>Ithan Woods Lane Intersection</i>				
○ Inadequate sight distance ○ The fence on northeast corner of intersection blocks sight distance	○ Re-evaluate sight distance			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Radnor Chester Road Intersection</i>				
○ Rear end crash problem for Conestoga Road eastbound	○ Re-design and add left turn lane eastbound ○ Due to limitation with widening intersection, reconfigure intersection and use Newtown Rd for jughandle for eastbound left turn movement			
○ Signals are mounted on poles which results in problems seeing them	○ Mount signals on mast arms to make more visible			
○ Stop bars are faded	○ Re-paint stop bars			
○ Intersection is a safety issue for bicyclists				
<i>Between Radnor Chester Road and Sproul Road</i>				
○ Need access management in front of gas station and store	○ Define access and egress points for these businesses			
<i>Sproul Road Intersection</i>				
○ Junction signs on the eastbound side of Conestoga Road are too low	○ Re-install signs at the correct height – 7 foot from the bottom of the sign			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Sproul Road Intersection (continued)</i>				
<ul style="list-style-type: none"> ○ The intersection is congested during peak periods 	<ul style="list-style-type: none"> ○ Widen on the north side of Conestoga Road to provide more space for the eastbound approach of Sproul Road and extend the W-beam guide rail ○ Extend culvert on northbound Sproul Road to provide a better through lane for signal ○ Add green time to Conestoga Road in the PM peak ○ Add a dedicated left turn lane to the southbound approach of Sproul Road ○ Add a dedicated left turn lane on Conestoga Road westbound for southbound Sproul Rd 			
<ul style="list-style-type: none"> ○ Motorists are driving over W-beam guide rail on northbound Sproul Road 	<ul style="list-style-type: none"> ○ W-beam guide rail on northbound Sproul Road, turn down, truncate and use end post treatment 			
<ul style="list-style-type: none"> ○ “Slippery when Wet” signs are redundant 	<ul style="list-style-type: none"> ○ Remove “Slippery when Wet” signs 			
<ul style="list-style-type: none"> ○ There are no bicycle or pedestrian amenities (pedestrians are discouraged) 	<p>Consider providing pedestrian and bicyclist amenities at this intersection</p>			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Spring Mill Road Intersection</i>				
○ Broken sign post near Radnor Avenue	○ Replace broken sign post			
○ There is no crosswalk across Spring Mill Road.	○ Install crosswalk at Spring Mill Road.			
○ Intersection is skewed and very wide	○ Realign Spring Mill Road to met Conestoga Road at a right angle			
<i>Mill Road Intersection</i>				
○ Hard time making a left from Mill Road	○ Consider prohibiting left turns from Mill Road during peak hours			
○ Speeding from eastbound Conestoga Road on to Mill Road because of soft curve	○ Reduce the radius of the curve			
<i>Between Mill Road and Hardwicke Lane</i>				
○ Tree branches hang over travel lane	○ Trim tree branches back to edge of shoulder			
○ Flashing "SLOW" sign needs to be upgraded	○ Upgrade flashing "SLOW" sign			
○ Inlet at eastbound Conestoga Road is blocked	○ Clear blocked inlet			
○ Edge drop on eastbound Conestoga Road presents a safety hazard	○ Pave shoulder and curb roadway			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Between Mill Road and Hardwicke Lane (continued)</i>				
<ul style="list-style-type: none"> ○ Roadway is on a downhill curve 	<ul style="list-style-type: none"> ○ Install raised pavement markers along centerline of curve ○ Improve delineation ○ Consider installing edge and centerline rumble strip (other traffic calming techniques) and address concerns of the bicycle community 			
<i>Hardwicke Lane Intersection</i>				
<ul style="list-style-type: none"> ○ Sight distance is compromised due to the bushes on the northwest corner of the intersection. 	<ul style="list-style-type: none"> ○ Trim the bushes 			
<i>Ithan Avenue Intersection</i>				
<ul style="list-style-type: none"> ○ Traffic congestion at the intersection 	<ul style="list-style-type: none"> ○ Add a dedicated left turn lane in both directions on Conestoga Road and add dotted lines through intersection with new alignment 			
<ul style="list-style-type: none"> ○ There are no sidewalks or crosswalks at the intersection 	<ul style="list-style-type: none"> ○ Install sidewalk and crosswalks with above improvements 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Barclay Road area</i>				
○ Driveway sign is too low and too close to driveway	○ Relocate sign and install at proper height			
○ Curve west of Barclay Road is not delineated	○ Delineate curve with chevrons			
<i>Strathmore Drive Intersection</i>				
○ Sight distance issue to the west (utility pole, shrubbery and sign)	○ Trim shrubbery and relocate sign			
○ Wheel rut damage to pavement edge on east side of intersection	○ Pave shoulder and curb roadway			
○ West of Strathmore Drive guide rail over culvert/stream is too short and weak. On the opposite side of the road there is no protection for the culvert/stream	○ Extend and strengthen guide rail to adequate shield hazards. Add guide rail to the opposite side of the roadway to adequately shield hazards			
<i>Lowrys Lane Intersection</i>				
○ Crosswalk is faded	○ Repaint crosswalk			
○ Sight poor due to skew ○ Left turning movement is difficult ○ Intersection is too wide	○ Correct the skew with pavement marking. Channel vehicles to a 90 degree angle			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Playground Area</i>				
○ Inadequate pedestrian warning signs	○ Add fluorescent green pedestrian warning and crossing signs			
○ Crosswalks are inadequate	○ Upgrade crosswalk pavement markings to continental striping			
○ “Playground” sign can be misleading	○ Replace “playground” sign with pedestrian crossing sign ○ Consider the use of transverse rumble strips to slow traffic			
○ High spot, water crosses road (vehicles hydroplane)	○ Improve drainage in the area			
<i>Rockingham Avenue Intersection</i>				
