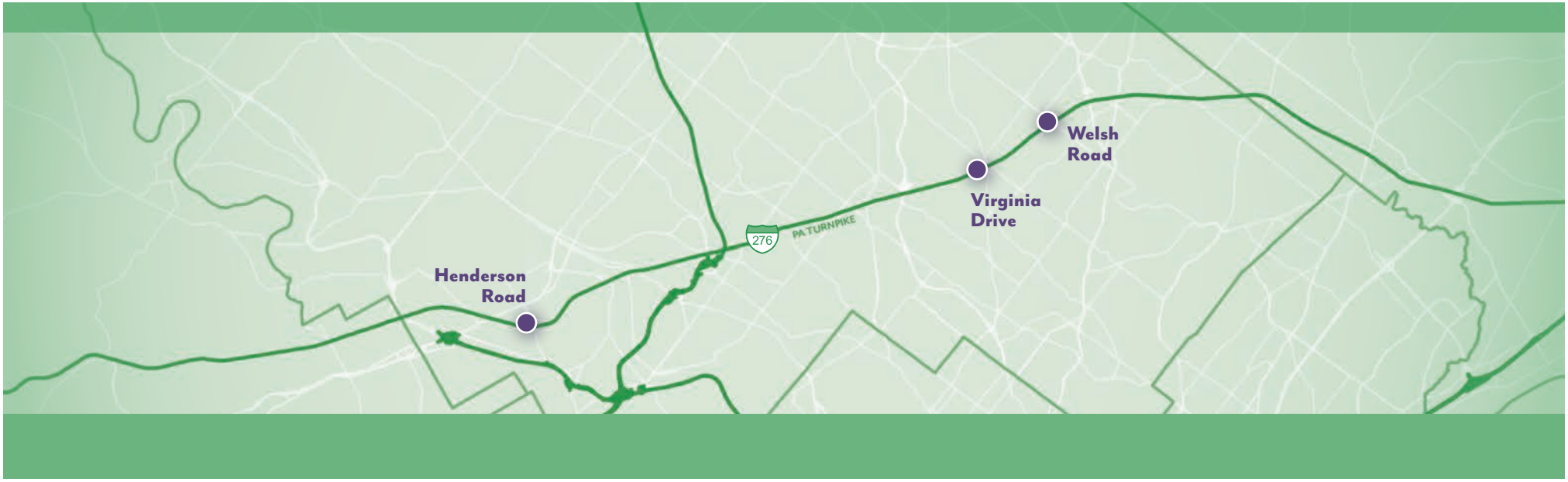
MAY 2021

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

MONTGOMERY COUNTY

Pennsylvania Turnpike Interchange Study



The Delaware Valley Regional Planning Commission

is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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Executive Summary

Purpose

Building on Montgomery County's 2015 Pennsylvania Turnpike Corridor Reinvestment Study, this Delaware Valley Regional Planning Commission (DVRPC) study evaluates three proposed new or completed Pennsylvania (PA) Turnpike interchanges, as shown in **Figure 2**:

1. **Henderson Road** in Upper Merion Township;
2a. **Welsh Road** at the boundary of Upper Dublin Township, Upper Moreland Township, and Horsham Township; and
2b. **Virginia Drive** in Upper Dublin Township.

The three proposed interchanges are divided into two study areas based on location. The Welsh Road and Virginia Drive interchanges were studied independently of the proposed Henderson Road interchange. The main goals of the evaluations were to inform the public and local decision makers of the likely impacts of the new interchanges on the local roadway network and to identify additional roadway improvements to mitigate negative impacts.

Approach

Work for this study was conducted over three years, guided by two separate steering committees, one for each study area. The steering committees comprised representatives from municipalities within the study area, state and county transportation planners and engineers, economic development organizations, and transportation management associations.

Over the course of the project, two sets of public open houses informed local residents and businesses about the study and gathered input on important transportation issues in the study areas, as well as feedback on the proposed recommendations.

The project team used a multiphase regional and localized modeling approach informed by DVRPC Board-adopted population and employment estimates, traffic counts, and signal plans to simulate existing conditions and forecast future scenarios. Scenarios were compared using performance measures like average delay per vehicle, total network demand, and intersection level of service (LOS). There were four total scenarios, each designed to answer a specific question:

- **Existing Conditions**: What does local traffic look like now?
- **No Build Scenario:** What will traffic look like in 2045 if the proposed interchanges are not built?
- **Build Scenario**: What will traffic look like in 2045 if the proposed interchanges are built?
- **Build + Improvements**: With the proposed interchanges, how can changes to the local street network improve traffic flow?

Figure 1: Modeling Scenarios

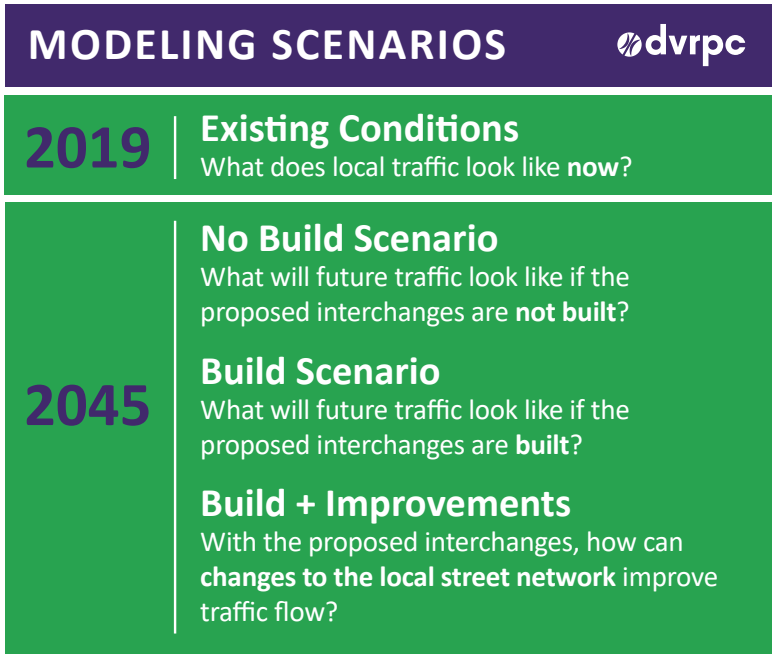
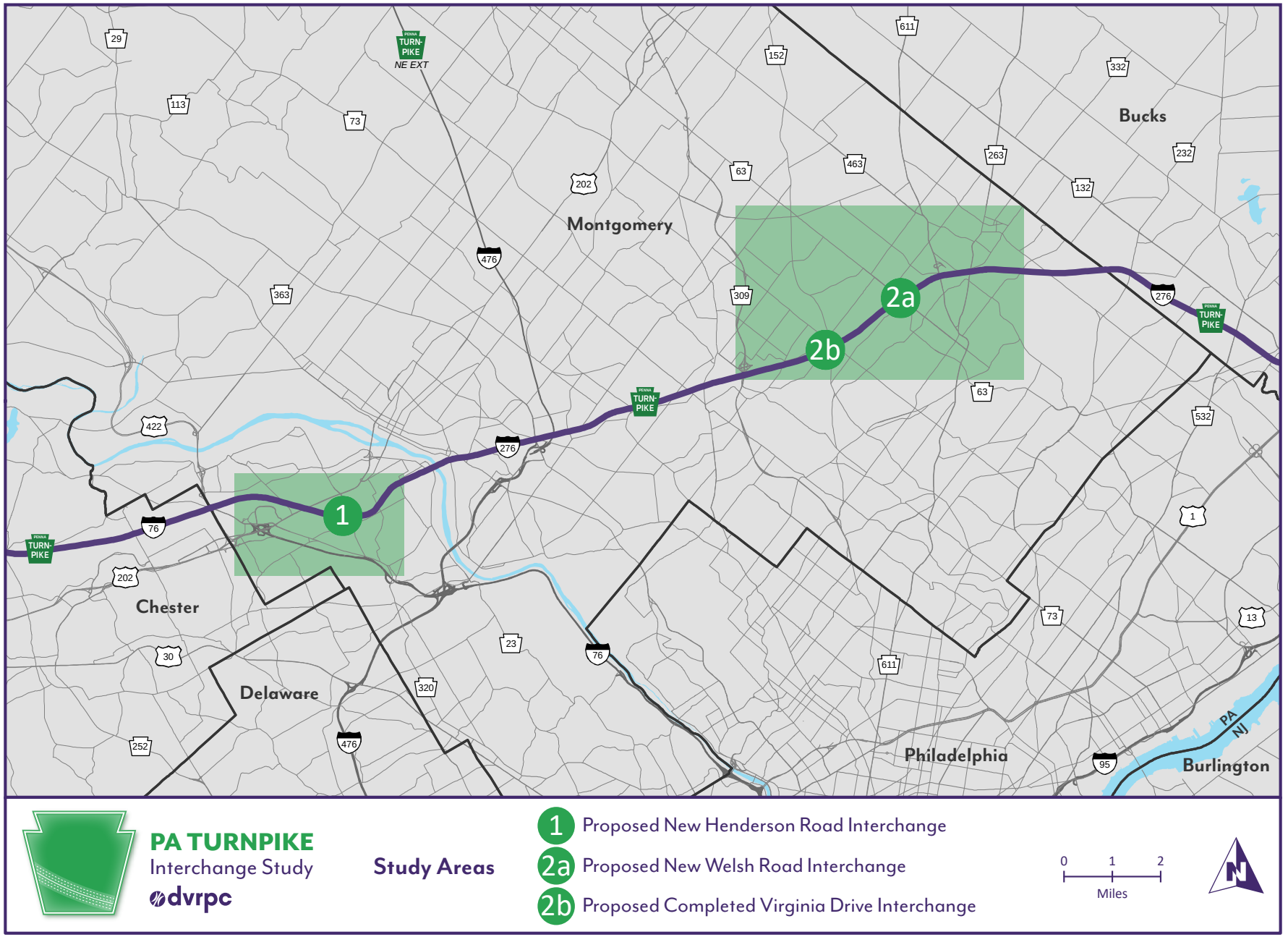


Figure 2: Project Study Areas



Henderson Road Study Area Results

The projected average vehicle delay for each Henderson Road scenario is shown in **Table 1**. Regardless of the proposed interchange, an increase in population and employment leads to an expected increase in travel demand in the study area by 2045. Therefore, the expected delay per vehicle is expected to increase from 1.4 minutes to 6.2 minutes in the AM peak hour and from 3 minutes to 6 minutes in the PM peak hour. Implementing the interchange alone is expected to exacerbate the congestion issues on local roads. However, local residents and businesses could benefit from the direct link to the PA Turnpike if the interchange was implemented along with the package of local road network improvements, such as increasing capacity and optimizing traffic signal timing, recommended by the project team. **Between the No Build and Build + Improvements scenarios, the average delay per vehicle decreases by 1.7 minutes during the AM peak hour and increases by 30 seconds in the PM peak hour, likely due to increased volume within the study area.**

NETWORK DEMAND:
the number of vehicles within the study area during the peak hour

AVERAGE VEHICLE DELAY:
the average amount of time a vehicle experiences delay while in the network

Table 1: Henderson Road Network Results

Peak Hour	Network Performance Measure	2019	2045	2045	2045
		Existing Conditions	No Build	Build	Build + Improvements
AM Peak Hour	network demand (veh)	8,800	12,100	13,400	13,400
	average delay per vehicle (min)	1.4	6.2	8.2	4.5
PM Peak Hour	network demand (veh)	10,600	13,400	15,400	15,400
	average delay per vehicle (min)	3.0	6.0	9.3	6.5

Source: DVRPC 2020

Welsh Road & Virginia Drive Study Area Results

The projected average vehicle delay for each Welsh Road & Virginia Drive Study Area scenario is shown in **Table 2**. Similar to the Henderson Road results, it is expected that travel demand in the study area will increase by 2045, regardless of the proposed interchanges. As a result, the expected delay per vehicle is expected to increase from 1.5 minutes to 3.8 minutes in the AM peak hour and from 2.2 minutes to 4.4 minutes in the PM peak hour. Constructing the Welsh Road and Virginia Drive interchanges alone is expected to exacerbate the congestion issues on local roads, especially during the PM peak hour. However, adding capacity to local roads and optimizing signal timing, as recommended by the project team, could mitigate most of the delay attributed to the interchanges, as well as additional delay in other areas. **With the improvements, the average delay per vehicle decreases by 1.4 minutes in the AM peak hour and increases by 48 seconds in the PM peak hour. This is likely due to vehicles within the study area rerouting based on the new interchanges.**

NETWORK DEMAND:

the number of vehicles within the study area during the peak hour

AVERAGE VEHICLE DELAY:

the average amount of time a vehicle experiences delay while in the network

Table 2: Welsh Road & Virginia Drive Network Results

Peak Hour	Network Performance Measure	2019	2045	2045	2045
		Existing Conditions	No Build	Build	Build + Improvements
AM Peak Hour	network demand (veh)	21,400	25,000	23,900	23,900
	average delay per vehicle (min)	1.5	3.8	5.4	2.4
PM Peak Hour	network demand (veh)	24,400	29,200	28,900	28,900
	average delay per vehicle (min)	2.2	4.4	8.8	5.2

Source: DVRPC 2020

Project Description

Purpose

In 2015, Montgomery County Planning Commission (MCPC) staff completed their Pennsylvania Turnpike Corridor Reinvestment Study. The PA Turnpike, or I-276, is an east-west highway that stretches across Pennsylvania, connecting Pittsburgh, Harrisburg, and Philadelphia. The Turnpike is a toll road and is operated by the Pennsylvania Turnpike Commission (independent of the Pennsylvania Department of Transportation [PennDOT]). The goal of the study was to encourage economic revitalization and reinvestment in Montgomery County's aging business parks, provide more direct connections to key employment centers, better distribute local and regional traffic, and bring new revenue to the Turnpike Commission to pay for the interchanges.

The study's vision included providing seven new or modernized interchanges, as well as other improvements. These locations are shown in **Figure 3**. All of these improvements are identified in the current DVRPC Long-Range Plan for the year 2045. New interchanges—proposed at Henderson Road in Upper Merion Township, and at Welsh Road (PA 63) in Upper Dublin and Upper Moreland townships—as well as the completion of the interchange at Virginia Drive in Upper Dublin Township, are not funded in the current Plan.

New activity in the business parks, shown in **Figure 4**, is likely to generate additional traffic volumes, while new traffic on the Turnpike will add revenue. Expanded accessibility to the regional highway will reduce traffic at existing exits and redistribute it on busy arterials where new exits are proposed.

As part of the reinvestment study, DVRPC produced daily travel demand forecasts for conceptual interchange designs for future year 2045. Building on that work, this study provides a deeper traffic analysis with a 2045 design year and incorporates new developments, zoning, and transportation projects that have changed since 2015, such as improvements to the Willow Grove interchange and the Promenade at Upper Dublin. In response to concerns raised by citizens and elected officials about traffic impacts from the new interchanges, this study evaluates peak-hour traffic conditions in the vicinity of the three proposed interchange projects to achieve the following goals:

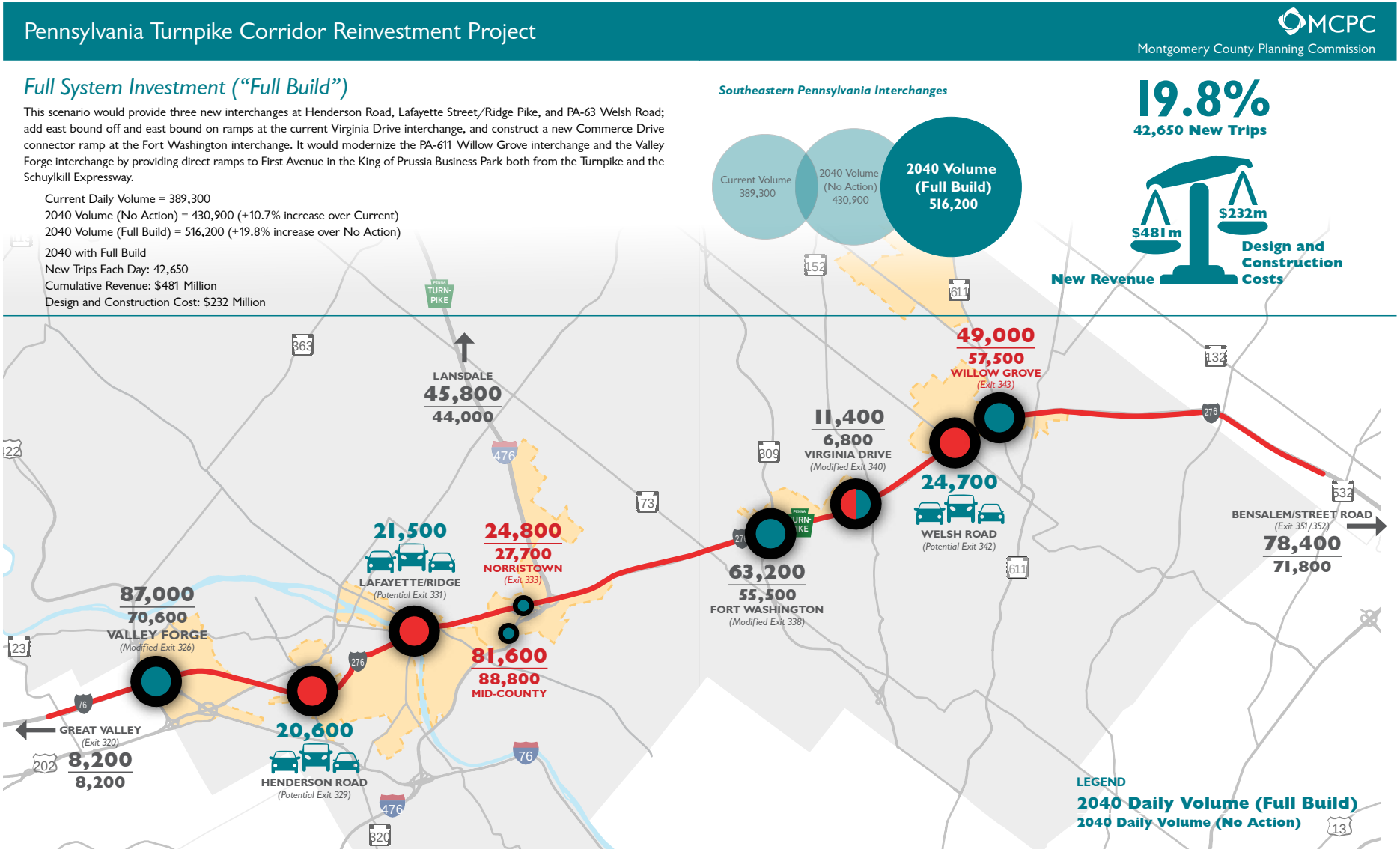
- **Inform the public and municipal decision makers** of the likely impacts.
- **Identify localized transportation improvements** to ameliorate identified problems.
- **Build support** with the funding agencies.

Study Areas

Initially, two of the seven proposed interchanges were chosen for analysis: Henderson Road in Upper Merion Township and Welsh Road in Upper Dublin Township. After receiving feedback from the steering committee and through public engagement, the project team and planning partners decided to include the proposed completion of the partial interchange at Virginia Drive in the Welsh Road Study Area.

As shown in **Figure 2**, both the Henderson Road Study Area and the Welsh Road & Virginia Drive Study Area include the roadway networks within the vicinity of the proposed interchanges in order to assess local impacts.

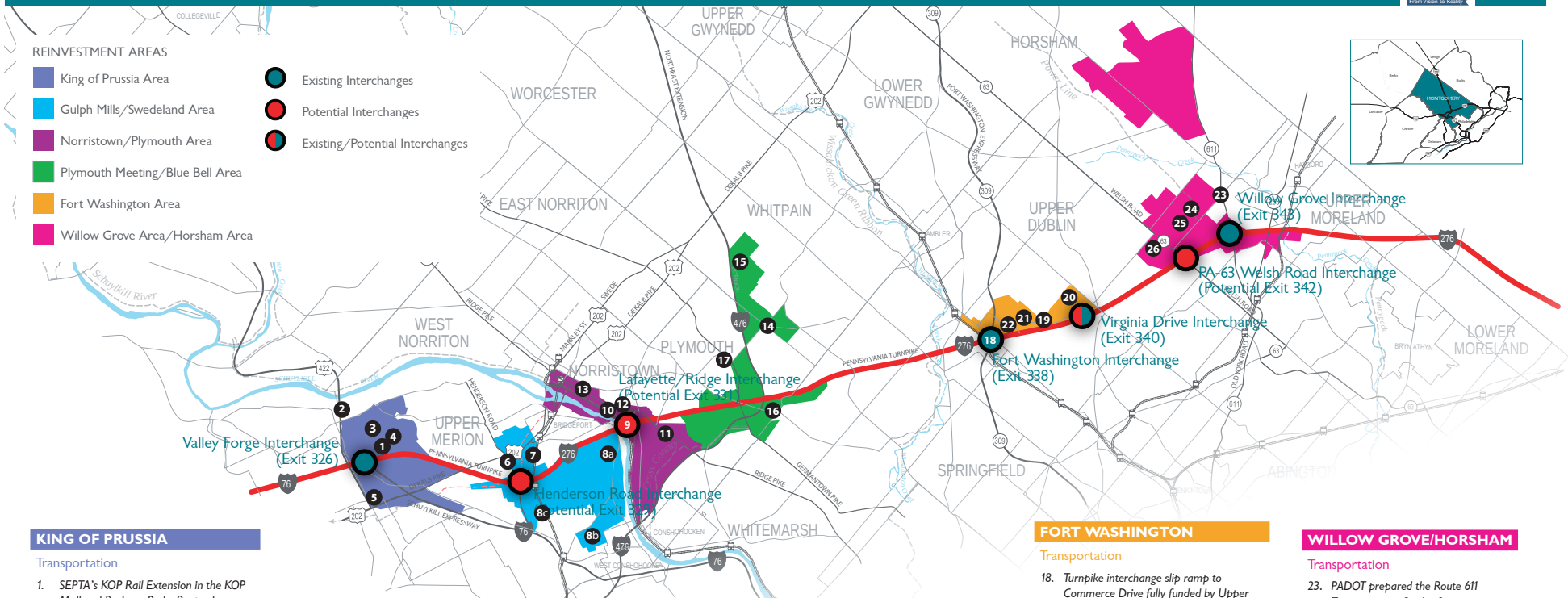
Figure 3: Turnpike Corridor Reinvestment Project—Potential Interchange Locations



Source: MCPC, 2015

Figure 4: Turnpike Corridor Reinvestment Project—Business Parks

2015 - 2017 *Progress Towards a Transportation and Land Use Vision!*



KING OF PRUSSIA

Transportation

1. *SEPTA's KOP Rail Extension in the KOP Mall and Business Park—Route chosen, EIS drafted, public hearings scheduled*
2. *PADOT began widening the US 422 bridge and improving the PA 363 and PA 23 bridges in Valley Forge*

Land Use

3. *KOP Business Park rezoned for mixed-use, pedestrian– and transit-friendly redevelopment, 559 apartments and 112 hotel rooms already proposed and 110,000 SF of new office constructed*
4. *THE PARK completed—a demonstration project heralding the beginning of the 2.6 mile Linear Park for First Avenue*
5. *Village at Valley Forge—New high density mixed use town center with 2,000 apartments and 500,000 sf of commercial space approved or under construction*

GULPH MILLS/SWEDELAND

Transportation

6. *SEPTA's KOP Rail Extension to include a station at Henderson Road*
7. *Chester Valley Trail connection fully funded with engineering underway and construction planned for 2019-20*

Land Use

8. *Large scale development proposed or recently constructed:*
   - a *Fed Ex Distribution Center*
   - b *GlaxoSmithKline campus sold for redevelopment*
   - c *Luxury apartments proposed at Hughes Park Rail Station*

NORRISTOWN/PLYMOUTH

Transportation

9. *New Lafayette St. Turnpike Interchange fully funded—Engineering begins Fall 2017*
10. *Lafayette Street Extension—Phases 1 & 2 complete. Phase 3 construction begins Fall 2017*
11. *Ridge Pike Improvement Project—design underway from Turnpike to Chemical Road with construction in 2020*

Land Use

12. *A new Wawa recently opened near the future Lafayette Street Interchange*
13. *Five Saints Distillery opened on Main Street in Norristown*

PLYMOUTH MEETING/BLUE BELL

Transportation

14. *Whitpain Township received a county grant to improve walkability at the corner of Township Line, Walton, and Norristown Roads*

Land Use

15. *Arborcrest Corporate Center completed—650,000 sf office in 4 buildings*
16. *PARC apartments built in existing employment center at the I-476 mid-county interchange*
17. *Plymouth Township partners with MCPC to write new municipal comprehensive plan*

FORT WASHINGTON

Transportation

18. *Turnpike interchange slip ramp to Commerce Drive fully funded by Upper Dublin—construction in 2018*
19. *Virginia & Commerce Drive Road Diet and Cross County Trail fully funded by Upper Dublin, County and PADOT—construction in 2018*
20. *Upper Dublin created an authority to facilitate improvements in the Fort Washington Office Park and at the Virginia Drive interchange*

Land Use

21. *New mixed-use zoning adopted wit h transfer of development rights (TDR) program—incentivizes development to move out of the floodplain with higher density and additional uses*
22. *Lifetime Fitness opened a new upscale fitness complex at Commerce Drive next to the future interchange slip ramp*

WILLOW GROVE/HORSHAM

Transportation

23. *PADOT prepared the Route 611 Transportation Study—first project underway is the realignment of the former Rt. 611-New Road intersection alongside a new Wawa development*

Land Use

24. *Horsham Business Parks Master Plan adopted to spur higher-density mixed-use development in a Core Center and more amenities throughout the Park.*
25. *Zoning being written to implement the Master Plan*
26. *Mixed Use Town Center proposed on the Prudential Campus next to the future Welsh Road interchange*

Source: MCPC, 2015

Planning Process

Work for this complex study was divided over three years, as outlined in **Table 3**. Year one (Fiscal Year [FY] 2018) was devoted to data collection and regional travel demand forecast modeling. In year two (FY2019), the team engaged the public to gather early input on benefits and concerns about the proposed interchange projects. Existing Conditions and 2045 No Build scenarios were modeled. Year three (FY2020) included 2045 Build Scenario modeling, as well as traffic operational modeling of each scenario to assess peak-hour traffic conditions and needs. It also included identification and modeling of the 2045 Build + Improvements scenario.

Table 3: Work Program Milestones

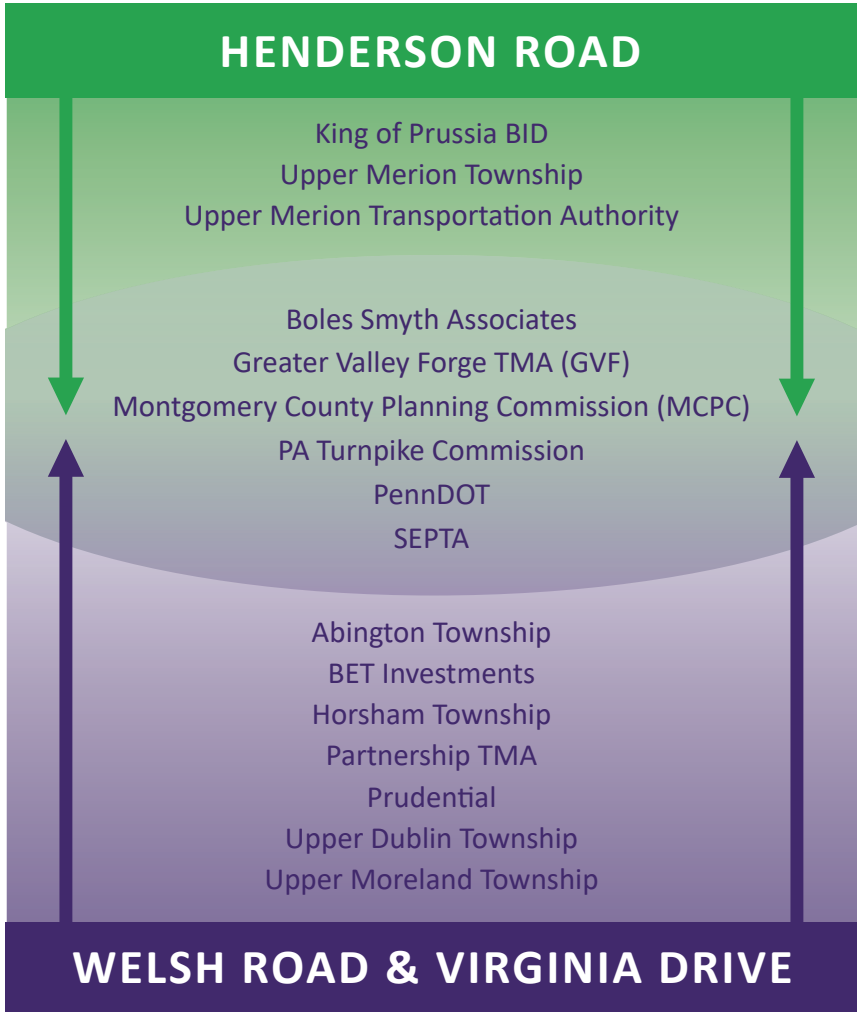
FY	Henderson Road	Welsh Road & Virginia Drive
FY2018	**March 2018** project initiation **June 2018** steering committee kickoff meeting	**March 2018**: project initiation **June 2018:** steering committee kickoff meeting
FY2019	**September 2018** steering committee meeting **September 2018** public meeting **December 2018** steering committee memo **February 2019** steering committee memo **April 2019** steering committee memo	**September 2018** steering committee meeting **September 2018** public meeting **December 2018** steering committee memo **February 2019** steering committee memo **April 2019** steering committee memo
FY2020	**July 2019** steering committee meeting **September 2019** steering committee memo **November 2019** steering committee meeting **February 2020** steering committee memo **April 2020** steering committee memo **April 2020** steering committee meeting **May 2020** public meeting **October 2020** draft report	**July 2019** steering committee meeting **September 2019** steering committee memo **November 2019** steering committee meeting **February 2020** steering committee memo **May 2020** steering committee memo **May 2020** steering committee meeting **July 2020** public meeting **October 2020** draft report

Source: DVRPC 2020

Steering Committees

The two large study areas exist in different contexts within Montgomery County. Therefore, two separate steering committees were established. The representatives of both steering committees are shown in **Figure 5**.

Figure 5: Steering Committee Representatives



Public Meetings

Two public meetings were held for each study area over the course of the three-year project.

Fall 2018 Public Meetings

The first meetings were held in person in the fall of 2018. These open houses were an opportunity to inform local residents and businesses of the project, and to gather public input at an early stage. The project team was interested in learning what concerns people had about the proposed interchanges and what benefits they thought the interchange could bring to the area.

The meetings were held in open house format with informative posters displayed around the room and staff available to answer questions about the project. The Henderson Road Study Area Open House was held at the Upper Merion Township Building on September 24, 2018, and had a total of 46 attendees.

September 2018 Henderson Road Study Area Open House
Source: DVRPC

The Welsh Road Study Area Open House was held at the Fort Washington Fire House on September 20, 2018, and had a total of 71 attendees.

Participants were asked to complete a brief survey about their interactions with the study area and their thoughts about the proposed interchange. Some of the survey questions are listed below. The full list of survey questions is available in **Appendix A**.

- How do you believe the proposed new interchange would impact your commute or daily travel?
- What do you believe are the possible benefits of the proposed new interchange?
- What concerns do you have about the proposed new interchange?
- Do you have any remaining questions or comments about the PA Turnpike Interchange Study at (Henderson Road/Welsh Road)?

The project team also collected feedback through an interactive poster activity where participants were asked to leave comments using sticky notes. Informal conversations with participants also provided useful insights.

Some of the key takeaways from the first public meetings for both study areas are summarized below.

Henderson Road

- **Potential benefits of the new interchange**
  - improved traffic at the Valley Forge interchange and mall area;
  - potential reduction in congestion on Henderson Road, Church Road, and South Gulph Road;
  - higher home values and economic development; and
  - more transportation options and convenience.
- **Concerns about the new interchange**
  - increased traffic on Henderson Road and on Route 202, Church Road, and South Gulph Road; and
  - increased congestion in general, especially at rush hour.

September 2018 Welsh Road Study Area Open House
Source: DVRPC

Welsh Road

- **Potential benefits of the new interchange**
  - reduced congestion on the Turnpike near existing interchanges, on major roads (PA 63, PA 611, PA 309) and on neighborhood streets;
  - economic development and ability to attract employees;
  - improved access to the Turnpike; and
  - shorter commutes for area residents and employees.
- **Concerns about the new interchange**
  - increased congestion on the Turnpike, Route 63, Twining Road, Welsh/Moreland Road, and local residential streets;
  - increased traffic volume generally throughout the study area, negative impact on property values; and
  - other projects should take priority (Willow Grove interchange improvements, Dresher Triangle).

At the time of the fall 2018 public open houses, the Welsh Road Study Area did not include the Dresher Triangle/Virginia Drive area. However, based on public feedback about the priorities in the area, and subsequent conversations with the steering committee, the project team added the proposed completion of the interchange at Virginia Drive (and improvements to the Dresher Triangle) to the Welsh Road Study Area.

Spring 2020 Public Meetings

Due to the impacts of Coronavirus disease (COVID-19) and social distancing limitations, the second set of public meetings was held virtually in the spring and summer of 2020. Virtual open houses were held during the afternoon and evenings for both study areas. Both public meetings for the Henderson Road Study Area were held on May 21, 2020. The afternoon session, which began at 2:00 PM, had 38 attendees, while the evening session, which began at 7:00 PM, had 9 participants. The afternoon public meeting for the Welsh Road & Virginia Drive Study Area was held on July 8, 2020, and saw 35 participants. The evening session, on July 9, had 68 participants.

The anticipated impacts of the proposed interchanges on local roads were presented, as well as recommended improvements to mitigate these impacts. Polls and a virtual question-and-answer tool allowed the project team to gather feedback from participants. The polls showed that most participants live and/or work in the study areas and travel through them regularly for other activities. The project team fielded questions about the traffic modeling, the potential impact of the COVID-19 pandemic on traffic in the area, and the process for moving the proposed interchanges forward.

Modeling Process

In order to assess the local impacts of the proposed interchanges, the project team developed several scenarios using traffic modeling software (PTV Visum and Vissim). The traffic modeling process involves using existing data to project future traffic conditions. Using the forecast conditions, one can compare alternative futures, with and without the proposed interchanges.

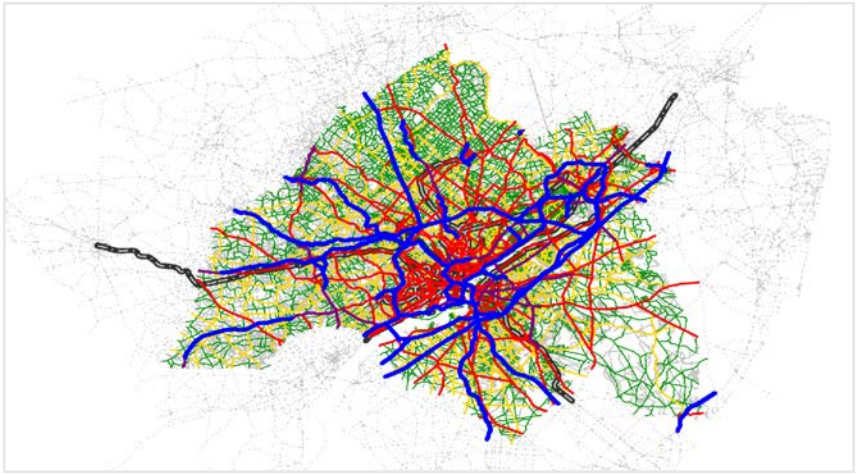
DVRPC Regional Model

One of DVRPC's responsibilities as the region's Metropolitan Planning Organization is to maintain a regional travel model, which is used to evaluate all major transportation projects.

DVRPC's model, shown in **Figure 6**, has been well tested to simulate the travel behavior of people in the nine-county region. This model is used to inform forecasts for future traffic patterns, long-range planning efforts, local traffic studies, and other transportation planning work.

The regional model is guided by national guidelines and industry standards.

Figure 6: DVRPC Regional Model Network



Source: DVRPC, 2019

Critical model inputs, such as population and employment forecasts, are developed in partnership with local officials and approved by the DVRPC Board. Regionally significant transportation projects listed as funded in the regional Long-Range Plan are also included.

For this project, the DVRPC regional model for the year 2045 was used to anticipate future traffic in the study areas. Outputs from the regional model, including travel flows and traffic volumes by road segment, were used to inform more localized microsimulation modeling.

Microsimulation Modeling

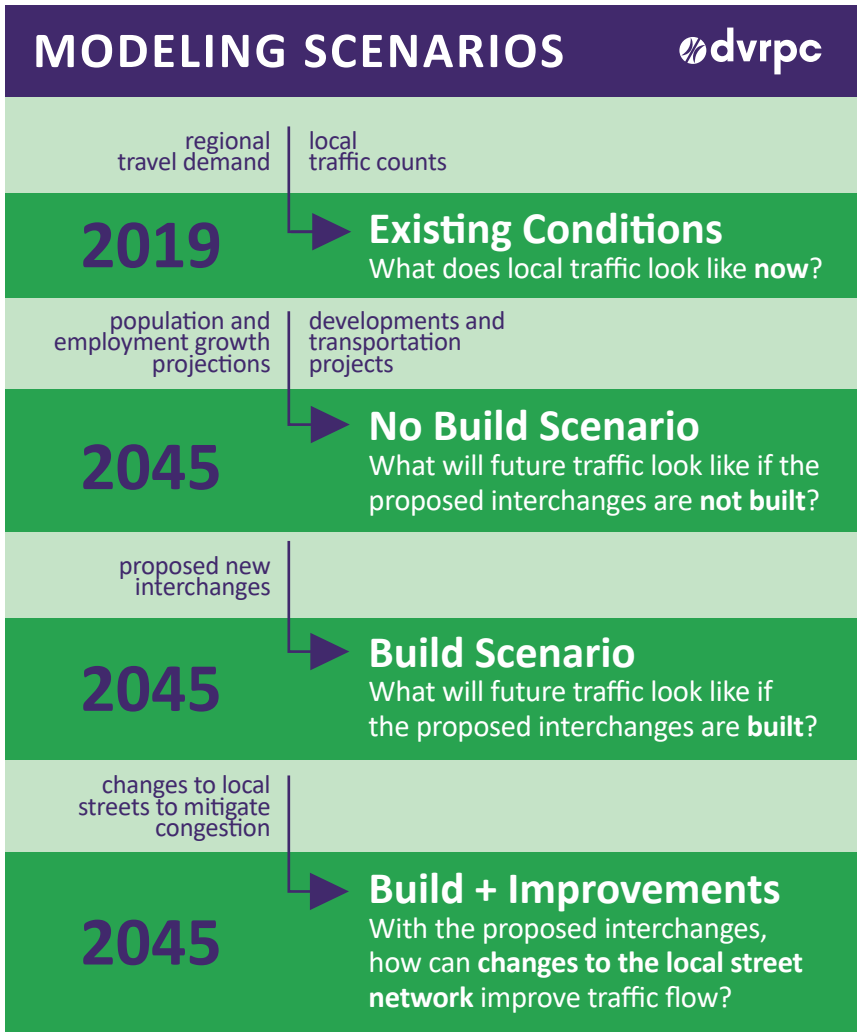
Microsimulation is a method for evaluating the localized impacts of proposed improvements to the transportation system, such as the proposed interchanges along the PA Turnpike. This method zooms in on a particular study area and reflects local conditions, such as driver behavior, roadway configuration, and traffic signal timing, in greater detail.

Using traffic volumes from the regional model, local traffic counts, and traffic signal plans, the project team created a model to simulate existing conditions in the two study areas. This model was then modified to simulate alternative future scenarios, evaluate the impacts of the proposed interchanges, and subsequently develop further recommendations for local improvements.

