# Lackawana Luzerne Transportation Study

## Metropolitan Planning Organization


## Roadway Safety Review

***September 19 and 20, 2019***

# Road Safety Assessment Field Report
# Lackawanna Luzerne Transportation Study
# Field Visit: September 19-20, 2019

In September, 2019 representatives from PennDOT District 4-0, PennDOT Central Office, the Lackawanna County Regional Planning Commission and Luzerne County Planning Commission undertook the first joint Road Safety Assessments in the district over a two day period. Observations were conducted at seven intersection, three in Luzerne County- PA 309 and SR 3021, PA 309 and SR 2046 both in in Butler Township and SR 1047 and 1016 in Dallas Township. The four intersections in Lackawanna County were- PA 435 and PA 348 in Roaring Brook Township, PA 307 and SR 4012 in South Abington Township, PA 307 and SR 3001 in Newton Township and PA 247 and PA 106 in Greenfield Township.

The purpose of the review was to determine if there were improvements that could be undertaken to improve safety concerns at the locations. This was not an in-depth engineering study but used existing crash and AADT data along with observations of traffic patterns and flows at the locations. The options that were reviewed included low cost improvements such as adding signage and stripping to higher cost items such as construction of physical barriers and improved road surface up to and including construction of roundabouts. A number of different options are presented in this report that will be used for making determination on what projects should undergo further analysis and funding using Highway Safety Improvement Program Funds (HSIP) or other funding sources. Participating were:

| | |
|---|---|
| Emma Pugh | PennDOT District 4-0 |
| Steve Fisher | PennDOT District 4-0 |
| John Frankosky | PennDOT District 4-0 |
| Joe Talutto | PennDOT District 4-0 |
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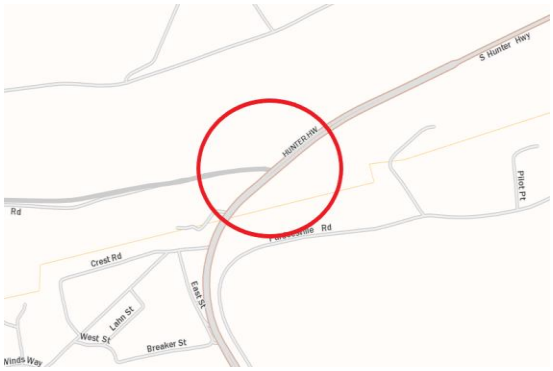
## Location #1: PA 309 and SR 3021, Butler Township, Luzerne County


**Looking South on PA 309**




**Overhead Map View**


**Looking North on PA 309**

**Looking West on SR 3021**

**Background:** South Hunter Highway (PA 309) and South Old Turnpike Road (SR 3021) is located in Butler Township, Luzerne County and are within the jurisdiction of PennDOT District 4-0. This location was identified as high priority on the network screening list that was provided to PennDOT District 4-0. The main problem that was identified for this intersection is the lack of adequate signage, pavement markings and the angle and grade at the intersection. PA 309 is classified as a Minor Arterial and SR 3021 is classified as a Major Collector.

**Traffic Data:** PA 309 has an Annual Average Daily Traffic (AADT) of 16,642, a peak hour factor (K) of 9 and a 6 percent truck volume. SR 3021 has an AADT of 1,994, a K factor of 11 and a 1 percent truck volume. The posted speed limit on PA 309 at the intersection of SR 3021 is 40 mph.

**Crash History:** From 2014 to 2018 there were a total of 17 crashes reported at this intersection. Of the crashes, 7 were angle collisions, 3 were side swipes, 2 hit fixed objects and 2 were rear end crashes. Of the 17 crashes, 9 were reported as non-injury and 8 had injuries, including 1 fatality.

**Field Observations:** The staff found a few safety concerns during the field visit. Turning on to PA 309 from South Old Turnpike Road is dangerous due to the grade and angle at the intersection. There are trees blocking some of the view of vehicles heading South on PA 309. Vehicles heading North on PA 309 had only 7 seconds to stop or slow down for vehicles turning from South Old Turnpike Road onto PA 309 North.

**Suggested Remedies:** Some suggested remedies that might be considered are as follows:

1. Raise the grade at the intersection.
2. High friction surfacing.
3. Pavement marking improvements.
4. Signage improvements.
5. Flashing lights (wig-wags).
6. Determine if a traffic signal is warranted.

