

State Route 8 Corridor Operations Planning Study



State Route 8 from Duncan Avenue to Bakerstown Interchange

**Hampton Township and Richland Township
Allegheny County, Pennsylvania**



March 5, 2021

Southwestern Pennsylvania Commission

2021

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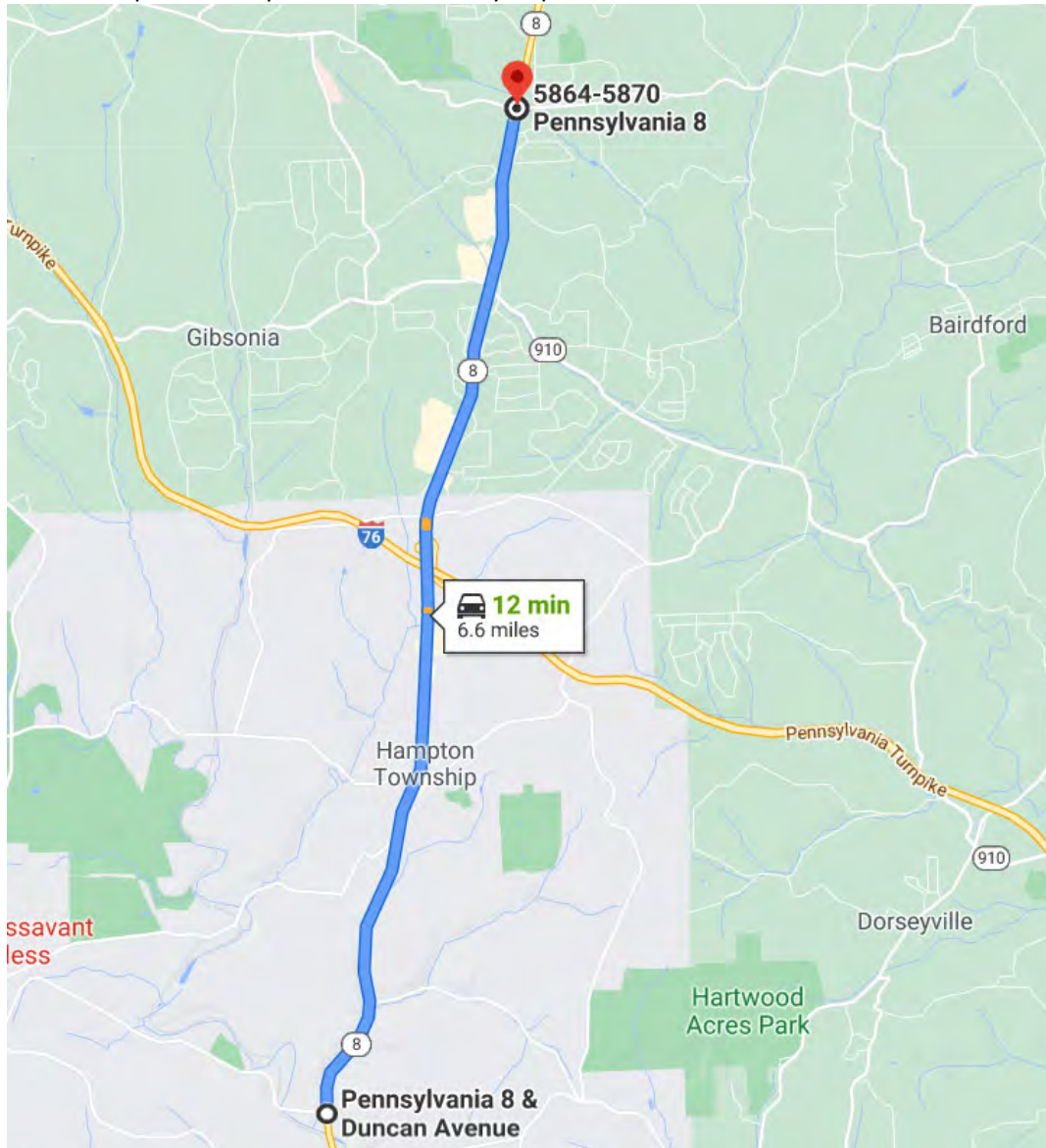
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State Route 8 Project Description and Study Team

Objective:

Analyze the State Route 8 Corridor from Duncan Avenue to the Bakerstown Road Interchange to identify potential transportation operations and safety improvements.



Core Study Team Members:

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1. Introduction

As demonstrated through research, previous corridor studies, and past experience in the Regional Road Safety Audit (RSA) program, transportation operations and safety have a direct relationship with one another. Typically, when congestion is present and corridor operations begin to break down, safety is also impacted. Similarly, crashes and incidents along a corridor can result in increased delay and reduced travel time reliability for motorists, transit operators and freight carriers, impacting operations. Therefore, it is important that operations and safety be evaluated together, particularly on major regional corridors.

1.1 What is a Corridor Operations Planning Study?

In order to improve mobility, accessibility and safety in a comprehensive manner, the Southwestern Pennsylvania Commission (SPC) has developed a corridor study approach that focuses on both operations and safety. Corridor Operations Planning Studies are a hybrid between traditional traffic studies and the charrette-style RSA process, resulting in a more holistic look at both operations and safety and how they impact one another along a corridor. The improvements identified in these studies will be geared toward short-term (1-5 years) and long-term (5+ years) alternatives that can be incorporated into the Long Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), and partner maintenance and development activities.

1.2 Project Selection

Candidates for these studies are derived from SPC's regional planning tools including the LRTP, the Regional Operations Plan (ROP), and the Congestion Management Process (CMP). As part of implementing the region's long range plan, SPC staff reviews study candidates and works with regional planning partners and PennDOT to set up these studies as resources allow.

1.3 Corridor Operations Planning Study Process

The study process consists of three (3) major phases: pre-assessment, field assessment, and post-assessment. The pre-assessment phase consists of gathering preliminary data for the study team to review at least 1 week before the field assessment. The preliminary data report should include:

- LRTP Level 1 Candidate Forms Review (identifies potential projects that have already been suggested through public outreach and other planning efforts in the area)
- Maps of:
 - Aerial imagery of study corridor
 - Intelligent Transportation System (ITS) elements



- Traffic signals
- Rail crossings
- Transit routes
- Bike routes
- Land uses (commercial, industrial, schools, hospitals, parks, etc.)
- Proposed projects
- Straight line diagrams
- Applicable traffic data
- Transportation/planning studies (traffic impact studies, comprehensive plans, etc.)
- Crash analysis/diagrams

After the pre-assessment is completed, the field assessment is conducted over approximately a 1-week period. The assessment includes a start-up meeting, key stakeholder interviews, operations and safety field review, operations and safety planning charrettes, and a preliminary presentation of the team's findings that documents key accessibility and mobility concerns with a list of potential solutions.

The study team focuses on the following areas when conducting the field review:

Table 1: Field Review Areas of Focus

Mobility Goal	Objective Areas
Mitigate Recurring Congestion	Bottlenecks
	Traffic Signals
	Travel Demand Management
	Access Management
	Parking Management
Maintain Mobility During Planned Events	Work Zones
	Special Events
	Traveler Information
Minimize the Impact of Unplanned Events	Traffic Detection and Surveillance
	Incident Management
	Road Weather Management
	Detour Routes
Provide an Efficient Multimodal Transportation System	Freight
	Transit
	Pedestrian and Bicycle
	Ridesharing/Carpools & Vanpools

The study team also focuses on safety measures that can improve regional safety performance metrics such as:

- Reducing the number and rate of traffic crashes
- Reducing the number and rate of transportation-related fatalities
- Reducing the number and rate of transportation-related serious injuries
- Reducing the number of non-motorized fatalities and non-motorized serious injuries

Lastly, during the post-assessment phase, a draft and final report are generated that include an implementation plan identifying a menu of potential projects, programs and initiatives, funding resources, and the lead agency that would be responsible for each potential strategy or improvement.

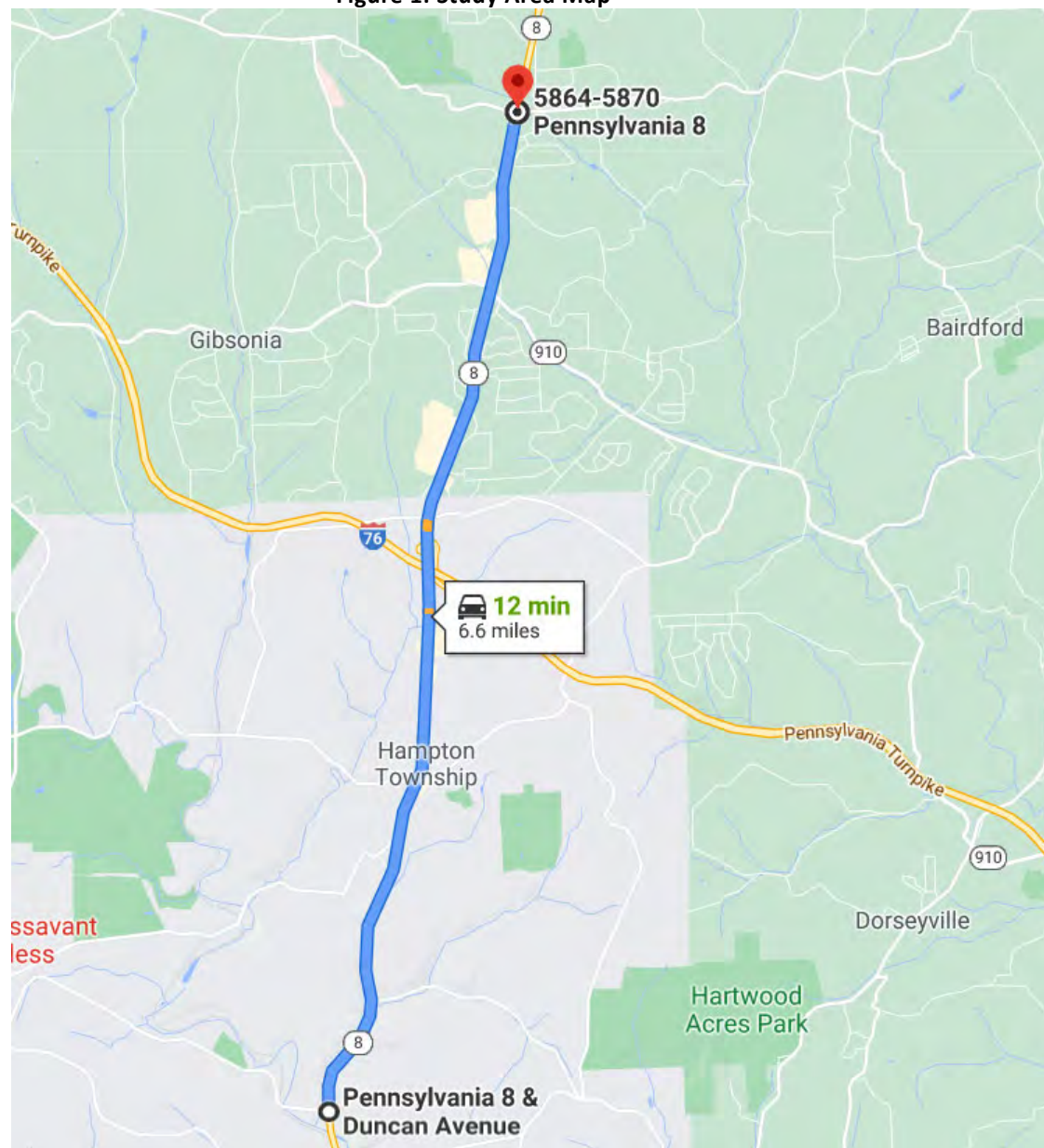
Upon receipt of the final report, roadway owners, at their discretion, can prepare a response documenting plans to address identified concerns and reasons for deferring other issues.

In addition to the elements noted above, traffic counts were conducted, and preliminary traffic analysis was completed to refine suggested improvements.

2. Study Area Overview

The study area for this project consists of the State Route 8 Corridor from Duncan Avenue to the Bakerstown Road Interchange (**Figure 1**).

Figure 1: Study Area Map



State Route 8 is a critical arterial that links Pittsburgh with the City of Butler and areas of Butler County. With the Pennsylvania Turnpike interchange located along the corridor, the corridor serves as a crucial link for through traffic on the Turnpike. State Route 8 is a four-lane undivided roadway in this corridor. Left-turn lanes are present at major intersections. Left-turns from more minor intersections and driveways occur from through lanes.

The study area has heavy commercial development along much of its length, including the Richland Mall and Grandview Crossing shopping centers. Several sections are less developed and even residential. Some parcels remain available for development.

2.1 Mode types

A variety of modes utilize the transportation network within the study area. The primary modes of transportation along the corridor include passenger and commercial vehicles; however, other modes such as pedestrians use the study area as well. Transit service is very limited in the corridor. Butler Transit Authority provides commuter service with their Routes 1 and 2 between the City of Butler and Pittsburgh.

Traffic Volumes and Travel Times

Historical traffic volumes were obtained through PennDOT's Traffic Information repository. Turning movement counts for signalized intersections were obtained through a previous SINC-UP study that was performed by SPC. In addition, new turning movement counts were performed at unsignalized intersections during the PM peak period in March, 2020 prior to the pandemic impacts. Turning movement counts were provided for the PM peak period (3:00 PM to 6:00 PM) for a typical weekday, as well as the Saturday peak period, at the following intersections:

- State Route 8/Duncan Avenue
- State Route 8/Harts Run Road
- State Route 8/Mount Royal Boulevard
- State Route 8/Wildwood Road
- State Route 8/Talley Cavey Road / Oxford Boulevard
- State Route 8/McNeal Road
- State Route 8/Shoppers Plaza/Cleantown Car Wash
- State Route 8/West Bardonner Road / East Bardonner Road
- State Route 8/West Hardies Road/East Hardies Road
- State Route 8/Richland Mall
- State Route 8/Ewalt Road
- State Route 8/Gibsonia Road
- State Route 8/Northtowne Square
- State Route 8/Grandview Crossing
- State Route 8/Dickey Road

Turning movements counts were provided for the PM peak period only at the following intersections:

- State Route 8/McCully Road
- State Route 910/Community Center Drive
- State Route 8 and Bakerstown Road ramps/interchange

24 hour Automatic Traffic Recorder counts were obtained from the PennDOT TIRE site for the length of the corridor. Average Daily Traffic (ADT) volumes along State Route 8 range from 9,358 to 14,128

vehicles per day with trucks accounting for five (5) to seven (7) percent of the overall traffic volume. The table below provides a summary of ADT, truck volumes and peak hour volumes (all vehicle types) for both northbound and southbound (one-way) traffic along the study corridor.