Modeling Scenarios

Four scenarios, shown in **Figure 7**, were modeled for each study area using microsimulation. Each scenario was evaluated for Level of Service (LOS) and other performance measures to determine the impact of the proposed new and completed interchanges, identify areas in need of improvements, and develop congestion mititgation strategies at key locations.

Figure 7: Modeling Scenarios



Performance Measures

The microsimulation process produces a number of performance measures to quantify traffic conditions.

Volume is the total number of vehicles approaching an intersection from a given street segment in a given time period.

Delay is the average amount of time, in seconds, that it takes a vehicle passing through an intersection beyond what would be experienced in a free-flow condition.

Queue Length describes the lineup of vehicles waiting to enter an intersection due to a red light, stop sign, or other obstruction. It is the distance between the intersection and the furthest vehicle waiting to enter.

Level of Service (LOS) values are letter grades assigned to various degrees of delay. An LOS of "A" corresponds with free-, or near free-flowing conditions, while an "F" score corresponds with a breakdown in traffic flow. The LOS for signalized intersections is shown in **Table 4**.

Table 4: Levels of Service (LOS) for Signalized Intersections

LOS	Delay(s)	Interpretation
A	≤10	Predictable and Stable Flow
B	>10-20	
C	>20-35	
D	>35-55	Predictable but approaching Unstable
E	>`55-80	Unstable and Unpredictable
F	>80	

Source: Transportation Research Board of the National Academies of Science, *Highway Capacity Manual*

The goal in traffic operations is not to achieve an LOS of A but to create conditions that maintain stable traffic flow that typically is achieved within the LOS range of A to C. If existing conditions are LOS D or lower, then the aim should be to improve conditions to achieve a C or better.

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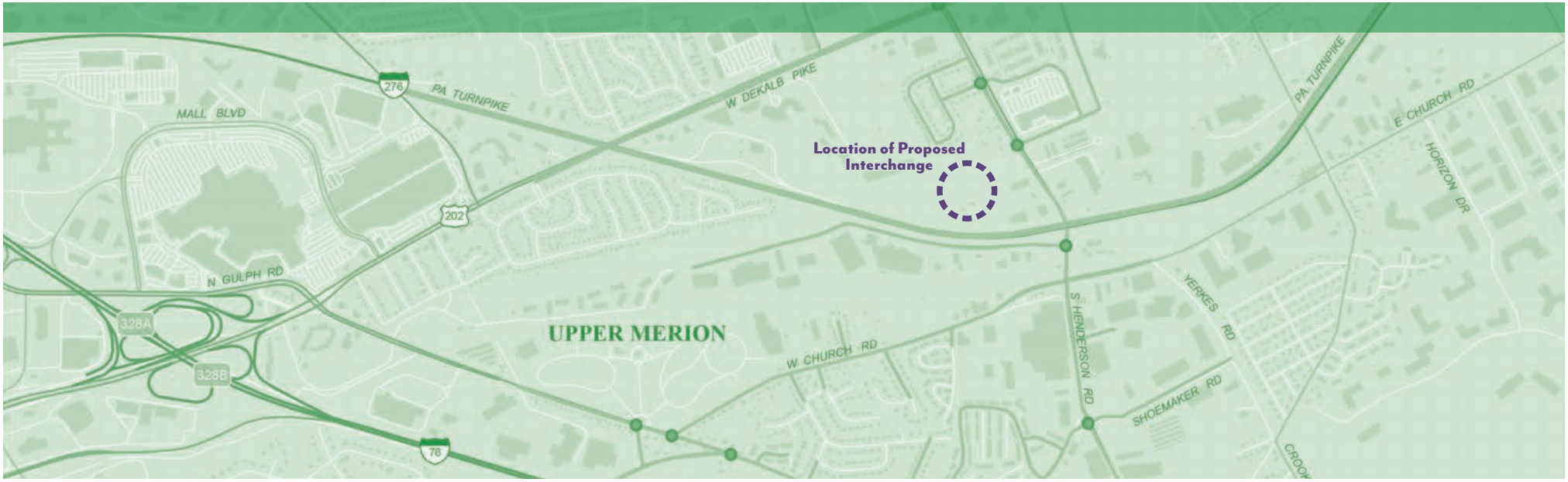
HENDERSON RD

HENDERSON ROAD

Study Area



Henderson Road Study Area

The first area studied is the local roadway network surrounding a proposed interchange along the PA Turnpike at Henderson Road in Upper Merion Township. The proposed interchange is located at the intersection of Henderson Road and Saulin Boulevard. The interchange would be constructed alongside the proposed Southeastern Pennsylvania Transportation Authority (SEPTA) Norristown High Speed Line (NHSL) station, also known as the King of Prussia line, and provide local access to and from the Turnpike.

Study Area

The proposed Henderson Road interchange would provide access to and from the Turnpike for the residential communities and business parks in the area, as well as the King of Prussia Mall. This interchange would be located east of the Valley Forge interchange.

The Henderson Road Study Area is shown in **Figure 8**. The highlighted roadways (links) and intersections (nodes) are included in all modeling scenarios. The roadways within the study area that are under the jurisdiction of PennDOT are Dekalb Pike (US 202), Henderson Road, Church Road, and South Gulph Road. Implementation of any proposed improvements along these roadways would be done through review and approval by PennDOT.

Location of the proposed Henderson Road interchange
Source: DVRPC

Land Use

Understanding land use is critical to modeling transportation behavior, as residential, commercial, and other uses generate different numbers and types of trips. The land uses within the Henderson Road Study Area are shown in **Figure 9**.

Land use surrounding the proposed new interchange is characterized by a mix of residential, commercial, and industrial uses. South of I-276, on both sides of Henderson Road, industrial uses are common, while commercial uses are prevalent near US 202 and south of South Gulph Road. Single-family and multifamily residential uses are spread throughout the study area.

Currently the nearest interchanges to this location are approximately 2.8 miles west (Valley Forge) and 4.0 miles east (Norristown). The proposed new interchange would provide a faster route to I-276 for residents. Additionally, it would provide a more direct connection to employment and shopping centers for customers and employees, potentially reducing cut-through traffic on local residential streets.

Figure 8: Henderson Road Study Area

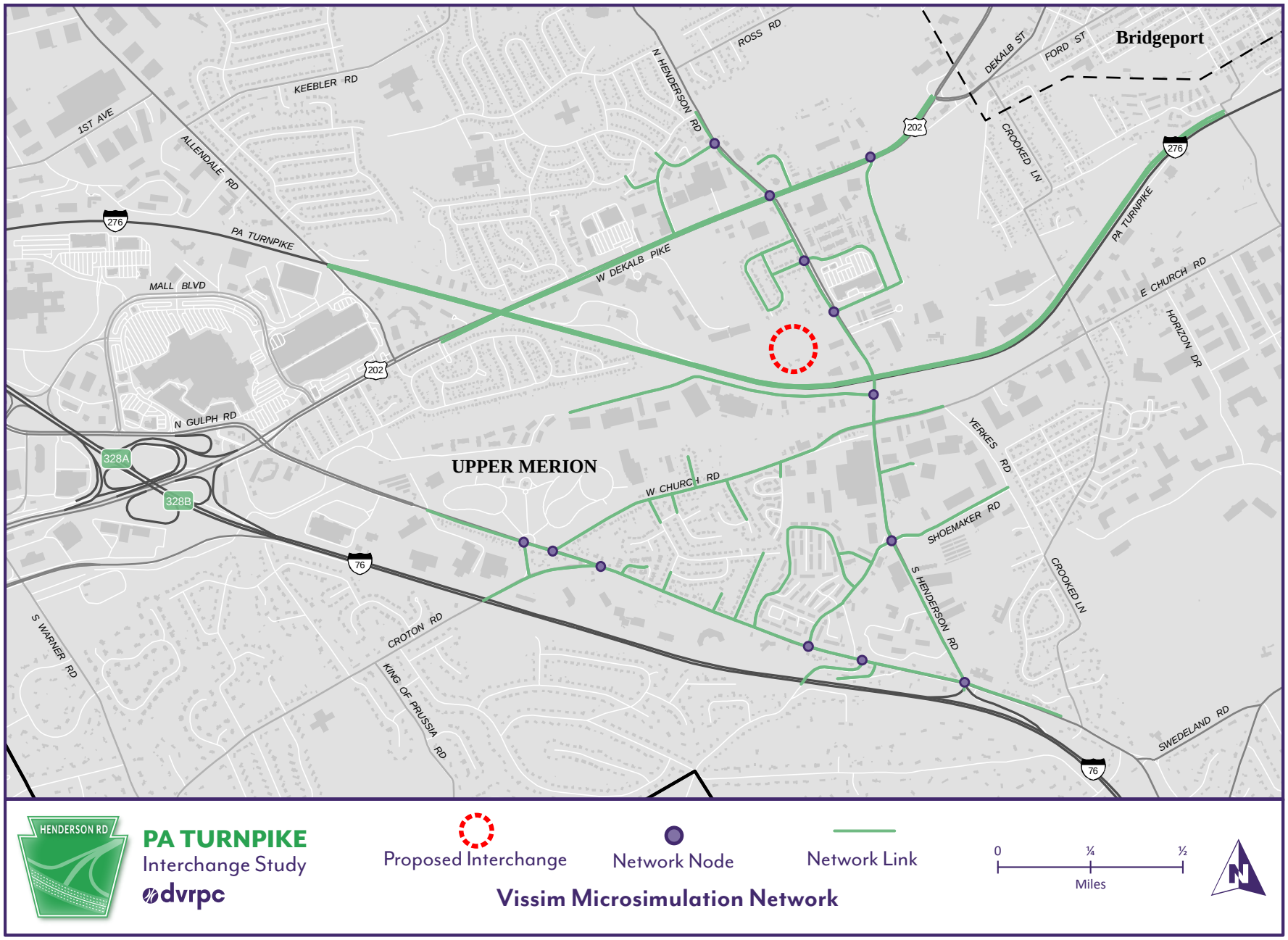
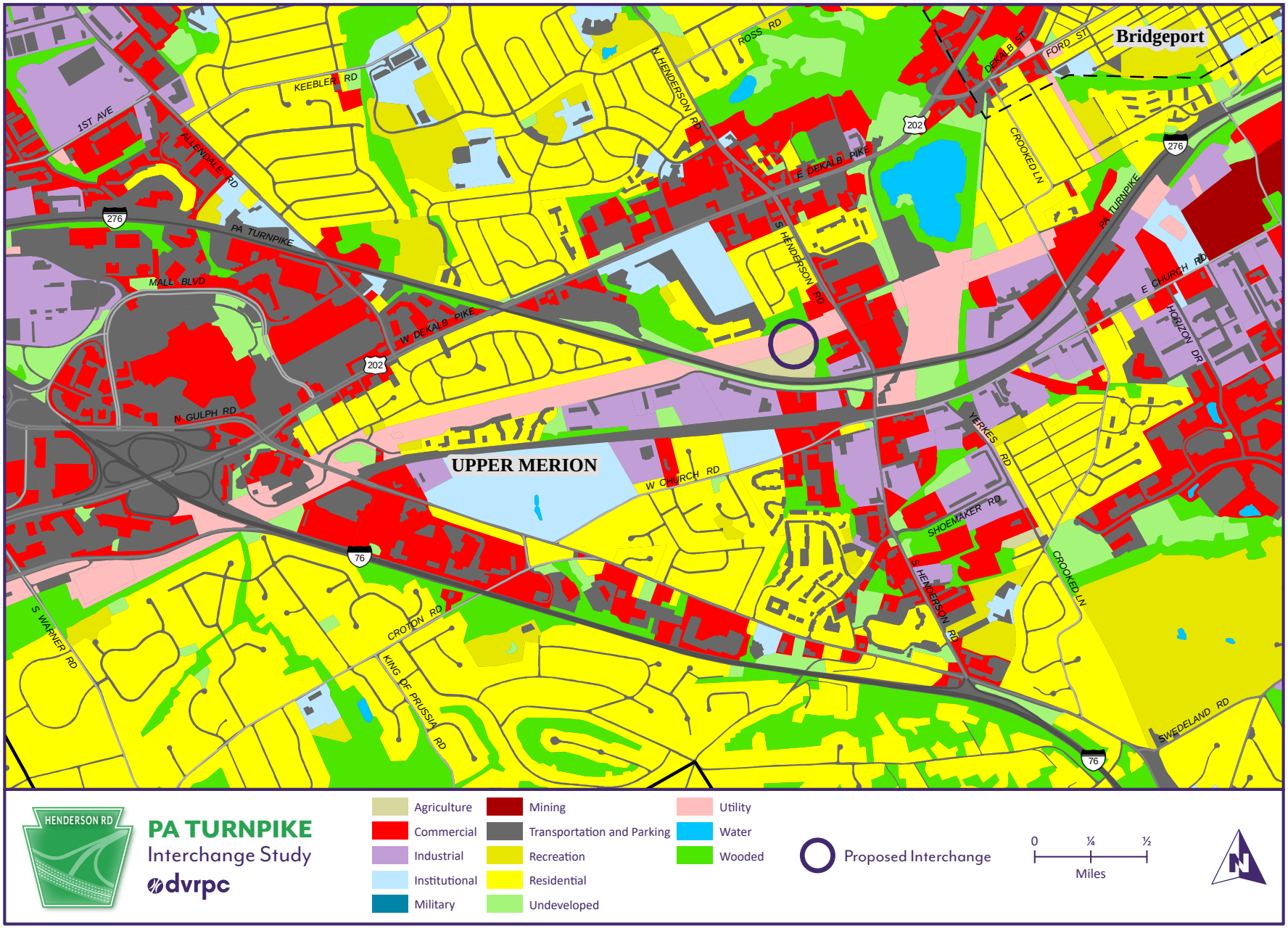


Figure 9: Henderson Road Land Use



Source: DVRPC 2015

Crash Data

Crash history within the study area was analyzed in order to inform recommendations. **Figure 10** shows the reported crashes between 2014 and 2018 at the study intersections within the Henderson Road Study Area, as reported by PennDOT.

Dekalb Pike & Henderson Road

The intersection of Dekalb Pike & Henderson Road had the highest number of crashes within the five-year period, with 30 total crashes. Of those crashes, fourteen were angle crashes, one of the more dangerous crash types. Angle crashes typically occur when vehicles of conflicting movements crash perpendicularly, increasing the likelihood of injury or death. One of the angle crashes at this intersections within the five-year period resulted in serious injury.

The existing signal phasing involves protected-only left turns on Dekalb Pike and split phasing on the Henderson Road approaches, meaning all northbound movements will have a green signal head while all southbound movements have red, and then vice versa. Split phasing is typically used when there are shared left-turn/through lanes, which prohibit a left-turn phase, and decreases the amount of green time alloted to the through movements. Therefore, some of these crashes could be the result of red-light running. Adjusting the geometry at this intersection to provide designated left-turn lanes on the northbound and southbound approaches could increase safety and mitigate traffic issues.

Additionally, there were two hit-pedestrian crashes with serious injury at this intersection. There are pedestrian crosswalks with signal heads on all approaches except for the northbound Henderson Road approach. In order to improve pedestrian safety at Dekalb Pike & Henderson Road, a crosswalk should be installed with signal heads along the northbound approach.

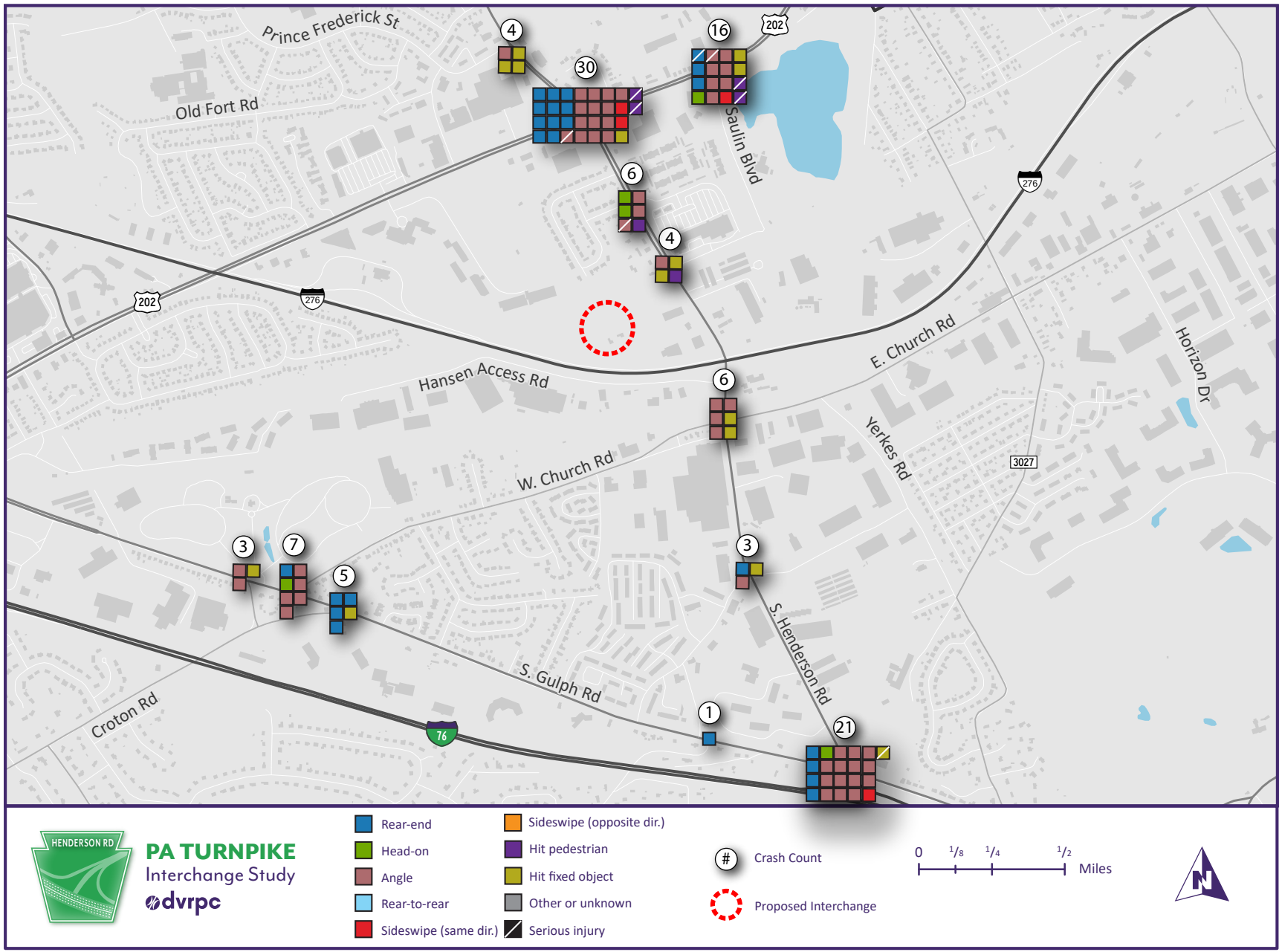
Henderson Road & South Gulph Road

The intersection of Henderson Road & South Gulph Road had 21 crashes over the five-year period. Fourteen of these crashes were angle crashes and four were rear ends. There was also one head-on crash. The northbound approach of this intersection is the I-76 westbound off-ramp. The head-on crash points to potential speeding issues with vehicles coming off of the highway and entering the local roadway network. Additionally, there was one hit-fixed-object crash that resulted in serious injury, which also may have been due to speeding issues.

Dekalb Pike & Saulin Boulevard

There were 16 crashes at the intersection of Dekalb Pike & Saulin Boulevard over the five-year period. Of these crashes, seven were angle crashes and three were rear end. One of the rear-end crashes and one of the angle crashes resulted in serious injury. A large number of rear ends can be due to heavy queueing at an intersection. There were also two hit-pedestrian crashes involving serious injury.

Figure 10: Henderson Road Crash Data, 2014-2018



Source: PennDOT

Developments

A number of significant developments within the study area have been approved in recent years. For the purpose of microsimulation, recent and upcoming developments with at least 50 residential units, or at least 50,000 square feet of commercial space (office or retail), were included in all future-year modeling scenarios. These developments are shown in **Figure 11**. Four developments are located in the immediate study area: a residential multifamily development at 2901 Renaissance Boulevard, a residential multifamily development at Prince Frederick Bouelvard, Gulph Elementary School, and a self-storage facility on Henderson Road. Additionally, several commercial, residential, and industrial developments are located near the study area and may generate additional local traffic.

Future residents, employees, and customers traveling to and from these new developments would likely utilize the proposed new interchange, reducing the potential impact of the new developments on local streets.

The land use category and number of residential units and industrial or commercial square feet are used to determine how much new traffic will be added to local streets due to these new developments.

Transportation Projects

The proposed interchange at Henderson Road is one of many transportation improvements in the study area with the goal of improving traffic flow, safety, and transportation choices. Proposed transportation projects within the study area are shown in **Figure 12**.

Integrated corridor management strategies are planned for I-76 to ease congestion, and portions of Henderson and South Gulph Road will be widened near the I-76 ramps. An extension of the Norristown High Speed Line to King of Prussia is planned, with a station across Henderson Road from the proposed interchange on Saulin Boulevard. The Chester Valley Trail will also extend through the study area, providing new connections for bicyclists and pedestrians.

Together with the proposed new interchange, these transportation improvements will ensure safe and efficient travel for the surrounding communities.

The following proposed transportation projects are incorporated into the future-year modeling scenarios, along with new developments, to better understand how traffic will operate in the future.

Regional Transportation Projects

- cashless tolling on the PA Turnpike;
- PA 611 intelligent transportation system (ITS) improvements and multimodal upgrades from Cheltenham Avenue to County Line Road;
- Regional Rail station enhancement
  - Hatboro; and
  - Willow Grove;
- I-276 and Lafayette Street/Ridge Avenue new interchange;
- I-95/I-276 partial interchange;
- widen I-476 PA Turnpike Northeast Extension from Lansdale to Quakertown;
- I-276/PA 611 Willow Grove interchange ramp modifications; and
- Fort Washington interchange “zip ramp.”

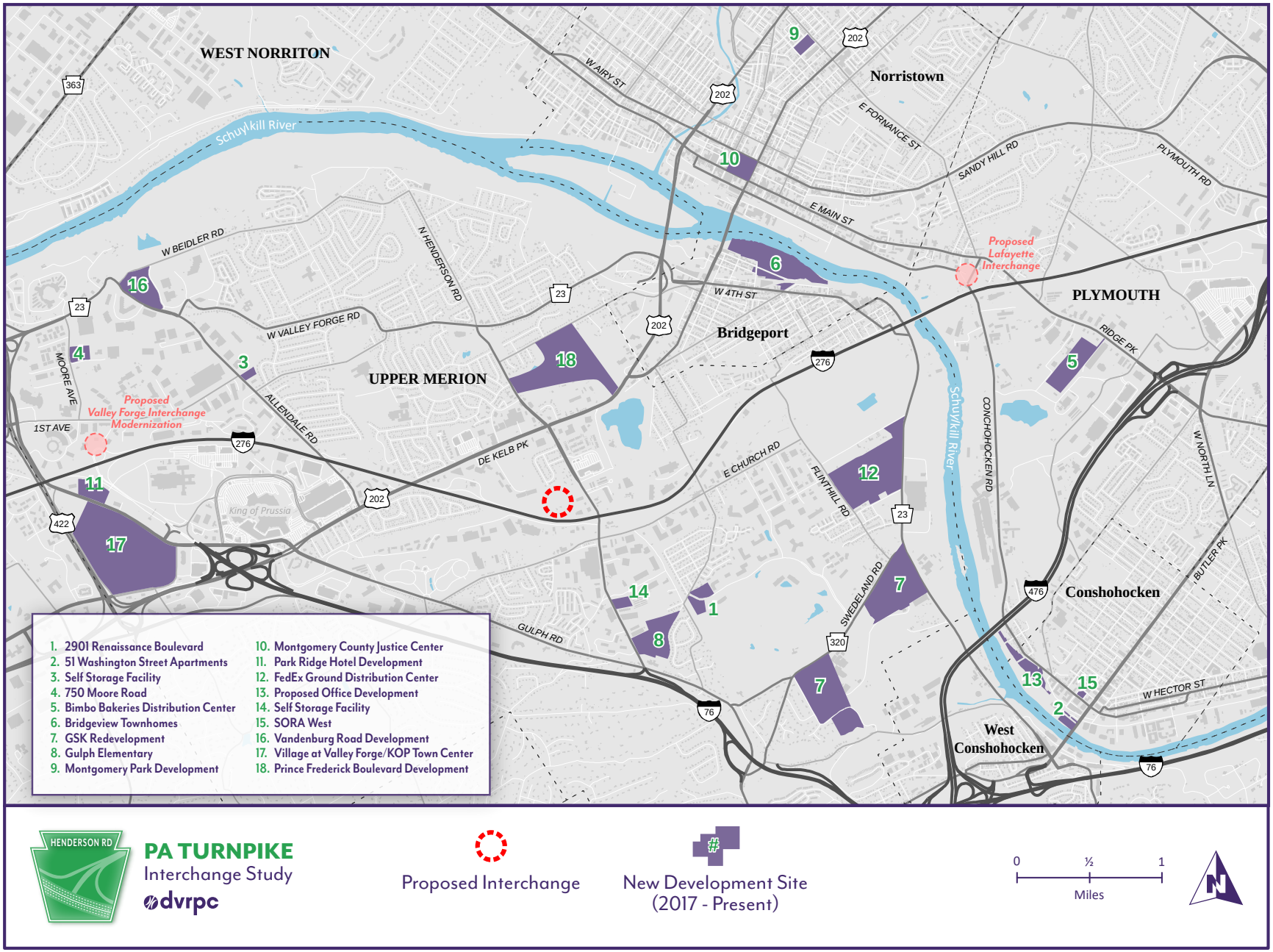
Local Transportation Projects

- Saulin Boulevard/Prince Frederick Street Extension;
- Brooks Road & South Gulph Road improvements;
- Church Road & South Gulph Road improvements;
- Henderson Road & South Gulph Road widening near I-76 ramps; and
- Crooked Lane & South Gulph Road improvements.

NHSL Park-and-Ride Station

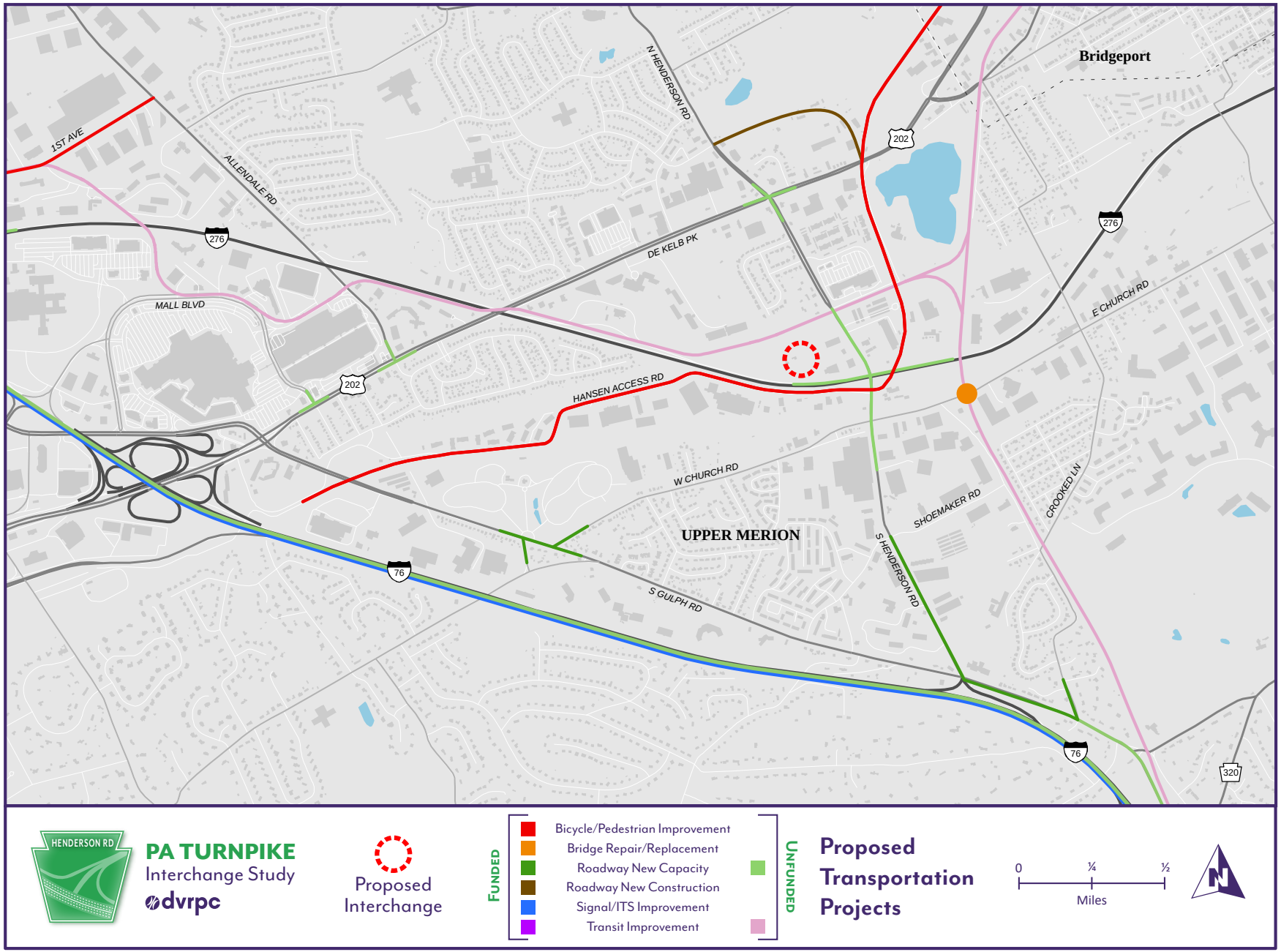
In addition to the regional and local transportation projects, all 2045 models include the proposed extension of transit service to King of Prussia via the Norristown High Speed Line (NHSL), including a new station and park-and-ride, as well as its associated traffic. The new station is proposed to be constructed at the southeast and southwest corners of the intersection of Henderson Road and Saulin Boulevard. A map showing the location of the station in relation to the proposed interchange is shown in **Figure 13**.

Figure 11: Henderson Road Developments



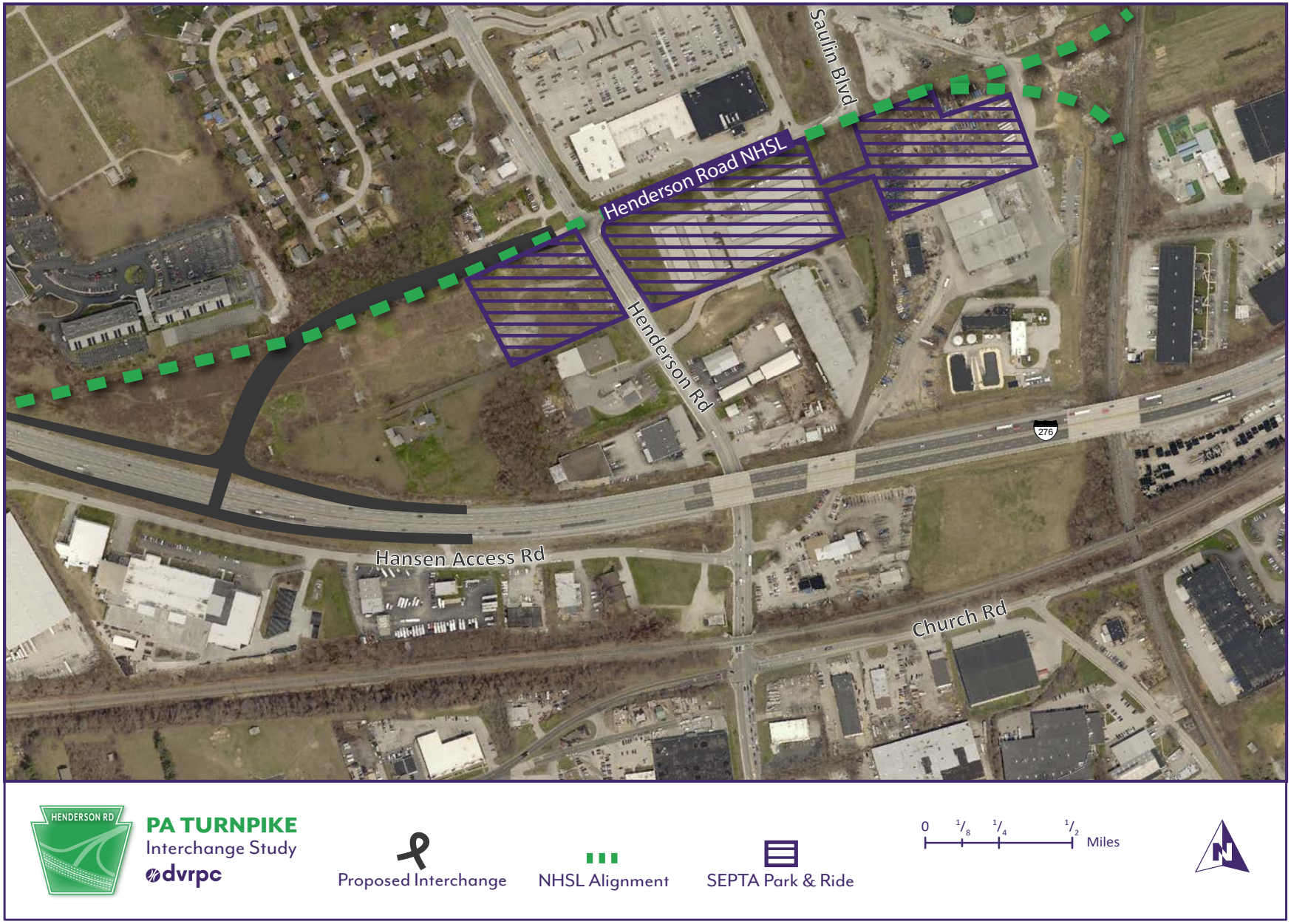
Source: DVRPC, MCPC, 2017

Figure 12: Henderson Road Transportation Projects



Source: DVRPC, MCPC, 2017

Figure 13: Henderson Road Interchange and NHSL Station



Source: DVRPC, Boles Smythe Associates, SEPTA, Southern PA Regional Task Force, 2017

Modeling Results

The Henderson Road Study Area modeling network is shown in **Figure 8 on page 18**. Four scenarios were simulated and are detailed in **Figure 14**:

- Existing Conditions (2019);
- No Build Scenario (2045);
- Build Scenario (2045); and
- Build + Improvements (2045).

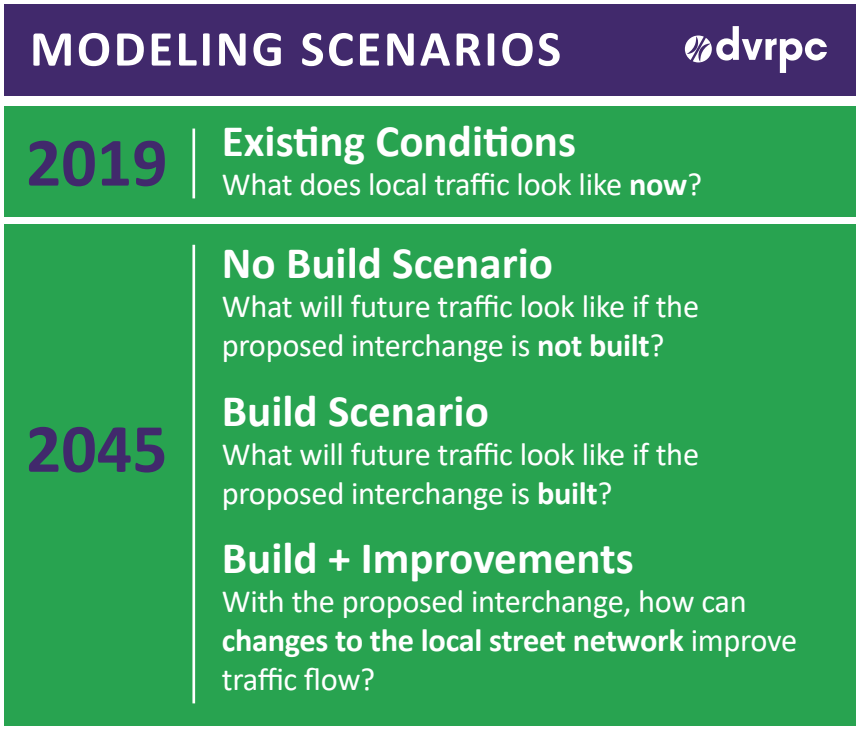
For all four scenarios, each intersection within the study area was analyzed for average delay and LOS, while the roadway network as a whole was compared across scenarios using average vehicle delay and network demand.

In order to model normal peak-hour traffic in the study area, traffic counts in the vicinity of the proposed Henderson Road interchange were collected on typical weekdays in the spring of 2017. The times when traffic volumes were highest were identified as the peak hours used for analysis. The AM peak hour for the network was determined to be 8:00-9:00 AM, and the PM peak hour was 5:00-6:00 PM.

All four scenarios were modeled during both the AM and the PM peak hours, and the results are shown in the following sections. Throughout this chapter, AM peak-hour results are shown in **green** and PM peak-hour results are shown in **purple**.

The complete tables of results for the Henderson Road Study Area are provided in **Appendix B**.

Figure 14: Modeling Scenarios



Existing Conditions

What does local traffic look like now?

The Existing Conditions model was developed using local traffic counts, the regional model, and traffic signal plans. This modeling scenario reflects the current transportation network in the vicinity of the proposed Henderson Road interchange

Traffic volumes are based on DVPRC's 2015 regional model forecast and traffic counts completed in 2017.

"As with all developed areas, some amount of delay is normal."

Intersection Results

The intersection LOS for the Existing Conditions during the AM and PM peak hours are displayed in **Figure 15** and **Figure 16**.

During the AM peak hour under the Existing Conditions, most intersections operate at stable and predictable LOS. A few intersections operate at LOS D, but no intersections fail.

During the PM peak hour, the Existing Conditions are slightly worse. The intersections of Henderson Road & Dekalb Pike and Henderson Road & Church Road currently operate at LOS E during the PM peak hour.

Network Results

Overall study area road network conditions were summarized using **network demand**, or number of vehicles within the study area during the peak hour, and **average vehicle delay**, or the average amount of time a vehicle experiences delay while in the network.

As with all developed areas, some amount of delay is normal. This value represents the total amount of time a vehicle is not traveling at free-flow speed while in the network, whether it be slowing down due to traffic or stopped at an intersection.