○ There are no pedestrian warning signs	○ Install pedestrian warning signs			
○ Crosswalks are faded	○ Re-paint crosswalks			
<i>Between Good Shepherd Terrace and Meredith Avenue</i>				
○ Parking spaces are not long enough to keep vehicles out of travel lane	○ Restrict parking in this area			
<i>Bailey Road Intersection</i>				
○ Street sign is bent	○ Replace sign			
○ Pavement markings are faded (crosswalks)	○ Upgrade crosswalk pavement markings			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Garrett Avenue and Vicinity</i>				
○ Pavement markings are faded	○ Upgrade pavement markings			
○ Lack of curbing of the eastside of intersection	○ Curb eastside of intersection			
○ There is no access management exercised	○ Establish defined driveways for businesses			
○ Parking is not regulated	○ The shortage of available parking for the businesses is evident. Available parking needs to be regulated to avoid confusion by road users to promote safety			
○ Signal heads not over the travel lane	○ Align signal heads over travel lane			
○ There are no pedestrian signal heads	○ Add pedestrian signals			
○ There are curb ramps on east side of Summit Terrace but no crosswalk	○ Match up curb ramps with crosswalk			
○ Parking signs located east of Garrett Avenue on westbound Conestoga Road are faded	○ Replace existing parking signs			
○ Pedestrian button is missing at Garret Avenue and Williams Road.	○ Install a pedestrian button			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> <u>Agree/Reject</u>	<u>Planned</u> <u>Completion Date</u>	<u>Comments</u>
<i>Garrett Avenue and Vicinity (continued)</i>				
○ Crosswalk at Summit Terrace is aligned with the driveway of the business across the street	○ Relocate crosswalk			
<i>Between Callahan Avenue and Locust Grove Road</i>				
○ Triangular piece of guide rail at westbound Conestoga Road is a fixed object hazard	○ Remove guide rail			
○ Chevrons knocked down	○ Replace Chevrons			
○ Lane width is reduced into the curve	○ Re-paint to right width			
<i>Locust Grove Road Intersection</i>				
○ Clogged inlets	○ Clear inlets to facilitate run-off			
○ Warning sign is too low at Locust Grove Road	○ Re-install sign at required height			
○ “Road Narrows” sign is redundant	○ Remove “Road Narrows” sign			
<i>Roadway under the bridge</i>				
○ Unsafe sidewalks	○ Close sidewalk on the westbound side			
○ There are exposed posts on the W-beam guide rail	○ Add rub rail element strip to the exposed posts of the W-beam guide rail on the eastbound side			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<i>Roadway under the bridge (continued)</i>				
<ul style="list-style-type: none"> ○ This is downgrade and into curves on both east and west sides of the bridge 	<ul style="list-style-type: none"> ○ Add rub rails to the W-beam guide rail ○ Add centerline rumble strips, raised pavement markers underneath the bridge and at the entrance and exit 			
<ul style="list-style-type: none"> ○ Too dark (especially for bicyclists) 	<ul style="list-style-type: none"> ○ Add reflectors on the guide rail ○ Install additional lighting ○ Consider painting the interior of bridge anti-graffiti white to brighten it up 			
<i>East of Locust Grove to Bridge entrance</i>				
<ul style="list-style-type: none"> ○ Tree obscures the view of the overhead flashing warning sign; sign is too high 	<ul style="list-style-type: none"> ○ Consider adding a post mounted sign; trim the tree 			
<ul style="list-style-type: none"> ○ No "ONE WAY" sign at entrance/exit of condos 	<ul style="list-style-type: none"> ○ Supplement "DO NOT ENTER" sign with "ONE WAY" sign at entrance/exit of condos ○ Install raised pavement markers and centerline rumble strips in the curve to prevent head on collisions 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Montrose Avenue Intersection</i>				
○ Eastbound Conestoga Road drainage inlet in wheel path				
○ No stop bar on Montrose Avenue	○ Install stop bar on Montrose Avenue			
○ Motorist have to pull out into the intersection to see westbound approaching traffic to make a turn	○ Re-align the intersection with pavement marking to 90 degrees			
○ A big tree on the northeast corner of intersection obscures sight distance	○ Remove tree			
<i>Petrie Avenue Intersection</i>				
○ "DO NOT ENTER" is facing the wrong way	○ Re-orient "DO NOT ENTER" sign			
○ There is no "ONE WAY" sign	○ Install "ONE WAY" sign			
<i>Roberts Road Intersection</i>				
○ Inadequate crosswalks ○ No sidewalks on the north side of Conestoga Road ○ No pedestrian amenities on Roberts Road South of Conestoga Road	○ Add pedestrian amenities			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision</u> Agree/Reject	<u>Planned</u> Completion Date	<u>Comments</u>
<i>Roberts Road Intersection (continued)</i>				
<ul style="list-style-type: none"> ○ Curb ramps but no sidewalk on the north side of Roberts Road ○ Crosswalks are not aligned to ramps 	<ul style="list-style-type: none"> ○ Align curb ramps and sidewalk 			
<ul style="list-style-type: none"> ○ No pedestrian signal head 	<ul style="list-style-type: none"> ○ Install pedestrian signal heads 			
<ul style="list-style-type: none"> ○ Wires obstruct signal head for Conestoga Road 	<ul style="list-style-type: none"> ○ Remove wires obstructing the signal 			
<ul style="list-style-type: none"> ○ West of Roberts Road the curve warning sign is blocked by vegetation ○ East of Roberts Road, Conestoga Road eastbound shows evidence of cars hitting the curve 	<ul style="list-style-type: none"> ○ Trim the vegetation 			
<ul style="list-style-type: none"> ○ Eastbound Conestoga Road, east of Roberts Road the retaining wall has broken away and the dirt is falling 	<ul style="list-style-type: none"> ○ Re-enforce the retaining wall 			
<i>County Line Road Intersection</i>				
<ul style="list-style-type: none"> ○ Sidewalks are narrow 	<ul style="list-style-type: none"> ○ Widen sidewalks as appropriate 			
<ul style="list-style-type: none"> ○ Utility poles are obstructing the sidewalk ○ Too many utility poles 	<ul style="list-style-type: none"> ○ Place street light on top of traffic signal poles to decrease the number of poles 			