Table 2: State Route 8 Corridor Traffic Volumes

State Route 8 Section	Direction	ADT (Vehicles/ Day)	Base Year	Truck Volume (Trucks/Day)	Peak Hour Volume (Vehicles/ Hour)
Duncan Rd to Harts Run Rd	Northbound	11821	2019	673	1182
	Southbound	11443	2019	622	1144
Harts Run Rd to McCully Rd	Northbound	10158	2017	508	812
	Southbound	10296	2017	514	824
McCully Rd to Mt Royal Rd	Northbound	9358	2017	468	749
	Southbound	9721	2017	486	778
Mt Royal Rd to Wildwood Rd	Northbound	14415	2019	1125	1153
	Southbound	14093	2019	1002	1127
Wildwood Rd to PA Turnpike Int.	Northbound	12192	2019	883	975
	Southbound	12274	2019	842	982
PA Turnpike Int. to Hardies Rd	Northbound	13837	2018	692	1106
	Southbound	14128	2018	706	1130
Hardies Rd to State Route 910	Northbound	12663	2020	943	1266
	Southbound	12691	2020	587	1269
State Route 910 to Bakerstown Rd Int.	Northbound	11637	2018	725	931
	Southbound	11920	2018	718	954

Source: PennDOT Traffic Information Repository <https://www.dot7.state.pa.us/tire>

The SPC Congestion Management Process (CMP) identifies and monitors congested corridors within the 10-county region to develop strategies to facilitate the efficient movement of people and goods along those corridors. The State Route 8 corridor is one of SPC's CMP corridors (Corridor Number 1). Based on the CMP data, congestion on this corridor has been fairly consistent. Travel times within the study area itself are generally increasing in the past 5 years as shown in Table 3. Most of this increase is likely from increased traffic volumes from commercial and residential growth. Some of this increase could also be attributable to recent construction activities near State Route 910 and other areas within the study corridor.

Table 3: State Route 8 Congestion Management: Average Weekday Travel Time During Peak Periods

Direction/Peak Period	Evaluation Year / Travel Time (Minutes)				
	2015	2016	2017	2018	2019
Northbound AM travel time	13.31	13.49	15.57	15.54	15.14
Northbound PM travel time	14.93	14.74	17.69	19.67	17.18
Southbound AM travel time	13.88	13.00	15.06	15.23	14.00
Southbound PM travel time	14.78	14.68	16.85	17.69	16.30

Weekday data summarized for AM Peak Period 6AM to 10 AM and PM Peak Period 3PM to 7PM between Duncan Avenue and Bakerstown Road

Source: RITIS CATT Lab

Transit

There is currently very limited transit service on State Route 8. Butler Transit Authority operates two routes from the City of Butler to Pittsburgh with only one scheduled stop within the study area at the Allison Park Park and Ride near Duncan Avenue. The normal weekly ridership on these two routes is 357 riders. The corridor has other potential transit opportunities as described below:

- Northbound, at the intersection of State Route 8 and Applewood Drive – potential for transit amenities such as a covered bus shelter to support pedestrian access from adjoining neighborhood (note: There is no existing pedestrian infrastructure. However, the neighborhood is very walkable.)
- Southbound, just north of the study area at Legion Drive – potential park and ride facility to support existing and potential future commuter bus service.
- Just south of intersection of Rt. 8 and Rt. 910 at Westland drive across from Applewood – vacant land is present that could be used for transit amenities for southbound trips (Note: There is no pedestrian crossing here, but it is close to two signalized intersections to the north and south.
- By observation, the Richland Mall has a significant amount of unused parking area. Also, this mall is close to several rather dense residential areas. Leasing space for potential park and ride could be a consideration.
- At the Richland Township Line (across from Sheetz) at Hardies Road “Pads Available” This area appears to be a flag stop for existing commuter service.
- At Mount Royal Blvd, adjacent to land uses such as the UPMC Facility and Hampton Senior Living, this area is a transit node already for shared-ride and paratransit activity. Although there is no pedestrian access, the east side appears to have space for a potential park and ride facility. On the west side there appears to be ample outparcel space for transit amenities like a covered shelter area.

Bicycle & Pedestrian Infrastructure

No dedicated bicycle infrastructure (bike lanes,etc.) is present within the study area. The Rachel Carson trail crosses the corridor just south of the Wildwood intersection. There are no PennDOT bike route designations within the study area.

Pedestrian infrastructure is very limited within the study area. There are no sidewalks except for short sections along the corridor. Sidewalk is present in the following locations: both sides of State Route 8 at near Duncan Avenue, just north of the signal with Shoppers Plaza (Home Depot) on the west side of the roadway, between Ewalt Road and Applewood Drive on the east side of State Route 8, north of Community Center Drive (south) adjacent to the Mars Bank parcel, and between Community Center Drive (north) and Grandview Drive on the east side of the road. There are also concrete-lined drainage swales adjacent to the road in a few locations which can function as sidewalk for able-bodied pedestrians but since they do not meet ADA standards for sidewalks, they are not considered sidewalks. Pedestrian demand appears to be present, as there are several worn paths formed by pedestrians. Signalized intersections include crosswalks, pushbuttons, pedestrian crossing signs, and pedestrian signals; however, NO PEDESTRIAN CROSSING signs were observed at a few intersections within the study area. Pedestrian signal heads and push buttons are generally in good shape along the corridor. They appear to have been upgraded to current standards with the recent traffic signal upgrade.

Rail

The Allegheny Valley Railroad operates a rail line that parallels the Route 8 corridor in Allegheny and Butler Counties. There are locations within this corridor, however beyond the study area, where the

distance between the highway and the rail line is as little as 25 feet, according to FRA Safety data. With distances that short, the potential for traffic waiting at the crossing gates for a passing train to queue back as far as Route 8 is very real. A queue of such length would create safety concerns on Route 8 southbound. Fortunately, AVRR runs only two trains a day in this corridor, generally, although they have use agreements with other rail lines (including Buffalo and Pittsburgh and others) that would permit those railroad operators to run additional trains on an occasional or as needed basis. Within the study area, the greatest potential for queuing occurs at the crossing at Duncan Avenue, where the distance between the railroad tracks and State Route 8 is about 1600 feet.

Freight

The majority of the trucks on State Route 8 are likely to be heavy dump vehicles. Near the PA Turnpike, truck volumes increase from 5-7% of the overall traffic to as much as 8%. Actual truck numbers nearly double in the vicinity of Mt. Royal and Wildwood Roads.

The land use and zoning maps for Hampton Township show that industrial land uses are limited to areas along Pine Creek, west of Route 8. The likely line of travel for supplies to and from these facilities is via Route 8 and Wildwood and Sample Roads and Mt. Royal Boulevard. Many of the other routes connecting with Route 8 from the west and the east are inhospitable to truck traffic due to weight limits, bridge restrictions, roadway geometry or the immediate proximity of housing subdivision.

That being said, State Route 8 is a route of choice for aggregate movement between the quarries in Butler County (and beyond) and the aggregate storage areas located along the Monongahela and Ohio Rivers.

The most truck critical area of the corridor is between Mt. Royal Boulevard and East Hardies Road, where Turnpike related truck movements are evident.

A review of the crash data available for the study indicates that there have been very few incidents that involved trucks. None involved any fatalities or serious injury. Nor were the trucks identified as the cause of the vast majority of incidents. Truck safety does not seem to be a primary concern in this corridor.

Although it falls south of the study area, the community of Etna generates significant industrial activity. The State Route 28 interchange and Butler Plank Road serve as key portals from Route 8 to these industrial nodes.

North of the study area in Butler County, multiple vendors of heavy construction and hauling equipment as well as repair facilities and aggregate suppliers are present along Route 8, all of which contribute to truck traffic along the corridor.

2.2 Current Land Use & Potential Development

Land use is primarily commercial with pockets of residential present along the State Route 8 corridor.

In Hampton Township, land use is mixed residential, light commercial and open land. There appears to be some developable parcels, however many remaining areas appear to have topographic challenges to developing. The commercial uses mainly consist of restaurants, shopping centers, a home improvement warehouse, and several smaller independent businesses. The Hampton Middle School is located off of the intersection with Wildwood Road, which brings a significant amount of school bus traffic to the area.

The land uses located immediately adjacent to State Route 8 in Hampton Township are Highway Commercial, residential, and Office Research and Development.

In Richland Township, land use is predominately commercial. Heavier commercial developments exist, such as the Richland Mall and the Wal Mart plaza. Smaller commercial developments are located along the majority of the rest of the corridor. There is also some residential land mixed within the area.

State Route 8 from Duncan Avenue to Mount Royal Boulevard

Land use within this section is primarily lighter commercial, consisting of various services, such as automotive, veterinary, medical, property services, and dental. This section has residential located adjacent to the roadway, as well as stretches with no development. Some of the stretches with no development would be challenging to develop due to the topography in the area.

State Route 8 from Mount Royal Boulevard to Bardonner Road

This section has a mix of residential to heavy commercial. The southern part of the section has residential properties fronting State Route 8. There are also residential areas located off of Anderson Drive, Woodland Circle, and Grandview Drive. The NAPA, ALDI, and Dollar Tree and McDonalds commercial properties are located just south of the intersection with Wildwood Road. Northward, several restaurants are present. Two strip mall style shopping centers are present. A Home Depot home improvement store is also located in this section.



Development is proposed south of Wildwood Road on the west side of State Route 8 in the short- to mid-term.

State Route 8 from Bardonner Road to Ewalt Road

Land use in this section consists of several smaller independent businesses, particularly to the south, through Ranalli Drive. The interchange with the Pennsylvania Turnpike is located within this area, offering a connection for points located to the east and west. The Richland Mall is located in this section. It is a large commercial development with a grocery store, Kohl's, Wal Mart, and other retail businesses and restaurants.

State Route 8 from Ewalt Road to Bakerstown Road Interchange

This section has some residential properties mixed within both smaller and larger commercial developments. The Grandview Crossing development, which includes a Target department store, supermarket, a Dunham's Sports, and a Lowes Home Improvement store, along with smaller retail and restaurants, is in this section. Other smaller businesses are also located in this section.

2.3 Roadway Characteristics

The State Route 8 corridor is classified as an Urban Other Principal Arterial according to the PennDOT Traffic Information Repository site. The corridor under study is 6.6 miles in length. The cross section is comprised of four travel lanes, two per direction, within the study area. Left-turn lanes are present at most major intersections and some access points. Each travel lane is approximately 12 feet wide. The entire corridor has curbing, with the exception of the area within the Pennsylvania Turnpike interchange. The area within the Pennsylvania Turnpike interchange has shoulders, approximately 10 feet in width. The shoulder transitions to curb as the land adjacent to Turnpike right of way changes to private properties. Major intersections are signalized, and most of the traffic signals have left-turn lanes. An adaptive traffic signal system was recently installed along this corridor. With the exception of a few left-turn restrictions at commercial developments and a couple of smaller intersections, access is allowed along the entire corridor. In areas where left-turn lanes are not present, left-turns are made from the left through lane, which can delay through traffic. The speed limit along the State Route 8 corridor is 40 miles per hour south of the intersection with State Route 910, and 45 miles per hour north of the intersection with State Route 910.

2.4 Safety History

PennDOT crash data was reviewed for the State Route 8 corridor under study. The crash data reviewed was a 5-year period from January 1, 2014 to December 31, 2018. Only reportable crashes were included in the data. Reportable crashes are those that result in an injury or fatality; or where a vehicle is required to be towed from the scene. The table below summarizes crash data for the corridor.

Table 4: State Route 8 Crash Summary

Crash Type	Number	Percentage
Total Crashes	313	
Fatal Crashes	3	1.0%
Angle	114	36.4%
Head-on	2	0.6%
Hit Fixed Object	47	15.0%
Hit Pedestrian	3	1.0%
Other/Unknown	8	2.6%
Rear End	116	37.1%
Sideswipe (Opp. Dir)	3	1.0%
Sideswipe (Same dir)	16	5.1%

The crash data indicates that there were a total of 313 crashes for the corridor during the data period available. Three fatal crashes occurred. Rear end was the most commonly occurring type of crash, 37 percent. The second highest was angle, at 36 percent. Both of these types of crashes can be expected, since the corridor lacks two-way left-turn lanes and has many access points along the length of the corridor. The vast majority (72%) of crashes occurred during daylight hours.

2.5 Corridor Long-term Vision

Hampton and Richland Townships each have comprehensive planning documents. The following bullets identify the long term shared vision for each township. These vision statements were strongly considered in the development of the suggested improvements in this report.

Hampton Township

- Pedestrian connectivity from schools and community center to Route 8
- Provide multimodal access along and across Route 8
- Improve appearance of Route 8 corridor
- Improve Wildwood Road intersection



Richland Township

- Explore feasibility of Unified Access Management
- Explore possibility of designating and constructing pedestrian and/or bicycle routes
- Evaluate the feasibility of developing a Hampton-Richland-Valencia rail trail
- Develop a Township Pedestrian/Bicycle Master Plan to interconnect parks, schools and other civic amenities



3. Study Findings

A summary of the operations and safety field assessment, areas of concern and suggested improvements are documented in subsequent sections.

3.1 Stakeholder Interviews

To better assess the study corridor, key person interviews were conducted to provide the study team access to local knowledge of the corridor. Information from these interviews was utilized to assist team members in determining focus areas for the field assessment, shaping a vision of the corridor, and identifying potential projects and improvements to enhance safety and operations.

The following individuals were interviewed to better assess the study corridor:

- Todd Kravits – PennDOT District 11-0
- William Lesterick – PennDOT District 11-0
- Dean Bastianini – Richland Township Manager
- Barbara Ames-McNeilly – Rep. Mizgorski's Office
- Ann Ogoreuc – Allegheny County Economic Development
- Craig Toocheck – Port Authority of Allegheny County
- John Paul – Butler Transit Authority
- Kevin Flannery – Hampton Township
- Elaine Kramer – Pashek MTR
- George Anderson – Richland Township
- John Sicilia – Northern Regional Police Department
- Jeff Kline – Hampton Township School District
- John Steven – Rachel Carson Trail

- Robert Goetz – Richland Township Planning Commission

A summary of major themes emerging from the key person interviews is provided below. More detailed information from these interviews can be found in Appendix B.

- It appears that the traffic volume at the Wildwood Road intersection is exceeding capacity during certain times of the day.
- The Rachel Carson trail could potentially be relocated to a better crossing location, particularly at a traffic signal, perhaps at Wildwood Road.
- There is no pedestrian infrastructure along the length of the corridor.
- Development is proposed for the southwest quadrant of the intersection of State Route 8 and Wildwood Road. The developer proposes a new traffic signal on State Route 8.
- There is a need for center left-turn lanes along State Route 8 but the right of way for the corridor is very limited.
- The corridor has largely not been upgraded since 1959.
- There is likely a demand for expanded transit along the corridor.
- School buses do not cross or turn left onto State Route 8.
- School bus stops are located at Lee, the Tractor Supply, and Legion Drive along State Route 8.
- The intersection with Community Center and State Route 910 is a constrained intersection. Operations affect the intersection with State Route 8 and State Route 910.

3.2 Site Visit

The Corridor Operations Planning Study was conducted the week of October 5, 2020. The study team examined corridor operations during the AM, Midday, and PM peaks to observe traffic at its highest volumes. A nighttime examination was also conducted to observe operations and visibility during dark conditions. Specifically, the study team observed operations during the following time periods:

- Sun, 10/4/2020, 7:00 PM-8:00 PM, cloudy weather
- Mon, 10/5/2020, 9:00 AM-5:00 PM, all peaks, sunny weather
- Tues, 10/6/2020, 4:30 AM-5:30 AM dark (night view)
- Tues, 10/6/2020, 7:00 AM-4:30 PM all peaks, sunny weather
- Thurs, 10/8/2020, 2:00 PM-4:00 PM, sunny weather

The remainder of the week was utilized to complete field work, review planning documents for local jurisdictions, conduct stakeholder interviews, and develop suggestions for roadway owners to consider.