AM PEAK HOUR: 8:00-9:00 AM

Existing Conditions—Henderson Road

Network Demand **8,800 vehicles**

Average Delay per Vehicle **1.4 minutes**

PM PEAK HOUR: 5:00-6:00 PM

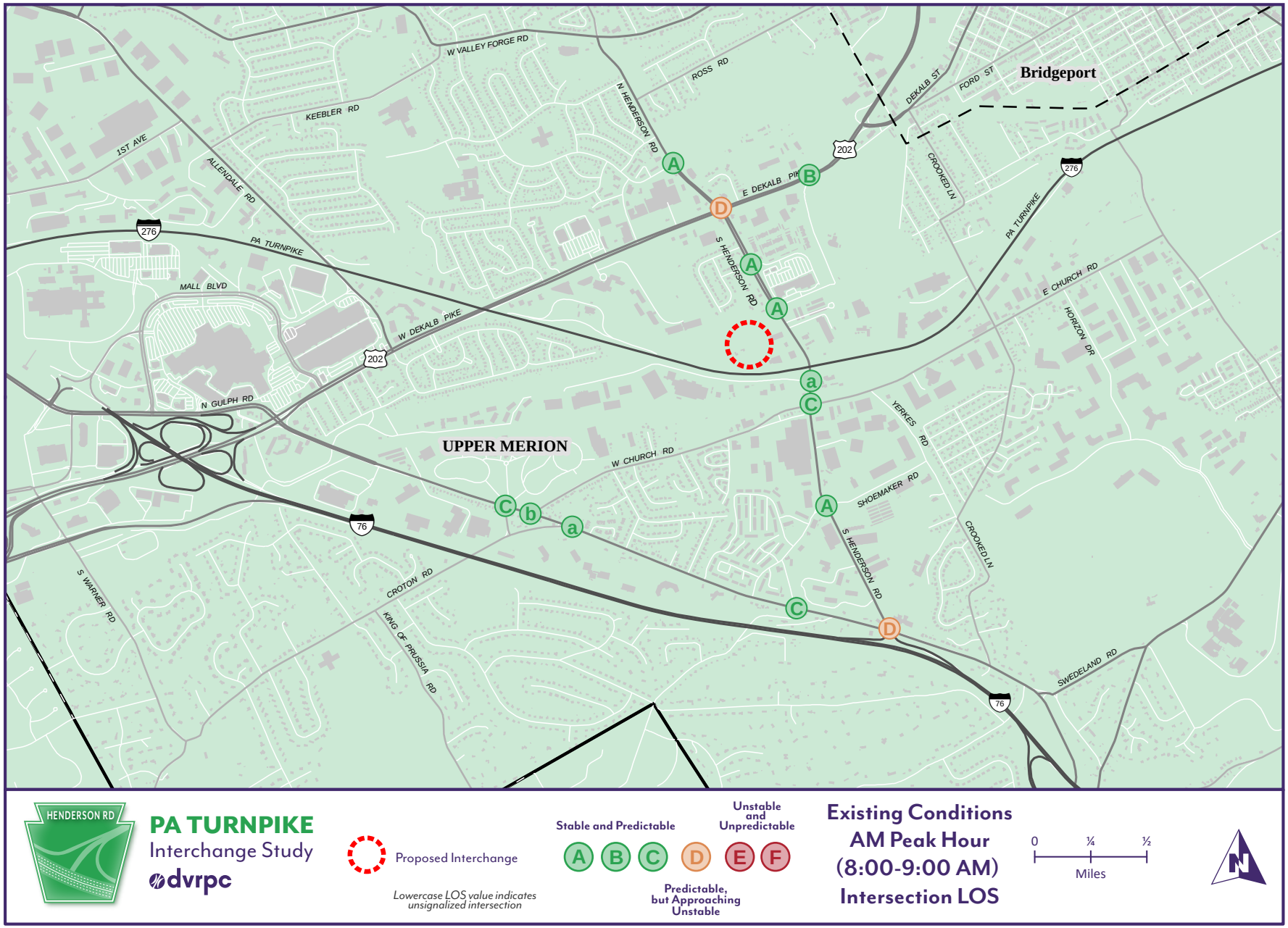
Existing Conditions—Henderson Road

Network Demand **10,600 vehicles**

Average Delay per Vehicle **3.0 minutes**

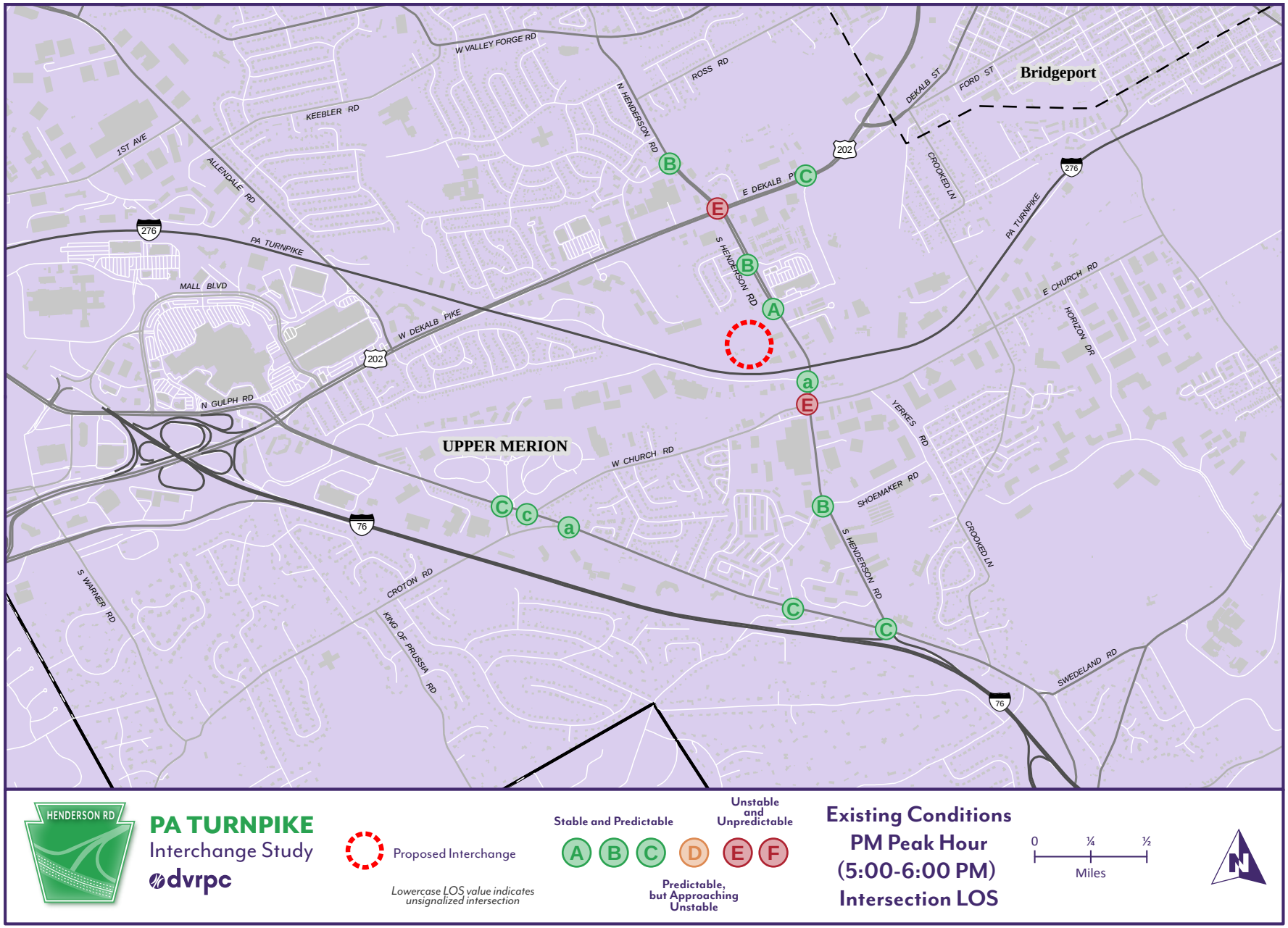
As shown, there is slightly less demand in the AM peak hour than in the PM peak hour under the Existing Conditions. The increased demand in the evening results in twice the amount of delay experienced by the average vehicle.

Figure 15: Henderson Road Intersection LOS: Existing Conditions—AM Peak Hour



Source: DVRPC, 2020

Figure 16: Henderson Road Intersection LOS: Existing Conditions—PM Peak Hour



Source: DVRPC, 2020

No Build Scenario

What will traffic look like in 2045 if the proposed interchange is not built?

Anticipated traffic within the study area in the year 2045 is modeled by making modifications to the existing conditions with the regional model. Projected demographic changes, proposed transportation projects, and local developments are incorporated in order to capture changes in the number of trips made and overall travel patterns.

Based on DVRPC's regional model, the population within the study area is expected to increase by 18 percent by the year 2045. The number of households is also expected to increase by 18 percent, while employment in the area is expected to increase by 22 percent. These numbers were determined before COVID-19 and do not include any anticipated long-term effects of the pandemic.

These demographic changes, the aforementioned proposed developments, and transportation projects comprise the 2045 No Build Scenario. AM and PM peak-hour conditions were simulated to compare to other scenarios.

Any changes in delay or demand between the Existing Conditions and the No Build Scenario can be attributed to growth, developments, and impact of proposed transportation projects in the study area **without** the proposed interchanges.

"Without the proposed interchanges, congestion in the year 2045 in the study area is projected to be much worse than it was in 2019. "

Intersection Results

The intersection LOS for the No Build Scenario during the AM and PM peak hours are displayed in **Figure 17** and **Figure 18**.

As shown, there are quite a few more intersections operating at unstable LOS during both peak hours. During the AM peak hour, the intersections performing the worst are along Henderson Road. During the PM peak hour, there are also unstable intersections along South Gulph Road and US 202 (Dekalb Pike).

Even if the proposed interchanges are not constructed, traffic conditions in the area are expected to deteriorate by the year 2045. Local roadway improvements would be recommended to mitigate congestion, regardless of the interchange projects.

AM PEAK HOUR: 8:00-9:00 AM

No Build Scenario—Henderson Road

Network Demand **12,100 vehicles**
Average Delay per Vehicle **6.2 minutes**

PM PEAK HOUR: 5:00-6:00 PM

No Build Scenario—Henderson Road

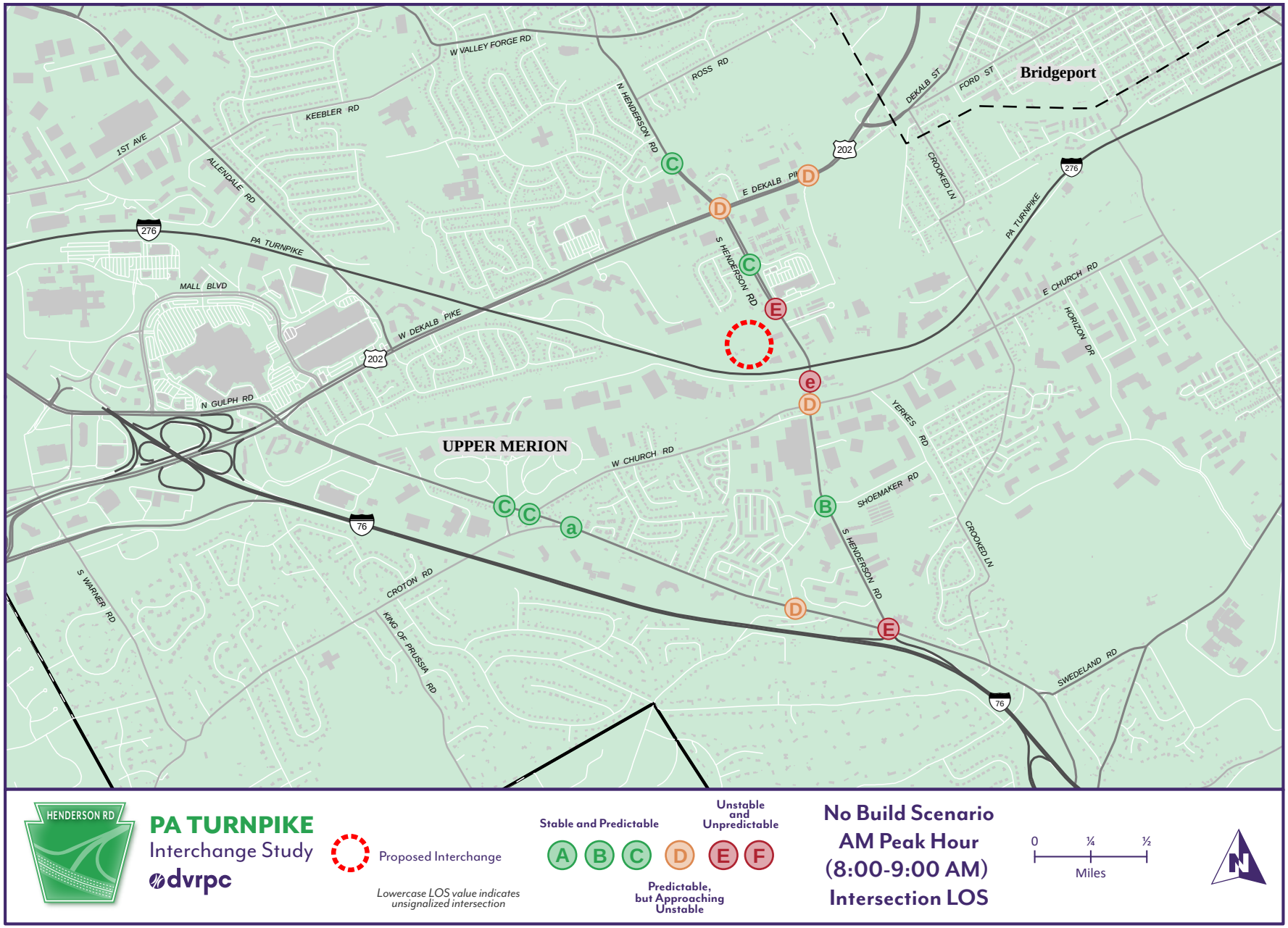
Network Demand **13,400 vehicles**
Average Delay per Vehicle **6.0 minutes**

Network Results

Compared to the Existing Conditions, the volume within the study area is anticipated to increase by about 40 percent in the AM peak hour and by about 30 percent in the PM peak hour. These changes will effectively triple the average delay in the AM peak hour and double it in the PM peak hour.

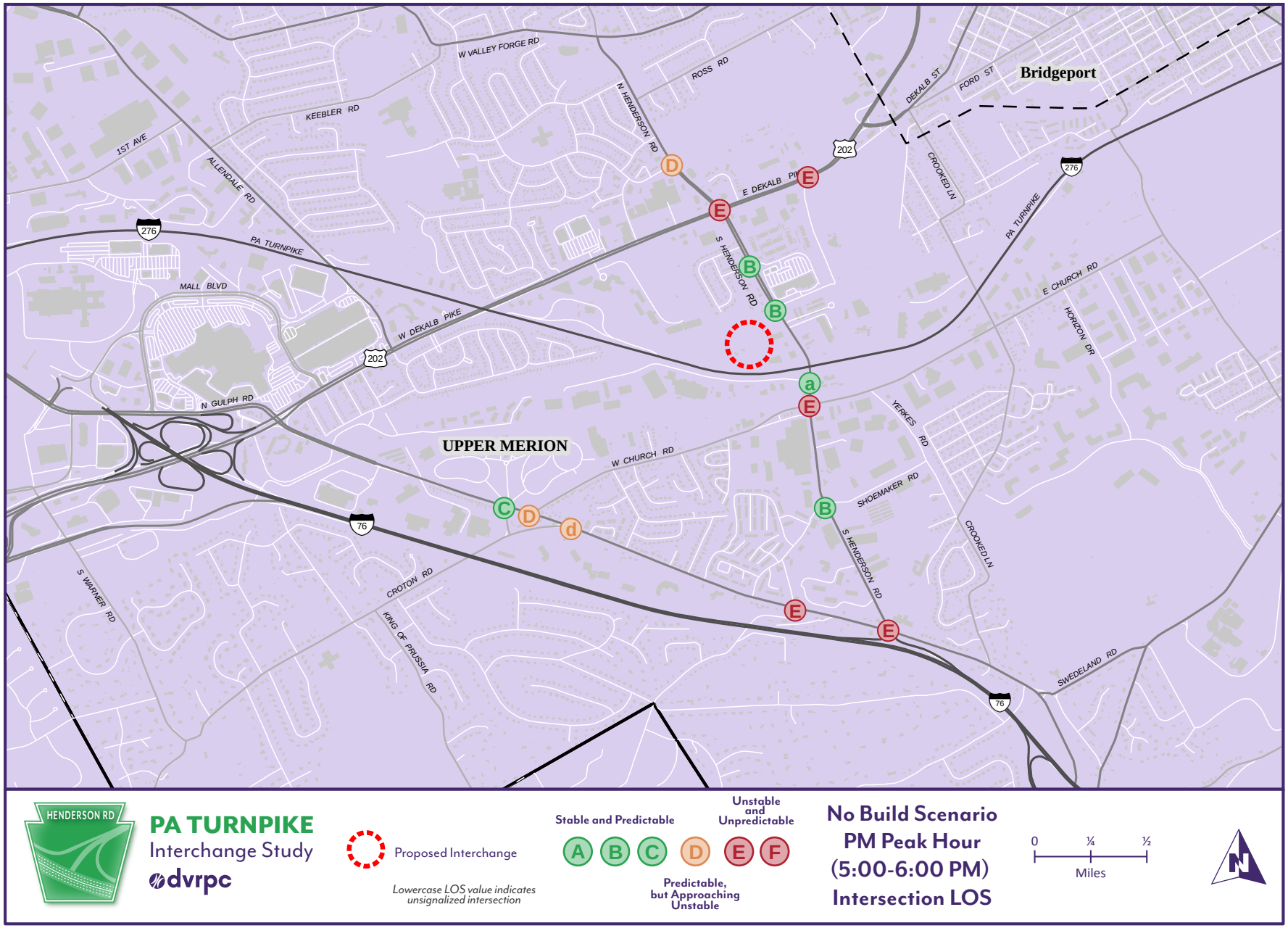
Without the proposed interchanges, congestion in the year 2045 in the study area is projected to be much worse than it was in 2019.

Figure 17: Henderson Road Intersection LOS: No Build Scenario—AM Peak Hour



Source: DVRPC, 2020

Figure 18: Henderson Road Intersection LOS: No Build Scenario—PM Peak Hour



Source: DVRPC, 2020

Build Scenario

What will traffic look like in 2045 if the proposed interchange is built?

Boles Smyth Associates provided the latest proposed interchange design for incorporation into the regional model to develop the Build Scenario. The concept design for the Henderson Road interchage is provided in **Figure 19**.

The Build Scenario does not include induced demand (i.e., new trips that are made based on the interchanges being built). Instead, the model reroutes existing trips to minimize travel time. The outputs of the regional model were then input into a microsimulation to analyze the local roadway impacts of the proposed interchanges.

The only difference between the No Build and Build scenarios is the addition of the proposed interchange. Therefore, it is valid to attribute any changes in delay to the interchanges.

"As anticipated, adding a new interchange to an already congested environment is forecast to increase delay. "

Intersection Results

The intersection LOS for the Build Scenario during the AM and PM peak hours are displayed in **Figure 20** and **Figure 21**. Additionally, **Figure 22** and **Figure 23** detail the changes in intersection delay between the No Build and Build scenarios for both peak hours in order to pinpoint locations for additional recommendations.

During both peak hours, the most significant increases in delay are shown along Henderson Road between Saulin Boulevard and Church Road. During the PM peak hour, some congestion is alleviated along Dekalb Pike east of its intersection with Henderson Road. However, there are some increases in delay along South Gulph Road during the PM peak hour.

The proposed recommendations for local roadway improvements, discussed in the Build + Improvements section, were based on these expected changes in delay associated with the interchanges.

Network Results

As anticipated, adding a new interchange to an already congested environment is forecast to increase delay.

AM PEAK HOUR: 8:00-9:00 AM

Build Scenario—Henderson Road

Network Demand **13,400 vehicles**

Average Delay per Vehicle **8.2 minutes**

PM PEAK HOUR: 5:00-6:00 PM

Build Scenario—Henderson Road

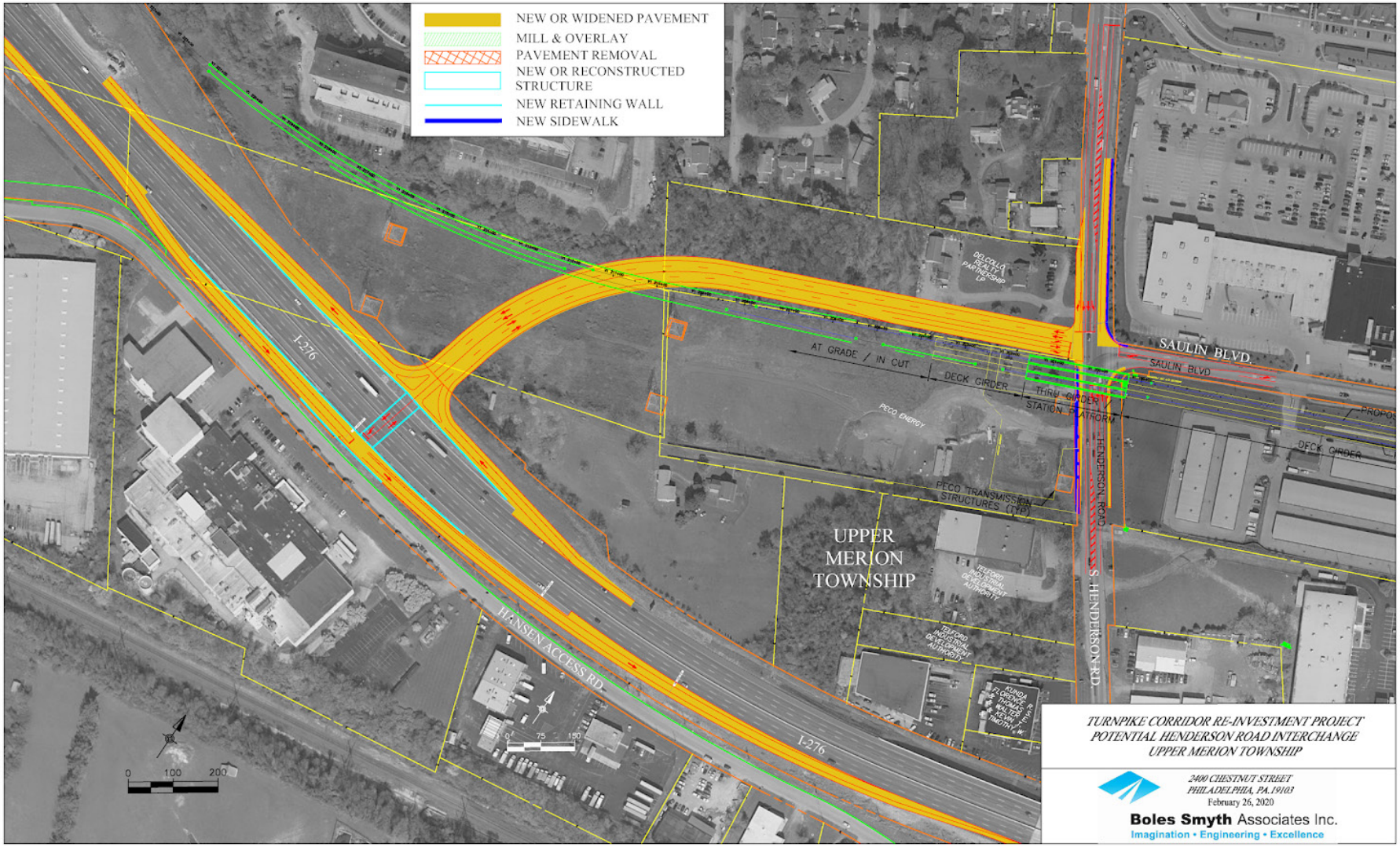
Network Demand **15,400 vehicles**

Average Delay per Vehicle **9.3 minutes**

Compared to the No Build Scenario, the interchange is anticipated to increase volume within the study area by 11 percent in the AM peak hour and 15 percent in the PM peak hour.

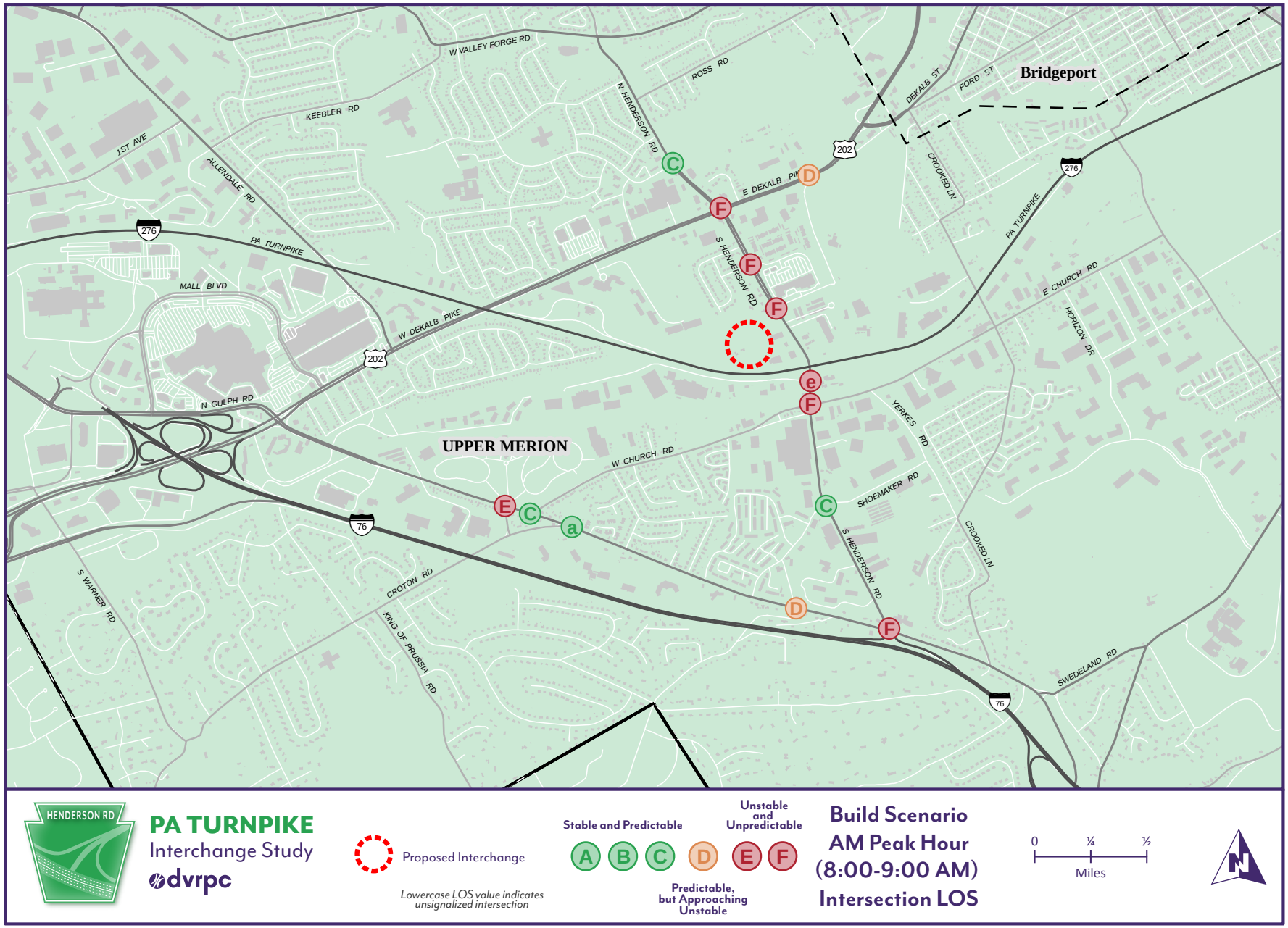
The delay increase from the No Build Scenario to Build Scenario is 33 percent and 55 percent in the AM and PM peak hours, respectively.

Figure 19: Henderson Road Interchange Concept



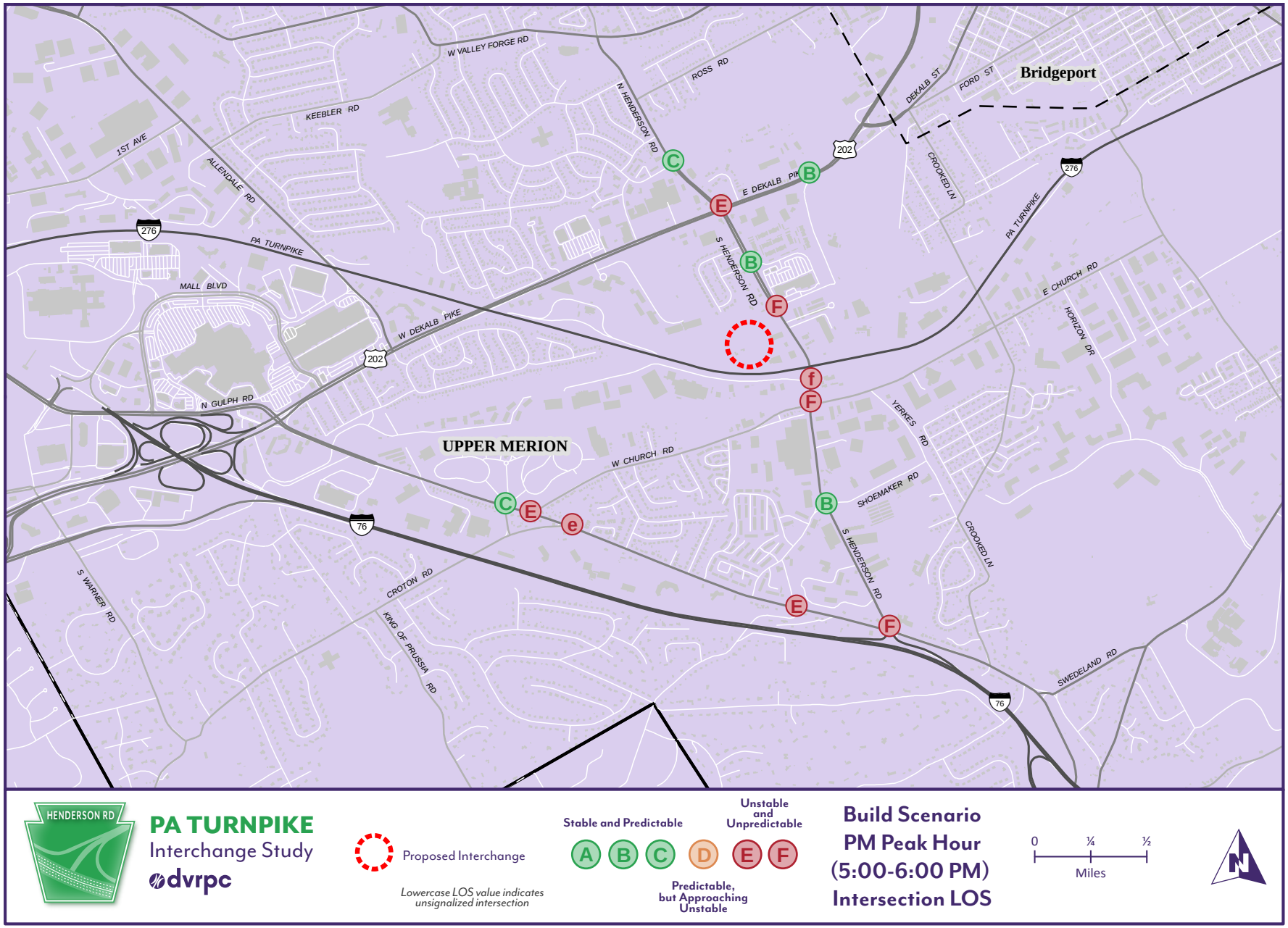
Source: Boles Smyth Associates

Figure 20: Henderson Road Intersection LOS: Build Scenario—AM Peak Hour



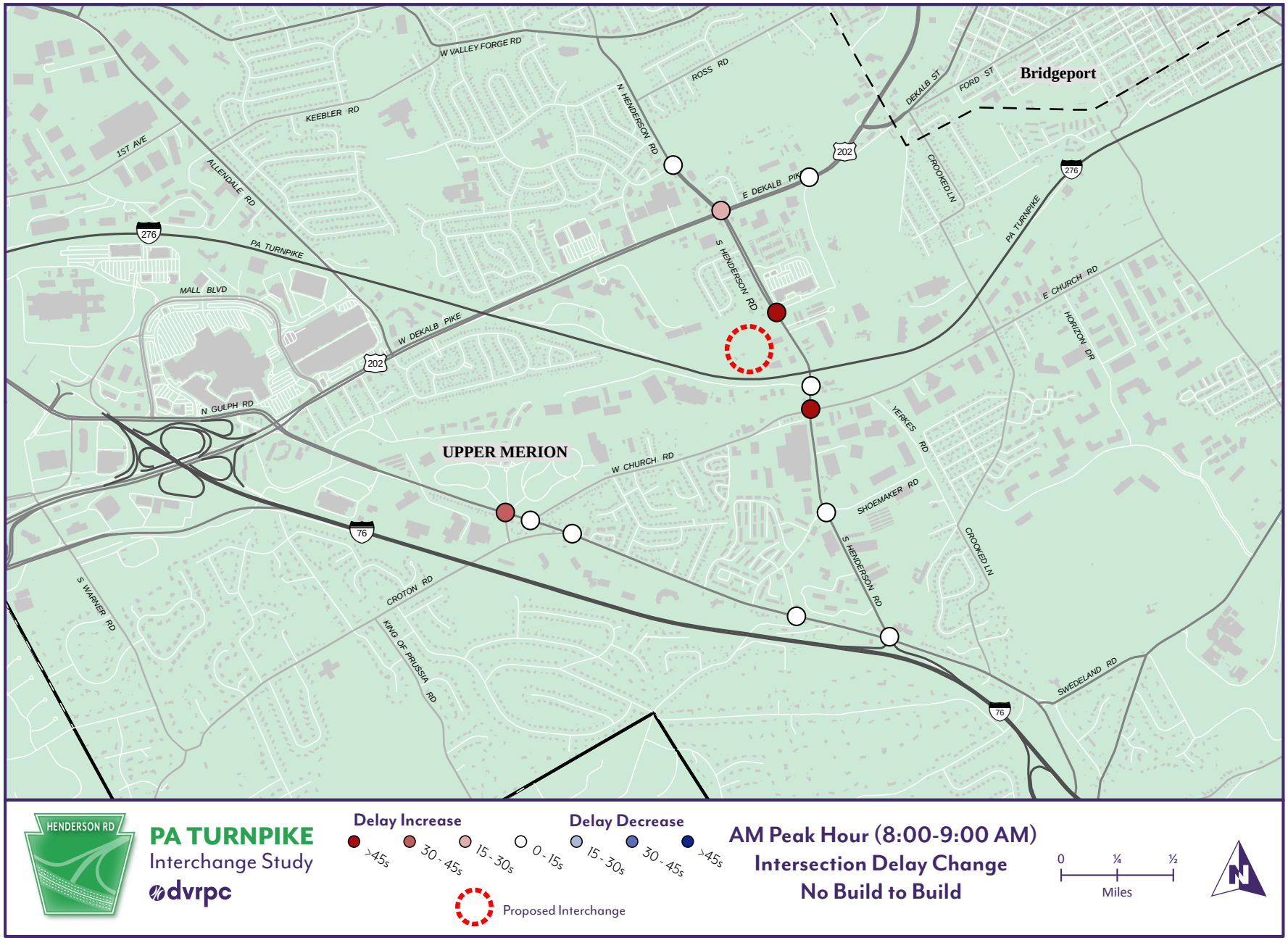
Source: DVRPC, 2020

Figure 21: Henderson Road Intersection LOS: Build Scenario—PM Peak Hour



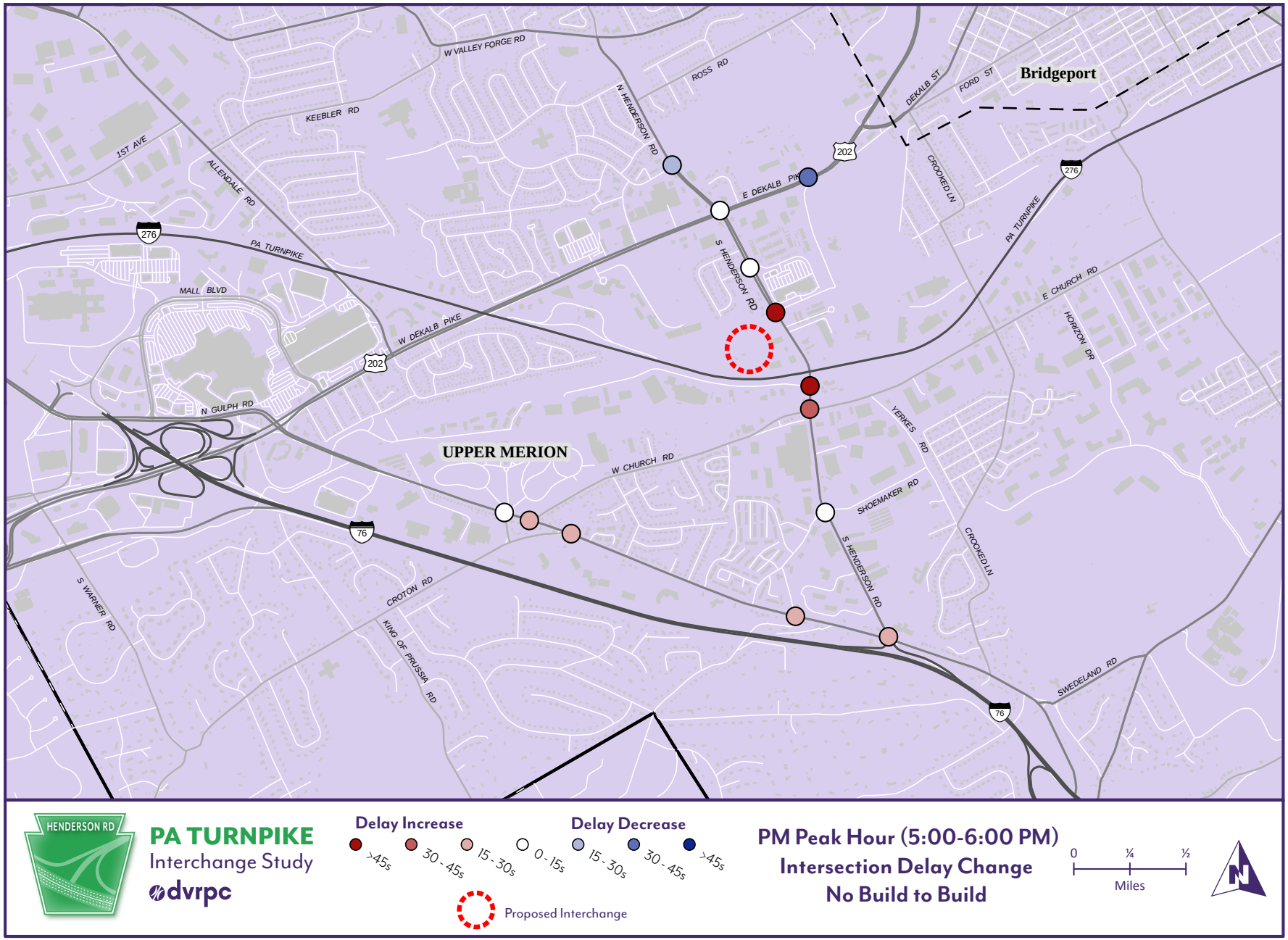
Source: DVRPC, 2020

Figure 22: Henderson Road Intersection Delay Change: No Build to Build—AM Peak Hour



Source: DVRPC, 2020

Figure 23: Henderson Road Intersection Delay Change: No Build to Build—PM Peak Hour



Source: DVRPC, 2020

Build + Improvements

With the proposed interchange built, how can changes to the local street network improve traffic flow?

The impacts of the proposed interchange on the local roadway network were determined based on the comparison of the No Build and Build scenarios. DVRPC worked with MCPC and the steering committee to develop recommendations to mitigate local impacts of the proposed interchanges.

Recommendations were limited due to the large scale of the study area. The project team focused on improvements that were feasible within the timeline of the proposed interchanges. The project team considered geometric improvements, such as the addition of travel lanes or turning lanes through roadway widening, and signal improvements. Signal improvements can include rephasing, or adding additional phases like protected left turns; timing optimization; and coordination along corridors with sequential signals.

The proposed recommendations are shown in **Figure 24**. They include:

- Dekalb Pike & Henderson Road: Convert shared left-turn/through lanes on Henderson Road approaches to left-turn only, replace split phasing with lead left-turn phasing.
- Henderson Road & Saulin Boulevard: Add capacity to approaches to provide turn lanes at new interchange ramp intersection.
- Henderson Road & Church Road: Add capacity to Church Road approaches to support two travel lanes in each direction.
- South Gulph Road & Brooks Road/Church Road: Incorporate clustered signal timing.
- South Gulph Road & Croton Road: Add westbound left-turn lane.
- Network-wide signal timing improvements.