## Location #2: PA 309 and SR 2045, Butler Township, Luzerne County


**Looking North on PA 309**


**Overhead Map View**

**Looking South on PA 309**

**Looking East on SR 2045**

**Background:** North Hunter Highway (PA 309) and South Main Road (SR 2045) is located in Butler Township, Luzerne County and lies within the jurisdiction of PennDOT District 4-0. This location is identified as high priority on the network screening lists that were provided to PennDOT District 4-0. The main problem identified for this intersection is the lack of adequate signage, sight distance and the angle and grade at the intersection. PA 309 is classified as a Minor Arterial and SR 2045 is classified as a Major Collector.

**Traffic Data:** PA 309 has an Annual Average Daily Traffic (AADT) of 12,847, a peak hour factor (K) of 8 and an 8 percent truck volume. SR 2045 has an AADT of 6,263, a K factor of 9 and a 5 percent truck volume. The posted speed limit on PA 309 at the intersection of SR 2045 is 45 mph.

**Crash History:** From 2014 to 2018 there were a total of 15 crashes reported at this intersection. Of the crashes, 6 were rear end crashes and 5 angle collisions and 3 hit a fixed object. Of the 15 crashes, 11 were reported with injuries

**Field Observations:** The staff found a few safety concerns during the field visit. Turning on to PA 309 from South Main Road is very dangerous due to the angle and sight distance at the intersection. There are trees blocking some of the view of vehicles heading South on PA 309. Vehicles turning from South Main Road have to move up beyond the stop sign before being able to make the turn in either direction.

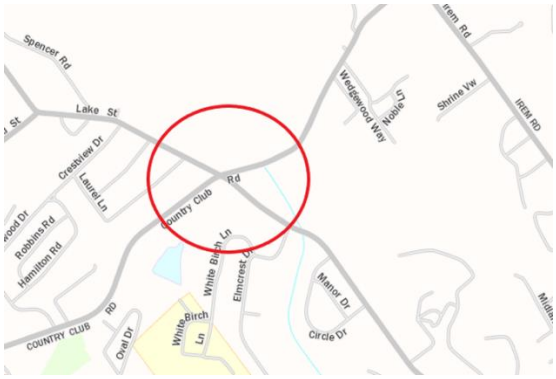
**Suggested Remedies:** Some suggested remedies that might be considered are as follows:

1. Traffic signal is warranted.

2. Re-align the intersection (remove the skew to eliminate blind left turn from South Main Road.
3. High friction surfacing.
4. Dedicated left turn lane heading northbound on PA 309.
5. Improve sight distance (tree removal).
6. Signage improvements.

## Location #3: SR 1047 and SR 1016, Dallas Township, Luzerne County


**Looking East on SR 1016**




**Overhead Map View**


**Looking South on SR 1047**


**Looking South on SR 1047**

**Background:** The Intersection of Lake Street (SR 1047) and Country Club Road (SR 1016) is located in Dallas Township, Luzerne County and lies within the jurisdiction of PennDOT District 4-0. This location is identified as a high priority on the network screening lists that were provided to PennDOT District 4-0. The main problem identified for this intersection is the lack of adequate

signage and sight distance. SR 1047 is classified as a Major Collector and SR 1016 is classified as a Minor Arterial.

**Traffic Data:** SR 1047 has an Annual Average Daily Traffic (AADT) of 2,157, a peak hour factor (K) of 9 and a 2 percent truck volume. SR 1016 has an AADT of 1,605, a K factor of 9 and a 5 percent truck volume. The posted speed limit on PA 309 at the intersection of SR 2045 is 35 mph.