3.3 Proposed Improvements

In order for the long-term vision to be successful, roadway owners must begin to conceptualize the future roadway layout and strategically plan development around what the corridor will be in the future. This step is essential for implementing smart transportation concepts and achieving the long-term vision in the corridor, and will allow the communities to grow without overburdening the transportation network.

Traffic Conditions Analysis

For the purpose of this study, levels of service were analyzed in Synchro 10 software for the PM peak hour for the 2020 existing and 2040 future no-build scenarios at the following intersections:

- State Route 8 and Duncan Avenue

- State Route 8 and Harts Run Road
- State Route 8 and Mount Royal Boulevard
- State Route 8 and Wildwood Road
- State Route 8 and Talley Cavey Road / Oxford Boulevard
- State Route 8 and McNeal Road
- State Route 8 and Shoppers Plaza/Cleantown Car Wash
- State Route 8 and West Bardonner Road / East Bardonner Road
- State Route 8 and West Hardies Road/East Hardies Road
- State Route 8 and Richland Mall
- State Route 8 and Ewalt Road
- State Route 8 and Gibsonia Road
- State Route 8 and Northtowne Square
- State Route 8 and Grandview Crossing
- State Route 8 and Dickey Road

A growth factor was determined through SPC modeling and a comparison of historical count data with 2020 pre-pandemic count data. A growth factor of 1% per year was applied to the 2013 turning movement count data to calculate the 2020 and 2040 no-build data. To conduct this analysis, PM traffic count data was collected, summarized, and balanced to determine PM peak hour volumes for analysis. Existing conditions were evaluated using the balanced PM peak hour traffic volumes. The traffic analysis computer program Synchro was used to perform capacity analyses at each of the intersections noted above. Synchro is a macroscopic capacity analysis and signal optimization computer program. Results of the existing conditions Synchro analysis for the 2020 PM peak hour and the 2040 PM peak hour for the No-Build and Build (where changes are suggested) conditions, respectively are shown in **Table 5**.

Table 5: Intersection LOS Summary

Intersection		Capacity Analysis Results		
		2020 Existing LOS	2040 No-Build LOS	2040 Build LOS
2	Route 8/ Harts Run Road	E	F	E
4	Route 8/Mount Royal Boulevard	C	C	C
5	Route 8 / Wildwood Road	F	F	E
9	Route 8/West Bardonner Road / East Bardonner Road	E/F	F/F	E/E
12	Route 910/Community Center Drive	A	E	B

Detailed analysis and level of service results by movement for each of these locations can be found in Appendix B.

Access Management

State Route 8 is a principal arterial that provides direct access to the Cities of Butler and Pittsburgh. It is critical for State Route 8 to operate at an acceptable level of service in order to maintain mobility within the region. It is recommended that Hampton Township and Richland Township consider and adopt specific access management ordinances to manage existing and future State Route 8 traffic.

Access Management – seeks to limit and consolidate access points along major roadways while supporting street systems, unified access, and circulation for current and future development.

The majority of the development along the corridor has occurred in a piece-meal fashion where each business is provided direct access to State Route 8 instead of shared-driveways or cross-access through adjacent parcels. When business driveways are not consolidated and local road access is not provided between adjacent parcels, all local business traffic must then utilize individual driveways from State Route 8, creating additional vehicle trips and degrading the roadway level of service and safety. To improve mobility and safety while discouraging this type of development, access management principles should be applied along the corridor.

Typical access management approaches include:

- Limiting access
- Corner clearance
- Driveway channelization
- Outparcel access
- Driveway throat length
- Driveway spacing
- Signalized intersection spacing
- Frontage/Service roads
- Joint access
- Auxiliary lanes
- Turning lanes
- Overlay districts
- Official Map
- Bonuses / incentives

Figure 2 on the next page provides both examples of undesirable and desirable access management conditions along the corridor.

Figure 2: Undesirable and Desirable Access Management Conditions

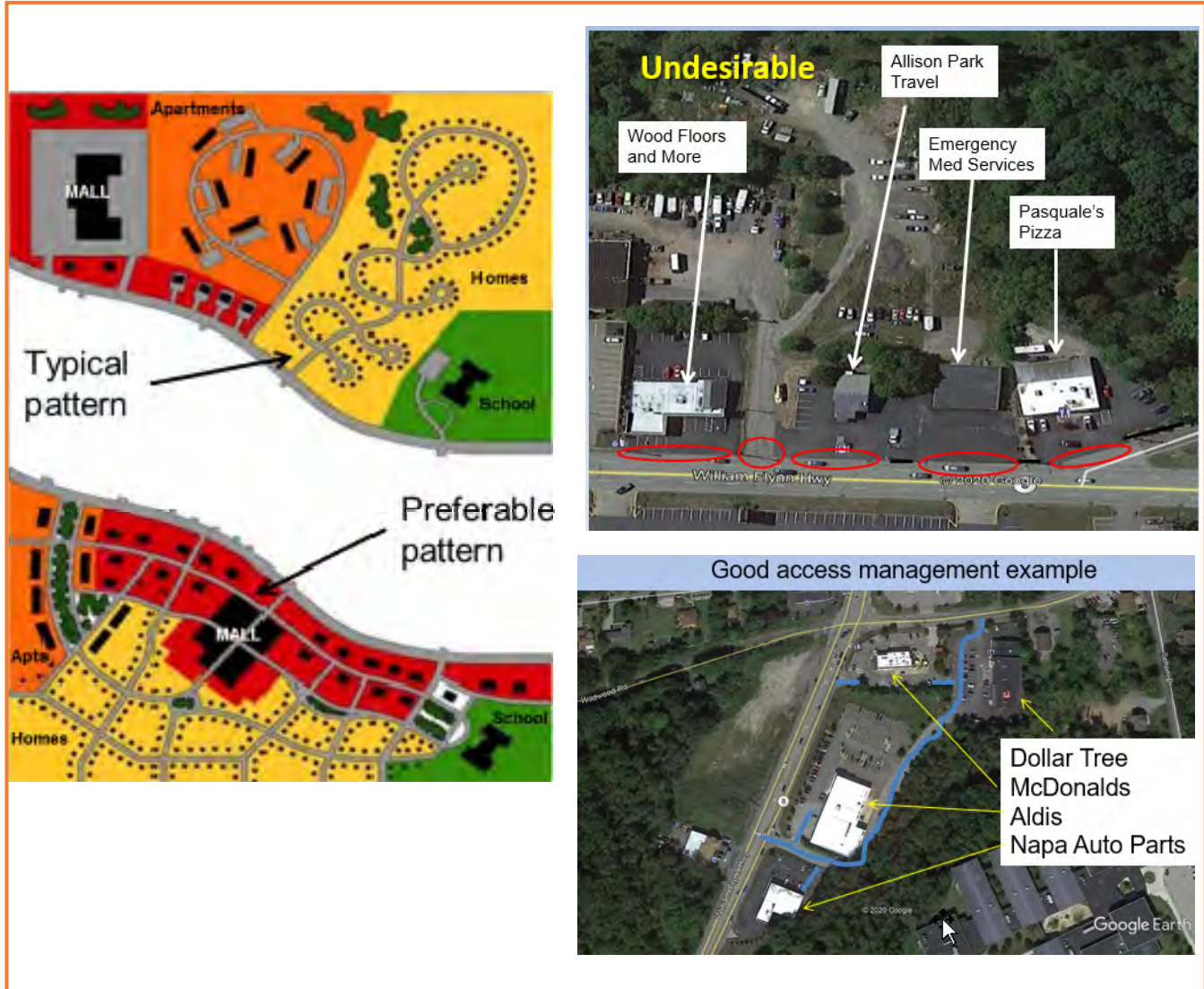


Figure 3 on the next page shows a notional preferred method for combining accesses for multiple parcels as development occurs. In addition to the typical access management principles mentioned previously, the following specific suggestions and considerations should be examined for study area.

Table 6: Access Management Suggestions and Considerations

Suggestions:	Considerations:
Ensure comprehensive plan fully supports access management.	Access management overlay district with special access management ordinances.
Create an access management ordinance limiting driveways and encouraging parcel interconnections.	
Combine driveways and interconnect existing parcels.	PennDOT Model Access Management Ordinances for Municipalities.
Require Traffic Impact Studies (TIS) as part of any future development/redevelopment for projects accessing local roads. TIS should evaluate roadway capacity and signal interconnection.	

Corridor Wide Improvements

Figure 3: Corridor Wide Improvements – Access Management for Redevelopment

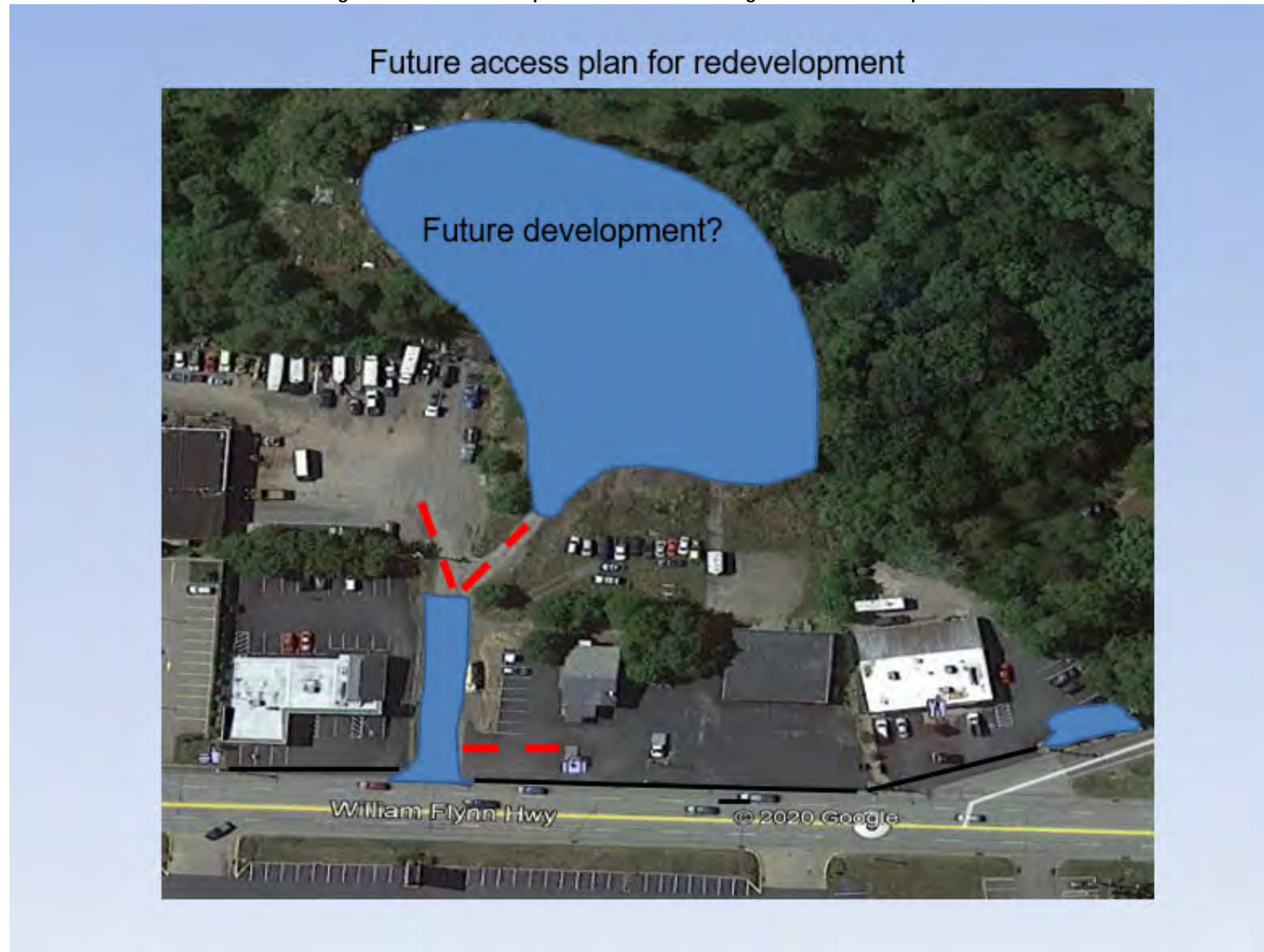
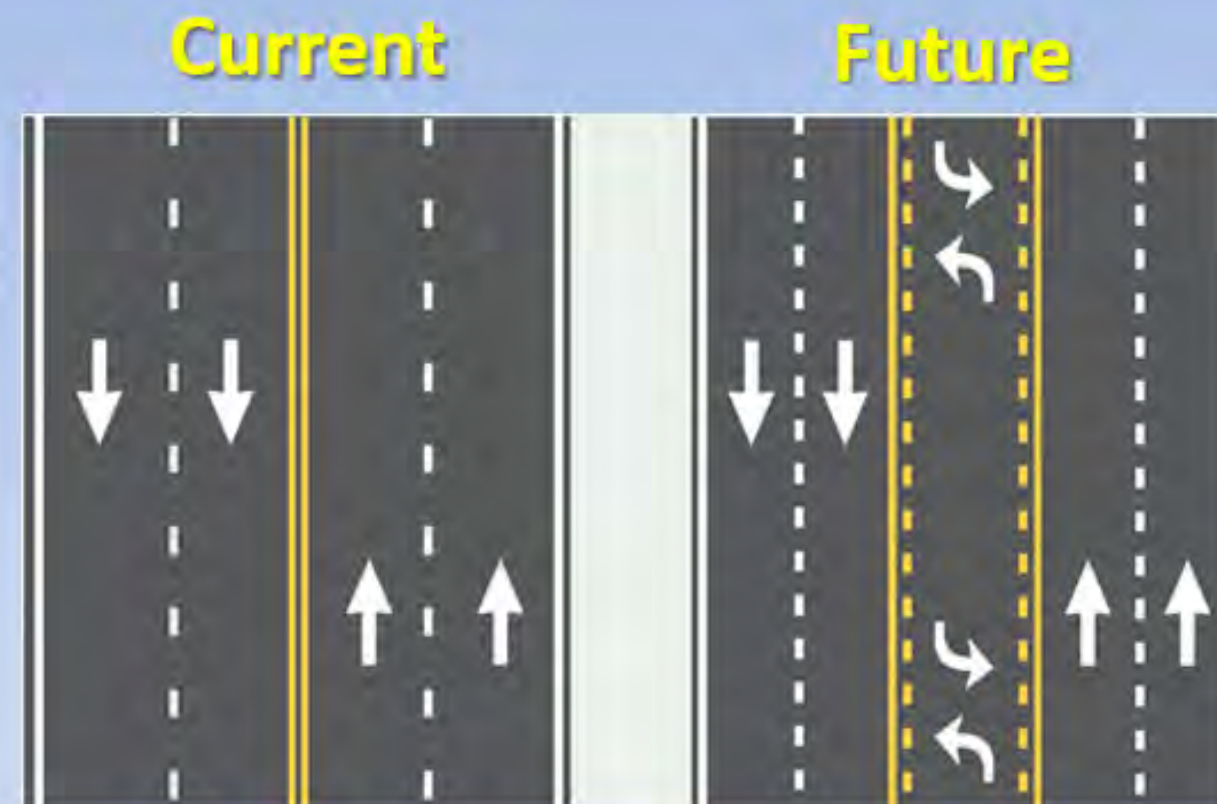


Figure 4: Corridor Wide Improvements – Access Management



Figure 5 : Corridor Wide Improvements – Cross Section

OBSERVATION: Along sections of State Route 8, High incidents of mid block angle and rear end crashes related to left turn vehicles. Also, traffic congestion caused by queued vehicles behind left turn vehicles waiting for a gap in traffic to turn. Speeding is also an issue in these areas.