These proposed recommendations were incorporated into the model to create the Build + Improvements scenario.

Intersection Results

The intersection LOS for the Build + Improvements scenario during the AM and PM peak hours are displayed in **Figure 25** and **Figure 26**. Additionally, **Figure 27** and **Figure 28** detail the changes in intersection delay between the No Build and Build + Improvements scenarios. **Table 5** and **Table 6** show the AM and PM peak-hour intersection results comparison for all scenarios.

"The improvements mitigate most of the delay attributed to the proposed interchanges, as well as increase delay in other areas."

The proposed recommendations to increase capacity and/or optimize signal timings are expected to decrease delay at some intersections during the AM peak hour or have a negligible affect. The proposed improvements would also potentially mitigate most of the intersection impacts of the interchanges during the PM peak hour. However, there are some increases in delay at Henderson Road in the immediate vicinity of the proposed interchange.

Network Results

The network demand is assumed to stay the same in the Build + Improvements scenario as the Build Scenario.

The network demand and delay for each scenario during both peak hours are shown in **Figure 29** and **Figure 30**, respectively. With the proposed interchanges and recommended improvements, the average delay is expected to decrease by 28 percent from the 2045 No Build condition during the AM peak hour and increase by 9 percent, or 30 seconds, during the PM peak hour. The improvements mitigate most of the delay attributed to the proposed interchanges, as well as delay in other areas.

AM PEAK HOUR: 8:00-9:00 AM

Build + Improvements—Henderson Road

Network Demand **13,400 vehicles**

Average Delay per Vehicle **4.5 minutes**

PM PEAK HOUR: 5:00-6:00 PM

Build + Improvements—Henderson Road

Network Demand **15,400 vehicles**

Average Delay per Vehicle **6.5 minutes**

Table 5: Henderson Road Study Area AM Peak-Hour Intersection LOS Scenario Comparison

Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
Dekalb & Saulin	12.3	B	47.3	D	49.9	D	43.9	D
Dekalb & Henderson	44.1	D	54.6	D	83.5	F	45.9	D
Henderson & Monroe	7.8	A	28.2	C	145.4	F	9.0	A
Henderson & Saulin[2]	9.9	A	71.8	E	170.0	F	28.6	C
Henderson & Hansen	9.9	a	42.5	e	40.2	e	9.7	a
Henderson & Church	29.8	C	49.0	D	106.4	F	38.3	D
Henderson & Shoemaker	9.7	A	12.8	B	26.9	C	14.8	B
Henderson & South Gulph	48.2	D	76.5	E	80.7	F	81.8	F
South Gulph & Weadley/Shoemaker	24.9	C	41.9	D	35.3	D	34.7	C
South Gulph & Croton	4.1	a	8.1	a	5.5	a	3.2	a
South Gulph & Church	14.8	b	25.4	C	24.0	C	28.0	C
South Gulph & Brooks	20.7	C	31.6	C	62.0	E	27.9	C
Henderson & Prince Frederick	10.0	A	34.4	C	34.5	C	18.2	B

Source: DVRPC 2020

[1] Lowercase LOS value indicates unsignalized intersection.

[2] Includes new eastbound approach for proposed interchange access in all future scenarios.

Table 6: Henderson Road Study Area PM Peak-Hour Intersection LOS Scenario Comparison

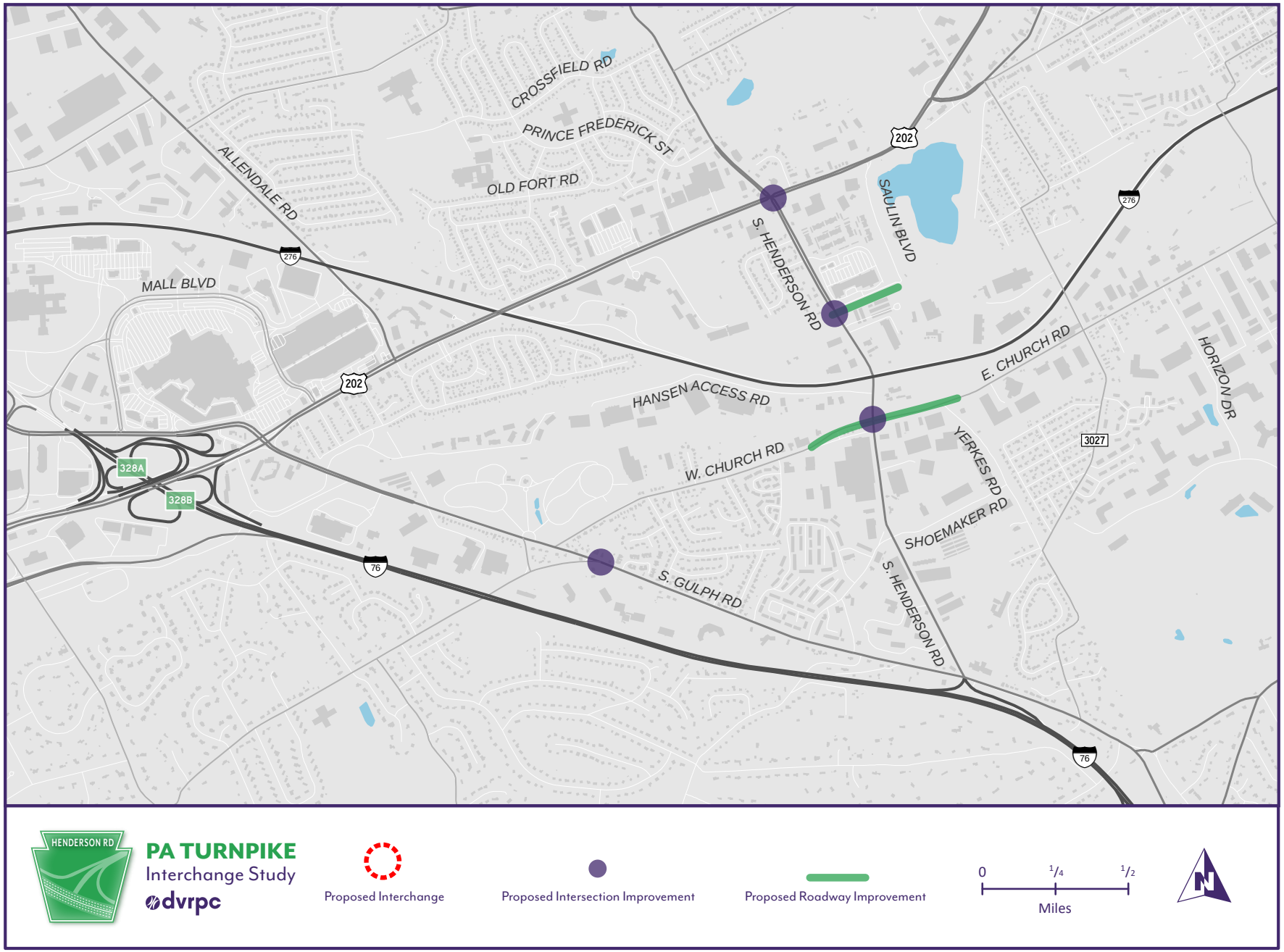
Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
Dekalb & Saulin	22.9	C	56.9	E	18.8	B	29.3	C
Dekalb & Henderson	70.1	E	79.2	E	69.3	E	65.8	E
Henderson & Monroe	14.1	B	14.4	B	11.5	B	21.6	C
Henderson & Saulin[2]	9.0	A	14.6	B	111.5	F	49.6	D
Henderson & Hansen	1.0	a	7.0	a	58.5	f	28.0	d
Henderson & Church	60.0	E	68.6	E	107.0	F	76.3	E
Henderson & Shoemaker	11.8	B	11.8	B	17.1	B	19.8	B
Henderson & South Gulph	33.6	C	78.7	E	95.3	F	75.3	E
South Gulph & Weadley/Shoemaker	32.7	C	61.8	E	79.9	E	73.1	E
South Gulph & Croton	5.8	a	25.3	d	47.4	e	15.9	c
South Gulph & Church	18.4	c	35.1	D	55.7	E	38.9	D
South Gulph & Brooks	24.5	C	27.9	C	28.1	C	27.0	C
Henderson & Prince Frederick	18.9	B	49.8	D	33.4	C	34.1	C

Source: DVRPC 2020

[1] Lowercase LOS value indicates unsignalized intersection.

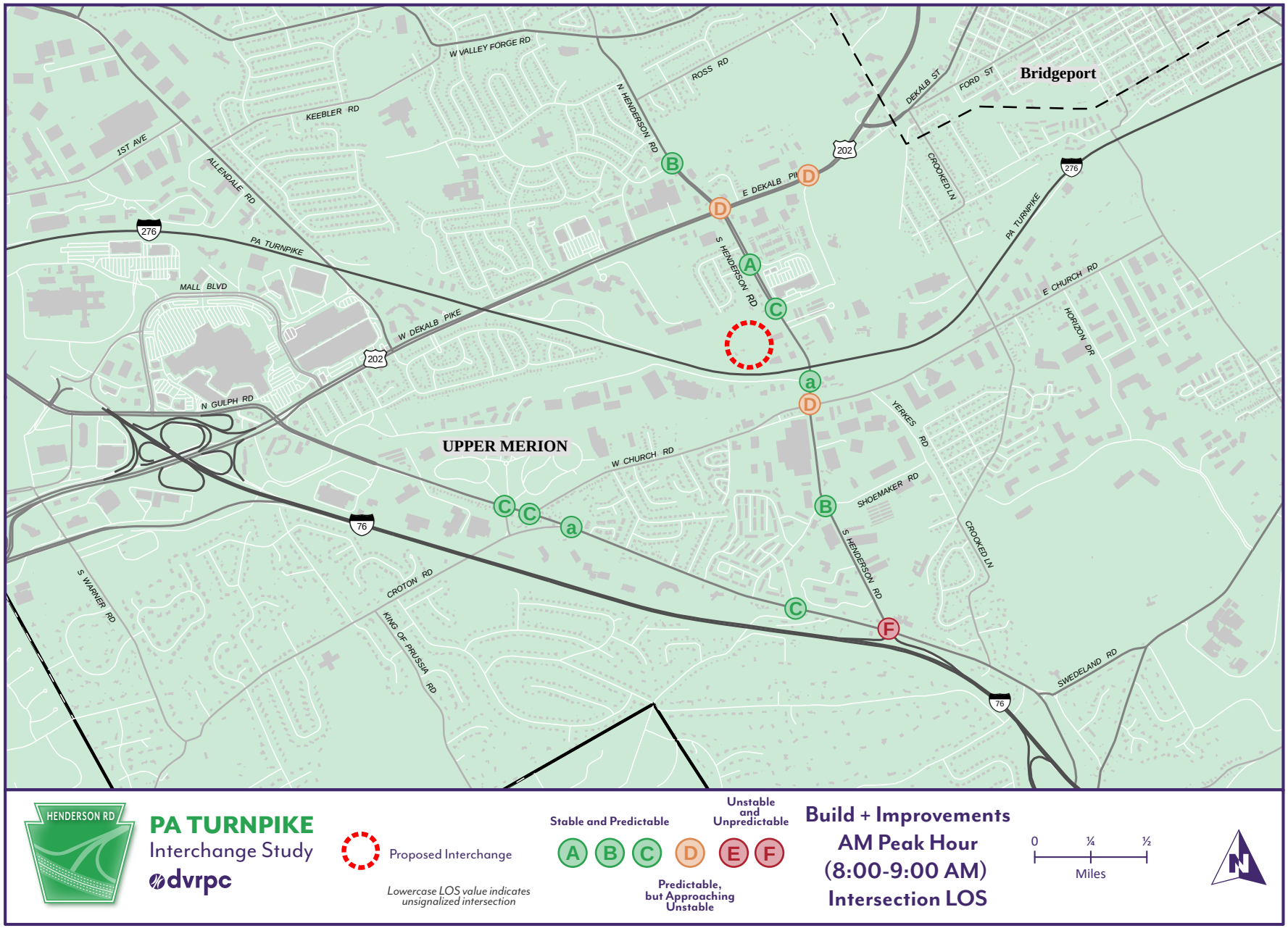
[2] Includes new eastbound approach for proposed interchange access in all future scenarios.

Figure 24: Henderson Road Recommended Improvements



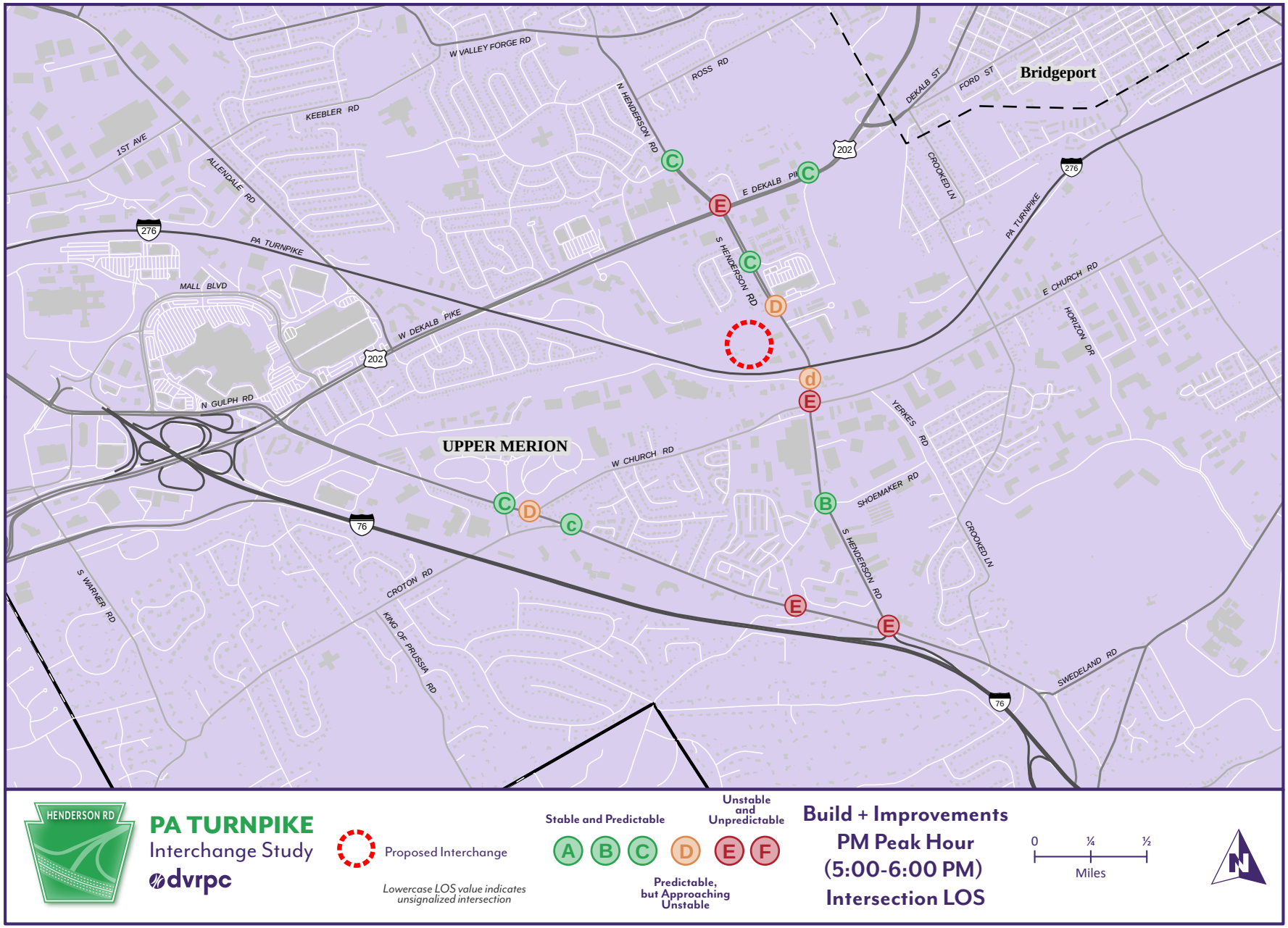
Source: DVRPC, 2020

Figure 25: Henderson Road Intersection LOS: Build + Improvements—AM Peak Hour



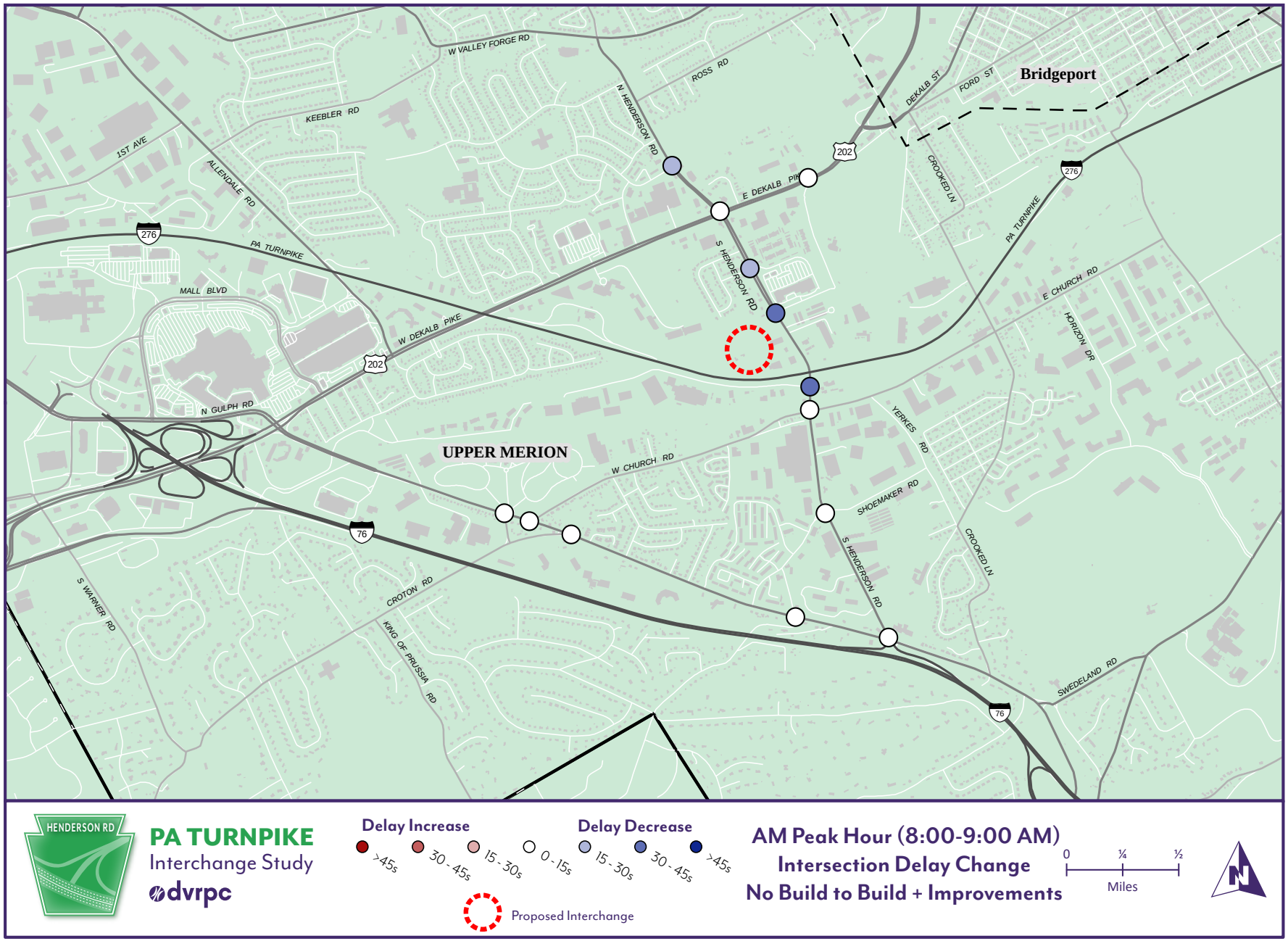
Source: DVRPC, 2020

Figure 26: Henderson Road Intersection LOS: Build + Improvements—PM Peak Hour



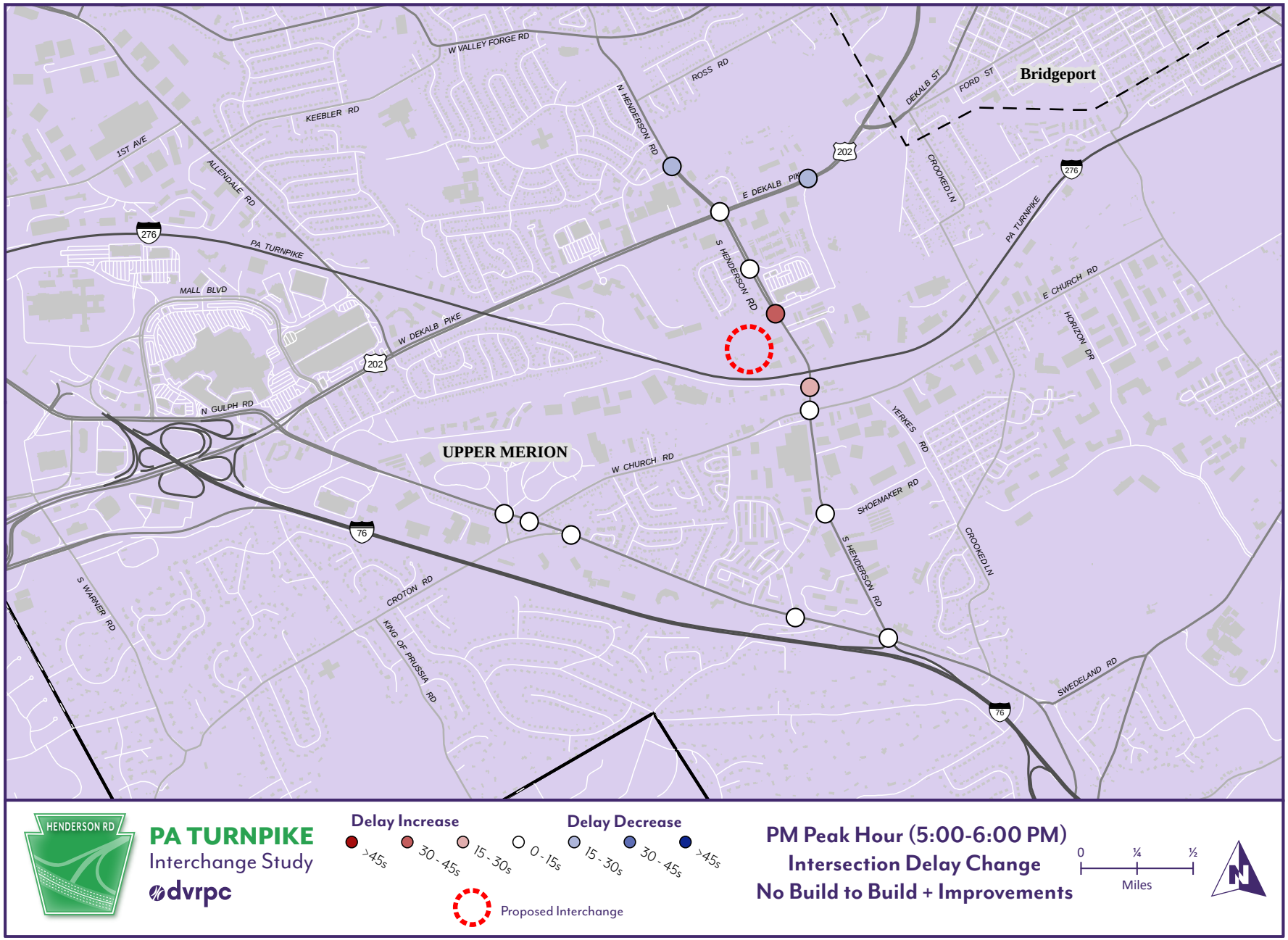
Source: DVRPC, 2020

Figure 27: Henderson Road Intersection Delay Change: No Build to Build + Improvements—AM Peak Hour



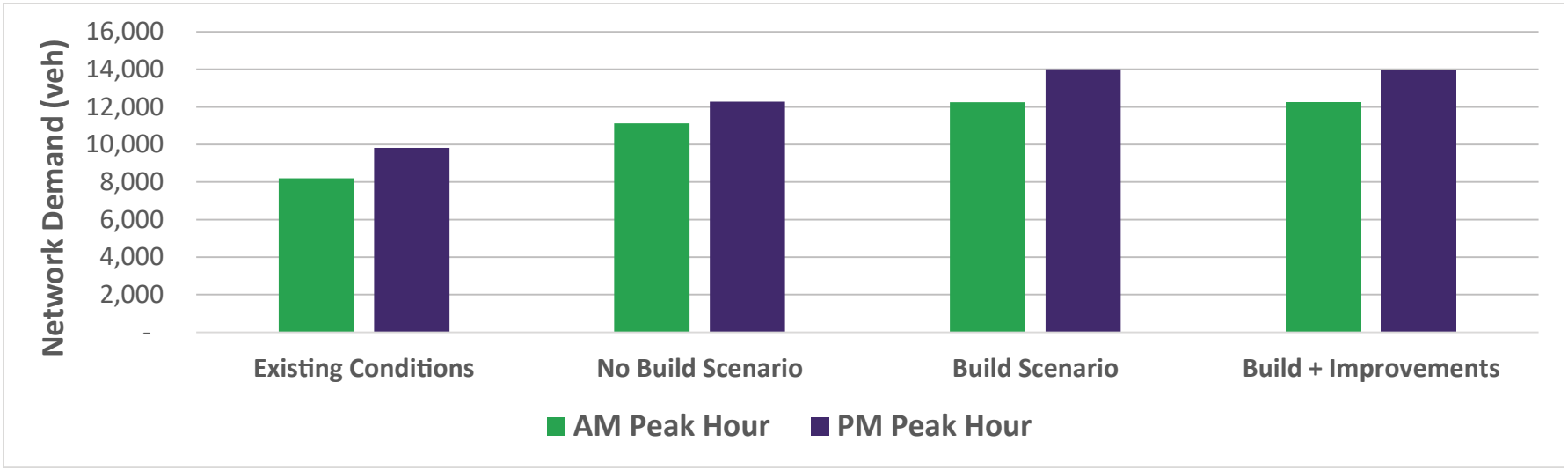
Source: DVRPC, 2020

Figure 28: Henderson Road Intersection Delay Change: No Build to Build + Improvements—PM Peak Hour



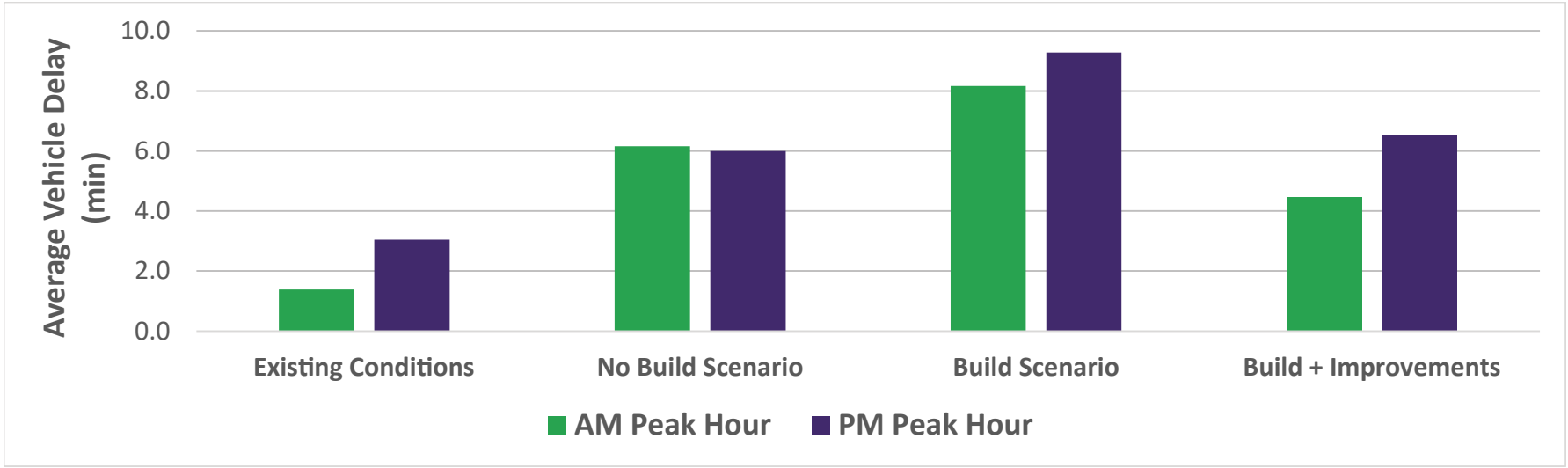
Source: DVRPC, 2020

Figure 29: Henderson Road Network Demand by Modeling Scenario



Source: DVRPC 2020

Figure 30: Henderson Road Average Vehicle Delay by Modeling Scenario



Source: DVRPC 2020

DELAWARE VALLEY
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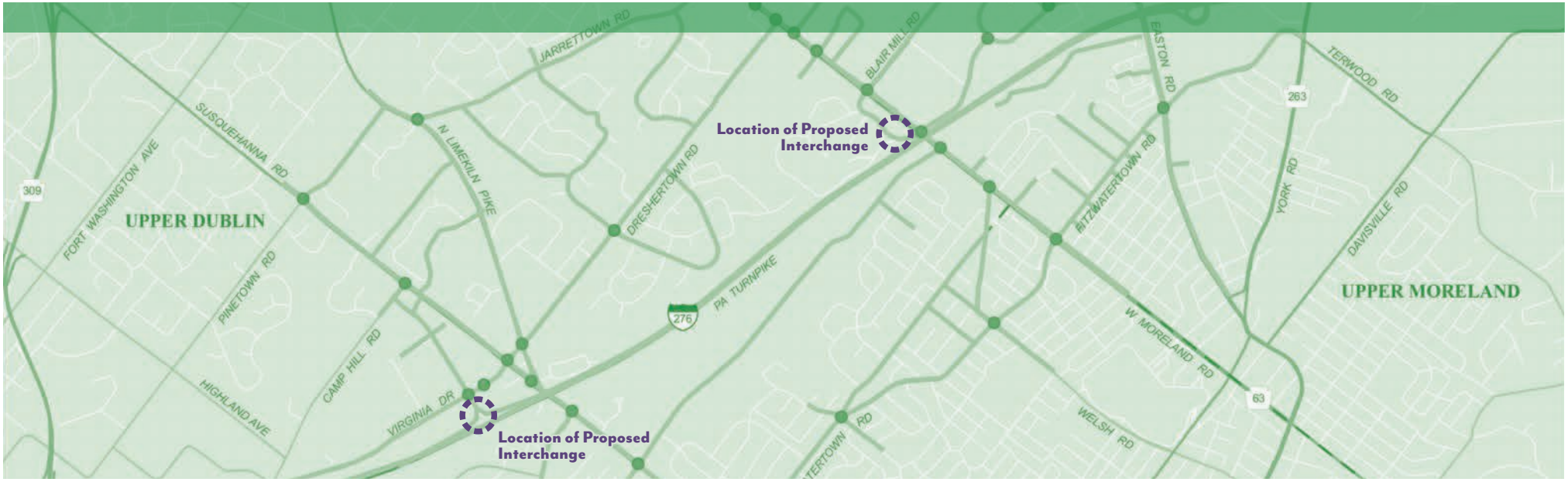
REGIONAL
PLANNING COMMISSION

WELSH RD &
VIRGINIA DR

WELSH ROAD & VIRGINIA DRIVE

Study Area



Welsh Road & Virginia Drive Study Area

The second area studied is the local roadway network surrounding two proposed interchanges along the PA Turnpike in Upper Dublin Township. The first is a new complete interchange at Welsh Road, west of the existing interchange at Willow Grove. The second is the completion of the existing interchange at Virginia Drive, which was included due to its proximity and construction feasibility. The existing interchange at Virginia Drive provides access to and from the PA Turnpike westbound. The proposed improvement includes the addition of eastbound access to and from the Turnpike.

Study Area

The proposed Welsh Road interchange and the proposed completion of the Virginia Drive interchange would provide access to and from the Turnpike for the residential communities and business parks in the area. These interchanges would be located between the existing Fort Washington interchange to the west and the Willow Grove interchange to the east.

The Welsh Road & Virginia Drive Study Area is shown in **Figure 31**. The highlighted roadways and intersections are included in all modeling scenarios.

Virginia Drive interchange location
Source: DVRPC

Land Use

Understanding land use is critical to modeling transportation behavior, as residential, commercial, and other uses generate different numbers and types of trips. The land uses within the Welsh Road & Virginia Drive Study Area are shown in **Figure 32**.

Land use surrounding the proposed new and completed interchanges is characterized by a mix of residential, office, and commercial uses. South of I-276 and surrounding the commercial core, single-family homes are the most common use, with a number of multifamily developments near Welsh Road. North of I-276, commercial uses are more abundant, including several large employment and shopping centers. Industrial uses are also accessible from the existing Willow Grove interchange.

The proposed new and completed interchanges would provide a faster route to I-276 for residents. Additionally, they would provide more direct connections to employment and shopping centers for customers and employees, potentially reducing cut-through traffic on local residential streets.

Figure 31: Welsh Road & Virginia Drive Study Area

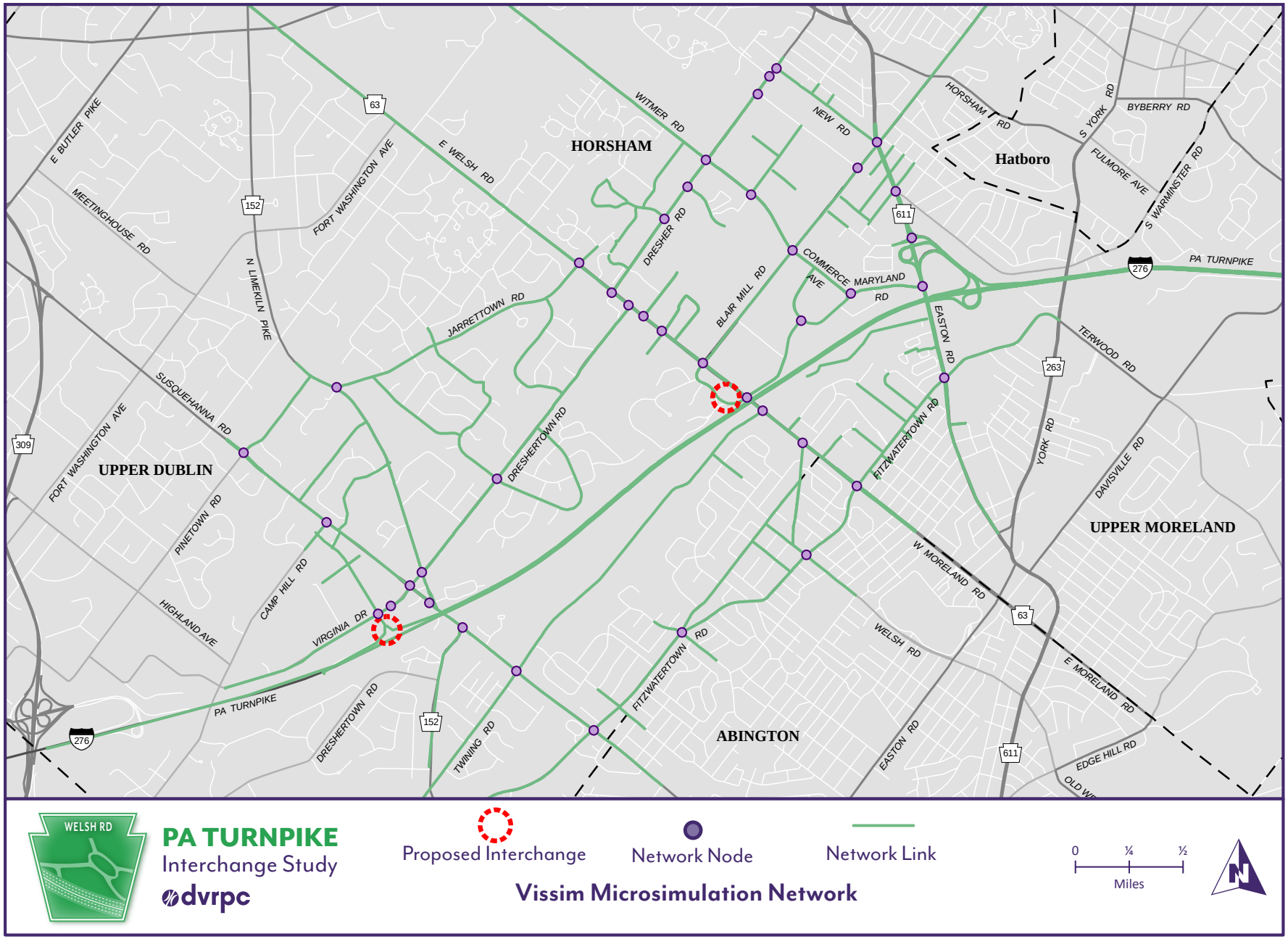
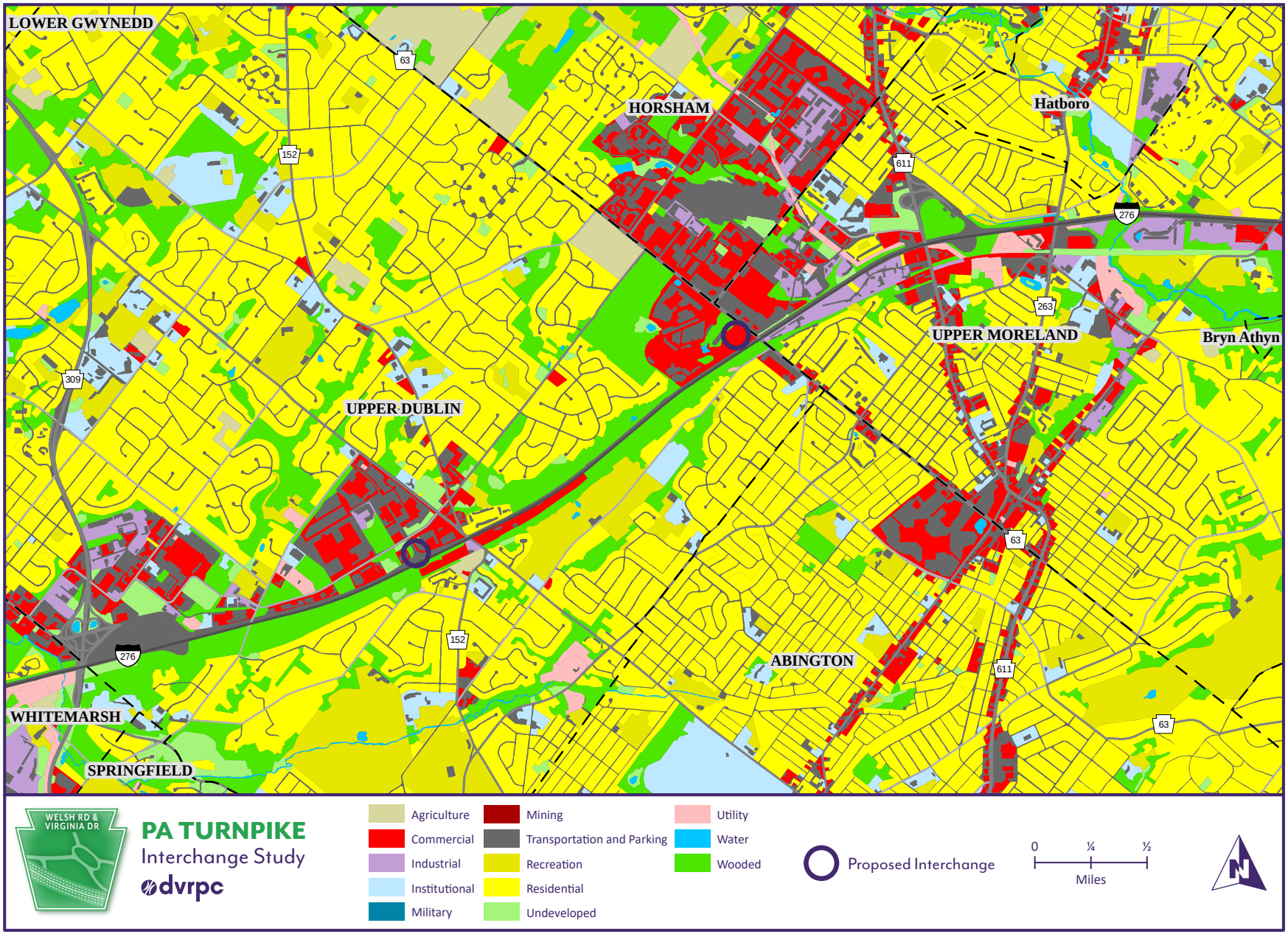


Figure 32: Welsh Road & Virginia Drive Land Use



Source: DVRPC 2015

Crash Data

Crash history within the study area was analyzed in order to inform recommendations. **Figure 33** and **Figure 34** show the intersection crashes in the vicinity of the proposed Welsh Road and Virginia Drive interchanges between 2014 and 2018, as reported by PennDOT.