**Crash History:** From 2014 to 2018 there were a total of 9 crashes reported at this intersection. Of the crashes, 8 were angle collisions and 1 hit a fixed object. Of the 9 crashes, 5 were reported with injuries

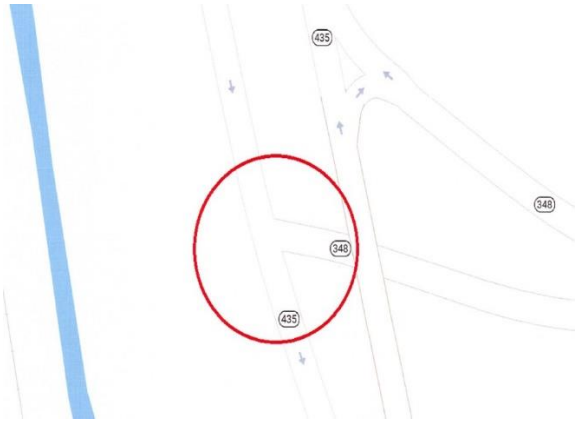
**Field Observations:** The staff found a few safety concerns during the field visit. Turning on to Lake Street from Country Club Road traveling north is dangerous due to the sight distance coming from both directions. There are approximately 25 trees lined up along Lake Street on the north side of the intersection.

**Suggested Remedies:** Some suggested remedies that might be considered are as follows:

1. Roundabout.
2. Intersection signage.
3. Improve sight distance.

## Location # 4: PA 435 and PA 348, Roaring Brook Township, Lackawanna County


**PA 435 looking south**




**Overhead Map View**


**Pa 435 looking north**


**PA 348 looking west**

**Background:** The intersection of PA 435 (Drinker Turnpike) and PA 348 (Mt. Cobb Road) lies within Roaring Brook Township in the southeast portion of Lackawanna County in PennDOT District 4-0. This region is called the North Pocono region of the county as it is the gateway to the Pocono Mountains. PA 435 was originally designated PA 611 prior to construction of Interstate 380 and was the main roadway between Scranton and New York City. In this section it was constructed as a limited access highway with two lanes in each direction separated by a wide median with one side of the roadway at a higher elevation then the other. The main problems at this location are angle crashes and vehicles heading northbound on PA 435 turning onto PA 348

over compensating and striking the guiderail along with traffic turning left from PA 348 onto PA 435 encroaching on the turning lane from PA 435. Both roadways are classified as minor arterials.

**Traffic Data:** PA 435 has an AADT of 4,778 on its north bound leg and PA 348 which is a two lane roadway has an AADT of 5,715. PA 435 has a peak hour K factor of 9 and a truck percentage of 4 %. PA 348 has a K factor of 11 and truck percentage of 8%. The posted speed limit is 55 mph on PA 435 and 45 mph on PA 348. This intersection has been the site of 18 crashes, 2 of which were angle crashes. Both PA 435 and PA 348 are classified as minor arterials.

**Crash History:** From 2014 through 2018 there were 19 crashes at this intersection with the majority of the crashes being vehicles hitting fixed objects (58%) and rear end/angle crashes (16%). There were no fatalities and only a few minor injuries reported.

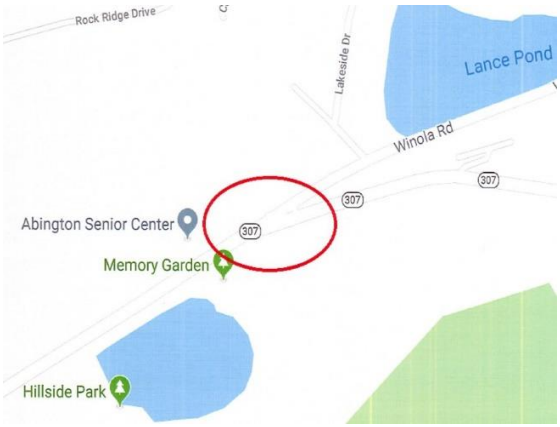
**Field Observations:** The approach to this intersection on PA 435 is on an uphill grade that flattens out just prior to the intersection with PA 348. Traffic travels at a high rate of speed approaching the intersection and the left turn movement "sneaks up" on the unsuspecting driver due to site distance. Also, the stop bar for PA 348 is across the unofficial turning lane of vehicles making a left turn from PA 435 to PA 348. Due to site distance and speed of the vehicles on PA 435 vehicles stopped on PA 348 must creep up to see traffic on PA 435.