SUGGESTIONS:

- Redesign certain mid-block Route 8 sections to a five-lane configuration with a Two Way Left Turn Lane (TWLTL)
- Consider reducing current lane width to minimize widening and additional right-of-way required while encouraging traffic calming to lower speeds in sections
- Consider this concept in the following areas:
 - Wildwood Road to McNeil Road
 - Bardonner Road to Pennsylvania Turnpike
 - Hardies Road to Ewalt Road

Figure 6 : Corridor Wide Improvements – Left-Turn Lane Lengths

OBSERVATION: Some of the left turn lanes along Route 8 do not appear to have adequate storage.

Corridorwide

Route 8 Turning Lanes

Cross Street(s)	Direction	Existing	Future Needs	Suggested
Harts Run Road	Southbound	140'	425'	425'
Wildwood Road	Northbound	300'	450'	450'
Shoppers Plaza/Cleantown Car Wash	Southbound	325'	425'	425'
Ewalt Road	Northbound	350'	375'	375'
Gibsonia Road	Northbound	250'	850'	850'
	Southbound	350'	925'	*700'
Grandview Crossing	Southbound Left	150'	250'	250'
Dickey Road	Northbound	200'	225'	225'
West Bardonner Road/East Bardonner Road	Northbound	N/A	50'	75'
	Southbound	N/A	60'	75'



Gibsonia (SR 910) Intersection

Cross Street Turning Lanes

Cross Street(s)	Direction	Existing	Existing Needs	Future Needs	Suggested
West Hardies Road/East Hardies Road	Eastbound	175'	190'	250'	250'
	Westbound	350'	325'	425'	425'
Gibsonia Road	Eastbound	175'	275'	375'	375'
	Westbound	225'	600'	750'	*350'
Wildwood Road	Eastbound	N/A	N/A	300'	300'
	Westbound	N/A	N/A	150'	150'
East Bardonner Road	Westbound	N/A	N/A	375'	375'

Note: *Restricted by distance to adjacent intersection

SUGGESTION:

- Lengthen left turn storage bays to handle traffic in a 20-year design horizon.

CONSIDERATION:

- Left turn positive offset and protected-permissive operation.

Refer to Appendix B , Synchro reports for queue lengths used for left turn storage calculations.

Figure 7 : Corridor Wide Improvements – Curb Ramps

OBSERVATION: Many curb ramps contain sediment and debris, weeds and vegetation that are growing through seams in concrete, and detectible warning surfaces that do not provide visual contrast.

Undesirable



Desirable



SUGGESTIONS:

- Retrofit detectible warning surfaces (DWS) or replace ramps, to the extent possible, so DWS provides visual contrast
 - Brick red DWS in concrete (dark-on-light), federal yellow DWS in asphalt (light-on-dark)
- Provide proper vegetation management and weed control
- Periodically clean curb ramps and sidewalks for better walkability and visibility

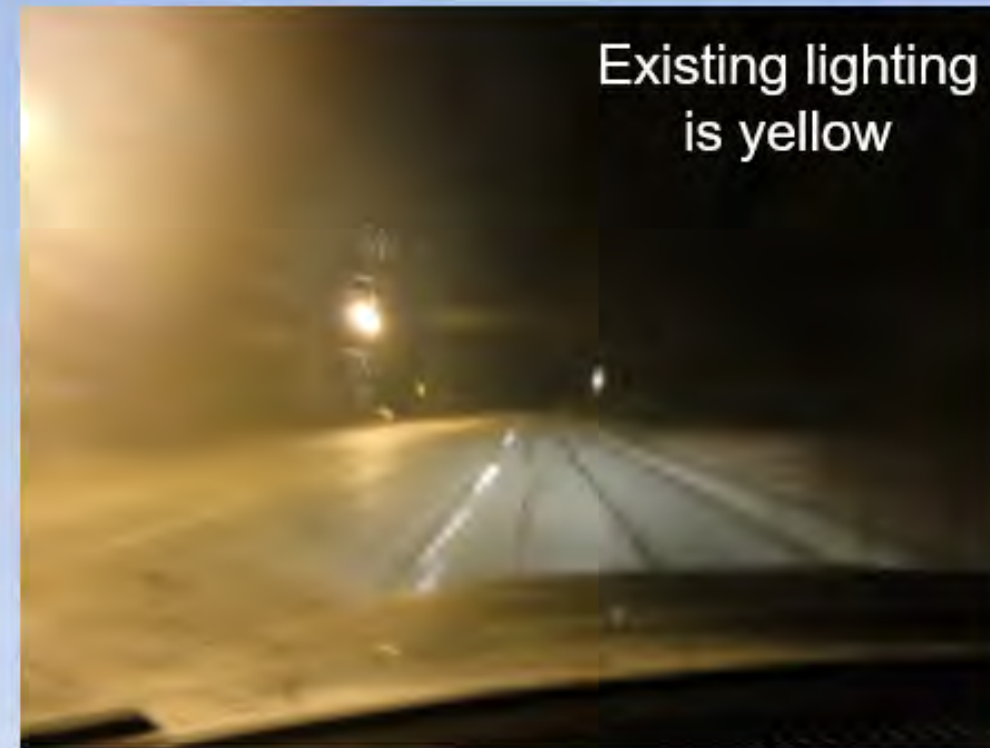
Figure 8 : Corridor Wide Improvements – Lighting

OBSERVATION: Street lighting is not used continuously through the corridor. In commercial areas, lighting from businesses illuminates the roadway. Residential areas lack lighting. The lighting used is the older yellow color lighting.

Commercial lighting lights the road



Existing lighting
is yellow

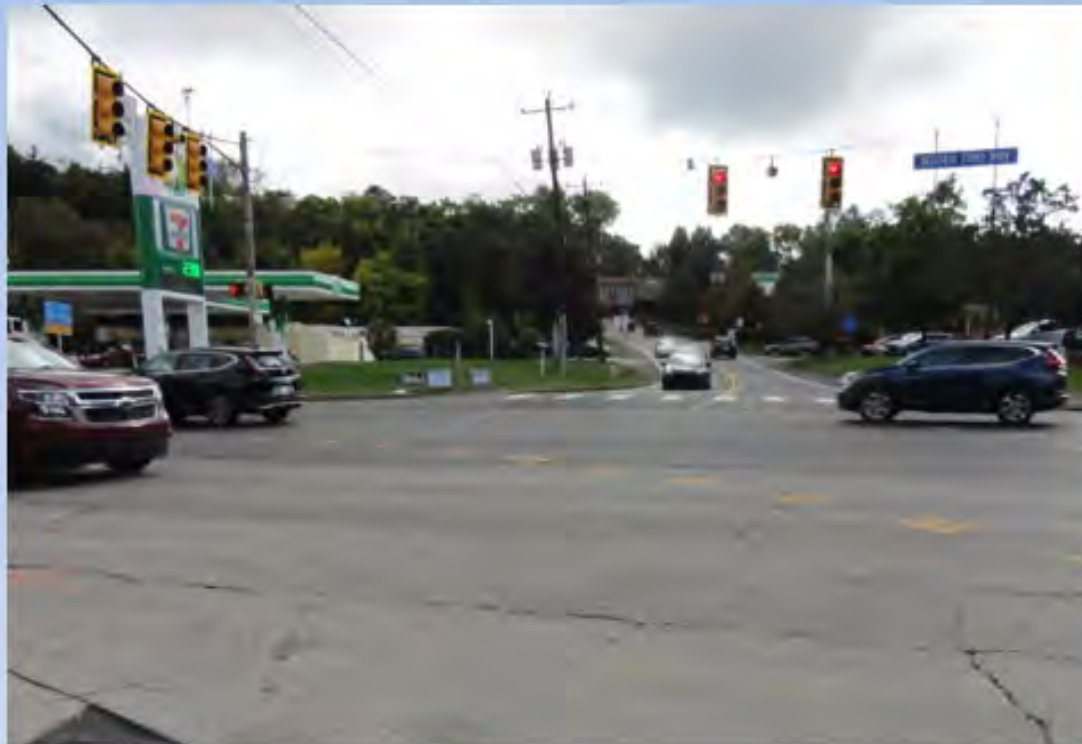


SUGGESTIONS:

- Upgrade lighting through the corridor in dark areas and at intersections where pedestrians may cross, particularly residential areas between Anderson Drive and Duncan Avenue (6 reported crashes)
- Use a white light, which is better for color distinction and consider LED lighting, which uses less energy than traditional lighting and provides better color distinction.

Figure 9 : Corridor Wide Improvements – Adaptive Signal System

OBSERVATIONS: The adaptive signal system is good for accommodating traffic flow along State Route 8, the major movement, but several left-turn phases and side streets have very large wait times due to large cycle lengths. This was especially noticed at Bardonner Road, Richland Mall Drive, and Ewalt Road. Some people were observed running red arrows for left-turn phases.



SUGGESTIONS:

- Reevaluate the hours of the day that maximum times are in use. It may be possible to reduce cycle lengths during less busy hours which in turn reduces side street and left-turn wait times.
- Reconfirm the side street detection areas.

Figure 10 : Corridor Wide Improvements – Speed Mitigation

OBSERVATIONS: Speeding was mentioned as a concern during the key person interviews and observed throughout the study area.



OR



SUGGESTIONS:

- Make sure there is adequate speed limit signage along the corridor.
- Add speed minder signs.
- Increase enforcement, where possible.

Figure 11 : Corridor Wide Improvements – Transit Service

OBSERVATIONS: There may be future opportunities to enhance transit service in the Route 8 corridor that would serve commuters as well as workers destined for the area. There also appears to be a desire from the local residents for better pedestrian and transit connections (feedback from the comprehensive planning process for both communities)



Area near Primantis



Challenging area near Home Depot/Pep Boys
There are other existing, challenging grade differences along the corridor for sidewalk construction.



Area near Starbucks

SUGGESTIONS:

- As re-development occurs and the potential exists for the corridor to develop into a suburban segment with transit service, enough right-of-way should be preserved to accommodate transit and pedestrians within municipal ordinances that includes sidewalks along Route 8 on both sides.

Figure 12 : Corridor Wide Improvements – Suggested Cross Section

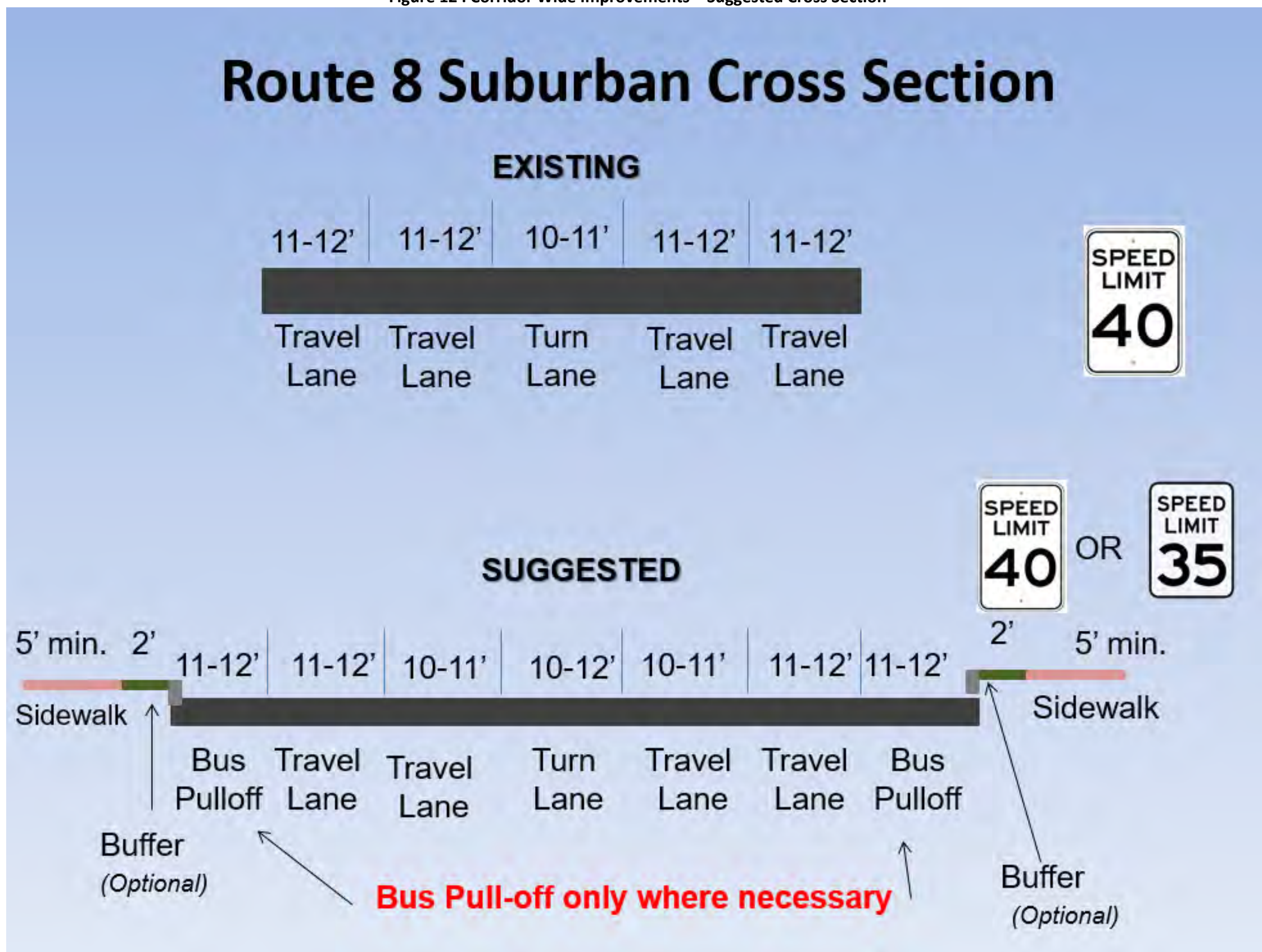


Figure 13 : Corridor Wide Improvements – Transit and Pedestrian Opportunities

Example Park and Ride Facility at Allison Park



New sidewalk near Eatery restaurant

New sidewalk at Mars Bank



Figure 14 : Corridor Wide Improvements – Suggested Park and Ride Facility Locations

OBSERVATION: Lack of residential areas directly adjacent to Route 8 impedes the use of transit along the corridor. However, during Hampton Twp's Comprehensive Plan update outreach, there may be a need in the future to expand transit options along the corridor, in particular Park and Ride facilities.