Blair Mill Road & Easton Road

There were 48 reported crashes at the intersection of Blair Mill Road & Easton Road, higher than any other intersections in either study area. Angle crashes made up half of these crashes (24), with two angle crashes resulting in serious injury. There were also two hit-pedestrian crashes at this intersection. After 2017, the southeastbound approach of New Road was closed and converted to a cul-de-sac, reducing the number of approaches from five to four. This improvement may have increased safety at the intersection.

Moreland Road & Fitzwatertown Road

The intersection of Moreland Road & Fitzwatertown Road had 37 reported crashes over the five-year period. Twenty-two of these were angle crashes, three were head-on collisions, and one was a hit-pedestrian crash. All approaches at this intersection have permitted/protected left-turn phasing, which means there are designated left-turn phases with a green arrow but vehicles are also permitted to turn left during the solid green phase. There are some areas with limited visibility, which could contribute to the high number of crashes.

Fitzwatertown Road & Easton Road

There were 36 crashes reported over the five-year period at the intersection of Fitzwatertown Road & Easton Road. Nineteen of these were angle crashes and 13 were rear-end crashes. All approaches at this intersection also have permitted/protected left-turn phasing, which could contribute to some of the angle crashes.

Fitzwatertown Road & Susquehanna Road

Of the study intersections closest to the Virginia Drive interchange, the intersection of Fitzwatertown Road & Susquehanna Road had the most crashes over the five-year period, with 32 total crashes. More than half of these were rear-end crashes (19) , which could be attributed to queueing at the intersection.

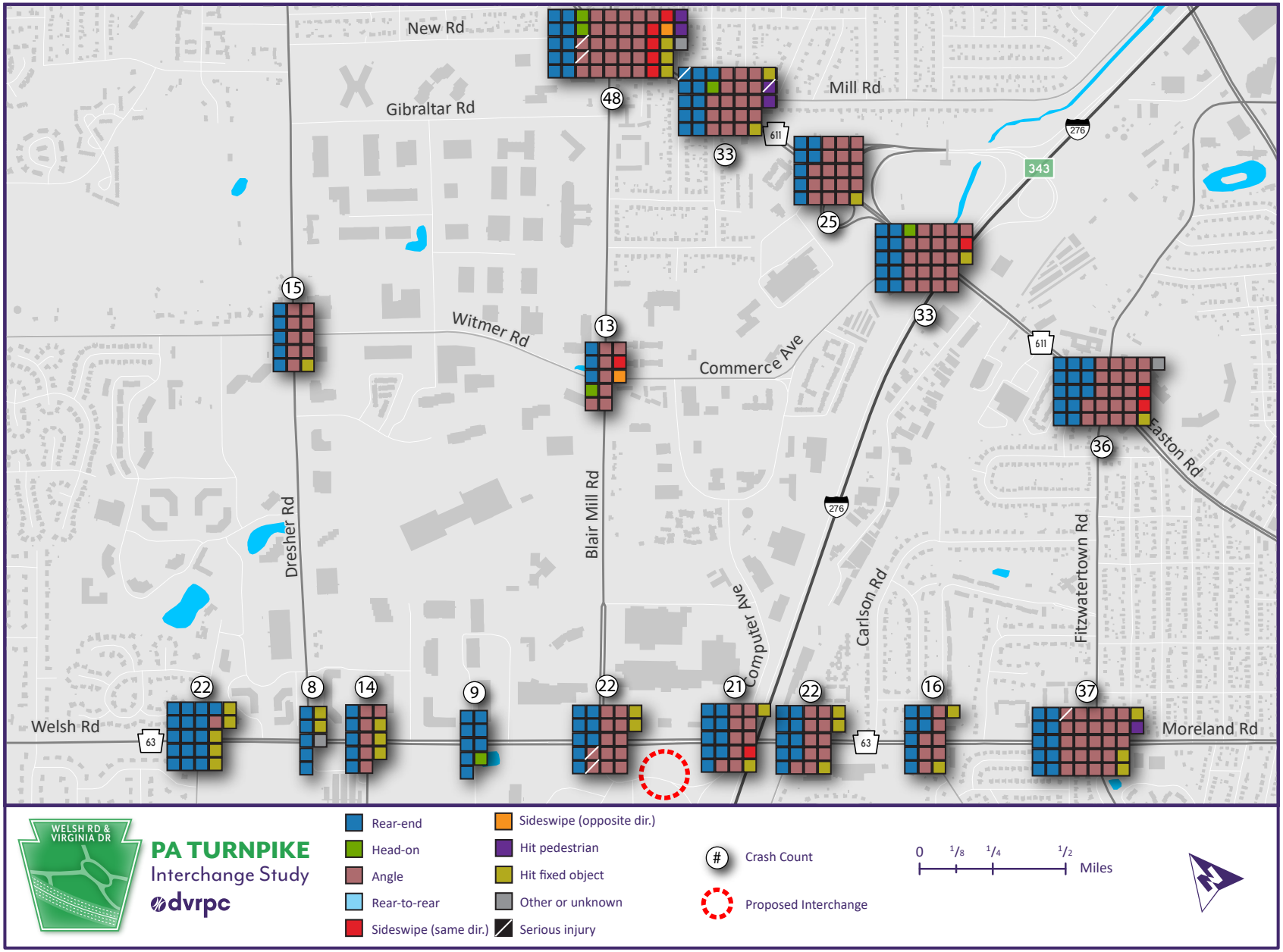
Susquehanna Road & Virginia Drive

There were also a high number of crashes in the Dresher Triangle area. There were 26 crashes reported at the intersection of Susquehanna Road & Virginia Drive over the five-year period. Almost 75 percent of these crashes (19) were angle crashes. All approaches provide left-turn lanes with permitted/protected phasing, except for the Virginia Drive southbound approach. This configuration and phasing could contribute to the high number of angle crashes at this intersection.

Susquehanna Road & North Limekiln Pike

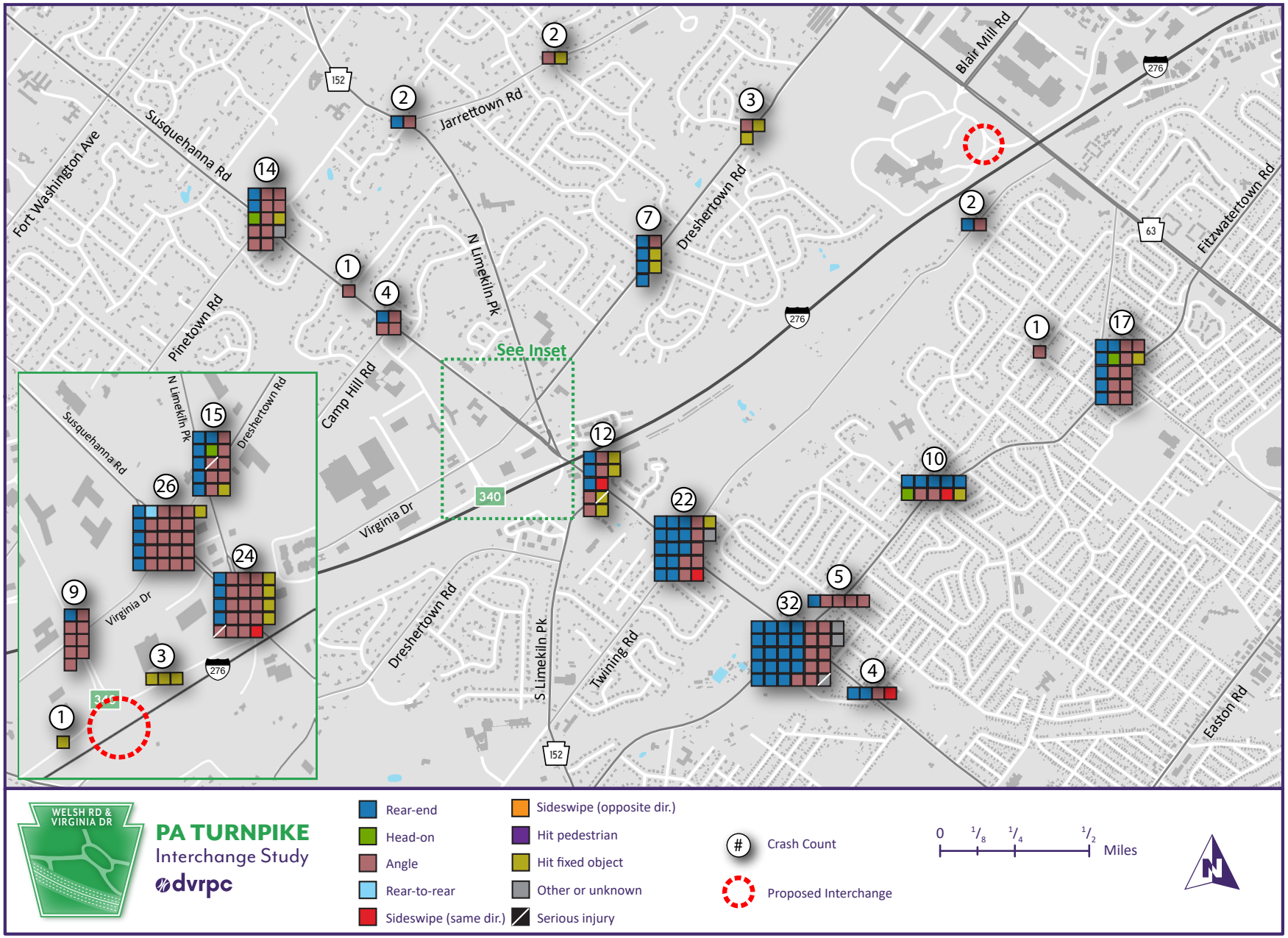
There were 24 reported crashes over the five-year period at the intersection of Susquehanna Road & North Limekiln Pike. Fifteen of these were angle crashes, one of which resulted in serious injury. This is especially concerning because there are only three approaches at this intersection. Given the configuration and prohibited movements, these angle crashes are most likely caused by red-light running.

Figure 33: Welsh Road Crash Data, 2014-2018



Source: PennDOT

Figure 34: Virginia Drive Crash Data, 2014-2018



Source: PennDOT

Developments

A number of significant developments within the study area have been approved in recent years. For the purpose of microsimulation, recent and upcoming developments with at least 50 residential units, or at least 50,000 square feet of commercial space (office or retail), were included in all future-year modeling scenarios. These developments are shown in **Figure 35**. Two major developments line Welsh Road north of I-276 and would be directly accessible from the proposed interchange: The Promenade at Upper Dublin and Regency at Upper Dublin. Several additional developments will bring new residential units and commercial square footage to Dresher Road, Dreshertown Road, Blair Mill Road, and Commerce Avenue.

Future residents, employees, and customers traveling to and from these new developments would likely utilize the proposed new interchange, reducing the potential impact of the new developments on local streets.

The land use category and number of residential units and commercial square feet are used to determine how much new traffic will be added to local streets due to these new developments.

Transportation Projects

The proposed interchanges at Welsh Road and Virginia Drive are two of many transportation improvements in the study area with the goal of improving traffic flow, safety, and transportation choices. Proposed transportation projects within the study area are shown in **Figure 36**. Resurfacing and signal operations are planned for Welsh Road. Modifications to the Willow Grove interchange, along with ITS improvements along the PA 611 corridor, aim to improve traffic operations and increase efficiency in the Willow Grove area. Intersection improvements and signal upgrades are planned to improve travel and safety on Blair Mill Road and Dresher Road, while sidewalk and trail connections on Blair Mill and Dresher Road look to improve pedestrian comfort and safety. Widening on Dreshertown Road and extension of the Cross County Trail will improve travel and safety.

The following proposed transportation projects are incorporated into the future-year modeling scenarios, along with new developments, to better understand how traffic will operate in the future.

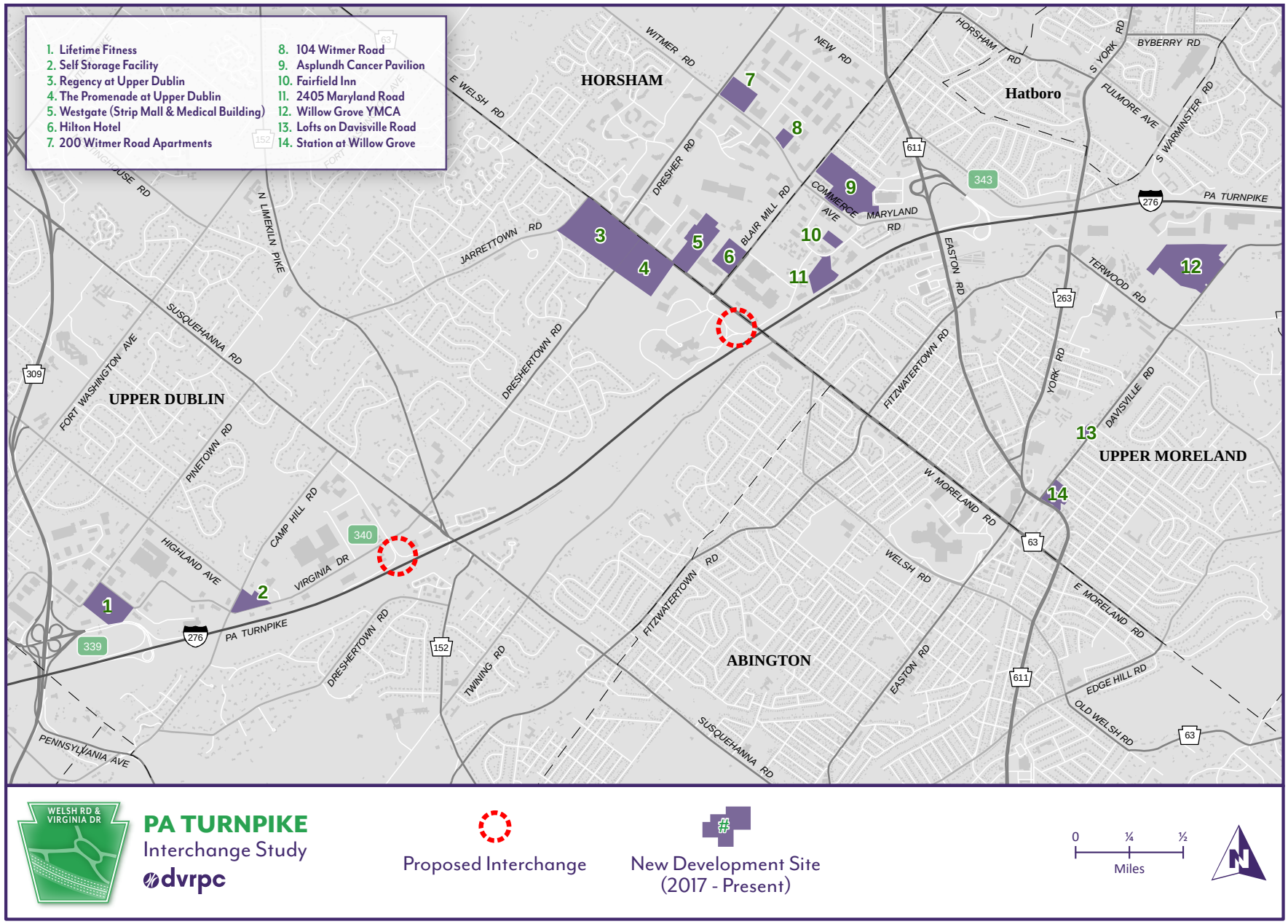
Regional Transportation Projects

- cashless tolling on the PA Turnpike;
- PA 611 ITS improvements and multimodal upgrades from Cheltenham Avenue to County Line Road;
- Regional Rail station enhancement
  - Hatboro; and
  - Willow Grove;
- I-276 and Lafayette Street/Ridge Avenue new interchange;
- I-95/I-276 partial interchange;
- widen I-476 PA Turnpike Northeast Extension from Lansdale to Quakertown;
- I-276/PA 611 Willow Grove interchange ramp modifications; and
- Fort Washington interchange “zip ramp.”

Local Transportation Projects

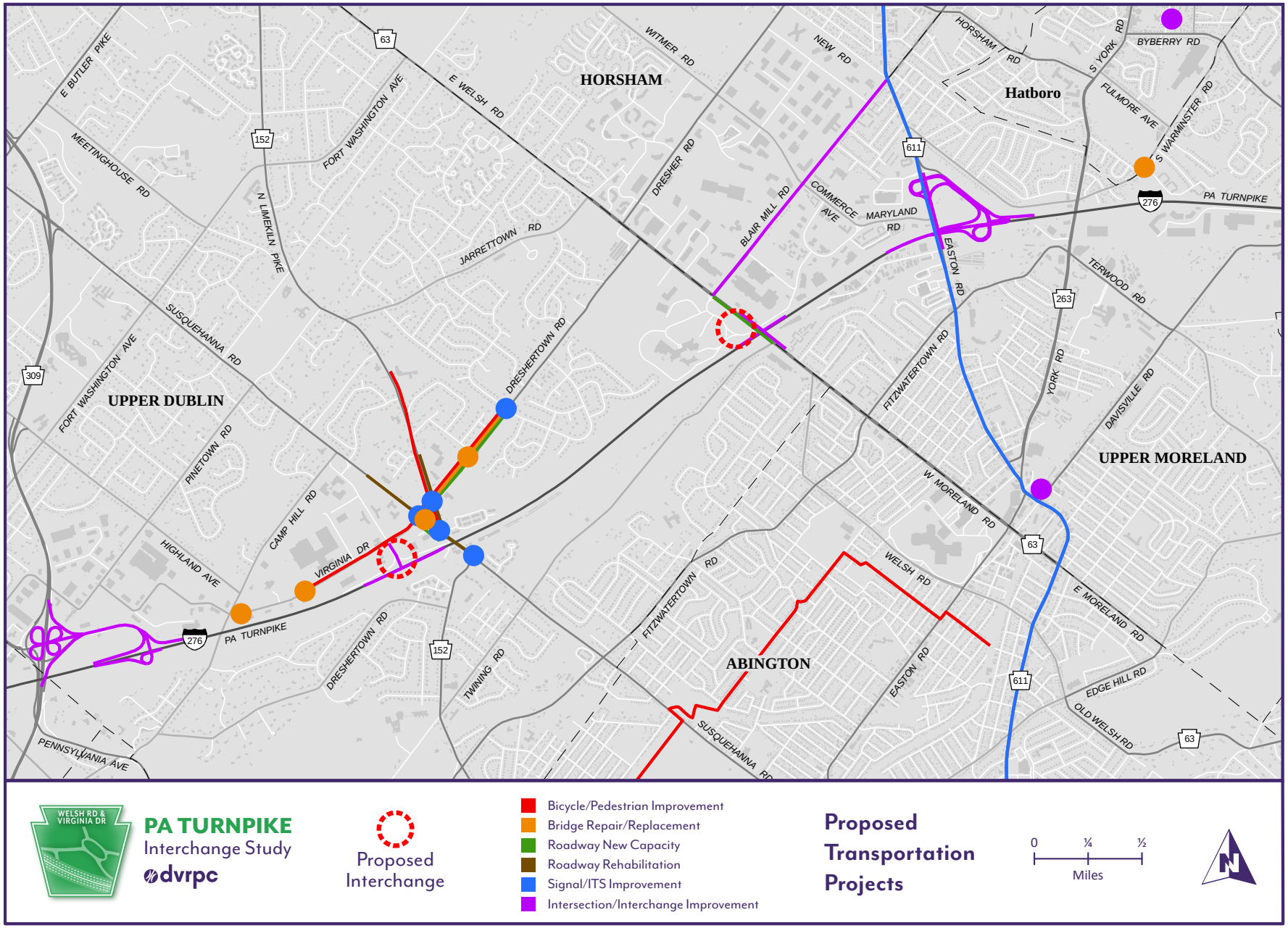
- new traffic signals
  - Dresher Road & Extended Stay America;
  - Dresher Road & Business Center Drive; and
  - Dreshertown Road & Sycamore Street;
- crossing upgrade and roadway widening south of Dresher Road & Witmer Road;
- extension of eastbound through lane on Welsh Road from west of Jarrettown Road to Dresher Road;
- channelized right-turn lane on Welsh Road at its intersection with Dreshertown Road; and
- widening of Virginia Drive/Dreshertown Road from Susquehanna Road to Beacon Hill/Bantry Drive and extension of the Cross County Trail.

Figure 35: Welsh Road & Virginia Drive Developments



Source: DVRPC, MCPC, 2017

Figure 36: Welsh Road & Virginia Drive Transportation Projects



Source: DVRPC, MCPC, 2017

Modeling Results

The Welsh Road & Virginia Drive Study Area modeling network is shown in **Figure 31 on page 54**. Four scenarios were simulated and are detailed in **Figure 37**:

- Existing Conditions (2019);
- No Build Scenario (2045);
- Build Scenario (2045); and
- Build + Improvements (2045).

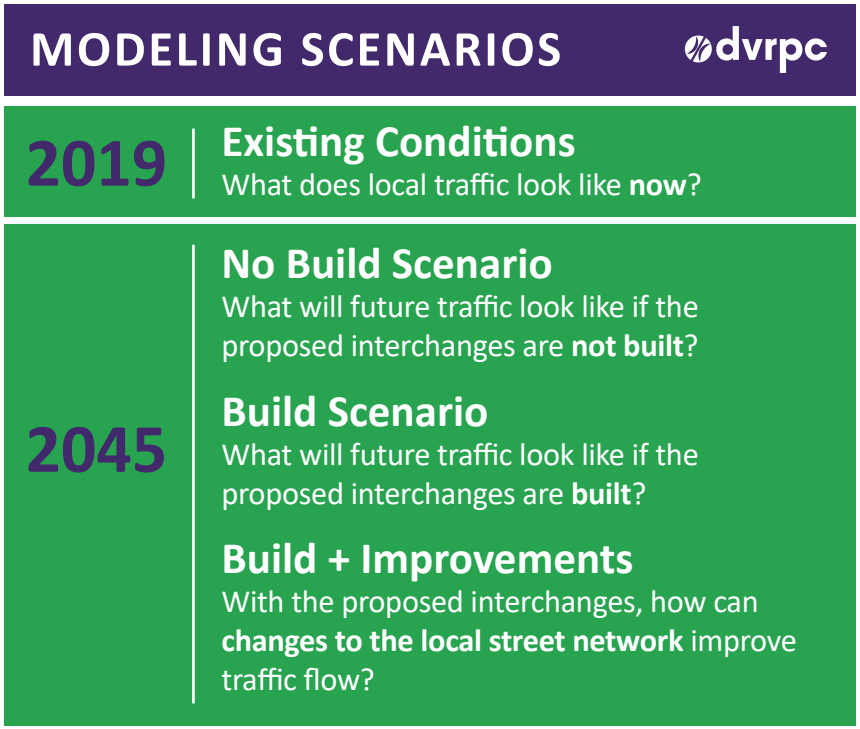
For all four scenarios, each intersection within the study area was analyzed for average delay and LOS, while the roadway network as a whole was compared across scenarios using average vehicle delay and network demand.

In order to model normal peak-hour traffic in the study area, traffic counts in the vicinity of the proposed Welsh Road interchange were collected on typical weekdays in the spring of 2017. Traffic counts in the vicinity of Virginia Drive were collected in the spring of 2019, after the interchange was added to the study. Peak hours were selected by identifying the times when traffic volumes were the highest in the morning and in the evening. The AM peak hour for the network was determined to be 8:00-9:00 AM and the PM peak hour was 5:00-6:00 PM.

All four scenarios were modeled during both the AM and the PM peak hours, and the results are shown in the following sections. Throughout this chapter, AM peak-hour results are shown in **green** and PM peak-hour results are shown in **purple**.

The complete results tables for the Welsh Road & Virginia Drive Study Area can be found in **Appendix C**.

Figure 37: Modeling Scenarios



Existing Conditions

What does local traffic look like now?

The Existing Conditions model was developed using local traffic counts, the regional model, and traffic signal plans. This modeling scenario reflects the current transportation network in the vicinity of the proposed Welsh Road interchange and the proposed completion of the Virginia Drive interchange.

Traffic volumes are based on DVPRC's 2015 regional model forecast and traffic counts completed in 2017–19.

"As with all developed areas, some amount of delay is normal."

Intersection Results

The intersection LOS for the Existing Conditions during the AM and PM peak hours are displayed in **Figure 38** and **Figure 39**.

During the AM peak hour under the Existing Conditions, most intersections operate at stable and predictable LOS. A few intersections operate at LOS D, but no intersections fail.

During the PM peak hour, the Existing Conditions are slightly worse. There are eight intersections that operate at LOS D and two intersections that operate at LOS E. Most of the unstable conditions in this scenario are focused around the existing partial interchange at Virginia Drive.

Network Results

Overall study area road network conditions were summarized using **network demand**, or number of vehicles within the study area during the peak hour, and **average vehicle delay**, or the average amount of time a vehicle experiences delay while in the network.

As shown, the AM peak hour has slightly lower demand than the PM peak hour under the Existing Conditions. This results in a slightly lower average delay per vehicle while in the network during the morning than the evening.

AM PEAK HOUR: 8:00-9:00 AM

Existing Conditions—Welsh Road & Virginia Drive

Network Demand **21,400 vehicles**

Average Delay per Vehicle **1.5 minutes**

PM PEAK HOUR: 5:00-6:00 PM

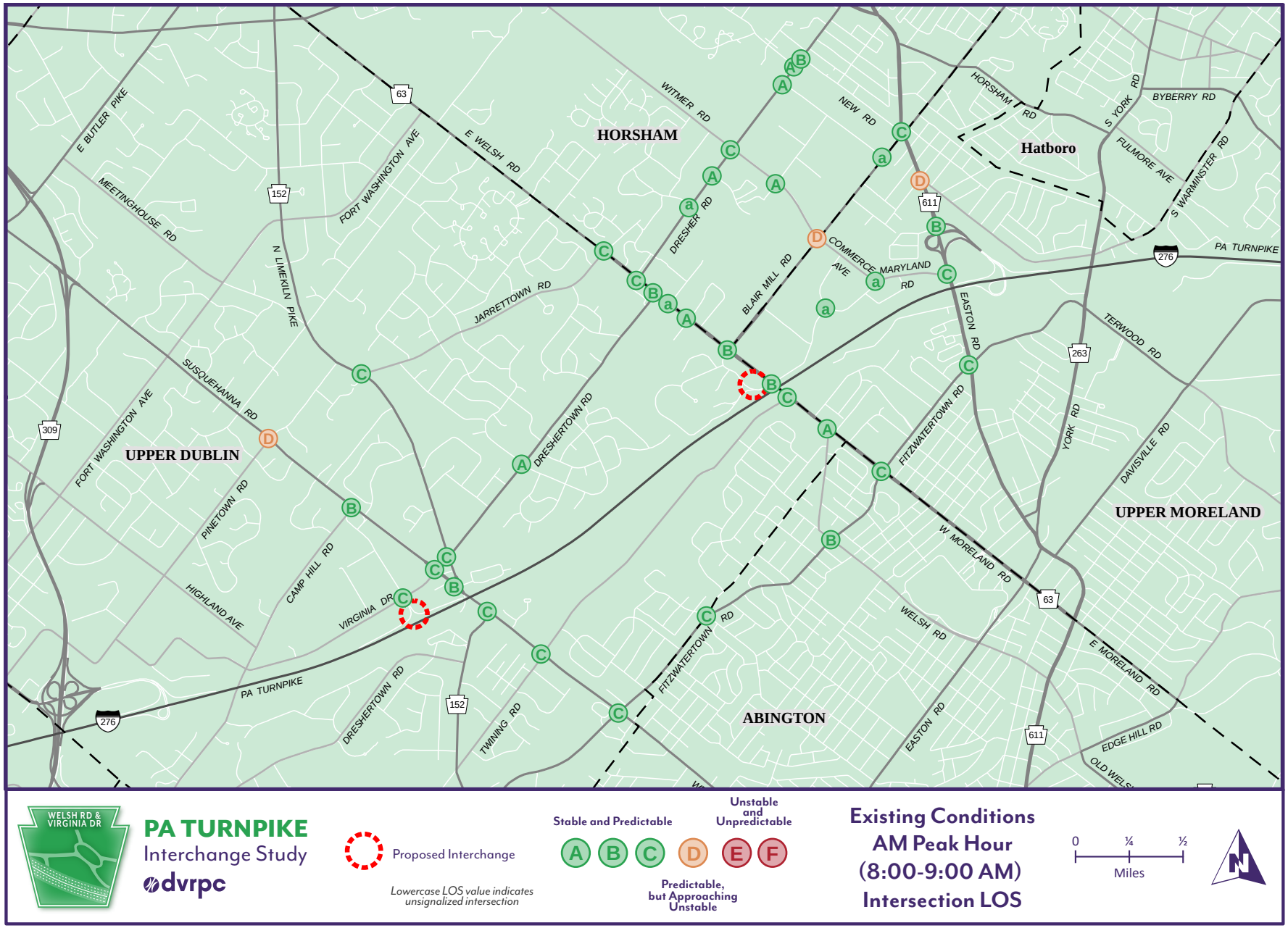
Existing Conditions—Welsh Road & Virginia Drive

Network Demand **24,400 vehicles**

Average Delay per Vehicle **2.2 minutes**

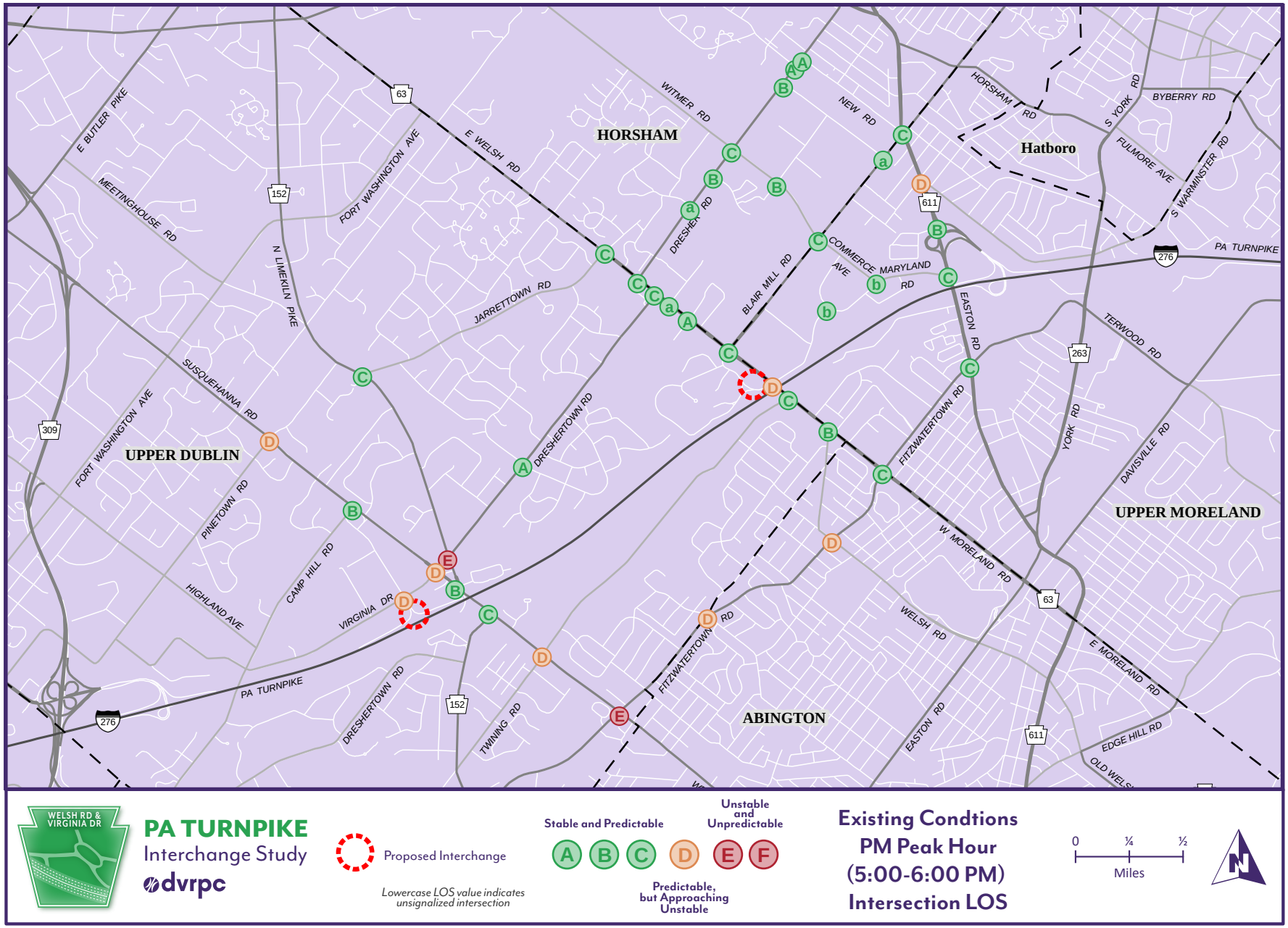
As with all developed areas, some amount of delay is normal. This value represents the total amount of time a vehicle is not traveling at free-flow speed while in the network, whether it be slowing down due to traffic or stopped at an intersection.

Figure 38: Welsh Road & Virginia Drive Intersection LOS: Existing Conditions—AM Peak Hour



Source: DVRPC, 2020

Figure 39: Welsh Road & Virginia Drive Intersection LOS: Existing Conditions—PM Peak Hour



Source: DVRPC, 2020

No Build Scenario

What will traffic look like in 2045 if the proposed interchanges are not built?

Anticipated traffic within the study area in the year 2045 is modeled by making modifications to the existing conditions with the regional model. Projected demographic changes, proposed transportation projects, and local developments are incorporated in order to capture changes in the number of trips made and overall travel patterns.

Based on DVRPC's regional model, the population within the study area is expected to increase by 18 percent by the year 2045. The number of households is also expected to increase by 19 percent, while employment in the area is expected to increase by 11 percent. These numbers were determined before COVID-19 and do not include any anticipated long-term effects of the pandemic.

These demographic changes, and the aforementioned proposed developments and transportation projects, comprise the 2045 No Build Scenario. AM and PM peak-hour conditions were simulated to compare to other scenarios.

Any changes in delay or demand between the Existing Conditions and the No Build Scenario can be attributed to growth, developments, and impacts of the proposed transportation projects in the study area **without** the proposed interchanges.

"Without the proposed interchanges, congestion in the year 2045 in the study area is projected to be much worse than it was in 2019."

Intersection Results

The intersection LOS for the No Build Scenario during the AM and PM peak hours are displayed in **Figure 40** and **Figure 41**. As shown, there are quite a few more intersections operating at unstable LOS during both peak hours.

Most of the unstable intersections are located near Dresher Triangle and the existing Virginia Drive partial interchange, as well as along Welsh Road and Blair Mill Road.

Even if the proposed interchanges are not constructed, traffic conditions in the area are expected to deteriorate by the year 2045. Local roadway improvements would be recommended to mitigate congestion, regardless of the interchange projects.

Network Results

Compared to the Existing Conditions, the volume within the study area is anticipated to increase by about 17 percent in the AM peak hour and by about 20 percent in the PM peak hour by the year 2045. These changes will result in two and a half times the existing average delay in the AM peak hour and double the existing delay PM peak hour.