**Suggested Remedies:** The group discussed a number of possible remedies to decrease the fixed object and rear-end crashes. Due to grade issues any physical geometry changes would be expensive at this time. The recommendations are:

1) Additional signage on PA 435 approaching the intersection from the north and a high friction surface treatment to warn drivers of the left turn along with additional lane stripping to delineate the turn lane area crossing the PA 348 approach.
2) Channelize the left turn exit lane on PA 435 via a mountable curb to act as a delineator and add a high friction surface.
3) Place a stop sign/stop bar on the left turn lane from PA 435 to slow traffic making the left turn.
4) Move the stop bar on PA 348 to improve sight distance.

## Location # 5: PA 307 and SR 4024, South Abington Township, Lackawanna County


**PA 307 looking south**




**Overhead Map View**


**PA 307 looking south**

**PA 307 looking north**

**Background:** The intersection of PA 307 (Morgan Highway) and SR 4024 (Winola Road) lies within South Abington Township in the northwest portion of Lackawanna County in PennDOT District 4-0. This area of the county is known as the Abington's and PA 307 is a primary commuter route between the Abington's section of Lackawanna County and Wyoming County and acts as an alternative to US 6 in the area. It is classified as a minor arterial roadway. SR 4024 collects traffic from the Clarks Summit Area traveling to PA 307 to Wyoming County and is classified as

an urban collector. The geometry of the intersection is such that PA 307 turns onto SR 4024 with the stop sign on PA 307 controlling access from SR 4024 onto PA 307 in a "Y" configuration.

**Traffic Data:** PA 307 has an AADT of 8,868 with a truck percentage of 7% and peak hour K factor of 11 while SR 4024's AADT is 5,020 with a K factor of 6 and a truck percentage of 4%. The posted speed limit is 45 mph on PA 307 and 40 mph on SR 4024. This intersection has been the site of 15 crashes, 11 of which were angle crashes. Both of these roadways are two lanes with one lane in each direction.

**Crash History:** From 2014 through 2018 there were 15 crashes at this intersection with the majority of them being angle (73%) and rear end (20%) crashes. There were no fatalities and only a few minor injuries reported.

**Field Observations:** This is a wide intersection in a "Y" configuration with a long right hand turning lane onto PA 307 south to SR 4024. There is also a flat graveled area that some vehicles used as an unofficial by-pass to avoid stopping at the signed stop sign to get better site distance from PA 307 while the participants were observing the traffic patterns. Traffic travels at a high rate of speed approaching the intersection from the north further hampering traffic from accessing PA 307 from SR 4024 due to limited site distance.

**Suggested Remedies:** The group discussed a number of possible remedies to decrease the angle and rear-end crashes:

1) Covert the intersection into a roundabout. There is a large power transmission tower between the roadways that would need to be designed around. However there appears to be adequate right-of-way for this alternative.
2) Convert to a "T" intersection and move the intersection approximately 100 feet south.

## Location # 6: PA 307 and SR 3001, Newton Township, Lackawanna County


**PA 307 looking north**


**Overhead Map View**


**PA 307 looking south**

**SR 3001 looking south**

**Background:** The intersection of PA 307 (Winola Road) and SR 3001 (Hillside Drive) lies within Newton Township in the northwest corner of Lackawanna County in PennDOT District 4-0. This area is known as the Abington's and PA 307 is a primary commuter route between the Abington's section of Lackawanna County and Wyoming County. It acts as an alternative to US 6 in the area and is classified as a minor arterial. SR 4025 is a short urban collector and serves as a connector between SR 4034 and PA 307, however Clarks Summit State Hospital is on the west side of the roadway located midway between these two routes and is the only access to the hospital.

**Traffic Data:** PA 307 has an AADT of 5,599 and has a peak hour K factor of 11 and truck percentage of 7%. SR 3001 has an AADT of 3,227, a K factor of 11 and a truck percentage of 9%. The posted speed limit is 45 mph on PA 307 and 40 mph on SR 3001. This intersection has been the site of 11 crashes, 5 of which were angle crashes with one fatality. PA 307 is classified as a minor arterial and SR 3001 is an urban collector. Both of these roadways are two lanes with one lane in each direction.

**Crash History:** From 2014 through 2018 there were 11 crashes at this intersection with the majority being angle and rear end crashes (36% each). There was one fatality and 5 crashes with minor injuries reported.