SUGGESTIONS:

- Consider possible Park and Ride lots at any of the locations shown on this page.

Figure 15 : Location Specific Improvements – State Route 8 and Duncan Ave Pedestrian Accommodations

OBSERVATION: Debris was observed in the curb ramps and on the east side of Route 8. Faded crosswalk and pavement markings were observed.



SUGGESTIONS:

- Clean out debris from sidewalks and curb ramps.
- Repaint crosswalks and other pavement markings through the intersection.

Figure 16 : Location Specific Improvements – State Route 8 and Old Route 8 Turn Restriction Signing

OBSERVATION: South end of Old Route 8 has poor sightlines due to curve. There is a “Do Not Enter” sign however did not observe one way signs on Old Route 8.



SUGGESTIONS:

- Restrict left turns out of Old Route 8 onto State Route 8.
- Remove “Do Not Enter” sign at Old Route 8.
- Properly post as a ONE WAY Street.

Figure 17 : Location Specific Improvements – Clearview Road

OBSERVATION: Clearview Rd has poor sight distance for left turns exiting. This appears to be a higher speed area.



SUGGESTIONS:

- Clear vegetation that restricts sight distance and consider prohibition of left turns out of Clearview Road, if necessary; Mid-Long term, if volumes continue to increase, complete a warrant study for an intersection control beacon or traffic signal and consider radius improvements.

Figure 18 : Location Specific Improvements – State Route 8 and Harts Run Road

OBSERVATIONS: Harts Run Rd has a LOS of E and a future LOS of F. Some signal heads do not have backplates and are on a span wire. There is a damaged visor on a signal head for the Harts Run Rd approach and only one luminaire present. During the AM Peak, there is an occasional split failure on the Harts Run Rd approach. There are also faded pavement markings within the intersection and some damage to the median on the north side of the intersection. There are three faded “No Pedestrian Crossing” signs in the intersection. Debris is falling from hillside onto gutter and southbound lanes.



SUGGESTIONS:

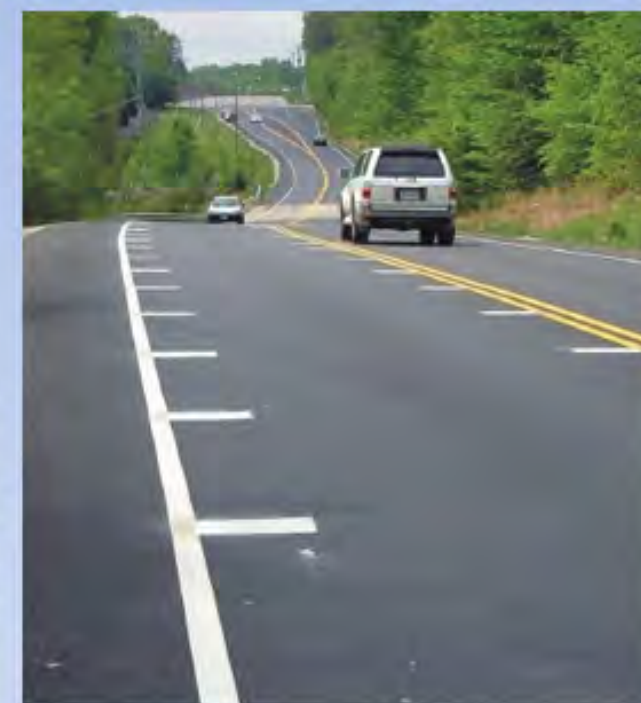
- Replace pavement markings; Install new reflective “No Ped Crossing” signs
- Monitor hillside stability.
- Replace span wires with mast arm design when signal is replaced.
- Long Term: Replace bridge with wider bridge to add capacity for vehicles turning onto State Route 8.

Figure 19 : Location Specific Improvements – State Route 8 Between Harts Run Road and McCully Road

OBSERVATION: High speeds were observed, and high crash counts were reported along S.R. 8 between Harts Run Road and McCully Road. Vertical curvature of State Route 8 obscures visibility of vehicles turning into and out of businesses.



Treatments



SUGGESTIONS:

- Provide advance warning signs on the southbound approach to warn of possible left-turning vehicles into businesses, especially Castlewood Square professional services buildings
- Provide peripheral transverse and/or SLOW ++ pavement markings and additional speed limit signs to reinforce the 40-mph speed limit
- Provide flashing warning devices in advance of driveways.
- Consolidate driveway accesses

Figure 20 : Location Specific Improvements – State Route 8 and McCully Road

OBSERVATION: Turning movements into and out of McCully Road are difficult to maneuver due to high speeds on State Route 8, low sight distance on McCully Road approach, and narrow width of McCully Road (Especially for large vehicles). McCully Road provides access to Hampton High School and Community Center/Parks.



SUGGESTIONS:

- Provide advance warning signs on the northbound approach to warn of buses slowly turning right onto McCully Road.
- Widen and raise the profile of the McCully Road approach for better visibility and approach acceleration onto State Route 8.
- Widen the southeast corner to accommodate school bus turns onto McCully Road
- Mid-Long term, if volumes continue to increase, complete a warrant study for an intersection control beacon or traffic signal.

Figure 21 : Location Specific Improvements – State Route 8 and Craighead Road Geometry

OBSERVATION: The combination of the skew of the Craighead Road approach at State Route 8 and the high speeds observed along State Route 8 make left turns difficult. Multiple skid marks are present through intersection.



SUGGESTIONS:

- Prohibit left-turns into and out of Craighead Road. Craighead Road connects to Mt. Royal Boulevard, which is signalized at its intersection with State Route 8.
- Provide more visible pavement markings on the Craighead Road approach, including a stop bar and a double yellow line.
- Long-Term: Realign Craighead Road approach to align perpendicular with State Route 8 to provide greater sight distance for right-turning vehicles.

Figure 22: Location Specific Improvements – State Route 8 and Mt Royal Boulevard

OBSERVATION: Some of the traffic signal equipment is in need of replacement at Mt. Royal Boulevard. Overhead signal heads do not have backplates. Signs and pavement markings are faded. Pedestrian accommodations do not provide ADA-compliance.



SUGGESTIONS:

- Install backplates with retroreflective borders for greater visibility.
- Install sidewalks to provide pedestrian connectivity around the intersection.
- Install pedestal for the pedestrian signal head on southwest corner (present cone of vision > 30°).
- Replace faded signing and refresh pavement markings.
- Long-Term: Investigate the need to widen State Route 8 for a northbound left-turn lane (in conjunction with left-turn prohibition at Craighead Road).

Figure 23: Location Specific Improvements – State Route 8 and Rachel Carson Hiking Trail

OBSERVATIONS: The Rachel Carson hiking trail is not well marked. According to mapping, it crosses State Route 8 at a midblock location just south of the Wildwood Road intersection across four lanes of traffic.



Rachel Carson Trail

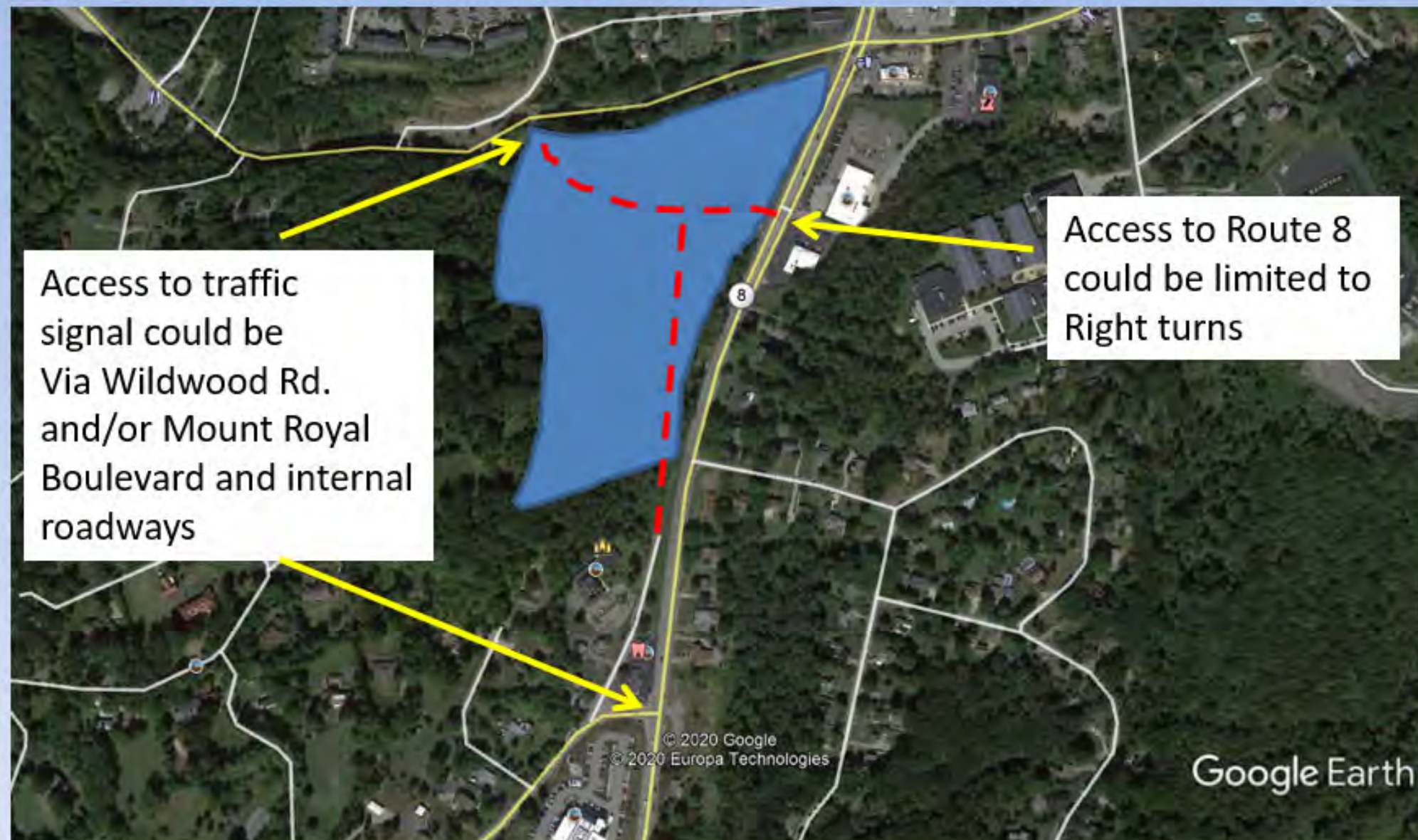


SUGGESTIONS:

- Consider additional destination and trail signage to make the public aware of the trail especially at trail access points. Consider a safer, controlled crossing of State Route 8 (for example at the Wildwood Road signal)

Figure 24: Location Specific Improvements – New Development near Wildwood Road and State Route 8

OBSERVATIONS: New development in the parcel on the southwest corner of the State Route 8/Wildwood Road intersection appears to be poised for the short- to mid-term. Proposals have included a driveway located at a new signal opposite the Aldi's Driveway.



SUGGESTIONS:

- Any access plan should consider proper driveway and signal spacing and should emulate the shared access plan of the Aldi's/Dollar Tree/Napa Auto Parts/McDonalds on the southeast corner.

Figure 25: Location Specific Improvements – Wildwood Road and State Route 8

OBSERVATIONS: The intersection with Wildwood Road has failing levels of service. Queues are common. Both side street approaches are single lane. School bus traffic is very heavy here.



SUGGESTIONS:

- Add capacity through this intersection by widening the side street approaches.
- Less mitigation would be needed to widen the westbound direction, which has higher volumes
- Consider adding left-turn signal phasing for the side streets.
- Additional capacity will be necessary to improve levels of service at this intersection. Exclusive right-turn lanes should be considered in the future.

Figure 26: Location Specific Improvements –State Route 8 and Talley Cavey Road

OBSERVATIONS: There is only one legal crossing for pedestrians at this intersection. This presents a dead end for pedestrians with limited options.



SUGGESTIONS:

- Short/mid term: Provide an additional legal crossing at the Oxford Driveway. Use piano key style crosswalk markings. Provide ADA compliant ramps.
- Long term: When redevelopment and sidewalks are considered, establish other legal crossings at this intersection.

Figure 27: Location Specific Improvements –State Route 8 and Shoppers Plaza Driveway

OBSERVATION: ADA is generally good at the signalized intersections along the corridor, however the southbound free-right movement at Shoppers Plaza Driveway lacks a curb ramp.



SUGGESTIONS:

- Upgrade the crosswalk to provide curb ramps with detectable warning surface at both ends of the crosswalk across the free right movement. Signalization is not necessary for the free right.
- Repaint the crosswalk with the high visibility (piano key) style marking.

Figure 28: Location Specific Improvements –State Route 8 and Bardonner Road Left-Turn Lanes

OBSERVATIONS: There is a crash cluster of rear end and angle crashes at East and West Bardonner Roads. There is a significant amount of left turns being made at this intersection (especially Southbound) without left turn lanes.



SUGGESTIONS:

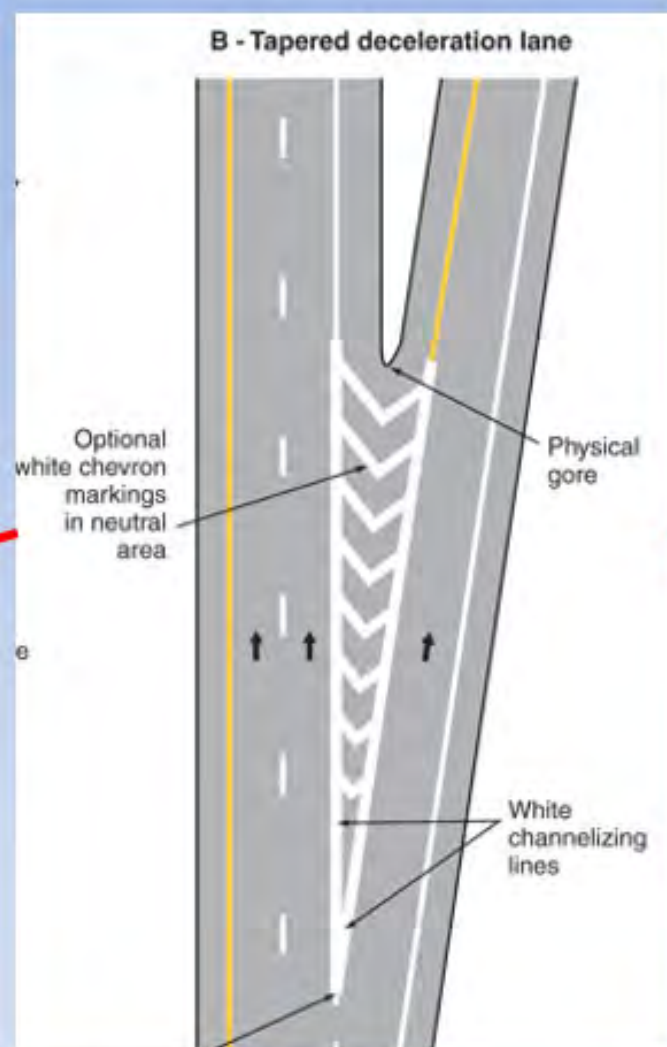
- Mid-Long term: Widen State Route 8 to provide northbound and southbound left turn lanes.
- Long-term: Widen westbound Bardonner Road approach to provide a two-lane approach.