AM PEAK HOUR: 8:00-9:00 AM

No Build Scenario—Welsh Road & Virginia Drive

Network Demand **25,000 vehicles**

Average Delay per Vehicle **3.8 minutes**

PM PEAK HOUR: 5:00-6:00 PM

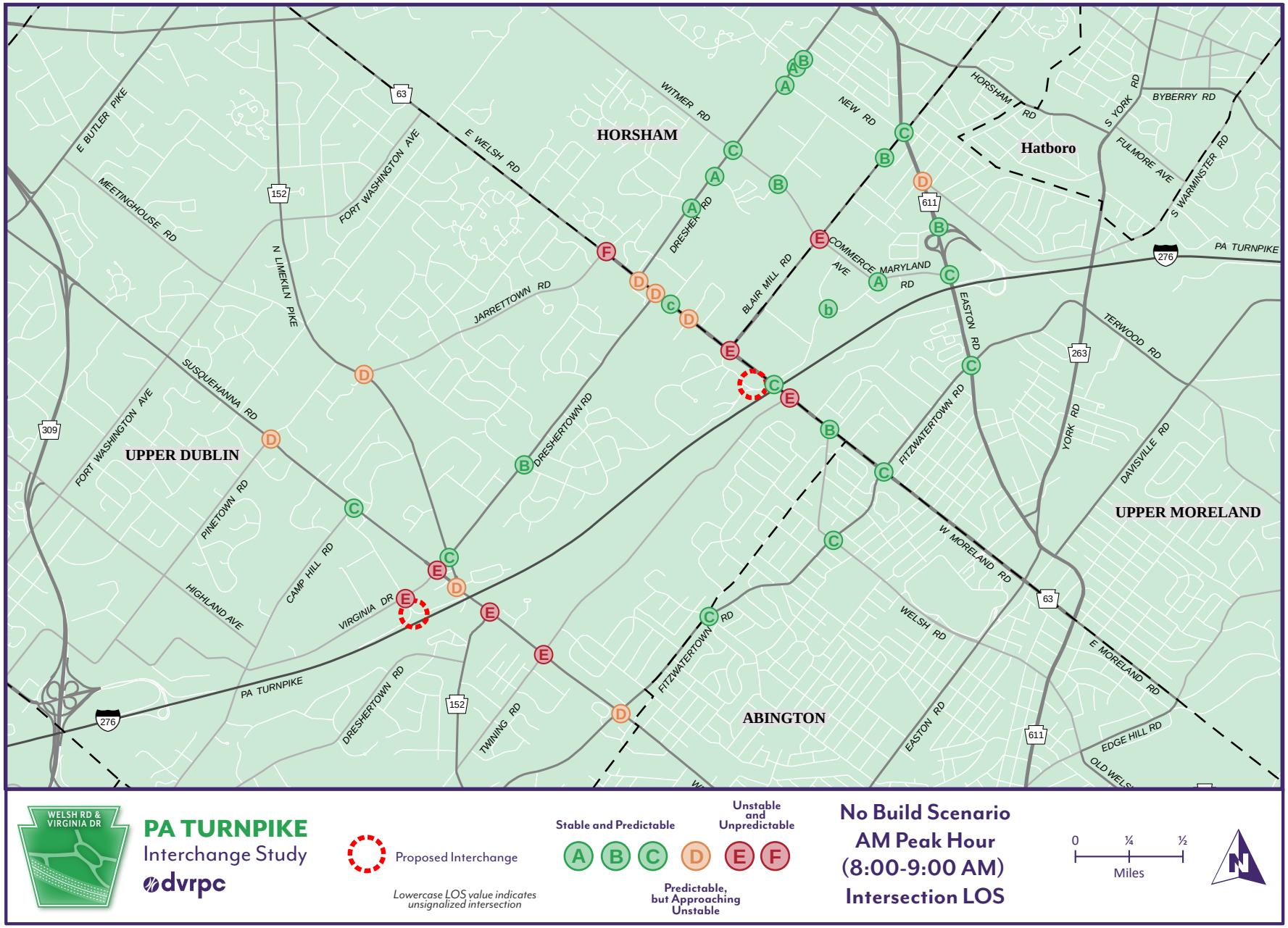
No Build Scenario—Welsh Road & Virginia Drive

Network Demand **29,200 vehicles**

Average Delay per Vehicle **4.4 minutes**

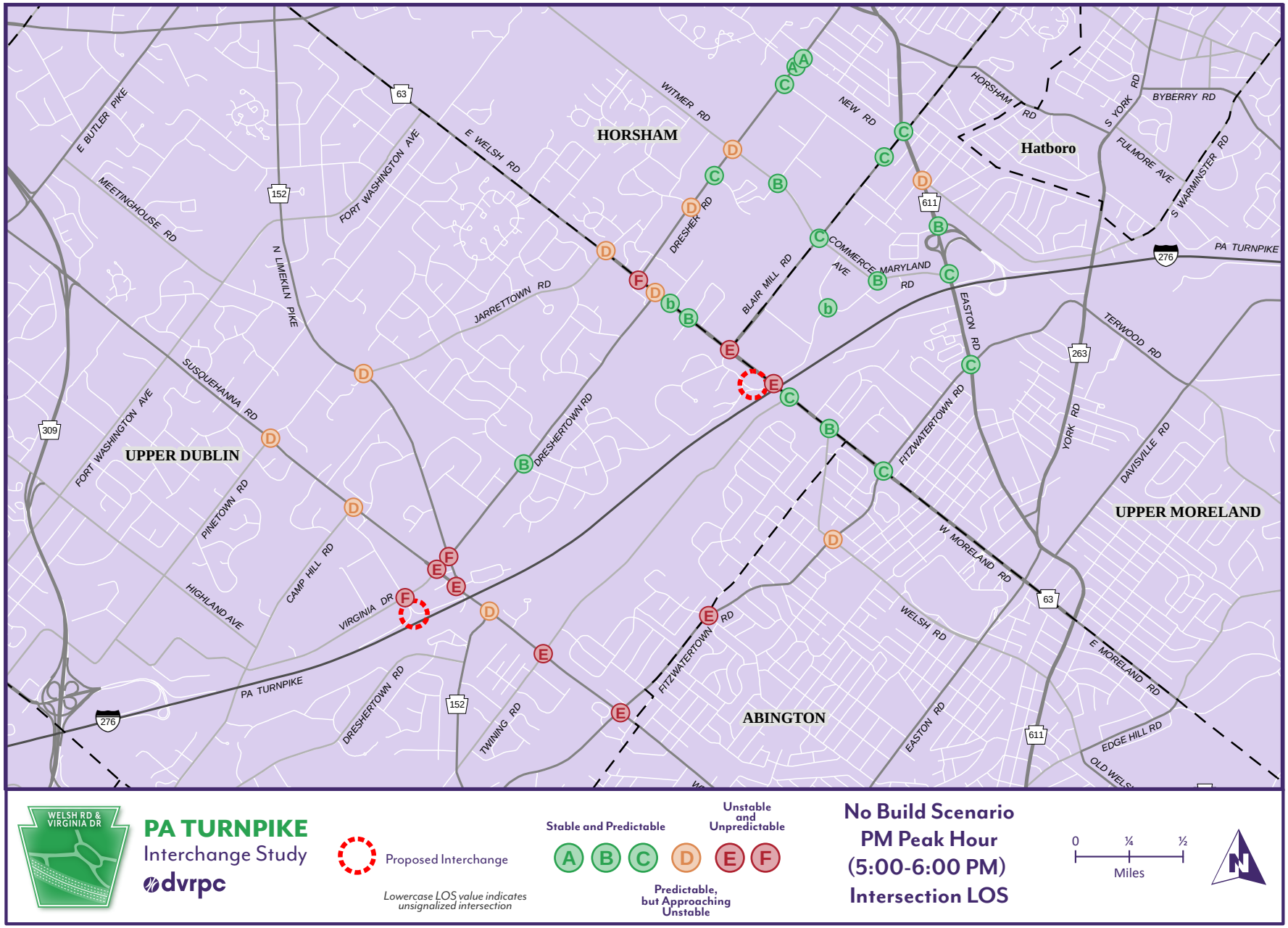
Without the proposed interchanges, congestion in the year 2045 in the study area is projected to be much worse than it was in 2019.

Figure 40: Welsh Road & Virginia Drive Intersection LOS: No Build Scenario—AM Peak Hour



Source: DVRPC, 2020

Figure 41: Welsh Road & Virginia Drive Intersection LOS: No Build Scenario—PM Peak Hour



Source: DVRPC, 2020

Build Scenario

What will traffic look like in 2045 if the proposed interchanges are built?

Boles Smyth Associates provided the latest proposed interchange designs for incorporation into the regional model to develop the Build Scenario. The concept designs for the Welsh Road and Virginia Drive interchages are provided in **Figure 42** and **Figure 43**.

The existing Virginia Drive interchange currently provides access to and from the Turnpike westbound. The most recent concept, known as a "coat hanger" design, would add eastbound access. Where the ramps are used to approach Virginia Drive from the south, they would now approach from the north. This was changed to allow for the ramps to overpass Virginia Drive, as well as to accomodate turning movements and minimize delay in the vicinity of the interchange.

The Build Scenario does not include induced demand, (i.e., new trips that are created based on the interchanges being built). Instead, the model reroutes existing trips to minimize travel time. The outputs of the regional model were then input into a microsimulation to analyze the local roadway impacts of the proposed interchanges.

The only difference between the No Build and Build scenarios is the addition of the proposed interchanges. Therefore, it is valid to attribute any changes in delay to the interchanges.

"With the proposed interchanges, the network delay is anticipated to increase by 42 percent in the AM peak hour and double in the PM peak hour."

Intersection Results

The intersection LOS for the Build Scenario during the AM and PM peak hours are displayed in **Figure 44** and **Figure 45**. Additionally, **Figure 46** and **Figure 47** detail the changes in intersection delay between the No Build and Build scenarios for both peak hours in order to pinpoint locations for additional recommendations.

In the vicinity of the proposed completion of the Virginia Drive interchange, most of the intersections decrease in delay or have negligible change during both peak hours, with the exception of the existing and proposed intersections with the interchange ramps.

There are much larger increases in delay due to traffic surrounding the proposed Welsh Road interchange. During both peak hours there are significant increases in delay along Welsh Road, Blair Mill Road, and Dresher Road.

The proposed recommendations for local roadway improvements were based on these expected changes in delay associated with the interchanges.

Network Results

As anticipated, adding new and completed interchanges to an already congested environment is forcast to increase delay. However, the proposed interchanges are not anticipated to significantly increase demand in the study area. This means that almost all traffic using the new interchanges would still be traveling along the study area network, even without the interchanges being built. However, due to network traffic rerouting to and from the new interchanges, they are anticipated to increase network delay.

With the proposed interchanges, the network delay is anticipated to increase by 42 percent in the AM peak hour and double in the PM peak hour.

AM PEAK HOUR: 8:00-9:00 AM

Build Scenario—Welsh Road & Virginia Drive

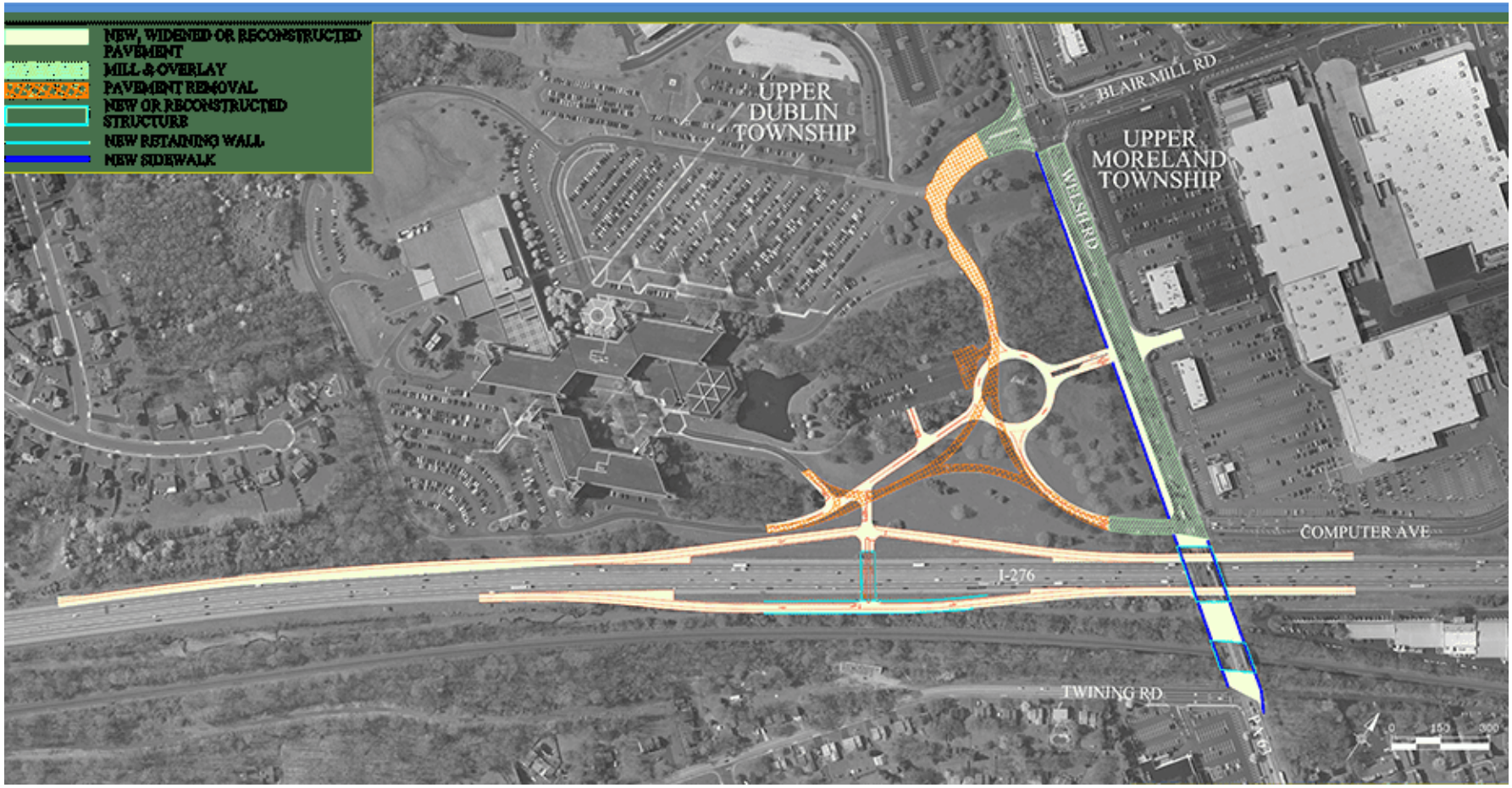
Network Demand **23,900 vehicles**
Average Delay per Vehicle **5.4 minutes**

PM PEAK HOUR: 5:00-6:00 PM

Build Scenario—Welsh Road & Virginia Drive

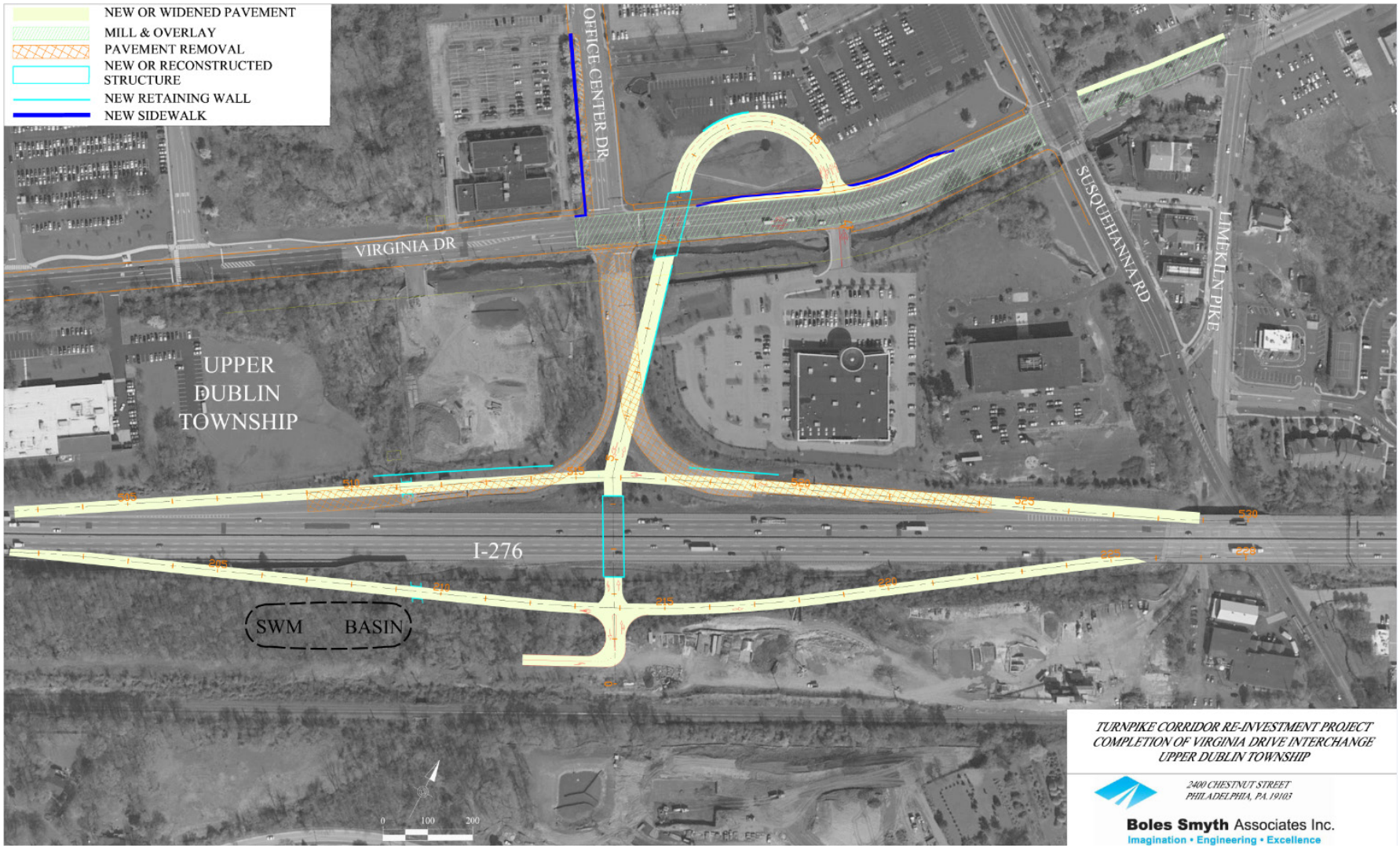
Network Demand **28,900 vehicles**
Average Delay per Vehicle **8.8 minutes**

Figure 42: Welsh Road Interchange Concept



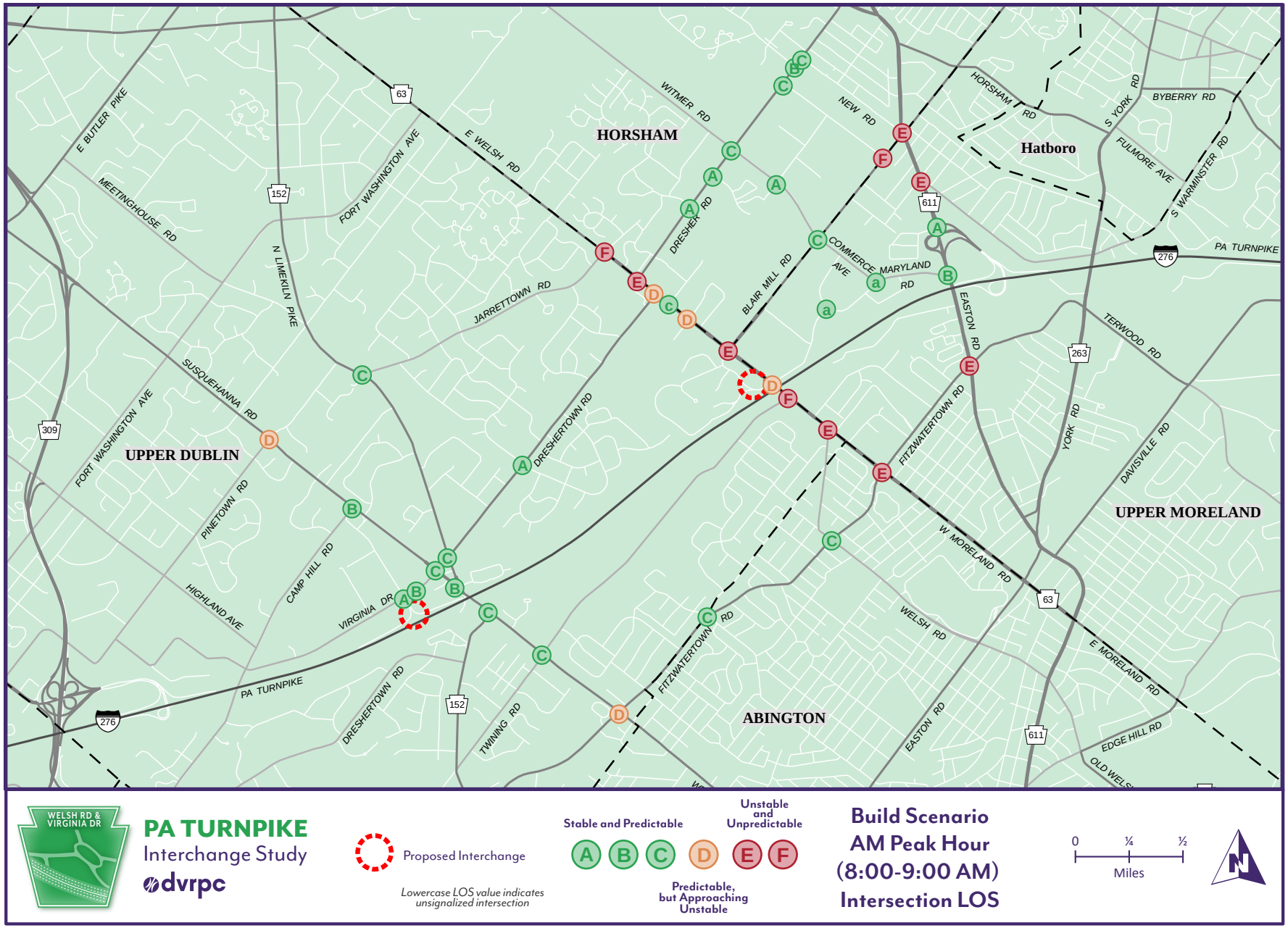
Source: Boles Smyth Associates

Figure 43: Virginia Drive Interchange Concept



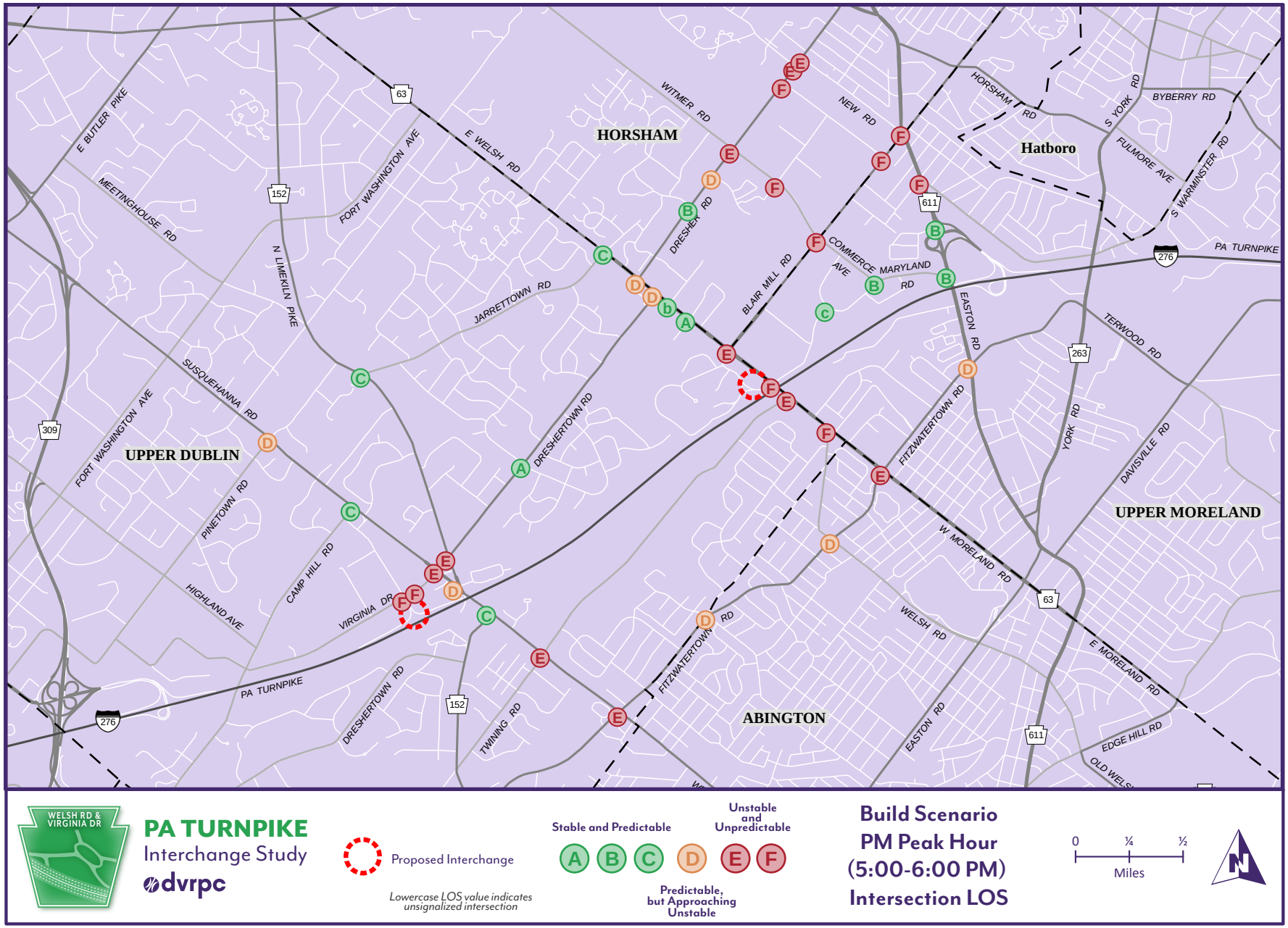
Source: Boles Smyth Associates

Figure 44: Welsh Road & Virginia Drive Intersection LOS: Build Scenario—AM Peak Hour



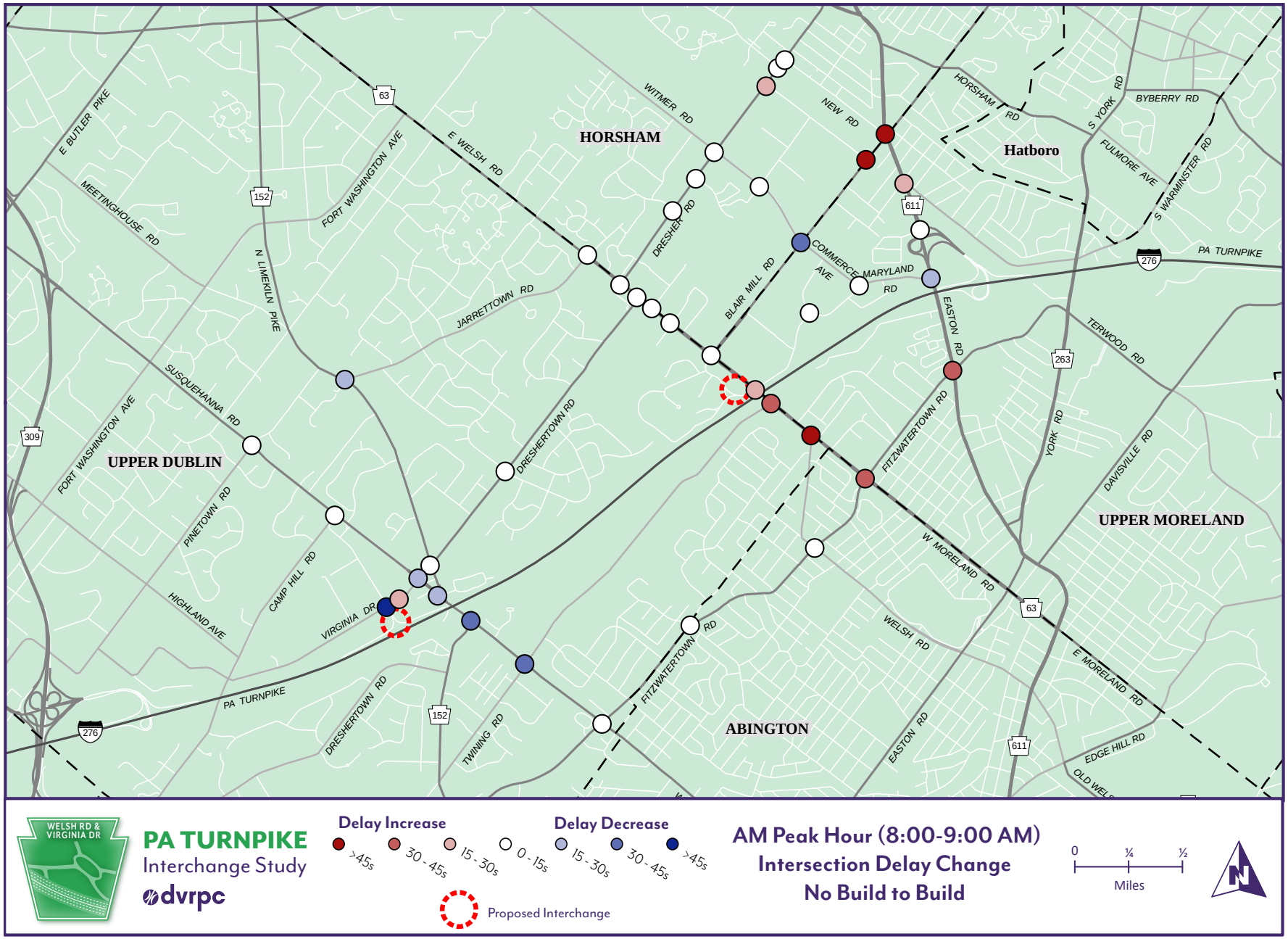
Source: DVRPC, 2020

Figure 45: Welsh Road & Virginia Drive Intersection LOS: Build Scenario—PM Peak Hour



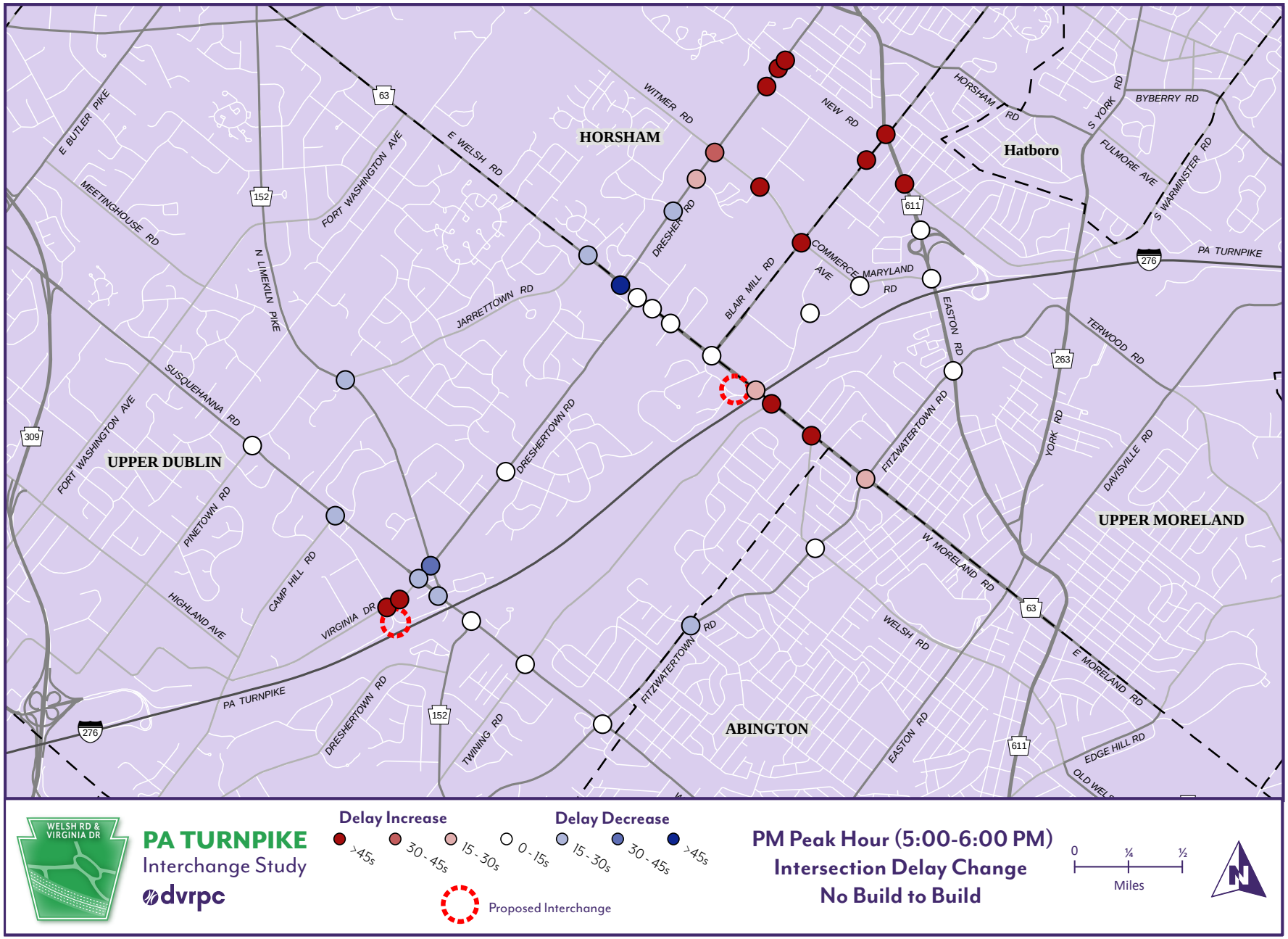
Source: DVRPC, 2020

Figure 46: Welsh Road & Virginia Drive Intersection Delay Change: No Build to Build—AM Peak Hour



Source: DVRPC, 2020

Figure 47: Welsh Road & Virginia Drive Intersection Delay Change: No Build to Build—PM Peak Hour



Source: DVRPC, 2020

Build + Improvements

With the proposed interchanges built, how can changes to the local street network improve traffic flow?

The impacts of the proposed interchanges on the local roadway network were determined based on the comparison of the No Build and Build scenarios. DVRPC worked with MCPC and the steering committee to develop recommendations to mitigate local impacts of the proposed interchanges.

Recommendations were limited due to the large scale of the study area. The project team focused on improvements that were feasible within the timeline of the proposed interchanges. Improvements that were considered included geometric improvements, such as the addition of travel lanes or turning lanes through roadway widening, and signal improvements. Signal improvements can include rephasing, or adding additional phases like protected left-turns; timing optimization; and coordination along corridors with sequential signals.

The proposed recommendations are shown in **Figure 48**. They include:

- Proposed corridor recommendations:
  - widening along Susquehanna Road in the vicinity of Dresher Triangle to provide two lanes in each direction;
  - widening along Welsh Road west of Dreshertown Road to provide two westbound travel lanes and mirror the existing proposed eastbound widening;
  - widening along Welsh Road westbound to accomodate two left-turn lanes to the Turnpike ramps;
  - widening along Blair Mill Road between Welsh Road and Route 611 to provide two lanes in each direction;
  - widening along Gibraltar Road west of Blair Mill Road to provide two eastbound lanes; and
  - widening along Route 611 north of Blair Mill Road to provide three northbound lanes.
- Proposed intersection recommendations:
  - signal timing, phasing, and coordination improvements at Blair Mill Road & Route 611 and Blair Mill Road & Gibraltar Road;
  - signal timing and phasing improvements at Welsh Road and the new interchange ramp access (Blair Mill Road and Computer Drive);
  - signal timing and coordination improvements along Welsh Road between Twining Road and Blair Mill Road;
  - signal timing and phasing improvements at Virginia Drive and the interchange ramp access; and
  - signal timing and coordination improvements at the intersections in Dresher Triangle.

These proposed recommendations were incorporated into the model to create the Build + Improvements scenario.

"The improvements mitigate much of the delay attributed to the proposed interchanges, as well as delay in other areas."

Intersection Results

The intersection LOS for the Build + Improvements scenario during the AM and PM peak hours are displayed in **Figure 49** and **Figure 50**. Additionally, **Figure 51** and **Figure 52** detail the changes in intersection delay between the No Build and Build + Improvements scenarios. **Table 7** and **Table 8** show the AM and PM peak-hour intersection results comparison for all scenarios.

The proposed recommendations are expected to decrease delay at some intersections during the AM peak hour. However, not all congestion attributed to the proposed interchanges is mitigated by the recommendations. Specfically, PA 611 and Fitzwatertown Road are still forecast to experience significant delay. Other local improvements may be necessary with the construction of the proposed interchanges to mitigate these impacts.

The proposed improvements would also mitigate most of the intersection impacts of the interchanges during the PM peak hour, especially along Welsh Road and Dresher Road. However, even with the proposed widening along Blair Mill Road, some intersections would still experience significant increases in delay. This area would need to be investigated for further improvements.The new proposed interchange at Virginia Drive is a new intersection, and therefore any delay would indicate an increase; however, this intersection is stable during the AM peak hour and an LOS D during the PM peak hour.

Network Results

The network demand is assumed to stay the same in the Build + Improvements scenario as the Build Scenario.

The network demand and delay for each scenario during both peak hours are shown in **Figure 53** and **Figure 54**, respectively. With the proposed interchanges and recommended improvements, the average delay is expected to decrease by 37 percent from the 2045 No Build condition during the AM peak hour and increase by 18 percent, or 48 seconds, during the PM peak hour. The improvements mitigate much of the delay attributed to the proposed interchanges, as well as delay in other areas.

AM PEAK HOUR: 8:00-9:00 AM

Build + Improvements—Welsh Road & Virginia Drive

Network Demand **23,900 vehicles**
Average Delay per Vehicle **2.4 minutes**

PM PEAK HOUR: 5:00-6:00 PM

Build + Improvements—Welsh Road & Virginia Drive

Network Demand **28,900 vehicles**
Average Delay per Vehicle **5.2 minutes**

Table 7: Welsh Road & Virginia Drive Study Area AM Peak-Hour Intersection LOS Scenario Comparison

	Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
		Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
1	Virginia & Office Center	33.5	C	60.8	E	6.5	A	6.3	A
2	Virginia & Susquehanna	31.0	C	61.4	E	33.3	C	29.7	C
3	N Limekiln & Susquehanna	15.3	B	40.6	D	17.0	B	10.8	B
4	N Limekiln & Dreshertown	34.9	C	34.4	C	22.6	C	17.4	B
5	S Limekiln & Susquehanna	20.4	C	67.3	E	24.7	C	18.6	B
6	Susquehanna & Twining	24.2	C	59.4	E	25.7	C	25.8	C
7	Susquehanna & Fitzwatertown	31.2	C	46.0	D	40.2	D	41.2	D
8	Fitzwatertown & North Hills & Woodland	20.2	C	24.2	C	26.5	C	26.0	C
9	Fitzwatertown & Old Welsh	17.4	B	21.2	C	22.7	C	23.2	C
10	Susquehanna & Camp Hill	13.8	B	23.5	C	17.6	B	17.9	B
11	Susquehanna & Pinetown	37.9	D	54.1	D	42.1	D	42.3	D
12	Limekiln & Jarrettown	20.3	C	54.4	D	24.6	C	25.3	C
13	Dreshertown & Beacon Hill	7.5	A	10.2	B	9.6	A	9.3	A
14	Ramps & Virginia Drive[2]	-	-	-	-	18.7	B	22.6	C
15	Witmer & Dresher	24.5	C	23.1	C	20.4	C	20.8	C
16	Witmer & Blair Mill	39.3	D	57.9	E	26.5	C	16.7	B
17	Welsh & Dresher	22.2	C	53.8	D	65.9	E	51.2	D
18	Welsh & Dreshertown	19.5	B	43.9	D	45.1	D	19.3	B
19	Welsh & Blair Mill[3]	19.0	B	57.9	E	56.2	E	43.6	D
20	Welsh & Computer[3]	15.8	B	20.8	C	48.6	D	21.6	C
21	Welsh & Twining	22.2	C	57.1	E	92.4	F	31.1	C
22	Welsh & Kimball	9.3	A	13.7	B	62.1	E	16.4	B

Table 7 (continued): Welsh Road & Virginia Drive Study Area AM Peak-Hour Intersection LOS Scenario Comparison

	Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
		Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
23	Moreland & Fitzwatertown	27.2	C	25.9	C	67.5	E	61.5	E
24	Easton & Sycamore & Mill	51.8	D	35.7	D	62.6	E	59.8	E
25	Easton & Home Depot & I-276 Ramp	12.9	B	13.7	B	6.1	A	5.3	A
26	Easton & Maryland	32.7	C	31.0	C	10.9	B	14.2	B
27	Easton & Fitzwatertown	29.6	C	31.9	C	62.5	E	67.2	E
28	Jarrettown & Welsh	23.8	C	113.1	F	105.6	F	57.3	E
29	Welsh & Dryden	1.1	A	40.9	D	40.3	D	7.0	A
30	Easton & Blair Mill	28.4	C	28.5	C	79.7	E	65.2	E
31	Dresher & Gibraltar	6.1	A	7.7	A	23.6	C	12.8	B
32	Blair Mill & Gibraltar	6.7	a	13.7	B	105.0	F	9.5	A
33	Dresher & Walnut Grove	7.0	A	4.5	A	4.5	A	4.6	A
34	Dresher & Business Center	1.2	a	3.8	A	2.9	A	2.1	A
35	Welsh & Electronic	3.7	a	23.6	c	21.6	c	0.8	a
36	Witmer & Prudential	8.5	A	11.3	B	8.5	A	8.6	A
37	Maryland & Commerce	8.0	A	8.3	A	4.6	A	5.7	A
38	Maryland & Computer	9.3	a	10.7	b	6.0	a	6.1	a
39	Dresher & Saw Mill	7.8	A	9.0	A	19.8	B	10.7	B
40	New & Dresher	11.1	B	14.1	B	23.5	C	13.3	B

Source: DVRPC 2020

[1] Lowercase LOS value indicates unsignalized intersection.

[2] Includes new southbound approach for proposed interchange access in all future scenarios.

[3] Includes proposed interchange access via Prudential Drive in all future scenarios.