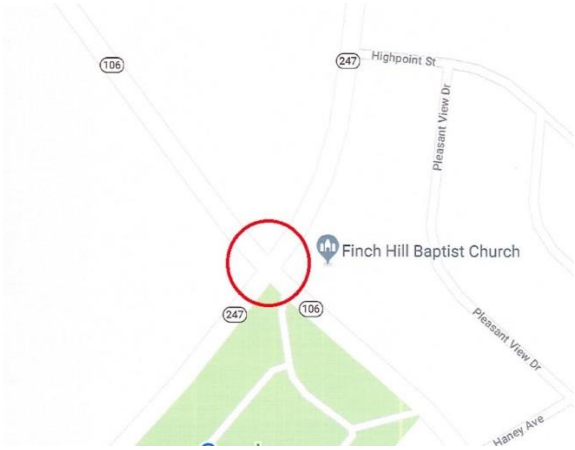
**Field Observations:** The approach to this intersection from SR 3001 south to PA 307 is constructed at a very sharp angle (approximately 20 degrees) to PA 307 and the roadway geometry extends the lane into the on-coming lane of PA 307 for about 100 feet past the stop bar. Likewise the approach from PA 307 to SR 3001 going north does not have a turning lane and traffic must stop in the travel lane of PA 307 to make a right hand turn.

**Suggested Remedies:** The group discussed a number of possible remedies to decrease the angle and rear-end crashes. A roundabout was discussed as there is a large area of vacant land between the roadways, however this is on a grade. Other possibilities include:

1) Provide additional signage along both roadways noting the dangerous intersection and shorten the acceleration lane for SR 3001 past the stop sign with PA 307.
2) Convert the intersection into a “T” intersection by relocating SR 3001 approximately 250 feet north to intersect with PA 307.
3) Provide SR 3001 with designated left and right turn lanes.

## Location # 7: PA 247 and PA 106, Greenfield Township, Lackawanna County


**PA 247 looking north**




**Overhead Map View**


**PA 106 looking west**


**Pa 247 looking south**

**Background:** The intersection of PA 106 and PA 247 lies within Greenfield Township in the northeast portion of Lackawanna County in PennDOT District 4-0. This intersection is known locally as Finch Hill Corners. PA 247 is a primary route between the Mid- and Upper valley area of Lackawanna County to Susquehanna County while PA 106 serves a similar function between the upper valley (Carbondale Area) and Susquehanna County. A major ski area (Elk Mountain) is located on PA 106 a few miles from this intersection and both of these roadways lead into what is called the Endless Mountains region of Pennsylvania.

**Traffic Data:** PA 247 has an AADT of 3,721 northbound leg and 3,421 southbound while PA 106 has an AADT of 2,265 westbound and 1,807 eastbound. The intersection is controlled with stop signs on the PA 247 approaches and a flashing red signal with only a flashing yellow light on the PA 106 approaches. PA 247 has a peak hour K factor of 11 and a truck percentage of 6%. PA 106 has a K factor of 11 and truck percentage of 5%. The posted speed limit is 45 mph on PA 247 and 40 mph on PA 106. This intersection has been the site of 11 crashes, 9 of which were angle crashes. PA 247 is classified as an urban collector and PA 106 as a minor arterial. Both of these roadways are two lanes with one lane in each direction.

**Crash History:** From 2014 through 2018 there were 11 crashes at this intersection with the majority of them being angle crashes (64%) with no fatalities but two with serious injuries reported.

**Field Observations:** The approach to this intersection on three sides are on uphill grades that flattens out just past the intersection to the north on PA 247. However the grades are not severe on the PA 247 side and may be a more bit severe on the PA 106 approaches. There appears to be adequate site distance from all approaches except PA 106 eastbound and the speed on the PA 106 approaches appear to be a factor.

**Suggested Remedies:** The group discussed a number of possible remedies to decrease the fixed angle crashes:

1) Construction of a roundabout if adequate right-of-way is available.
2) Convert the intersection into a four-way stop with stop signs and stop bars and add flashing red lights on all approaches.
3) Add a high friction surface to the intersection.

As noted the participants observed traffic conditions and traffic patterns at each location for approximately one hour to determine the recommendations. All of the recommendations will require further analysis to find if the recommendations would be feasible from an engineering, right-of-way and utility standpoint as well as from a cost benefit ratio. However the primary consideration should be if the recommendations can reduce crashes, injuries and more importantly fatalities.