Figure 29: Location Specific Improvements – State Route 8 and Bardonner Road Left-Turn Lanes



Figure 30: Location Specific Improvements – State Route 8 and Pennsylvania Turnpike Interchange

OBSERVATION: There is missing gore striping at the turnpike interchange. It was observed that one vehicle mistakenly used the on ramp instead of the State Route 8 through lane.



SUGGESTION:

- Restripe or add optional white gore striping to State Route 8 northbound and State Route 8 southbound ramps to the turnpike.

CONSIDERATIONS:

- See PA Turnpike's Cashless Tolling study for additional information for this area.

Figure 31: Location Specific Improvements – State Route 8 and Pennsylvania Turnpike Interchange



SUGGESTION:

- Add overhead lane designation signage to the bridge for State Route 8 southbound and the turnpike ramp.

Figure 32: Location Specific Improvements – State Route 8 and Pennsylvania Turnpike Interchange

OBSERVATION: There is a sloped jersey barrier at the State Route 8 northbound ramp to the turnpike that if struck could launch a vehicle.



SUGGESTION:

- Remove the sloped jersey barrier and replace with an impact attenuator.

Figure 33: Location Specific Improvements – State Route 8 and Rinalli Drive

OBSERVATION: The sight distance is limited due to vegetation and the Clubhouse sign. Also, across the street near the Exquisite Bride, there are parallel parking spaces near the curb and new sidewalk.



SUGGESTION:

- Restrict left turns out of Rinalli Drive or relocate Clubhouse Signage.
- Remove parallel parking spaces.

Figure 34: Location Specific Improvements – State Route 8 and Pioneer Road Truck Movements

OBSERVATION: Trucks and other vehicles were seen turning left into North Pioneer Road, however in order to accomplish this, they turned from the hatched median. Trucks were observed with their trailers still in the northbound lanes causing additional conflicts. Turning left out of Pioneer Road is difficult due to sight distance and State Route 8 volumes.



Figure 35: Location Specific Improvements – State Route 8 and Pioneer Road Left-Turn Lanes



SUGGESTIONS:

- Extend the left turn lane from Richland mall to accommodate left turns into Pioneer Road.
- Hatch out wide pavement on Pioneer Road and realign center yellow line.
- Restrict left turns out of Pioneer Road onto State Route 8 north.

Figure 36: Location Specific Improvements – State Route 8 and Ewalt Road

OBSERVATION: Perpendicular parking is directly adjacent to Ewalt Road, causing a safety issue and possibly interfering with the signal detection system.



SUGGESTIONS:

- Provide curbing along the parking area adjacent to Ewalt Road
- Evaluate the detection system to determine if parking is interfering with signal detection

Figure 37: Location Specific Improvements – State Route 8 and Applewood Drive

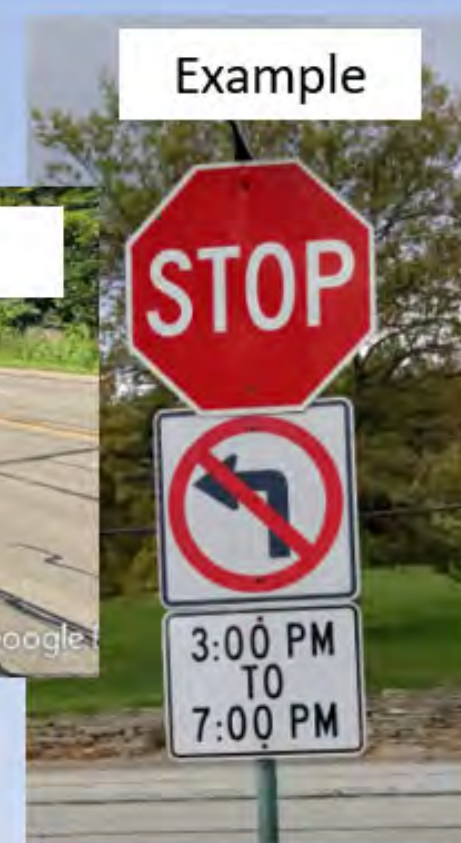
OBSERVATION: It was observed to be difficult to make left turn from Applewood Drive on to State Route 8, particularly during the afternoon peak period, due to minimal gaps and sight distance concerns. Same was observed for the northern and southern ends of Westland Drive's intersection with Route 8.



Sight distance looking left



Example



SUGGESTION:

- Consider LT prohibitions during the PM Peak Hour.
- Remove obstructions/cut back vegetation at Westland Drive and Applewood Drive

CONSIDERATIONS:

- Upcoming maintenance season.
- Alternate routes (would require use of State Route 910).

Figure 38: Location Specific Improvements – State Route 8 Sidewalk Improvements Between Applewood Drive and Community Center Drive

OBSERVATION: Currently there is a sidewalk gap between Applewood Drive and Community Center Drive.



SUGGESTION:

- Provide missing link of sidewalk between Applewood Dr and Community Center Dr.

CONSIDERATIONS:

- Township Maintenance Agreement
- Utility Conflicts

Figure 39: Location Specific Improvements – State Route 8 and State Route 910, Gibsonia Road

OBSERVATION: At the Intersection there are numerous driveways adjacent to the intersection, the intersection has poor level of service and there are geometry concerns for turning vehicles from State Route 910 westbound. Community Center Drive has poor level of service and cut-through activity was observed.

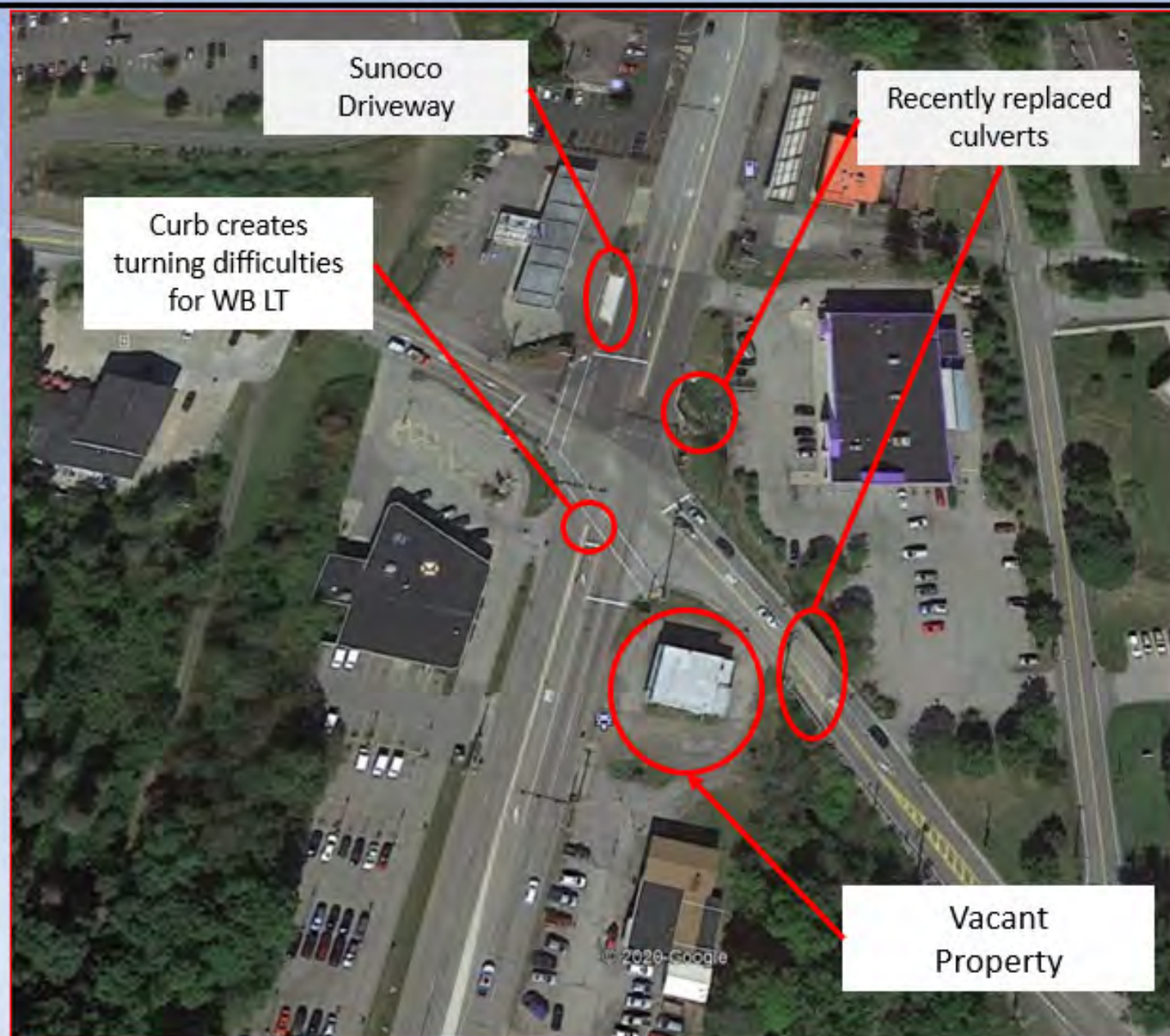


Figure 40: Location Specific Improvements – State Route 8 and State Route 910, Gibsonia Road (Short-Term)

Work with
property owners
to condense
access at the
Sunoco Station
and at the Post
Office



SUGGESTION:

- Property owners should work with PennDOT and the Township to condense access to Sunoco Station and the Post Office for safer ingress and egress.

CONSIDERATIONS:

- HOP Agreements

Figure 41: Location Specific Improvements – State Route 8 and State Route 910, Gibsonia Road (Short-Term)



SUGGESTION:

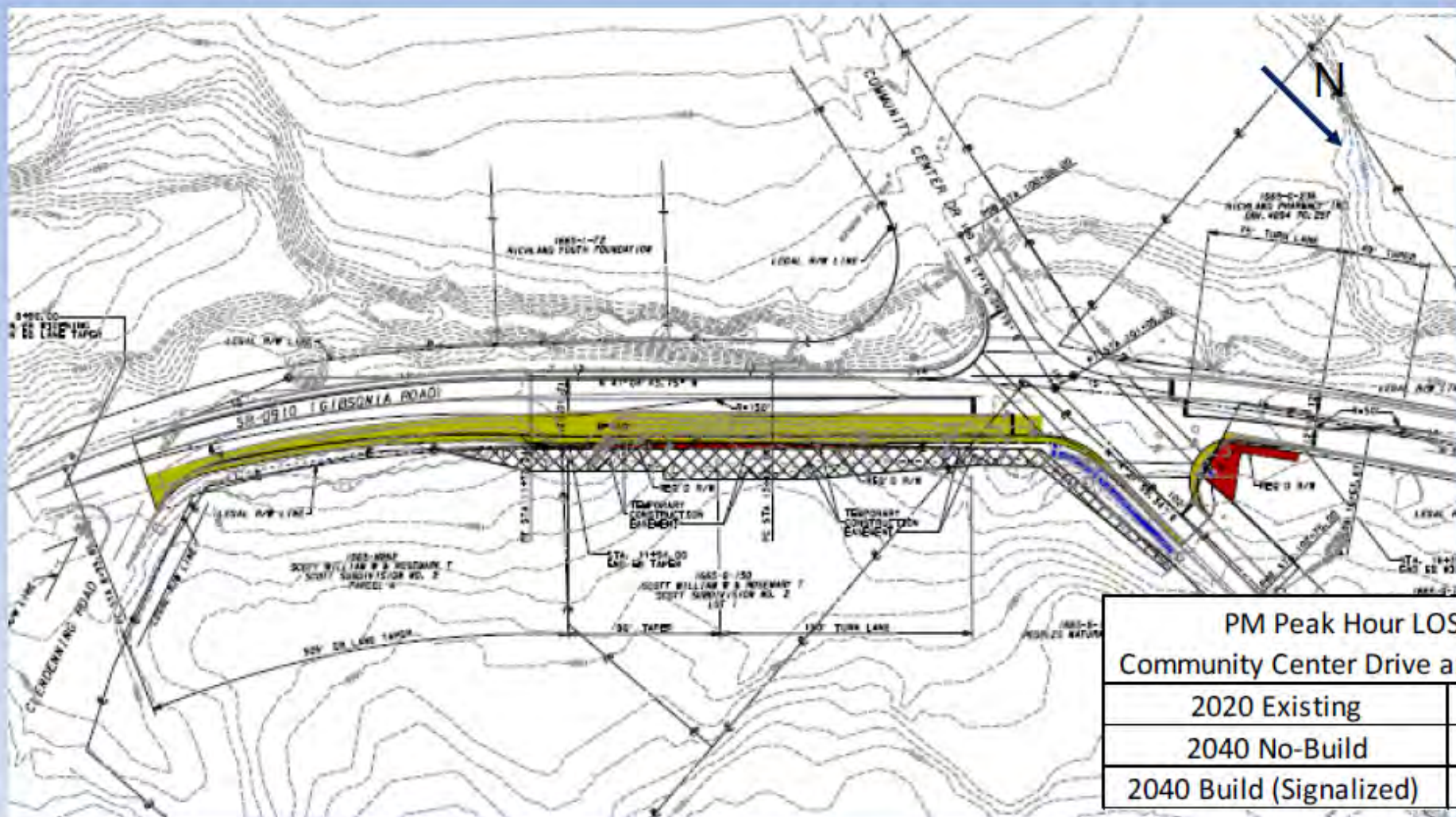
- Investigate the feasibility of acquiring right of way to create a channelized right-turn lane.
- Shorten pedestrian crossing

CONSIDERATIONS:

- ROW Considerations
- Heavy Vehicle Turning Movement Considerations

Figure 42: Location Specific Improvements – State Route 910 and Community Center Drive

OBSERVATION: The intersection of State Route 910 and Community Center Drive experiences significant congestion during the afternoon peak period. Each approach on Community Center Drive is currently stop-controlled.



SUGGESTION:

- Provide widening in accordance with the plan provided for the westbound approach.
- PennDOT has previously approved a traffic signal at this location

CONSIDERATIONS:

- Interaction with State Route 8/State Route 910 intersection traffic volumes.

Figure 43: Location Specific Improvements – State Route 910 and Community Center Drive Connections

OBSERVATION: Residents leaving housing complex on foot have to cross Community Center Drive and State Route 8 to get to their desired destinations with current configuration of crosswalks. Northern Region Police mentioned unsafe crossings in the kickoff meeting and it was witnessed during site visits.