Table 8: Welsh Road & Virginia Drive Study Area PM Peak-Hour Intersection LOS Scenario Comparison

	Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
		Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
1	Virginia & Office Center	36.6	D	155.3	F	206.8	F	94.6	F
2	Virginia & Susquehanna	38.3	D	79.5	E	57.6	E	69.9	E
3	N Limekiln & Susquehanna	17.2	B	58.4	E	39.1	D	20.0	B
4	N Limekiln & Dreshertown	59.6	E	107.0	F	70.9	E	35.2	D
5	S Limekiln & Susquehanna	23.0	C	44.0	D	33.0	C	30.0	C
6	Susquehanna & Twining	53.1	D	60.8	E	56.2	E	57.7	E
7	Susquehanna & Fitzwatertown	74.2	E	63.9	E	69.2	E	60.7	E
8	Fitzwatertown & North Hills & Woodland	36.5	D	72.5	E	54.4	D	51.1	D
9	Fitzwatertown & Old Welsh	39.4	D	46.4	D	45.9	D	48.2	D
10	Susquehanna & Camp Hill	19.3	B	37.1	D	20.4	C	59.6	E
11	Susquehanna & Pinetown	38.4	D	54.5	D	46.1	D	52.0	D
12	Limekiln & Jarrettown	31.3	C	46.9	D	26.6	C	29.2	C
13	Dreshertown & Beacon Hill	5.1	A	13.7	B	5.9	A	4.8	A
14	Ramps & Virginia Drive[2]	-	-	-	-	86.8	F	49.8	D
15	Witmer & Dresher	30.0	C	37.8	D	68.3	E	23.0	C
16	Witmer & Blair Mill	29.9	C	30.6	C	213.2	F	104.7	F
17	Welsh & Dresher	28.4	C	114.9	F	38.5	D	26.5	C
18	Welsh & Dreshertown	29.9	C	45.0	D	52.5	D	37.7	D
19	Welsh & Blair Mill[3]	30.7	C	62.4	E	57.1	E	59.9	E
20	Welsh & Computer[3]	45.7	D	62.5	E	80.3	F	35.6	D
21	Welsh & Twining	26.2	C	29.0	C	78.8	E	10.4	B
22	Welsh & Kimball	10.9	B	11.8	B	85.4	F	12.2	B

Table 8 (continued): Welsh Road & Virginia Drive Study Area PM Peak-Hour Intersection LOS Scenario Comparison

	Intersection	Existing Conditions		No Build Scenario		Build Scenario		Build + Improvements	
		Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]	Delay(s)	LOS[1]
23	Moreland & Fitzwatertown	32.1	C	34.3	C	59.7	E	26.8	C
24	Easton & Sycamore & Mill	46.3	D	47.7	D	123.1	F	117.1	F
25	Easton & Home Depot & I-276 Ramp	19.7	B	11.9	B	18.8	B	26.8	C
26	Easton & Maryland	20.2	C	21.1	C	19.5	B	29.8	C
27	Easton & Fitzwatertown	33.4	C	34.7	C	45.5	D	49.6	D
28	Jarrettown & Welsh	23.5	C	50.5	D	22.8	C	17.2	B
29	Welsh & Dryden	6.8	A	16.2	B	10.0	A	8.8	A
30	Easton & Blair Mill	28.7	C	28.5	C	110.4	F	123.4	F
31	Dresher & Gibraltar	14.4	B	21.8	C	93.7	F	25.3	C
32	Blair Mill & Gibraltar	7.9	a	25.3	C	195.9	F	184.5	F
33	Dresher & Walnut Grove	11.8	B	34.3	C	49.5	D	16.9	B
34	Dresher & Business Center	1.2	a	41.4	D	18.4	B	7.0	A
35	Welsh & Electronic	4.2	a	13.5	b	11.3	b	2.4	a
36	Witmer & Prudential	14.5	B	15.2	B	98.0	F	21.8	C
37	Maryland & Commerce	13.8	B	14.3	B	13.3	B	14.3	B
38	Maryland & Computer	12.8	b	13.1	b	24.3	c	19.7	c
39	Dresher & Saw Mill	7.4	A	9.4	A	68.4	E	7.9	A
40	New & Dresher	4.6	A	6.1	A	64.8	E	4.2	A

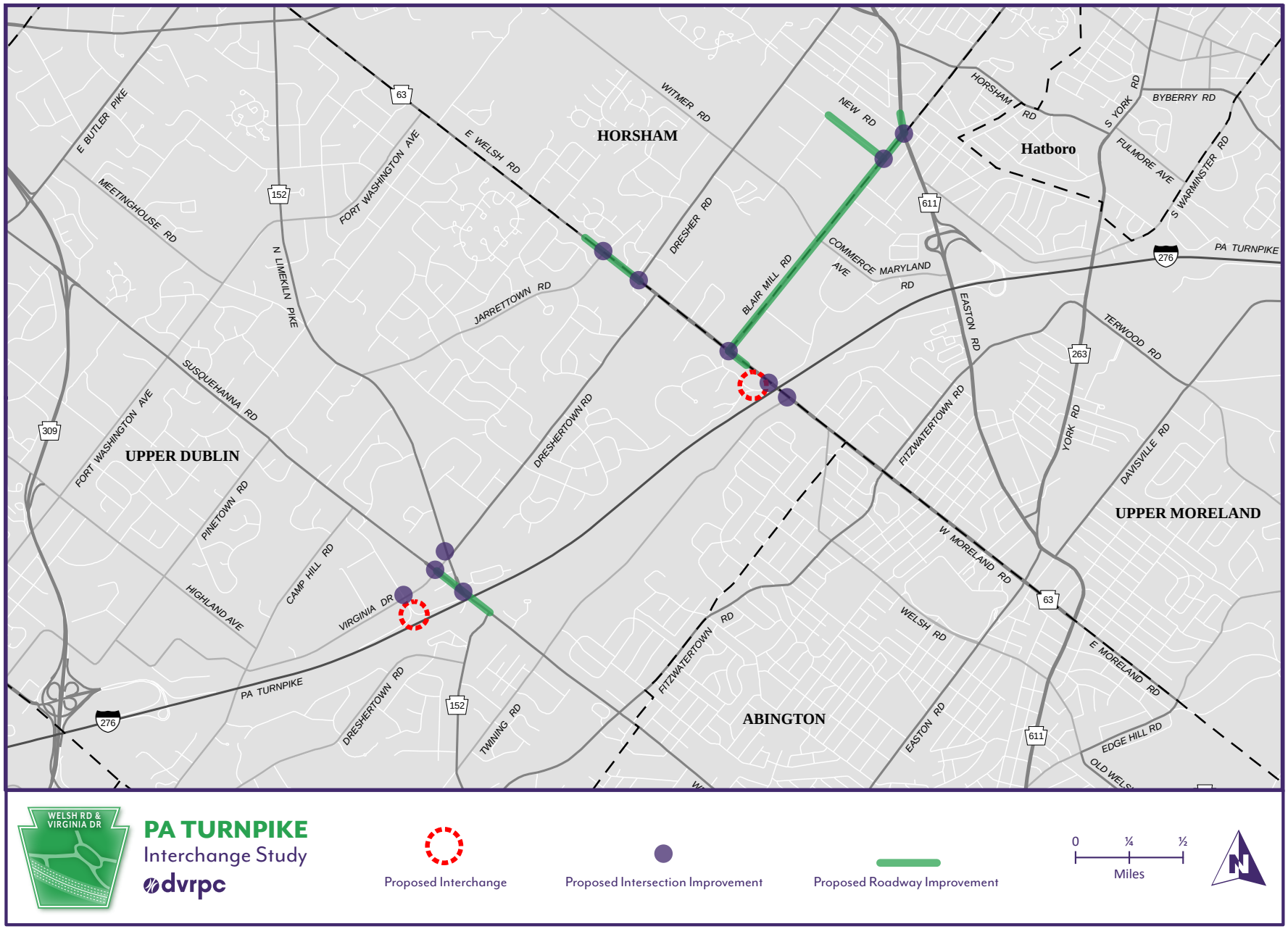
Source: DVRPC 2020

[1] Lowercase LOS value indicates unsignalized intersection.

[2] Includes new southbound approach for proposed interchange access in all future scenarios.

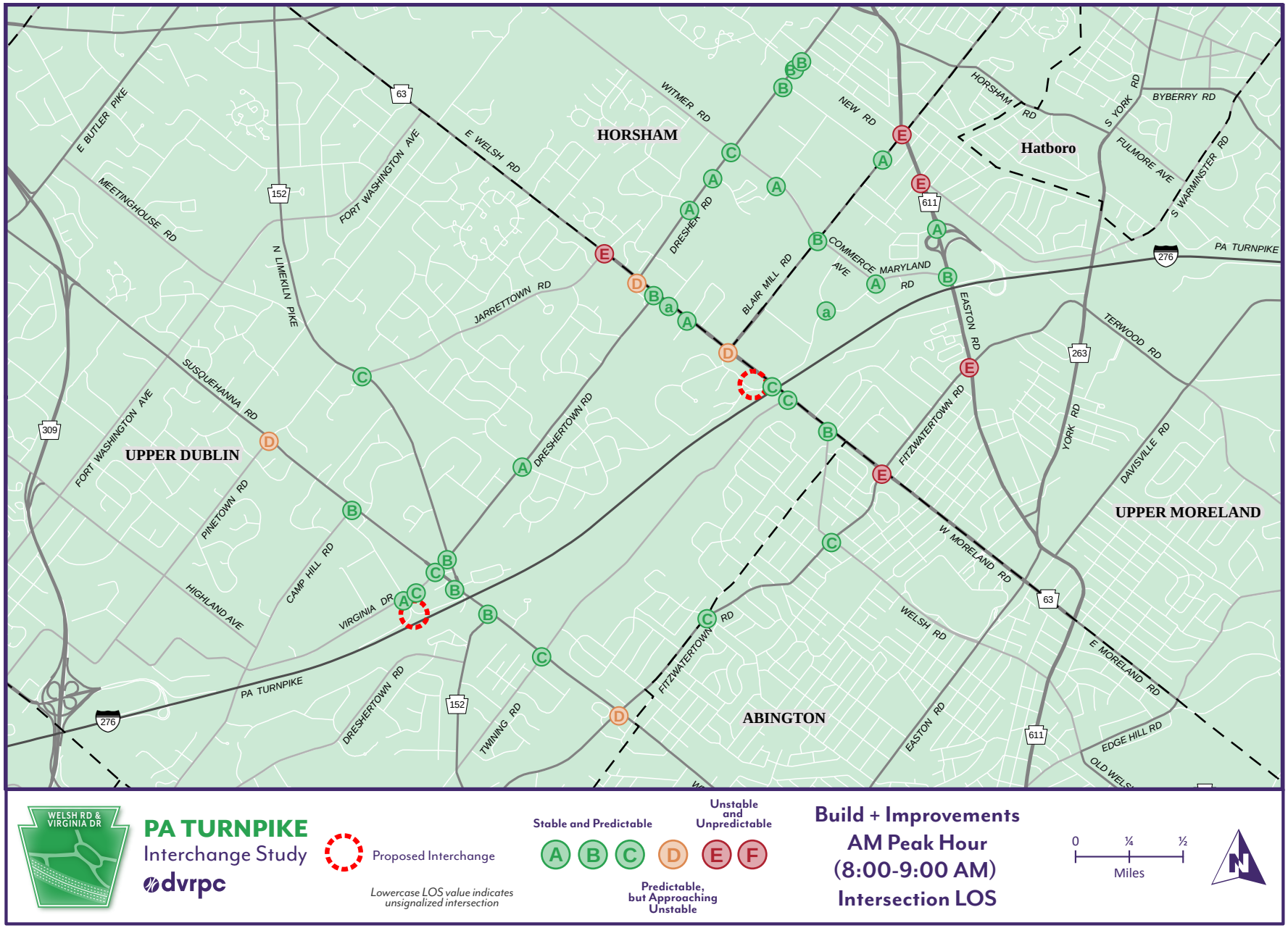
[3] Includes proposed interchange access via Prudential Drive in all future scenarios.

Figure 48: Welsh Road & Virginia Drive Recommended Improvements



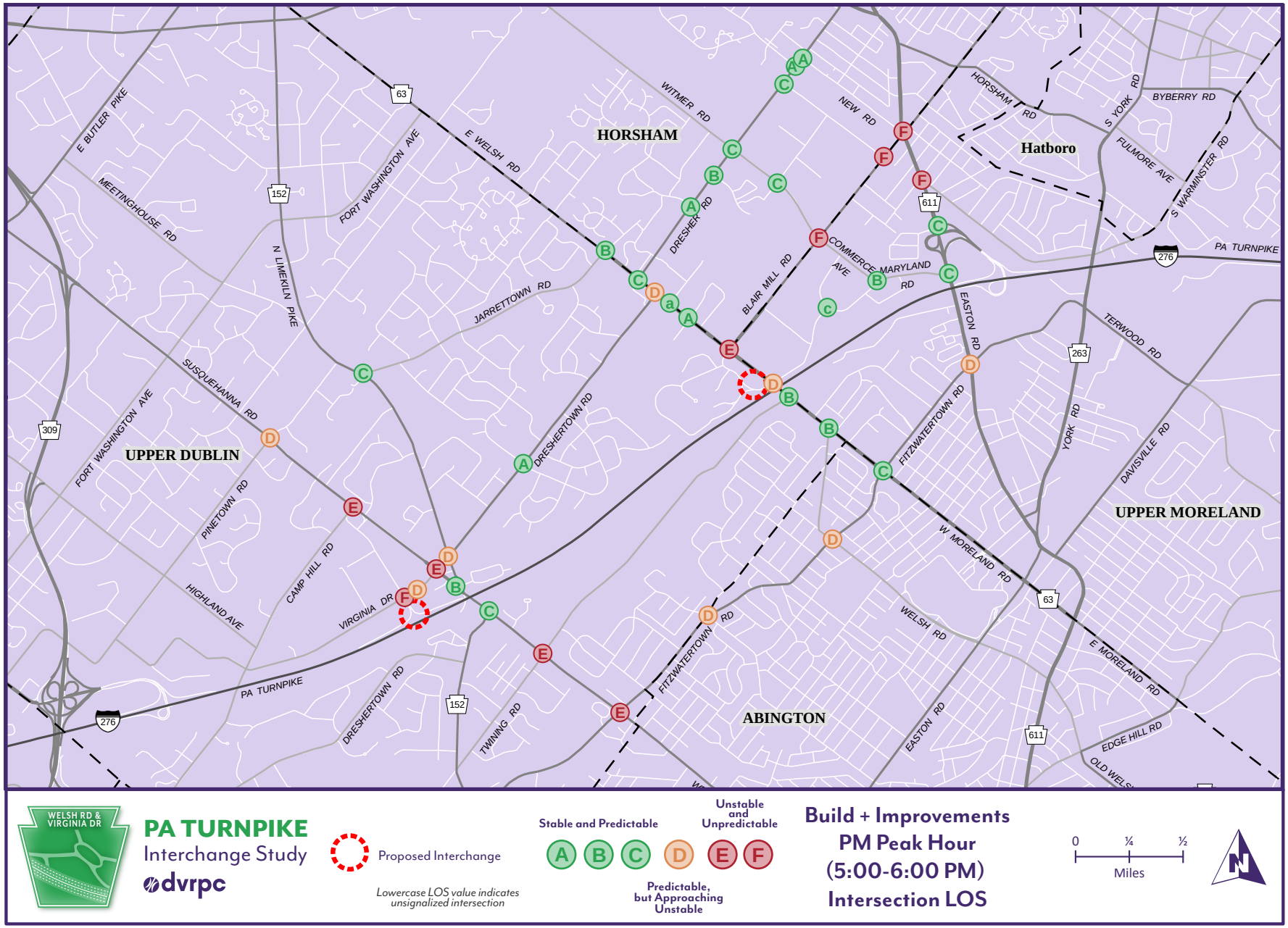
Source: DVRPC, 2020

Figure 49: Welsh Road & Virginia Drive Intersection LOS: Build + Improvements—AM Peak Hour



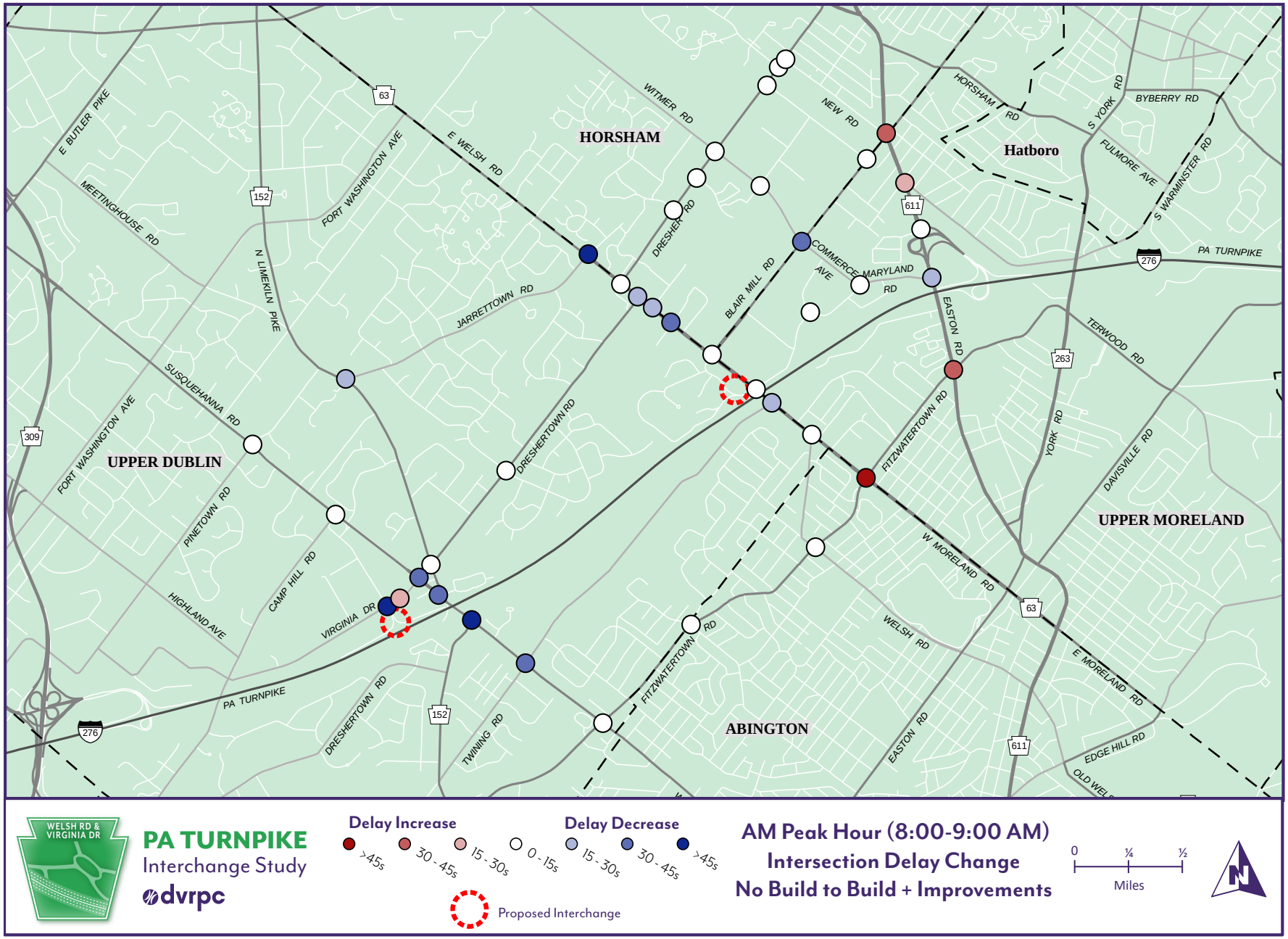
Source: DVRPC, 2020

Figure 50: Welsh Road & Virginia Drive Intersection LOS: Build + Improvements—PM Peak Hour



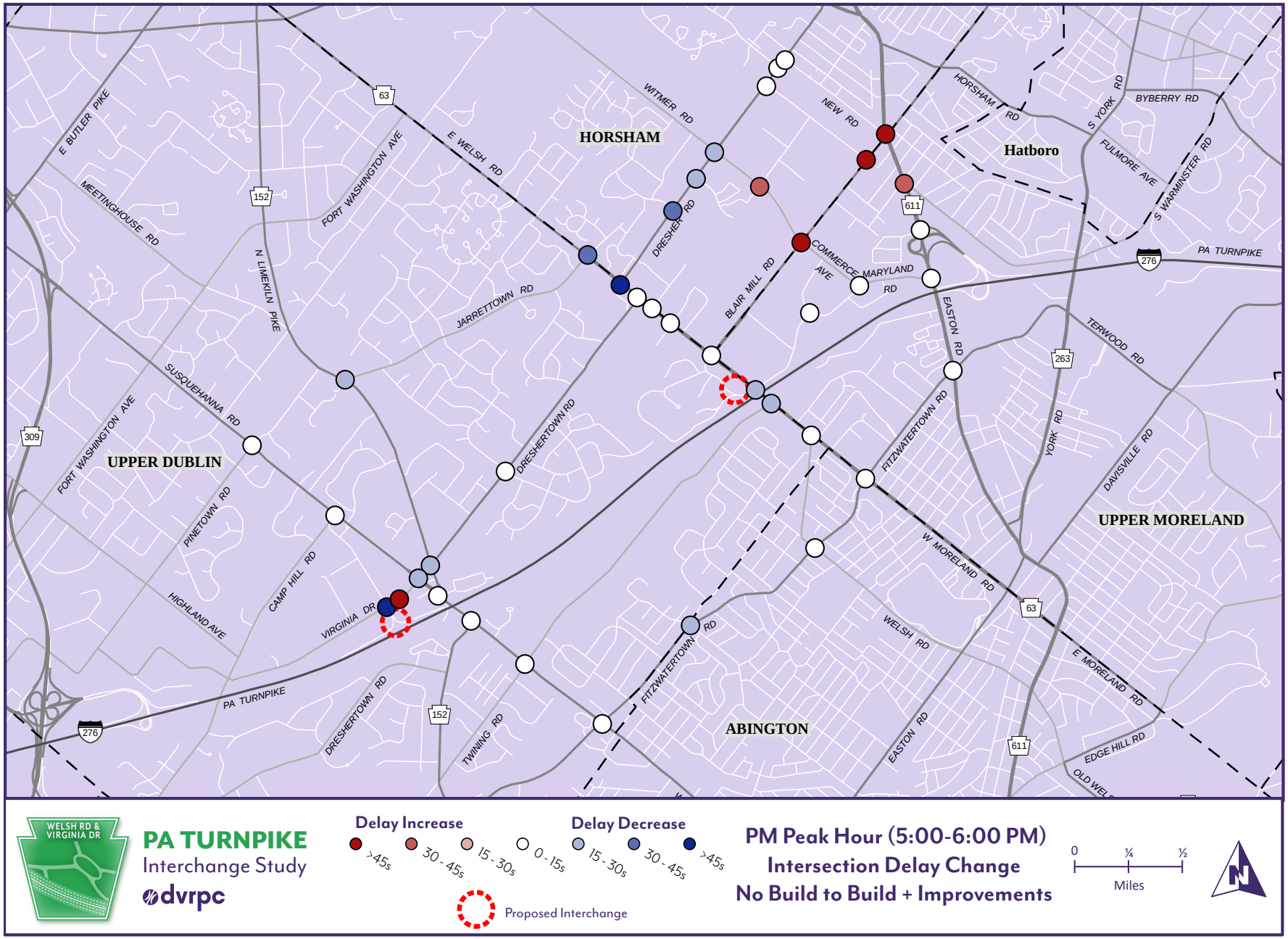
Source: DVRPC, 2020

Figure 51: Welsh Road & Virginia Drive Intersection Delay Change: No Build to Build + Improvements—AM Peak Hour



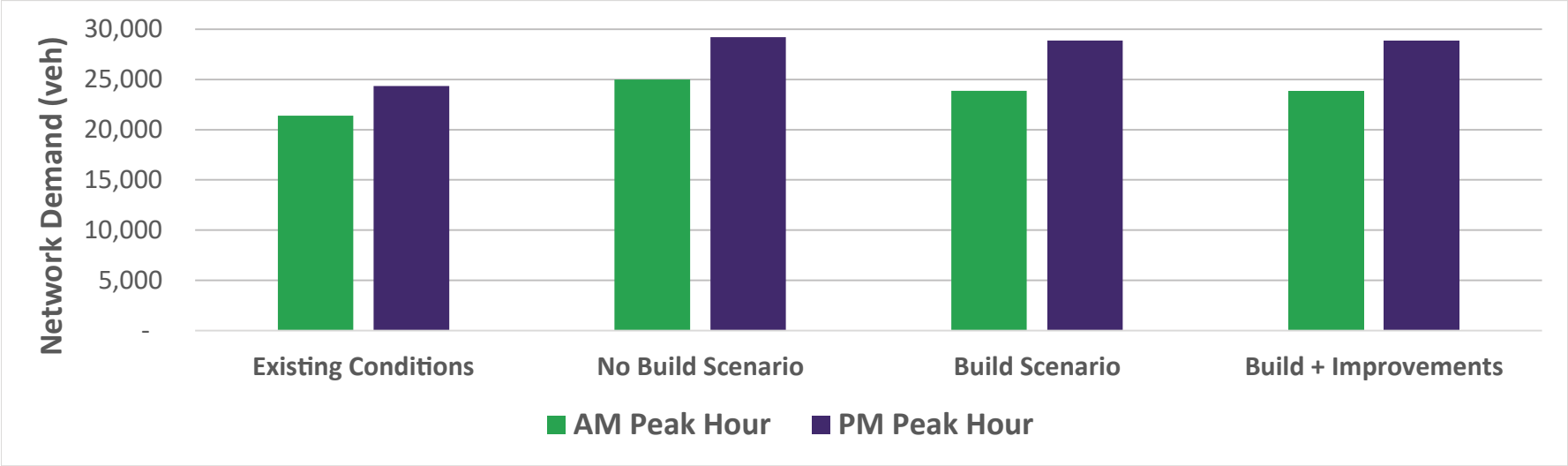
Source: DVRPC, 2020

Figure 52: Welsh Road & Virginia Drive Intersection Delay Change: No Build to Build + Improvements—PM Peak Hour



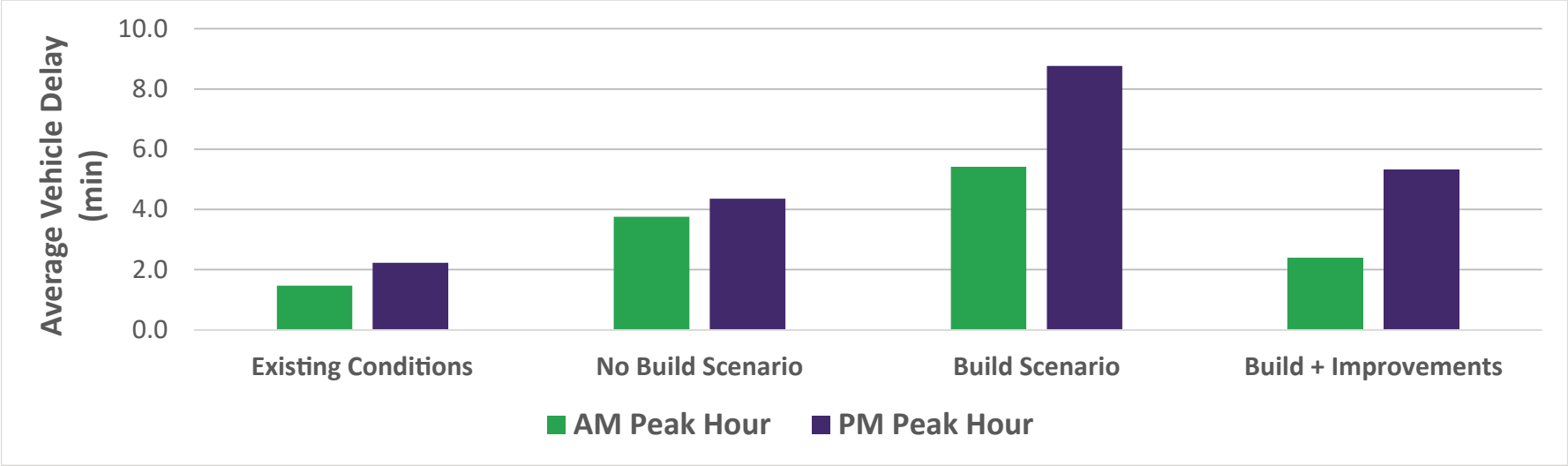
Source: DVRPC, 2020

Figure 53: Welsh Road & Virginia Drive Network Demand by Modeling Scenario



Source: DVRPC 2020

Figure 54: Welsh Road & Virginia Drive Average Vehicle Delay by Modeling Scenario



Source: DVRPC 2020

Next Steps

The purpose of this study was to forecast the impact of the proposed interchanges on the local road network. The modeling work identified future transportation challenges for both study areas due to expected population and employment growth, regardless of the proposed interchanges.

As described in this report, while providing direct connections for local residents and businesses, constructing the interchanges alone is forecast to increase congestion even more. However, constructing the interchanges along with a series of recommended improvements along local roads and intersections could mitigate much of the expected increase in congestion.

Additionally, local roadway improvements, such as those recommended for each of the study areas, will be necessary in order to alleviate future traffic without the interchanges. In many cases, the proposed recommendations would improve delay from the No Build Scenario.

Going forward, steering committee members should continue to work together to pursue funding options for engineering design and construction of local roadway improvements.

Appendices

A: September 2018 Open House Surveys

B: Henderson Road Study Area Results

C: Welsh Road & Virginia Drive Study Area Results

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

APPENDIX A

September 2018 Open House Surveys

Henderson Road Open House Survey: September 24, 2018

PA TURNPIKE Interchange Study

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Public Open House Survey

Thank you for attending! Please share your thoughts about the proposed new turnpike interchange at Henderson Road by answering the questions below:

1. What do you believe are the possible benefits of the proposed interchange?

_____
_____
_____
_____
_____

2. What concerns do you have about the proposed interchange?

_____
_____
_____
_____
_____

3. Which of the following describes your interest in the PA Turnpike Interchange Study? Choose as many as apply:
   a. I live near the study area.
   b. I work near the study area.
   c. I attend school in the study area.
   d. I visit friends or family in the study area.
   e. I shop or run errands in the study area.
   f. Other (please specify): _____

4. When making short trips (less than a mile) in the study area, what mode of transportation do you typically use?
   a. I drive alone.
   b. I carpool.
   c. I use public transportation.
   d. I ride a bicycle.
   e. I walk.
   f. Other (please specify): _____
   g. I do not make short trips in the study area.

PA TURNPIKE
Interchange Study

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

5. If you chose "I drive alone" or "I carpool" in question 4, what is the main reason?
    a. Driving is the fastest way to make short trips here.
    b. Driving is the most convenient way to make short trips here.
    c. Driving is the safest way to make short trips here.
    d. Driving is the only means of transportation available to me.
    e. Other (please specify): _____ _____

Optional Demographic Information

6. What is the zip code of your primary residence? _____

7. What is the zip code of your primary workplace?
    a. The zip code of my primary workplace is _____
    b. I am not currently employed, or I work from home.

8. Are you of Spanish/Hispanic/Latino origin?
    a. Yes
    b. No

9. With which race do you identify?
    a. American Indian, Native American, or Alaska Native
    b. Asian/Pacific Islander
    c. Black/African American
    d. White/Caucasian
    e. Other or more than one race

10. What is your age range?
    a. Under 18 years
    b. 18 - 34 years
    c. 35 - 44 years
    d. 45 – 54 years
    e. 55 - 64 years
    f. 65 years or over

Welsh Road Open House Survey: September 20, 2018

PA TURNPIKE Interchange Study

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Public Open House Survey

Thank you for attending! Please share your thoughts about the proposed new turnpike interchange at Welsh Road by answering the questions below:

1. What do you believe are the possible benefits of the proposed interchange?

_____
_____
_____
_____
_____

2. What concerns do you have about the proposed interchange?

_____
_____
_____
_____
_____

3. Which of the following describes your interest in the PA Turnpike Interchange Study? Choose as many as apply:
   a. I live near the study area.
   b. I work near the study area.
   c. I attend school in the study area.
   d. I visit friends or family in the study area.
   e. I shop or run errands in the study area.
   f. Other (please specify): _____

4. When making short trips (less than a mile) in the study area, what mode of transportation do you typically use?
   a. I drive alone.
   b. I carpool.
   c. I use public transportation.
   d. I ride a bicycle.
   e. I walk.
   f. Other (please specify): _____
   g. I do not make short trips in the study area.

Connect With Us!

Visit the PA Turnpike Interchange Study webpage at www.dvrpc.org/Corridors/PATurnpike.

Connecting People, Places & Prosperity in Greater Philadelphia

PA TURNPIKE
Interchange Study

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

5. If you chose "I drive alone" or "I carpool" in question 4, what is the main reason?
    a. Driving is the fastest way to make short trips here.
    b. Driving is the most convenient way to make short trips here.
    c. Driving is the safest way to make short trips here.
    d. Driving is the only means of transportation available to me.
    e. Other (please specify): _____ _____

Optional Demographic Information

DVRPC looks to conduct public participation that represents the demographic diversity of this study area. Please help us create a more inclusive outreach process by answering these demographic questions.

6. What is the zip code of your primary residence? _____

7. What is the zip code of your primary workplace?
    a. The zip code of my primary workplace is _____
    b. I am not currently employed, or I work from home.

8. Are you of Spanish/Hispanic/Latino origin?
    a. Yes
    b. No

9. With which race do you identify?
    a. American Indian, Native American, or Alaska Native
    b. Asian/Pacific Islander
    c. Black/African American
    d. White/Caucasian
    e. Other or more than one race

10. What is your age range?
    a. Under 18 years
    b. 18 - 34 years
    c. 35 - 44 years
    d. 45 – 54 years
    e. 55 - 64 years
    f. 65 years or over

APPENDIX B

Henderson Road Study Area Results

Henderson Road Existing Conditions Results

Table B-1: Henderson Road Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,513							
		L	Saulin SB	325	1,838	8.9	A	37.1			
		R	Saulin NB	0							
	Saulin NB	L	Dekalb WB	10							
		R	Dekalb EB	219	229	28.6	C	30.2			
		S	Saulin SB	0							
	Saulin SB	R	Dekalb WB	0					2,927	12.3	B
		L	Dekalb EB	1	1	23.5	C	0.1			
		S	Saulin SB	0							
	Dekalb EB	S	Dekalb EB	849							
		R	Saulin SB	10	859	15.2	B	37.4			
		L	Saulin NB	0							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	179							
		S	Dekalb WB	1,282	1,516	39.4	D	276.7			
		L	Henderson SB	55							
	Henderson SB	L	Dekalb EB	209							
		R	Dekalb WB	112	700	60.4	E	104.6			
		S	Henderson SB	379							
	Dekalb EB	S	Dekalb EB	630					3,937	44.1	D
		L	Hederson NB	129	1,091	29.5	C	81.5			
		R	Henderson SB	332							
	Henderson NB	R	Dekalb EB	22							
		S	Henderson NB	332	630	62.3	E	94.6			
		L	Dekalb WB	276							
Henderson & Monroe	Henderson SB	S	Henderson SB	709							
		R	Monroe WB	5	764	7.4	A	13.5			
		L	Monroe EB	50							
	Henderson NB	S	Henderson NB	550							
		L	Monroe WB	2	571	6.1	A	8.1			
		R	Monroe EB	19							
	Monroe EB	L	Henderson NB	11					1,471	7.8	A
		R	Henderson SB	1	19	9.7	A	0.7			
		S	Monroe EB	7							
	Monroe WB	R	Henderson NB	66							
		L	Henderson SB	48	117	18.7	B	4.0			
		S	Monroe WB	3							

Table B-1 (continued): Henderson Road Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	744	755	8.2	A	16.2	1,871	9.9	A
		L	Saulin EB	11							
	Saulin WB	L	Henderson SB	325	335	17.5	B	27.6			
		R	Henderson NB	10							
	Henderson NB	S	Henderson NB	561	781	8.4	A	15.7			
		R	Saulin EB	220							
Henderson & Hansen	Henderson NB	L	Hansen WB	43	808	0.5	A	0.1	1,916	1.9	A
		S	Henderson NB	765							
	Hansen EB	R	Henderson SB	20	40	12.0	B	1.8			
		L	Henderson NB	20							
	Henderson SB	S	Henderson SB	1,038	1,068	2.5	A	3.1			
		R	Hansen WB	30							
Henderson & Church	Church WB	R	Henderson NB	142	400	23.6	C	20.0	2,543	29.8	C
		L	Henderson SB	62							
		S	Church WB	196							
	Henderson SB	S	Henderson SB	578	1,061	37.6	D	123.5			
		L	Church EB	291							
		R	Church WB	192							
	Henderson NB	S	Henderson NB	555	656	24.0	C	43.9			
		R	Church EB	41							
		L	Church WB	60							
	Church EB	L	Henderson NB	111	426	24.9	C	51.3			
		R	Henderson SB	34							
		S	Church EB	281							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	24	128	17.2	B	7.1	1,410	9.7	A
		L	Henderson NB	79							
		R	Henderson SB	25							
	Henderson NB	L	Shoemaker WB	5	571	8.7	A	15.9			
		R	Shoemaker EB	22							
		S	Henderson NB	544							
	Henderson SB	R	Shoemaker WB	104	618	8.4	A	19.5			
		L	Shoemaker EB	20							
		S	Henderson SB	494							
	Shoemaker WB	S	Shoemaker WB	36	93	13.8	B	4.9			
		R	Henderson NB	30							
		L	Henderson SB	27							

(continued)

Table B-1 (continued): Henderson Road Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	416	1,106	62.6	E	171.5	2,634	48.2	D
		R	Henderson NB	258							
		L	I-76 On-Ramp	432							
	S. Gulph EB	S	S. Gulph EB	392	456	33.3	C	43.7			
		L	Henderson NB	44							
		R	I-76 On-Ramp	20							
	Henderson SB	L	S. Gulph EB	496	551	38.1	D	65.0			
		R	S. Gulph WB	15							
		S	I-76 On-Ramp	40							
	I-76 Off-Ramp	R	S. Gulph EB	7	521	41.2	D	78.4			
		L	S. Gulph WB	245							
		S	Henderson NB	269							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	646	674	24.3	C	125.4	1,431	24.9	C
		L	Weadley NB	19							
		R	Shoemaker NB	9							
	S. Gulph EB	S	S. Gulph EB	387	462	18.6	B	39.8			
		R	Weadley NB	28							
		L	Shoemaker NB	47							
	Weadley NB	R	S. Gulph EB	29	117	39.5	D	24.0			
		L	S. Gulph WB	33							
		S	Shoemaker NB	55							
	Shoemaker SB	L	S. Gulph EB	38	178	34.2	C	32.2			
		R	S. Gulph WB	89							
		S	Weadley SB	51							
S. Gulph & Croton	S. Gulph EB	S	S. Gulph EB	447	454	0.4	A	0.0	1,339	4.1	A
		R	Croton WB	7							
	S. Gulph WB	S	S. Gulph WB	540	713	4.6	A	13.8			
		L	Croton WB	173							
	Croton EB	S	S. Gulph EB	172	172	12.1	B	16.0			
S. Gulph & Church	S. Gulph WB	S	S. Gulph WB	532	541	2.1	A	0.3	1,769	14.8	B
		R	Church NB	9							
	S. Gulph EB	S	S. Gulph EB	442	853	5.5	A	10.1			
		L	Church NB	411							
	Church SB	L	S. Gulph EB	11	375	54.1	F	158.7			
		R	S. Gulph WB	364							

Table B-1 (continued): Henderson Road Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	135							
		S	S. Gulph WB	761	896	8.3	A	30.0			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	99							
		L	S. Gulph WB	229	328	53.3	D	88.2			
		S	Driveway NB	0					2,279	20.7	C
	S. Gulph EB	S	S. Gulph EB	753							
		R	Brooks SB	302	1,055	21.2	C	318.8			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	S	Henderson SB	613							
		R	Prince Frederick WB	69	682	10.9	B	33.1			
	Prince Frederick EB	R	Henderson SB	83							
		L	Henderson NB	46	129	17.6	B	6.2	1,452	10.0	A
	Henderson NB	S	Henderson NB	541							
		L	Prince Frederick WB	100	641	7.6	A	13.8			