<u>CORRIDOR WIDE ISSUES</u>	<u>Solution</u>	<u>Decision Agree/Reject</u>	<u>Planned Completion Date</u>	<u>Comments</u>
<ul style="list-style-type: none"> ○ Pavement markings are faded 	<ul style="list-style-type: none"> ○ Upgrade pavement markings ○ Consider skip lines through intersection to delineate traffic patterns ○ Upgrade the crosswalks throughout the intersection 			
<ul style="list-style-type: none"> ○ Curb ramps are steep 	<ul style="list-style-type: none"> ○ Construct curb ramps that are ADA compliant 			
<ul style="list-style-type: none"> ○ Due to the awkward configuration of the intersection there is confusion among some motorist navigation the intersection 	<ul style="list-style-type: none"> ○ Install advance directional street name signs 			
<ul style="list-style-type: none"> ○ “No Left Turn” sign onto Glenbrook Avenue is difficult to see 	<ul style="list-style-type: none"> ○ Relocate “No Left Turn” sign 			

Title of Report: CONESTOGA ROAD - ROAD SAFETY AUDIT

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Geographic Area Covered:

The study area includes Conestoga Road in City of Radnor Township, Delaware County, from US 30 (Lancaster Road) to County Line Road.

Key Words:

Road, safety, audit, potential, fatalities, injuries, reportable, crashes, issues, strategies, coordination, engineering, enforcement, education, prioritize, intersection, signalized, mast arm, speed limit, traffic volumes, pedestrian, PennDOT, stakeholders, audit team, sidewalk, bike lane, parking, curve, sight distance, clear zone, geometry, access management, pavement markings, signs.

ABSTRACT: This is a documentation of the process and findings of the Conestoga Road Road Safety Audit (RSA) undertaken by Delaware Valley Regional Planning Commission (DVRPC) in conjunction with Pennsylvania Department of Transportation (PennDOT). The RSA was done over three days in May 2007. 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 roadway studied is identified in the Safety Plan for PennDOT District 6. Conestoga Road is located in a suburban environment with numerous curves and steep gradient.

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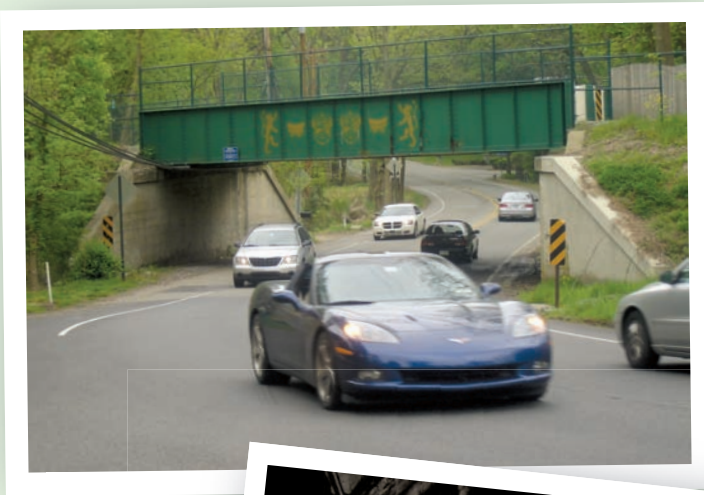
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