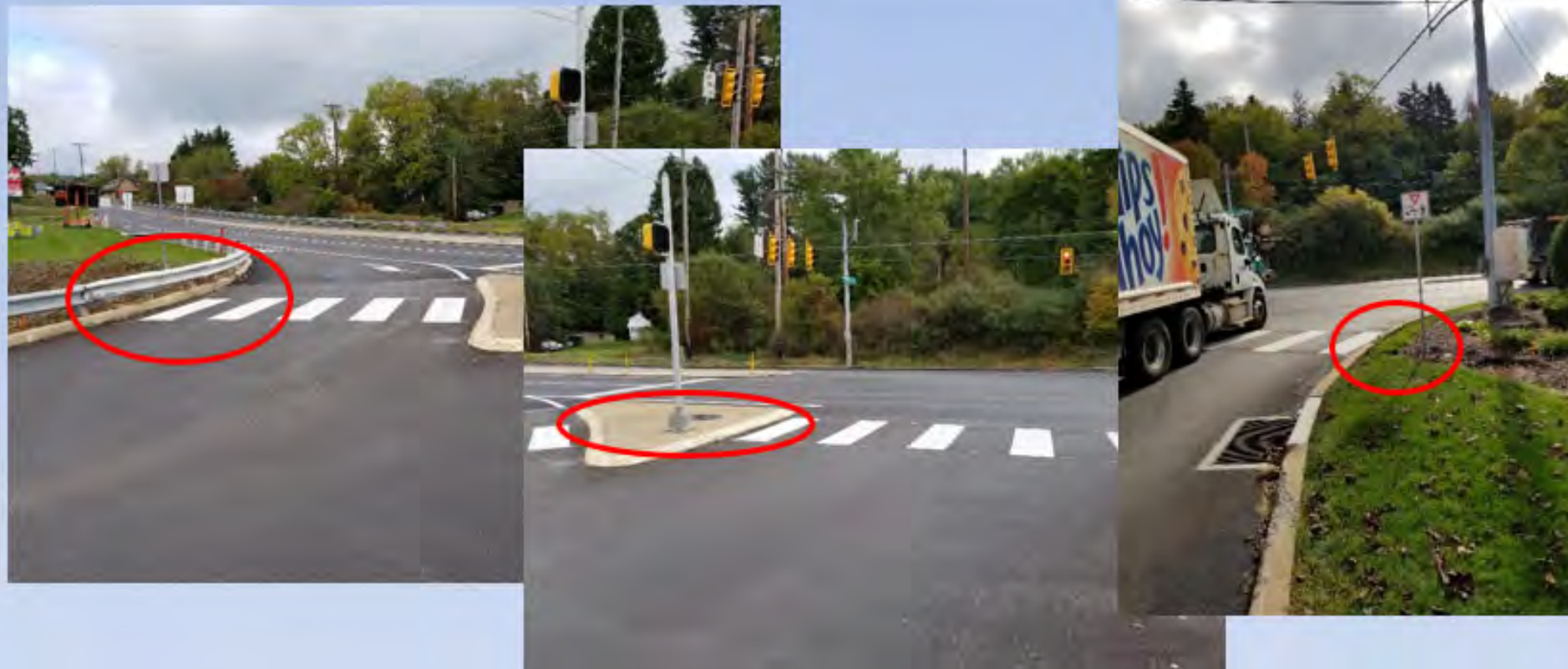


SUGGESTIONS:

- Explore safer, more accessible routes for residents of the complex.
- Potentially extend sidewalk connections along Community Center Drive and State Route 910.

Figure 44: Location Specific Improvements – State Route 8 and Northtowne Square Drive Pedestrian Accommodations

OBSERVATION: Pedestrian accommodations are incomplete at the intersection of State Route 8 with Northtowne Drive. Crosswalks terminate at guiderail or curbed islands.



SUGGESTION:

- Provide ADA compliant curb ramps where lacking to complete pedestrian accommodations at the intersection.

Figure 45: Location Specific Improvements – State Route 8 and Grandview Crossing/Grandview Drive

OBSERVATION: Several of the pedestrian push button signs at the intersection are faded and illegible. There is an existing manhole that appears to be deteriorated and creates operational issues should a vehicle traverse it.



SUGGESTION:

- Replace faded signs.
- Repair pavement around manhole.

Figure 46: Location Specific Improvements – State Route 8 and Grandview Crossing/Grandview Drive

OBSERVATION:

Sidewalk connections through this complex and adjacent neighborhood of Grandview show areas that can be accessible to the user without having to drive a car.



SUGGESTIONS:

- Continue to expand upon existing sidewalk network.
- As other areas around Grandview continue to develop, continue to expand pedestrian accommodations.

Figure 47: Location Specific Improvements – State Route 8 and Lee Road School Bus Stop

OBSERVATION: At the intersection with Lee Road, there is a Pine-Richland School District bus stop along State Route 8 that is currently not marked. This stop was identified by the Pine-Richland School District.



SUGGESTION:

- Provide advance notification/signage of the presence of the bus stop at the Lee Road intersection.

Figure 48: Location Specific Improvements – State Route 8 and the Bakerstown Road Interchange

OBSERVATION: At the Bakerstown Road interchange, several issues were noted:

- Lack of pavement markings
- Inadequate sight distance and excessive speeds
- Poor or irrelevant signage
- Current ramp design is outdated and not up to current ADA standards.



Figure 49: Location Specific Improvements – State Route 8 and the Bakerstown Road Interchange (Short-Term)

OBSERVATION: At the Bakerstown Road interchange, several issues were noted:

- Lack of pavement markings and obscured signage



Remove brush in front of signs



SUGGESTIONS:

- Provide updated pavement markings
- Ensure clear visibility of all signage.

Figure 50: Location Specific Improvements – State Route 8 and the Bakerstown Road Interchange (Short-Term)

OBSERVATION: At the Bakerstown Road intersection/interchange, several issues were noted:

- Inadequate sight distance and excessive speeds



SUGGESTION:

- Targeted Speed Enforcement in area of Car Dealership Crossing/Dip in order to curb high speeds adjacent to 'ramp' entrances to State Route 8

Figure 51: Location Specific Improvements – State Route 8 and Bakerstown Road Interchange (Long-Term Suggestion 1)

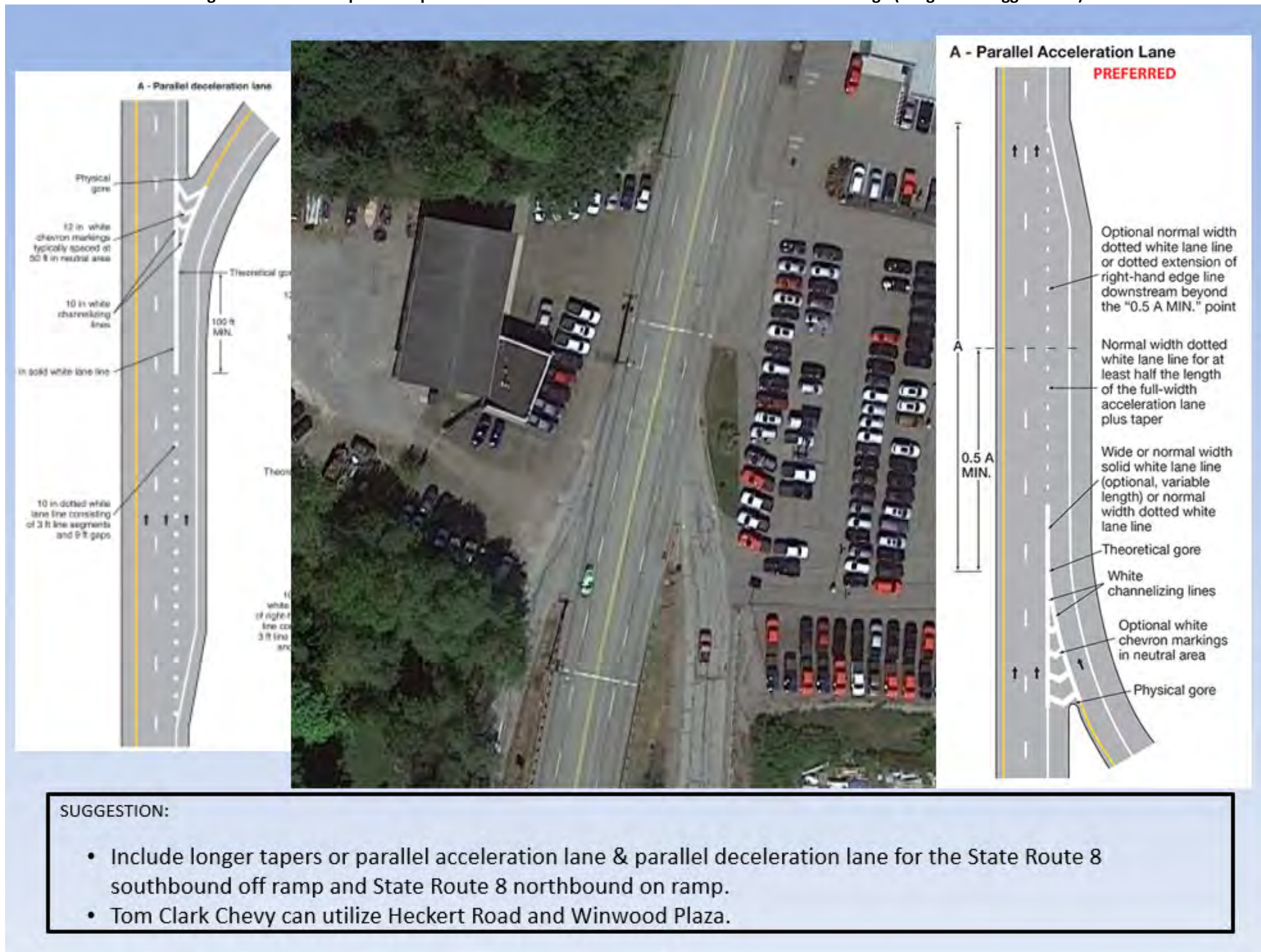


Figure 52: Location Specific Improvements – State Route 8 and Bakerstown Road Interchange (Long-Term Suggestion 2)

OBSERVATION: At the Bakerstown Road intersection/interchange, several issues were noted:

- Inadequate sight distance and excessive speeds



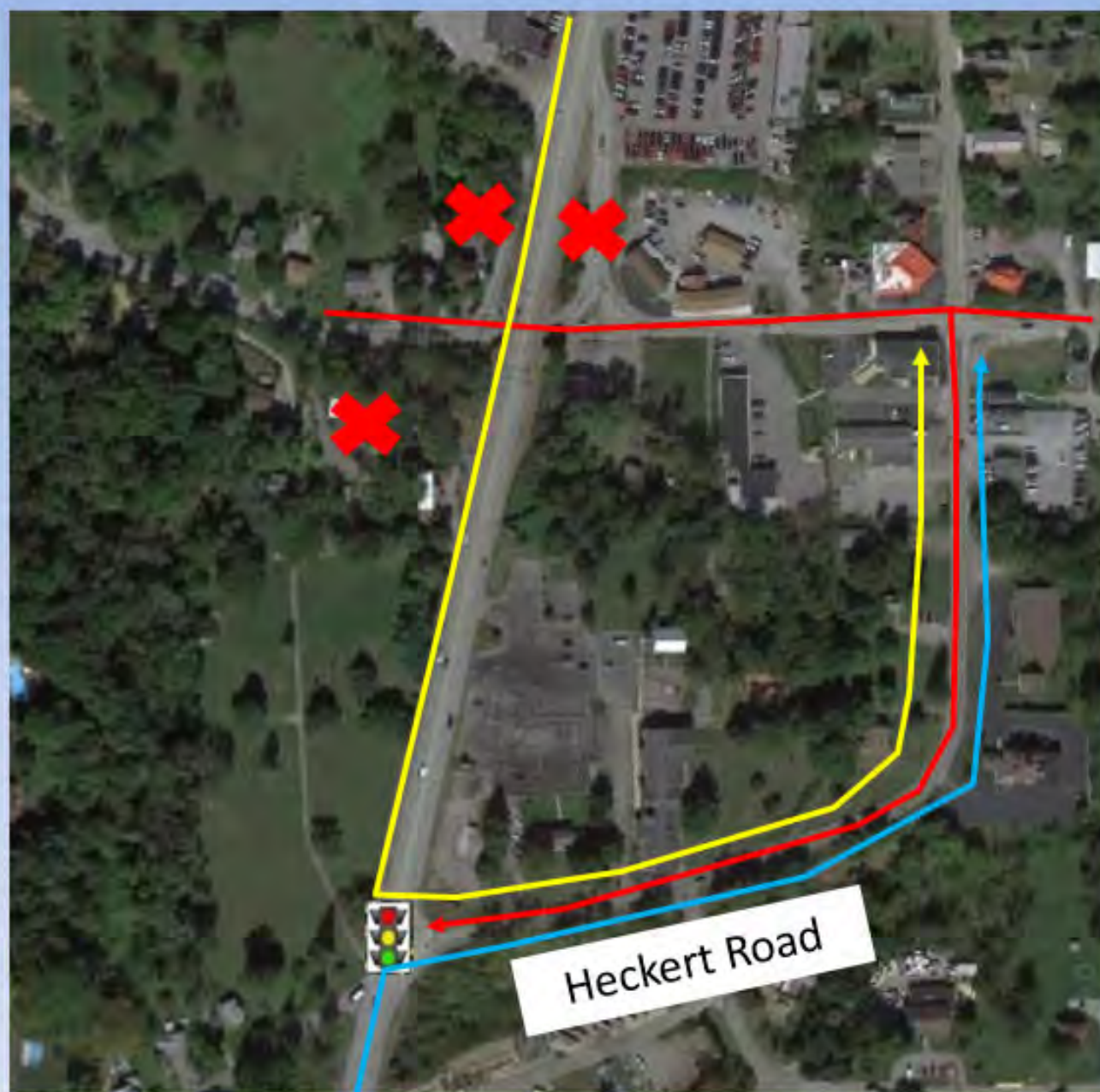
SUGGESTION:

- Reconstruct Bridge to permit better sight distance along Bakerstown Road.
- Perform an Alternative Analysis to determine whether the interchange should be improved or eliminate the interchange and divert traffic onto Heckert Road.

CONSIDERATIONS:

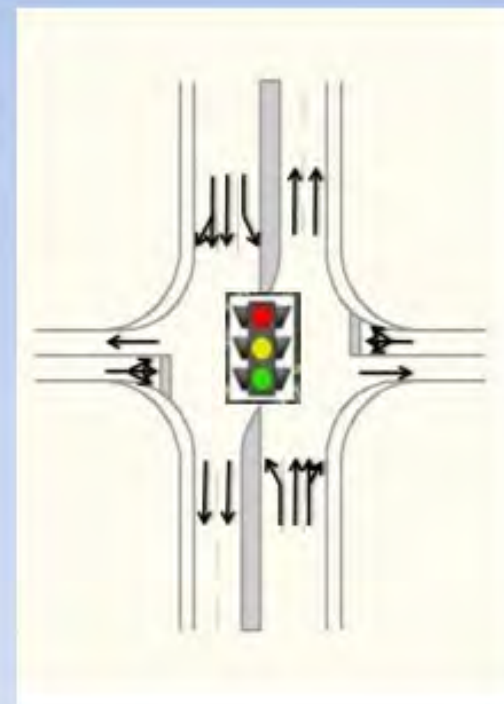
- Cost
- ROW
- MPT/Constructability

Figure 53: Location Specific Improvements – State Route 8 and Bakerstown Road Interchange (Long-Term Suggestion 3)



Legend:

- Bakerstown to State Route 8 NB & SB
- State Route 8 SB to Bakerstown
- State Route 8 NB to Bakerstown



SUGGESTIONS:

- Eliminate all existing ramps and relocate access to Bakerstown road to a new signal at Heckert Drive and incorporate St. George Dr into the signal.
- Turning lanes will need to be added on State Route 8 for the new signal and potential widening of Heckert Drive will need to be evaluated.
- Evaluate the 4 way stop at Bakerstown and Heckert Road and need for a traffic signal.

Figure 54: Location Specific Improvements – State Route 8 and Bakerstown Road Interchange (Long-Term Suggestion 4)



SUGGESTION:

- Eliminate all existing ramps.
- If Pittsburgh North Driving Range were to be redeveloped, consider adding new connections between Bakerstown Road and Legion Drive as an alternative to eliminate the ramps.

4. Potential Funding Sources

In order to move forward with the suggested improvements in this document, funding needs to be secured by roadway owners. A number of funding mechanisms are available for roadway owners ranging from federal and state funds to private dollars. Below is a list of some potential funding mechanisms.

- State and federal transportation funds through the Southwestern Pennsylvania Commission Transportation Improvement Program (TIP).
- State discretionary funding programs:
 - DCED Multi-Modal Fund
 - DCNR Greenways, Trails, and Recreational Program
 - DCED Municipal Assistance Program
 - DCNR Growing Greener
 - PennDOT Rail Freight Assistance Program
 - DCED Keystone Communities Program
- SPC Transportation Alternatives Program, Livability through Smart Transportation Program, and the Congestion Mitigation and Air Quality Program.
- Green Light Go, ARLE, SPC signal program for signal improvements.
- Liquid fuels and Act 13 for local roadway improvements.
- PA Infrastructure Bank.
- Partnering with private industry and developers.

5. Next Steps for Roadway Owners

Upon receipt and review of the final report, the roadway owner(s) have the option to prepare a formal response. A formal response could document plans to address identified issues and reasons to defer other issues. Roadway owners should work together to incorporate the suggestions in this document into future projects and planning documents at the Municipal, County and Regional levels. Roadway owners are encouraged to collaborate with one another to develop coordinated, comprehensive projects and plans to improve the operations and safety along the corridor.

Roadway owners should collaborate to create larger, comprehensive projects instead of several smaller, individual ones. A corridor committee could be created with all roadway owners as participants to identify comprehensive projects to move forward with programming, design and funding. It is recommended that the corridor wide short-term improvements identified in the study be evaluated by the roadway owners to determine which improvements can be addressed through local municipality maintenance and operation funds. More involved, long-term improvements should be pursued through SPC's project development process in which local funds can be leveraged with additional state and federal funds to address the improvement requirements.

With the current financial climate, competition for available transportation funding continues to increase along with the scrutiny of each proposed project. Decision-makers may be more likely to select a collaborative, comprehensive project that's going to improve mobility and safety within a region instead of an isolated community.

Tables 7-8 provide a list of proposed improvements and the respective roadway owners responsible for each improvement.

Table 7: Short- and Mid-term Improvements (1-5 years)

Suggested Improvement	Responsible Party
Mitigate current access management issues by requiring traffic impact studies as part of any future development or redevelopment for projects accessing local roads. The study should evaluate roadway capacity, signal interconnection, and access management.	HT, RT, DOT
Create an access management ordinance and consider parcel interconnections.	HT, RT
Create an official map for future roadways as development continues.	HT, RT
Periodically clean curb ramps and sidewalks for better walkability and visibility. Provide proper vegetation management and weed control for sidewalks and curb ramps.	HT, RT
Reevaluate the hours of the day that maximum times for the adaptive signal system are in use. It may be possible to reduce cycle lengths during less busy hours which in turn reduces side street and left-turn wait times. Additionally, reconfirm the side street detection areas.	HT, RT, DOT
Make sure there is adequate speed limit signage along the corridor.	HT, RT
Add speed minder signs to help mitigate speeding along the corridor.	HT, RT
Increase speed enforcement, where possible.	HT, RT
At State Route 8 and Duncan Ave, clean out debris from sidewalks and curb ramps.	HT
At State Route 8 and Duncan Ave, repaint crosswalks and other pavement markings through the intersection.	HT
Restrict left turns out of Old Route 8 onto State Route 8. Remove "Do Not Enter" sign at Old Route 8. Properly post as a ONE WAY Street.	HT
Clear vegetation that restricts sight distance and consider prohibition of left turns out of Clearview Road onto State Route 8, if necessary.	HT, DOT
At State Route 8 and Harts Run Road, replace pavement markings.	HT
At State Route 8 and Harts Run Road, install new reflective "No Ped Crossing" signs	HT
On State Route 8 between Harts Run Road and McCully Road, provide advance warning signs on the southbound approach to warn of possible left-turning vehicles into businesses, especially Castlewood Square professional services buildings.	HT, DOT
On State Route 8 between Harts Run Road and McCully Road, provide peripheral transverse and/or SLOW ++ pavement markings and additional speed limit signs to reinforce the 40-mph speed limit.	HT, DOT
On State Route 8 between Harts Run Road and McCully Road, provide flashing warning devices in advance of driveways.	HT, DOT
On State Route 8 between Harts Run Road and McCully Road, consolidate driveway accesses.	HT
At State Route 8 and McCully Road, provide advance warning signs on the northbound approach to warn of buses slowly turning right onto McCully Road.	HT
State Route 8 and Craighead Road, prohibit left-turns into and out of Craighead Road. Craighead Road connects to Mt. Royal Boulevard, which is signalized at its intersection with State Route 8.	HT, DOT
State Route 8 and Craighead Road, provide more visible pavement markings on the Craighead Road approach, including a stop bar and a double yellow line.	HT
At State Route 8 and Mt Royal Boulevard, install backplates with retroreflective borders for greater visibility.	HT

Key: (DOT)-PennDOT; (HT)-Hampton Township; (RT)-Richland Township; (PA)-Port Authority of Allegheny County; TPK-PA Turnpike

Suggested Improvement	Responsible Party
At State Route 8 and Mt Royal Boulevard, install sidewalks to provide pedestrian connectivity around the intersection.	HT
At State Route 8 and Mt Royal Boulevard, install pedestal for the pedestrian signal head on southwest corner (present cone of vision > 30°).	HT, DOT
At State Route 8 and Mt Royal Boulevard, replace faded signing and refresh pavement markings.	HT
At State Route 8 and the Rachel Carson Hiking Trail, consider additional destination and trail signage to make the public aware of the trail especially at trail access points. Consider a safer, controlled crossing of State Route 8 (for example at the Wildwood Road signal)	HT
For the new development near Wildwood Road and State Route 8, consider proper driveway and signal spacing as development proceeds, and emulate the shared access plan of the Aldi's/Dollar Tree/Napa Auto Parts/McDonalds on the southeast corner.	HT, DOT
At State Route 8 and Talley Cavey Road, provide an additional legal crossing at the Oxford Driveway. Use piano key style crosswalk markings. Provide ADA compliant ramps.	HT
At State Route 8 and the Shoppers Plaza Driveway, upgrade the crosswalk to provide curb ramps with detectable warning surface at both ends of the crosswalk across the free right movement.	HT
At State Route 8 and the Shoppers Plaza Driveway, repaint the crosswalk with the high visibility (piano key) style marking.	HT
At State Route 8 and Bardonner Road, widen State Route 8 to provide northbound and southbound left turn lanes.	HT, DOT
Near State Route 8 and the Pennsylvania Turnpike Ramps, restripe or add optional white gore striping to the northbound and southbound ramps.	DOT
Near State Route 8 and the Pennsylvania Turnpike Ramps, add overhead lane designation signage to the bridge for State Route 8 southbound and the turnpike ramp.	DOT, TPK
Near State Route 8 and the Pennsylvania Turnpike Ramps, remove the sloped jersey barrier and replace with an impact attenuator.	DOT, TPK
At State Route 8 and Rinalli Drive, Restrict left turns out of Rinalli Drive or relocate Clubhouse Signage. Also, remove parallel parking spaces.	RT
At State Route 8 and Pioneer Road, Extend the left turn lane from Richland mall to accommodate left turns into Pioneer Road. Hatch out wide pavement on Pioneer Road and realign center yellow line. Restrict left turns out of Pioneer Road onto State Route 8 north.	RT
At State Route 8 and Ewalt Road, provide curbing along the parking area adjacent to Ewalt Road	RT
At State Route 8 and Ewalt Road, evaluate the detection system to determine if parking is interfering with signal detection	RT
At State Route 8 and Applewood Drive, consider left-turn prohibitions during the PM peak hour.	RT, DOT
At State Route 8 and Applewood Drive, remove obstructions/cut back vegetation near the intersection of Applowood Drive and Westland Drive.	RT, DOT

Suggested Improvement	Responsible Party
At State Route 8 and State Route 910, property owners should work with PennDOT and the Township to condense access to Sunoco Station and the Post Office for safer ingress and egress.	RT, DOT
At State Route 910 and Community Center Drive, explore safer, more accessible routes for residents of the complex. Potentially extend sidewalk connections along Community Center Drive and State Route 910.	RT
At State Route 8 and Northtowne Drive, provide ADA compliant curb ramps where lacking to complete pedestrian accommodations at the intersection.	RT
At State Route 8 and Grandview Crossing/Grandview Drive, Replace faded pedestrian signs. Repair pavement around manhole.	RT
At State Route 8 and Lee Road, provide advance notification/signage of the presence of the bus stop at the Lee Road intersection.	RT
At State Route 8 and the Bakerstown Road Interchange, provide updated pavement markings and ensure clear visibility of all signage.	RT
At State Route 8 and the Bakerstown Road Interchange, provide targeted speed enforcement in area of the cardDealershipcCrossing/dip in order to curb high speeds adjacent to 'ramp' entrances to State Route 8.	RT

Table 8: Long-term Improvements (5+ years)

Suggested Improvement	Responsible Party
Combine driveways and interconnect existing parcels.	HT, RT
Redesign certain mid-block State Route 8 sections to a five-lane configuration with a Two Way Left Turn Lane (TWLTL). Consider reducing current lane width to minimize widening and additional right-of-way required while encouraging traffic calming to lower speeds in sections. This could be effective in the following areas: Wildwood Road to McNeil Road; Bardonner Road to Pennsylvania Turnpike; Hardies Road to Ewalt Road	HT, RT, DOT
Lengthen left turn storage bays at locations identified in the report to handle traffic in a 20-year design horizon.	HT, RT, DOT
Retrofit detectable warning surfaces (DWS) or replace ramps, to the extent possible, so DWS provides visual contrast. Specifically, brick red DWS in concrete (dark-on-light), federal yellow DWS in asphalt (light-on-dark).	HT, RT, DOT
Upgrade lighting through the corridor in dark areas and at intersections where pedestrians may cross, particularly residential areas between Anderson Drive and Duncan Avenue. Use a white light, which is better for color distinction and consider LED lighting, which uses less energy than traditional lighting and provides better color distinction.	HT, RT
As re-development occurs and the potential exists for the corridor to develop into a suburban segment with transit service, enough right-of-way should be preserved to accommodate transit and pedestrians within municipal ordinances that includes sidewalks along Route 8 on both sides.	HT, RT
Consider possible Park and Ride lots at any of the locations shown within the report.	HT, RT, DOT
At State Route 8 and Harts Run Road, replace span wires with mast arm design when signal is replaced.	HT, DOT
Monitor the hillside stability along State Route near Harts Run Road.	HT, DOT
At State Route 8 and Harts Run Road, replace bridge with wider bridge to add capacity for vehicles turning onto State Route 8.	DOT
At Clearview Road and State Route 8, if volumes continue to increase, complete a warrant study for an intersection control beacon or traffic signal and consider radius improvements.	HT, DOT
At State Route 8 and McCully Road, widen and raise the profile of the McCully Road approach for better visibility and approach acceleration onto State Route 8.	HT, DOT
At State Route 8 and McCully Road, widen the southeast corner to accommodate school bus turns onto McCully Road.	HT, DOT
At State Route 8 and McCully Road, if volumes continue to increase, complete a warrant study for an intersection control beacon or traffic signal.	HT, DOT
State Route 8 and Craighead Road, realign Craighead Road approach to align perpendicular with State Route 8 to provide greater sight distance for right-turning vehicles.	HT, DOT
At State Route 8 and Mt Royal Boulevard, investigate the need to widen State Route 8 for a northbound left-turn lane (in conjunction with left-turn prohibition at Craighead Road).	HT, DOT

Suggested Improvement	Responsible Party
At Wildwood Road and State Route 8, Add capacity through this intersection by widening the side street approaches. Less mitigation would be needed to widen the westbound direction, which has higher volumes. Consider adding left-turn signal phasing for the side streets. Additional capacity will be necessary to improve levels of service at this intersection. Exclusive right-turn lanes should be considered in the future.	HT, DOT
At State Route 8 and Talley Cavey Road, when redevelopment and sidewalks are considered, establish other legal crossings at this intersection.	HT, DOT
At State Route 8 and Bardonnier Road, widen the westbound approach to provide a two-lane approach.	HT, DOT
On State Route 8, between Applewood Drive and Community Center Drive, provide missing link of sidewalk between Applewood Dr and Community Center Dr.	RT
At State Route 8 and State Route 910, investigate the feasibility of acquiring the available right of way to create a channelized right-turn lane with porkchop island. With this, shorten the pedestrian crossing.	RT, DOT
State Route 910 and Community Center Drive, widen in accordance with the plan shown in the report. PennDOT previously approved a traffic signal at this location.	RT, DOT
At State Route 8 and Grandview Crossing/Grandview Drive, Continue to expand upon existing sidewalk network. As other areas around Grandview continue to develop, continue to expand pedestrian accommodations.	RT
At State Route 8 and the Bakerstown Road Interchange, upgrade to include longer tapers or parallel acceleration lane and parallel deceleration lane for the State Route 8 southbound off ramp and State Route 8 northbound on ramp.	RT, DOT
At State Route 8 and the Bakerstown Road Interchange, reconstruct bridge to permit better sight distance along Bakerstown Road.	DOT
At State Route 8 and the Bakerstown Road Interchange, consider an option to eliminate all existing ramps and relocate access to Bakerstown Road to a new signal at Heckert Drive and incorporate St. George Dr into the signal. Turning lanes will need to be added on State Route 8 for the new signal and potential widening of Heckert Drive will need to be evaluated. Evaluate the 4 way stop at Bakerstown and Heckert Road and need for a traffic signal.	DOT
At State Route 8 and the Bakerstown Road Interchange, consider an option to eliminate all existing ramps and use Heckert Road for all movements. If Pittsburgh North Driving Range were to be redeveloped, consider adding new connections between Bakerstown Road and Legion Drive as an alternative to eliminate the ramps.	DOT

Appendix A

(See Compact Disc)

Appendix B