Table B-2: Henderson Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	olume (ve	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,224							
		L	Saulin SB	193	1,417	16.9	B	57.1			
		R	Saulin NB	0							
	Saulin NB	L	Dekalb WB	10							
		R	Dekalb EB	423	433	26.0	C	47.3			
		S	Saulin NB	0					3,263	22.9	C
	Saulin SB	R	Dekalb WB	5							
		L	Dekalb EB	0	5	31.8	C	0.7			
		S	Saulin SB	0							
	Dekalb EB	S	Dekalb EB	1,387							
		R	Saulin SB	17	1,408	28.0	C	160.8			
		L	Saulin NB	4							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	182							
		S	Dekalb WB	953	1,209	69.7	E	471.6			
		L	Henderson SB	74							
	Henderson SB	L	Dekalb EB	238							
		R	Dekalb WB	71	697	56.5	E	95.8			
		S	Henderson SB	388					4,629	70.1	E
	Dekalb EB	S	Dekalb EB	1,091							
		L	Hederson NB	106	1,468	95.8	F	1,000.7			
		R	Henderson SB	271							
	Henderson NB	R	Dekalb EB	68							
		S	Henderson NB	664	1,255	48.0	D	146.7			
		L	Dekalb WB	523							
Henderson & Monroe	Henderson SB	S	Henderson SB	596							
		R	Monroe WB	12	737	12.0	B	23.5			
		L	Monroe EB	129							
	Henderson NB	S	Henderson NB	1,094							
		L	Monroe WB	11	1,193	13.2	B	43.6			
		R	Monroe EB	88					2,148	14.1	B
	Monroe EB	L	Henderson NB	3							
		R	Henderson SB	1	10	14.5	B	0.6			
		S	Monroe EB	6							
	Monroe WB	R	Henderson NB	150							
		L	Henderson SB	52	208	26.8	C	13.4			
		S	Monroe WB	6							

Table B-2 (continued): Henderson Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	olume (ve	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	639	650	6.1	A	10.0	2,470	9.0	A
		L	Saulin EB	11							
	Saulin WB	L	Henderson SB	212	232	26.5	C	28.5			
		R	Henderson NB	20							
	Henderson NB	S	Henderson NB	1,173	1,588	7.7	A	27.4			
		R	Saulin EB	415							
Henderson & Hansen	Henderson NB	L	Hansen WB	15	1,580	0.1	A	0.0	2,490	1.0	A
		S	Henderson NB	1,565							
	Hansen EB	R	Henderson SB	36	61	11.4	B	3.0			
		L	Henderson NB	25							
	Henderson SB	S	Henderson SB	845	849	1.9	A	2.3			
		R	Hansen WB	4							
Henderson & Church	Church WB	R	Henderson NB	419	637	150.9	F	794.1	3,060	60.0	E
		L	Henderson SB	78							
		S	Church WB	140							
	Henderson SB	S	Henderson SB	560	883	36.7	D	98.3			
		L	Church EB	169							
		R	Church WB	154							
	Henderson NB	S	Henderson NB	945	1,070	40.4	D	276.0			
		R	Church EB	64							
		L	Church WB	61							
	Church EB	L	Henderson NB	217	470	25.4	C	50.0			
		R	Henderson SB	48							
		S	Church EB	205							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	33	169	21.3	C	12.0	1,794	11.8	B
		L	Henderson NB	121							
		R	Henderson SB	15							
	Henderson NB	L	Shoemaker WB	31	810	11.5	B	36.7			
		R	Shoemaker EB	23							
		S	Henderson NB	756							
	Henderson SB	R	Shoemaker WB	206	725	9.3	A	22.2			
		L	Shoemaker EB	21							
		S	Henderson SB	498							
	Shoemaker WB	S	Shoemaker WB	45	90	16.1	B	6.1			
		R	Henderson NB	29							
		L	Henderson SB	16							

(continued)

Table B-2 (continued): Henderson Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	olume (ve	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	493	1,121	28.8	C	51.4	2,821	33.6	C
		R	Henderson NB	360							
		L	I-76 On-Ramp	268							
	S. Gulph EB	S	S. Gulph EB	592	673	31.9	C	62.2			
		L	Henderson NB	41							
		R	I-76 On-Ramp	40							
	Henderson SB	L	S. Gulph EB	399	546	40.4	D	70.8			
		R	S. Gulph WB	20							
		S	I-76 On-Ramp	127							
	I-76 Off-Ramp	R	S. Gulph EB	10	481	39.6	D	74.0			
		L	S. Gulph WB	191							
		S	Henderson NB	280							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	641	701	37.1	D	251.3	1,762	32.7	C
		L	Weadley NB	21							
		R	Shoemaker NB	39							
	S. Gulph EB	S	S. Gulph EB	610	718	23.9	C	101.1			
		R	Weadley NB	36							
		L	Shoemaker NB	72							
	Weadley NB	R	S. Gulph EB	32	134	43.2	D	30.4			
		L	S. Gulph WB	73							
		S	Shoemaker NB	29							
	Shoemaker SB	L	S. Gulph EB	31	209	41.2	D	47.2			
		R	S. Gulph WB	91							
		S	Weadley SB	87							
S. Gulph & Croton	S. Gulph EB	S	S. Gulph EB	600	600	0.4	A	-	1,703	5.8	A
		R	Croton WB	0							
	S. Gulph WB	S	S. Gulph WB	760	963	8.1	A	53.6			
		L	Croton WB	203							
	Croton EB	S	S. Gulph EB	140	140	12.6	B	12.7			
S. Gulph & Church	S. Gulph WB	S	S. Gulph WB	742	759	4.3	A	3.6	2,064	18.4	C
		R	Church NB	17							
	S. Gulph EB	S	S. Gulph EB	601	998	9.9	A	32.6			
		L	Church NB	397							
	Church SB	L	S. Gulph EB	0	307	81.0	F	196.1			
		R	S. Gulph WB	307							

Table B-2 (continued): Henderson Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	olume (ve	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	59	1,049	10.5	B	71.1	2,630	24.5	C
		S	S. Gulph WB	990							
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	203	473	41.1	D	79.5			
		L	S. Gulph WB	270							
		S	Driveway NB	0							
	S. Gulph EB	S	S. Gulph EB	794	1,108	30.7	C	1,040.1			
		R	Brooks SB	314							
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0	0	0.0	NA	NA			
		R	S. Gulph WB	0							
Henderson & Prince Frederick	Henderson SB	S	Henderson SB	560	657	22.8	C	81.5	1,870	18.9	B
		R	Prince Frederick WB	97							
	Prince Frederick EB	R	Henderson SB	142	262	18.4	B	16.9			
		L	Henderson NB	120							
	Henderson NB	S	Henderson NB	796	951	16.4	B	65.8			
		L	Prince Frederick WB	155							

Henderson Road No Build Scenario Results

Table B-3: Henderson Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,407							
		L	Saulin SB	332	1,933	46.3	D	1,669.2			
		R	Saulin NB	194							
	Dekalb EB	S	Dekalb EB	839							
		R	Saulin SB	11	851	58.6	E	657.1			
		L	Saulin NB	1					3,343	47.3	D
	Saulin SB	R	Dekalb WB	0							
		L	Dekalb EB	264	281	38.5	D	325.9			
		S	Saulin NB	17							
	Saulin NB	L	Dekalb WB	9							
		R	Dekalb EB	258	278	28.2	C	167.2			
		S	Saulin NB	11							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	87							
		S	Dekalb WB	1,265	1,407	42.3	D	1,044.3			
		L	Henderson SB	55							
	Henderson SB	L	Dekalb EB	155							
		R	Dekalb WB	172	795	106.1	F	986.5			
		S	Henderson SB	468					4,205	54.6	D
	Dekalb EB	S	Dekalb EB	704							
		L	Hederson NB	156	1,237	27.8	C	386.0			
		R	Henderson SB	377							
	Henderson NB	R	Dekalb EB	3							
		S	Henderson NB	384	766	67.2	E	361.0			
		L	Dekalb WB	379							
Henderson & Monroe	Henderson SB	S	Henderson SB	805							
		R	Monroe WB	4	863	46.1	D	671.9			
		L	Monroe EB	54							
	Henderson NB	S	Henderson NB	694							
		L	Monroe WB	2	715	6.9	A	195.8			
		R	Monroe EB	19							
	Monroe EB	L	Henderson NB	9					1,708	28.2	C
		R	Henderson SB	2	16	11.1	B	34.9			
		S	Monroe EB	5							
	Monroe WB	R	Henderson NB	65							
		L	Henderson SB	46	114	28.2	C	59.4			
		S	Monroe WB	3							

Table B-3 (continued): Henderson Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	772	806	112.9	F	795.3	2,136	71.8	E
		L	Saulin EB	22							
		R	Saulin WB	12							
	Saulin EB	R	Henderson SB	8	12	49.2	D	31.9			
		L	Henderson NB	1							
		S	Saulin EB	3							
	Saulin WB	L	Henderson SB	258	277	185.2	F	1,512.0			
		R	Henderson NB	12							
		S	Saulin WB	7							
	Henderson NB	S	Henderson NB	704	1,041	10.1	B	207.0			
		R	Saulin EB	303							
		L	Saulin WB	34							
Henderson & Hansen	Henderson NB	L	Hansen WB	40	1,056	1.1	A	50.8	2,087	42.5	D
		S	Henderson NB	1,016							
	Hansen EB	R	Henderson SB	20	40	35.0	C	61.2			
		L	Henderson NB	20							
	Henderson SB	S	Henderson SB	970	991	87.0	F	1,359.5			
		R	Hansen WB	21							
Henderson & Church	Church WB	R	Henderson NB	217	588	25.6	C	250.7	2,899	49.0	D
		L	Henderson SB	89							
		S	Church WB	282							
	Henderson SB	S	Henderson SB	516	984	88.1	F	431.2			
		L	Church EB	281							
		R	Church WB	187							
	Henderson NB	S	Henderson NB	636	755	28.1	C	305.3			
		R	Church EB	50							
		L	Church WB	69							
	Church EB	L	Henderson NB	202	572	33.3	C	533.8			
		R	Henderson SB	40							
		S	Church EB	330							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	37	203	19.7	B	103.4	1,617	12.8	B
		L	Henderson NB	118							
		R	Henderson SB	48							
	Henderson NB	L	Shoemaker WB	5	570	10.3	B	199.4			
		R	Shoemaker EB	21							
		S	Henderson NB	544							
	Henderson SB	R	Shoemaker WB	137	583	12.2	B	359.3			
		L	Shoemaker EB	19							
		S	Henderson SB	427							
	Shoemaker WB	S	Shoemaker WB	101	261	14.0	B	148.1			
		R	Henderson NB	84							
		L	Henderson SB	76							

(continued)

Table B-3 (continued): Henderson Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	389	1,053	137.2	F	800.1	2,699	76.5	E
		R	Henderson NB	255							
		L	I-76 On-Ramp	409							
	S. Gulph EB	S	S. Gulph EB	494	547	35.5	D	231.6			
		L	Henderson NB	30							
		R	I-76 On-Ramp	23							
	Henderson SB	L	S. Gulph EB	476	554	38.1	D	313.3			
		R	S. Gulph WB	16							
		S	I-76 On-Ramp	62							
	I-76 Off-Ramp	R	S. Gulph EB	7	545	39.2	D	185.5			
		L	S. Gulph WB	253							
		S	Henderson NB	285							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	638	666	38.1	D	1,092.8	1,635	41.9	D
		L	Weadley NB	19							
		R	Shoemaker NB	9							
	S. Gulph EB	S	S. Gulph EB	436	494	21.4	C	353.1			
		R	Weadley NB	37							
		L	Shoemaker NB	21							
	Weadley NB	R	S. Gulph EB	39	175	62.5	E	238.1			
		L	S. Gulph WB	41							
		S	Shoemaker NB	95							
	Shoemaker SB	L	S. Gulph EB	73	300	72.1	E	390.1			
		R	S. Gulph WB	164							
		S	Weadley SB	63							
S. Gulph & Croton	S. Gulph WB	S	S. Gulph WB	602	777	10.4	B	624.9	1,444	8.1	A
		L	Croton WB	175							
	S. Gulph EB	S	S. Gulph EB	474	480	0.5	A	30.5			
		R	Croton WB	6							
	Croton EB	S	S. Gulph EB	187	187	18.3	B	266.9			
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	463	1,014	5.5	A	174.8	2,085	25.4	C
		L	Church NB	551							
	Church SB	L	S. Gulph EB	16	467	14.8	B	323.2			
		R	S. Gulph WB	451							
	S. Gulph WB	S	S. Gulph WB	591	604	66.9	E	577.6			
		R	Church NB	13							

Table B-3 (continued): Henderson Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	140							
		S	S. Gulph WB	901	1,041	5.9	A	120.8			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	117							
		L	S. Gulph WB	245	362	151.9	F	1,108.1			
		S	Driveway NB	0					2,656	31.6	C
	S. Gulph EB	S	S. Gulph EB	898							
		R	Brooks SB	355	1,253	18.1	B	1,274.3			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	L	Prince Frederick EB	154							
		S	Henderson SB	701	937	44.7	D	992.3			
		R	Prince Frederick WB	82							
	Prince Frederick WB	R	Henderson NB	171							
		S	Prince Frederick WB	37	248	21.2	C	138.7			
		L	Henderson SB	40							
	Prince Frederick EB	R	Henderson SB	53					1,927	34.4	C
		L	Henderson NB	34	117	25.3	C	93.5			
		S	Prince Frederick EB	30							
	Henderson NB	S	Henderson NB	547							
		L	Prince Frederick WB	70	625	25.8	C	457.8			
		R	Prince Frederick EB	8							

Table B-4: Henderson Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,198							
		L	Saulin SB	223	1,680	44.6	D	1,374.9			
		R	Saulin NB	259							
	Saulin SB	R	Dekalb WB	8							
		L	Dekalb EB	468	510	142.7	F	1,624.1			
		S	Saulin SB	34							
	Dekalb EB	S	Dekalb EB	1,223					3,703	56.9	E
		R	Saulin SB	16	1,245	43.1	D	891.5			
		L	Saulin NB	6							
	Saulin NB	L	Dekalb WB	5							
		R	Dekalb EB	228	268	35.3	D	255.5			
		S	Saulin NB	35							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	93							
		S	Dekalb WB	985	1,157	87.2	F	1,564.3			
		L	Henderson SB	79							
	Henderson SB	L	Dekalb EB	162							
		R	Dekalb WB	82	628	68.0	E	340.4			
		S	Henderson SB	384							
	Dekalb EB	S	Dekalb EB	1,068					4,531	79.2	E
		L	Hederson NB	120	1,454	105.2	F	1,670.0			
		R	Henderson SB	266							
	Henderson NB	R	Dekalb EB	6							
		S	Henderson NB	741	1,292	48.2	D	582.5			
		L	Dekalb WB	545							
Henderson & Monroe	Henderson SB	S	Henderson SB	597							
		R	Monroe WB	9	731	12.5	B	219.6			
		L	Monroe EB	125							
	Henderson NB	S	Henderson NB	1,132							
		L	Monroe WB	10	1,235	13.4	B	372.9			
		R	Monroe EB	93							
	Monroe EB	L	Henderson NB	3					2,184	14.4	B
		R	Henderson SB	1	9	14.8	B	28.3			
		S	Monroe EB	5							
	Monroe WB	R	Henderson NB	151							
		L	Henderson SB	52	209	26.9	C	110.2			
		S	Monroe WB	6							

Table B-4 (continued): Henderson Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	628							
		L	Saulin WB	17	649	10.1	B	218.7			
		R	Saulin EB	4							
	Saulin WB	L	Henderson SB	302							
		R	Henderson NB	40	348	25.8	C	158.5			
		S	Saulin WB	6							
	Saulin EB	R	Henderson SB	36					2,817	14.6	B
		L	Henderson NB	15	56	21.7	C	67.3			
		S	Saulin EB	5							
	Henderson NB	S	Henderson NB	1,181							
		R	Saulin EB	564	1,764	13.9	B	526.6			
		L	Saulin WB	19							
Henderson & Hansen	Henderson NB	L	Hansen WB	17	1,756	0.4	A	79.6			
		S	Henderson NB	1,739							
	Hansen EB	R	Henderson SB	35	59	95.9	F	134.7	2,774	7.0	A
		L	Henderson NB	24							
	Henderson SB	S	Henderson SB	955	959	13.6	B	276.0			
		R	Hansen WB	4							
Henderson & Church	Church WB	R	Henderson NB	410							
		L	Henderson SB	76	620	178.6	F	1,629.0			
		S	Church WB	134							
	Henderson SB	S	Henderson SB	615							
		L	Church EB	181	983	48.8	D	420.1			
		R	Church WB	187							
	Henderson NB	S	Henderson NB	1,014					3,400	68.6	E
		R	Church EB	66	1,163	43.1	D	675.0			
		L	Church WB	83							
	Church EB	L	Henderson NB	334							
		R	Henderson SB	58	634	38.6	D	702.1			
		S	Church EB	242							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	41							
		L	Henderson NB	117	195	20.7	C	114.9			
		R	Henderson SB	37							
	Henderson NB	L	Shoemaker WB	32							
		R	Shoemaker EB	27	875	10.7	B	318.0			
		S	Henderson NB	816							
	Henderson SB	R	Shoemaker WB	229					2,060	11.8	B
		L	Shoemaker EB	21	787	10.0	A	245.4			
		S	Henderson SB	537							
	Shoemaker WB	S	Shoemaker WB	100							
		R	Henderson NB	64	203	14.6	B	131.7			
		L	Henderson SB	39							

(continued)

Table B-4 (continued): Henderson Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	484	1,213	139.1	F	1,418.9	3,119	78.7	E
		R	Henderson NB	441							
		L	I-76 On-Ramp	288							
	S. Gulph EB	S	S. Gulph EB	727	774	32.6	C	309.2			
		L	Henderson NB	0							
		R	I-76 On-Ramp	47							
	Henderson SB	L	S. Gulph EB	465	635	40.9	D	361.2			
		R	S. Gulph WB	20							
		S	I-76 On-Ramp	150							
	I-76 Off-Ramp	R	S. Gulph EB	10	497	51.1	D	185.7			
		L	S. Gulph WB	179							
		S	Henderson NB	308							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	629	658	68.9	E	1,550.2	1,905	61.8	E
		L	Weadley NB	19							
		R	Shoemaker NB	10							
	S. Gulph EB	S	S. Gulph EB	715	793	30.1	C	1,018.6			
		R	Weadley NB	44							
		L	Shoemaker NB	34							
	Weadley NB	R	S. Gulph EB	27	178	90.5	F	276.1			
		L	S. Gulph WB	88							
		S	Shoemaker NB	63							
	Shoemaker SB	L	S. Gulph EB	36	276	117.7	F	677.3			
		R	S. Gulph WB	126							
		S	Weadley SB	114							
S. Gulph & Croton	S. Gulph WB	S	S. Gulph WB	752	940	45.0	D	1,658.9	1,763	25.3	C
		L	Croton WB	188							
	S. Gulph EB	S	S. Gulph EB	709	709	1.0	A	53.8			
		R	Croton WB	0							
	Croton EB	S	S. Gulph EB	114	114	14.2	B	131.6			
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	709	1,266	3.7	A	129.4	2,366	35.1	D
		L	Church NB	557							
	S. Gulph WB	S	S. Gulph WB	731	749	100.0	F	695.7			
		R	Church NB	18							
	Church SB	R	S. Gulph EB	351	351	10.0	A	214.6			
		L	S. Gulph WB	0							

Table B-4 (continued): Henderson Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	77							
		S	S. Gulph WB	1,002	1,079	7.6	A	254.1			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	251							
		L	S. Gulph WB	278	529	100.9	F	807.2			
		S	Driveway NB	0					3,023	27.9	C
	S. Gulph EB	S	S. Gulph EB	1,017							
		R	Brooks SB	398	1,415	16.1	B	1,279.3			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	L	Henderson SB	168							
		S	Prince Frederick WB	510	780	66.7	E	991.8			
		R	Henderson SB	102							
	Saulin WB	S	Prince Frederick WB	60							
		L	Henderson SB	14	256	26.2	C	159.8			
		R	Henderson NB	182					2,229	49.8	D
	Prince Frederick EB	R	Henderson SB	106							
		L	Saulin EB	102	248	35.9	D	185.5			
		T	Henderson NB	40							
	Henderson NB	T	Saulin EB	808							
		R	Henderson NB	18	945	46.0	D	627.3			
		L	Prince Frederick WB	119							

Henderson Road Build Scenario Results

Table B-5: Henderson Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,734							
		L	Saulin SB	134	2,016	37.9	D	1,651.7			
		R	Saulin NB	148							
	Saulin SB	R	Dekalb WB	9							
		L	Dekalb EB	30	51	36.9	D	59.0			
		S	Saulin SB	12					4,001	49.9	D
	Dekalb EB	S	Dekalb EB	1,309							
		R	Saulin SB	6	1,338	50.5	D	1,357.0			
		L	Saulin NB	23							
	Saulin NB	L	Dekalb WB	5							
		R	Dekalb EB	187	596	90.3	F	1,365.3			
		S	Saulin NB	404							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	114							
		S	Dekalb WB	1,337	1,684	41.2	D	1,357.6			
		L	Henderson SB	233							
	Henderson SB	L	Dekalb EB	133							
		R	Dekalb WB	159	826	121.5	F	1,055.0			
		S	Henderson SB	534					4,380	83.5	F
	Dekalb EB	S	Dekalb EB	1,008							
		L	Hederson NB	56	1,278	52.5	D	816.5			
		R	Henderson SB	214							
	Henderson NB	R	Dekalb EB	232							
		S	Henderson NB	253	592	217.8	F	1,045.3			
		L	Dekalb WB	107							
Henderson & Monroe	Henderson SB	S	Henderson SB	696							
		R	Monroe WB	130	924	64.0	E	879.6			
		L	Monroe EB	98							
	Henderson NB	S	Henderson NB	552							
		L	Monroe WB	24	609	280.5	F	849.8			
		R	Monroe EB	33							
	Monroe EB	L	Henderson NB	7					1,631	145.4	F
		R	Henderson SB	11	19	57.7	E	29.8			
		S	Monroe EB	1							
	Monroe WB	R	Henderson NB	44							
		L	Henderson SB	30	79	77.6	E	63.1			
		S	Monroe WB	5							

Table B-5 (continued): Henderson Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	359	694	110.9	F	854.3	2,414	170.0	F
		R	Saulin WB	329							
		L	Saulin EB	6							
	Saulin WB	L	Henderson SB	426	492	123.3	F	1,661.7			
		R	Henderson NB	2							
		S	Saulin WB	64							
	Henderson NB	S	Henderson NB	460	792	216.1	F	1,373.1			
		L	Saulin WB	252							
		R	Saulin EB	80							
	Saulin EB	R	Henderson SB	180	436	233.0	F	1,664.9			
		L	Henderson NB	211							
		S	Saulin EB	45							
Henderson & Hansen	Henderson NB	L	Hansen WB	26	2,437	52.0	D	436.3	3,437	40.2	D
		S	Henderson NB	860							
	Hansen EB	R	Henderson SB	12	35	112.6	F	111.6			
		L	Henderson NB	23							
	Henderson SB	S	Henderson SB	943	965	7.9	A	328.3			
		R	Hansen WB	22							
Henderson & Church	Church WB	R	Henderson NB	214	491	154.0	F	1,663.4	2,654	106.4	F
		L	Henderson SB	7							
		S	Church WB	270							
	Henderson SB	S	Henderson SB	661	957	42.1	D	410.2			
		L	Church EB	184							
		R	Church WB	112							
	Henderson NB	S	Henderson NB	499	552	205.5	F	1,633.1			
		R	Church EB	2							
		L	Church WB	51							
	Church EB	L	Henderson NB	194	654	81.1	F	1,658.9			
		R	Henderson SB	124							
		S	Church EB	336							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	9	176	45.8	D	305.6	1,577	26.9	C
		L	Henderson NB	155							
		R	Henderson SB	12							
	Henderson NB	L	Shoemaker WB	17	332	39.2	D	446.9			
		R	Shoemaker EB	15							
		S	Henderson NB	300							
	Henderson SB	R	Shoemaker WB	223	750	14.5	B	274.9			
		L	Shoemaker EB	154							
		S	Henderson SB	373							
	Shoemaker WB	S	Shoemaker WB	186	319	33.0	C	602.0			
		R	Henderson NB	113							
		L	Henderson SB	20							

(continued)

Table B-5 (continued): Henderson Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	362	965	151.1	F	907.3	2,441	80.7	F
		R	Henderson NB	150							
		L	I-76 On-Ramp	453							
	S. Gulph EB	S	S. Gulph EB	568	605	30.7	C	245.1			
		L	Henderson NB	17							
		R	I-76 On-Ramp	20							
	Henderson SB	L	S. Gulph EB	377	383	38.4	D	208.3			
		R	S. Gulph WB	4							
		S	I-76 On-Ramp	2							
	I-76 Off-Ramp	R	S. Gulph EB	10	488	36.9	D	163.5			
		L	S. Gulph WB	272							
		S	Henderson NB	206							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	621	652	38.0	D	1,208.4	1,637	35.3	D
		L	Weadley NB	31							
		R	Shoemaker NB	0							
	S. Gulph EB	S	S. Gulph EB	542	563	19.7	B	385.9			
		R	Weadley NB	10							
		L	Shoemaker NB	11							
	Weadley NB	R	S. Gulph EB	20	192	64.7	E	265.7			
		L	S. Gulph WB	50							
		S	Shoemaker NB	122							
	Shoemaker SB	L	S. Gulph EB	44	230	41.4	D	285.5			
		R	S. Gulph WB	39							
		S	Weadley SB	147							
S. Gulph & Croton	S. Gulph WB	S	S. Gulph WB	329	503	9.1	A	384.5	1,121	5.5	A
		L	Croton WB	174							
	S. Gulph EB	S	S. Gulph EB	486	525	1.0	A	44.6			
		R	Croton WB	39							
	Croton EB	S	S. Gulph EB	93	93	12.0	B	175.4			
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	438	1,164	12.8	B	369.2	1,951	24.0	C
		L	Church NB	726							
	Church SB	L	S. Gulph EB	86	452	11.5	B	249.6			
		R	S. Gulph WB	366							
	S. Gulph WB	S	S. Gulph WB	320	335	80.0	E	303.8			
		R	Church NB	15							

Table B-5 (continued): Henderson Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	65							
		S	S. Gulph WB	623	688	5.8	A	110.4			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	225							
		L	S. Gulph WB	148	373	286.9	F	1,667.2			
		S	Driveway NB	0					2,371	53.4	D
	S. Gulph EB	S	S. Gulph EB	941							
		R	Brooks SB	369	1,310	12.0	B	1,251.2			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	L	Prince Frederick EB	399							
		T	Henderson SB	709	1,127	45.0	D	1,657.9			
		R	Prince Frederick WB	19							
	Prince Frederick WB	R	Henderson NB	137							
		T	Prince Frederick WB	19	232	25.7	C	118.0			
		L	Henderson SB	76							
	Prince Frederick EB	R	Henderson SB	52					1,847	34.5	C
		L	Henderson NB	5	65	29.0	C	55.7			
		T	Prince Frederick EB	8							
	Henderson NB	T	Prince Frederick EB	380							
		L	Henderson NB	35	423	12.3	B	392.7			
		R	Prince Frederick WB	8							

Table B-6: Henderson Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,374							
		L	Saulin SB	133	1,665	13.4	B	439.7			
		R	Saulin NB	158							
	Saulin SB	R	Dekalb WB	9							
		L	Dekalb EB	244	282	25.5	C	167.4			
		S	Saulin SB	29							
	Dekalb EB	S	Dekalb EB	1,480					3,845	18.8	B
		R	Saulin SB	8	1,517	20.2	C	718.3			
		L	Saulin NB	29							
	Saulin NB	L	Dekalb WB	72							
		R	Dekalb EB	207	381	31.9	C	215.6			
		S	Saulin NB	102							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	125							
		S	Dekalb WB	1,242	1,478	37.7	D	1,018.1			
		L	Henderson SB	111							
	Henderson SB	L	Dekalb EB	161							
		R	Dekalb WB	82	1,005	79.8	E	1,041.7			
		S	Henderson SB	762							
	Dekalb EB	S	Dekalb EB	1,323					4,779	69.3	E
		L	Hederson NB	18	1,397	106.4	F	1,670.2			
		R	Henderson SB	56							
	Henderson NB	R	Dekalb EB	68							
		S	Henderson NB	522	899	52.0	D	456.7			
		L	Dekalb WB	309							
Henderson & Monroe	Henderson SB	S	Henderson SB	820							
		R	Monroe WB	31	900	15.6	B	427.1			
		L	Monroe EB	49							
	Henderson NB	S	Henderson NB	874							
		L	Monroe WB	15	929	6.7	A	161.8			
		R	Monroe EB	40							
	Monroe EB	L	Henderson NB	7					1,945	11.5	B
		R	Henderson SB	7	18	12.4	B	33.1			
		S	Monroe EB	4							
	Monroe WB	R	Henderson NB	51							
		L	Henderson SB	40	98	19.6	B	54.2			
		S	Monroe WB	7							

Table B-6 (continued): Henderson Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & Saulin	Henderson SB	S	Henderson SB	595	850	56.9	E	568.3	3,167	111.5	F
		L	Saulin WB	6							
		R	Saulin EB	249							
	Saulin WB	L	Henderson SB	222	340	63.8	E	343.9			
		R	Henderson NB	17							
		S	Saulin WB	101							
	Henderson NB	S	Henderson NB	362	880	162.4	F	1,376.1			
		R	Saulin EB	203							
		L	Saulin WB	315							
	Saulin EB	R	Henderson SB	392	1,097	127.9	F	1,663.2			
		L	Henderson NB	547							
		T	Saulin EB	158							
Henderson & Hansen	Henderson NB	L	Hansen WB	26	953	34.5	C	429.5	2,162	58.5	E
		S	Henderson NB	927							
	Hansen EB	R	Henderson SB	9	41	375.5	F	403.0			
		L	Henderson NB	32							
	Henderson SB	S	Henderson SB	1,162	1,168	67.0	E	1,263.1			
		R	Hansen WB	6							
Henderson & Church	Church WB	R	Henderson NB	225	723	105.3	F	1,565.0	3,240	107.0	F
		L	Henderson SB	6							
		S	Church WB	492							
	Henderson SB	S	Henderson SB	622	1,172	67.1	E	429.5			
		L	Church EB	204							
		R	Church WB	346							
	Henderson NB	S	Henderson NB	527	757	166.8	F	1,169.7			
		R	Church EB	9							
		L	Church WB	221							
	Church EB	L	Henderson NB	221	588	111.9	F	1,650.3			
		R	Henderson SB	17							
		S	Church EB	350							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	120	286	21.8	C	161.1	1,515	17.1	B
		L	Henderson NB	147							
		R	Henderson SB	19							
	Henderson NB	L	Shoemaker WB	7	317	19.2	B	119.4			
		R	Shoemaker EB	20							
		S	Henderson NB	290							
	Henderson SB	R	Shoemaker WB	214	642	13.1	B	245.0			
		L	Shoemaker EB	27							
		S	Henderson SB	401							
	Shoemaker WB	S	Shoemaker WB	85	270	19.4	B	236.4			
		R	Henderson NB	166							
		L	Henderson SB	19							

(continued)

Table B-6 (continued): Henderson Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	180	601	273.8	F	963.3	2,348	95.3	F
		R	Henderson NB	104							
		L	I-76 On-Ramp	317							
	S. Gulph EB	S	S. Gulph EB	757	854	28.1	C	289.9			
		L	Henderson NB	82							
		R	I-76 On-Ramp	15							
	Henderson SB	L	S. Gulph EB	408	435	39.4	D	258.9			
		R	S. Gulph WB	20							
		S	I-76 On-Ramp	7							
	I-76 Off-Ramp	R	S. Gulph EB	6	458	39.7	D	168.6			
		L	S. Gulph WB	312							
		S	Henderson NB	140							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	383	513	63.6	E	1,208.6	1,921	79.9	E
		L	Weadley NB	30							
		R	Shoemaker NB	100							
	S. Gulph EB	S	S. Gulph EB	752	883	47.3	D	1,661.5			
		R	Weadley NB	20							
		L	Shoemaker NB	111							
	Weadley NB	R	S. Gulph EB	62	192	112.0	F	359.6			
		L	S. Gulph WB	2							
		S	Shoemaker NB	128							
	Shoemaker SB	L	S. Gulph EB	37	333	173.0	F	1,478.4			
		R	S. Gulph WB	117							
		S	Weadley SB	179							
S. Gulph & Croton	S. Gulph WB	S	S. Gulph WB	289	382	161.8	F	1,541.1	1,476	47.4	D
		L	Croton WB	93							
	S. Gulph EB	S	S. Gulph EB	893	918	3.4	A	210.0			
		R	Croton WB	25							
	Croton EB	S	S. Gulph EB	176	176	28.4	C	277.6			
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	614	1,145	16.1	B	329.5	2,318	55.7	E
		L	Church NB	531							
	S. Gulph WB	S	S. Gulph WB	182	284	338.0	F	701.3			
		R	Church NB	102							
	Church SB	R	S. Gulph EB	585	889	16.5	B	335.4			
		L	S. Gulph WB	304							

Table B-6 (continued): Henderson Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	137							
		S	S. Gulph WB	630	767	7.4	A	110.8			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	223							
		L	S. Gulph WB	243	466	65.7	E	386.9			
		S	Driveway NB	0					2,409	28.1	C
	S. Gulph EB	S	S. Gulph EB	930							
		R	Brooks SB	246	1,176	26.8	C	1,659.5			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	L	Prince Frederick EB	53							
		S	Henderson SB	842	903	50.3	D	1,570.5			
		R	Prince Frederick WB	8							
	Prince Frederick WB	S	Prince Frederick WB	20							
		L	Henderson SB	12	166	23.0	C	110.7			
		R	Henderson NB	134							
	Prince Frederick EB	R	Henderson SB	150					1,923	33.4	C
		L	Henderson NB	5	178	17.5	B	112.4			
		T	Prince Frederick EB	23							
	Henderson NB	T	Henderson NB	609							
		R	Prince Frederick EB	2	676	17.7	B	485.3			
		L	Prince Frederick WB	65							

Henderson Road Build + Improvements Results

Table B-7: Henderson Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,615							
		L	Saulin SB	127	1,881	47.2	D	1,664.1			
		R	Saulin NB	139							
	Saulin SB	R	Dekalb WB	4							
		L	Dekalb EB	430	456	45.4	D	382.4			
		S	Saulin SB	22							
	Dekalb EB	S	Dekalb EB	1,378					4,427	43.9	D
		R	Saulin SB	6	1,408	44.5	D	1,059.3			
		L	Saulin NB	24							
	Saulin NB	L	Dekalb WB	5							
		R	Dekalb EB	204	682	32.6	C	512.2			
		S	Saulin NB	473							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	104							
		S	Dekalb WB	1,261	1,586	36.8	D	1,122.7			
		L	Henderson SB	221							
	Henderson SB	L	Dekalb EB	154							
		R	Dekalb WB	178	952	46.2	D	450.0			
		S	Henderson SB	620							
	Dekalb EB	S	Dekalb EB	1,042					4,676	45.9	D
		L	Hederson NB	56	1,321	57.7	E	803.0			
		R	Henderson SB	223							
	Henderson NB	R	Dekalb EB	213							
		S	Henderson NB	440	817	43.9	D	432.1			
		L	Dekalb WB	164							
Henderson & Monroe	Henderson SB	S	Henderson SB	811							
		R	Monroe WB	136	1,054	8.5	A	346.7			
		L	Monroe EB	107							
	Henderson NB	S	Henderson NB	779							
		L	Monroe WB	44	880	8.5	A	286.6			
		R	Monroe EB	57							
	Monroe EB	L	Henderson NB	7					2,035	9.0	A
		R	Henderson SB	11	19	11.4	B	33.2			
		S	Monroe EB	1							
	Monroe WB	R	Henderson NB	47							
		L	Henderson SB	30	82	19.9	B	51.1			
		S	Monroe WB	5							

Table B-7 (continued): Henderson Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Henderson & Saulin	Henderson NB	S	Henderson NB	738							
		L	Saulin WB	430	1,290	24.1	C	336.3			
		R	Saulin EB	122							
	Saulin WB	L	Henderson SB	536							
		R	Henderson NB	2	612	32.3	C	363.2			
		S	Saulin WB	74							
	Henderson SB	S	Henderson SB	416					3,752	28.6	C
		R	Saulin WB	429	853	34.0	C	339.7			
		L	Saulin EB	8							
	Saulin EB	R	Henderson SB	366							
		L	Henderson NB	138	997	27.6	C	475.5			
		S	Saulin EB	493							
Henderson & Hansen	Henderson NB	L	Hansen WB	38	1,304	0.7	A	64.3			
		S	Henderson NB	1,266							
	Hansen EB	R	Henderson SB	12	40	31.4	C	64.1	2,661	9.7	A
		L	Henderson NB	28							
	Henderson SB	S	Henderson SB	1,293	1,317	17.9	B	633.6			
		R	Hansen WB	24							
Henderson & Church	Church WB	R	Henderson NB	327							
		L	Henderson SB	10	723	42.2	D	366.5			
		S	Church WB	386							
	Henderson SB	S	Henderson SB	840							
		L	Church EB	337	1,302	44.6	D	425.2			
		R	Church WB	125							
	Henderson NB	S	Henderson NB	684					3,542	38.3	D
		R	Church EB	3	747	32.2	C	323.5			
		L	Church WB	60							
	Church EB	L	Henderson NB	293							
		R	Henderson SB	131	770	29.8	C	263.3			
		S	Church EB	346							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	9							
		L	Henderson NB	174	195	20.5	C	105.6			
		R	Henderson SB	12							
	Henderson NB	L	Shoemaker WB	18							
		R	Shoemaker EB	17	374	12.3	B	129.1			
		S	Henderson NB	339							
	Henderson SB	R	Shoemaker WB	252					1,840	14.8	B
		L	Shoemaker EB	198	929	14.2	B	312.3			
		S	Henderson SB	479							
	Shoemaker WB	S	Shoemaker WB	196							
		R	Henderson NB	125	342	15.8	B	259.8			
		L	Henderson SB	21							

(continued)

Table B-7 (continued): Henderson Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	361	960	153.0	F	906.7	2,505	81.8	F
		R	Henderson NB	151							
		L	I-76 On-Ramp	448							
	S. Gulph EB	S	S. Gulph EB	531	569	33.8	C	261.6			
		L	Henderson NB	17							
		R	I-76 On-Ramp	21							
	Henderson SB	L	S. Gulph EB	485	491	42.5	D	301.6			
		R	S. Gulph WB	4							
		S	I-76 On-Ramp	2							
	I-76 Off-Ramp	R	S. Gulph EB	10	485	36.9	D	161.4			
		L	S. Gulph WB	271							
		S	Henderson NB	204							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	610	641	36.2	D	1,020.1	1,606	34.7	C
		L	Weadley NB	31							
		R	Shoemaker NB	0							
	S. Gulph EB	S	S. Gulph EB	503	524	19.5	B	431.0			
		R	Weadley NB	10							
		L	Shoemaker NB	11							
	Weadley NB	R	S. Gulph EB	20	192	60.4	E	247.4			
		L	S. Gulph WB	49							
		S	Shoemaker NB	123							
	Shoemaker SB	L	S. Gulph EB	45	249	43.3	D	291.1			
		R	S. Gulph WB	41							
		S	Weadley SB	163							
S. Gulph & Croton	Croton EB	S	S. Gulph EB	121	121	10.4	B	109.6	1,101	3.2	A
	S. Gulph EB	S	S. Gulph EB	429	484	1.5	A	65.1			
		R	Croton WB	324							
	S. Gulph WB	S	S. Gulph WB	172	496	3.0	A	110.6			
		L	Croton WB	55							
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	382	1,121	27.6	C	513.9	2,017	28.0	C
		L	Church NB	739							
	Church SB	L	S. Gulph EB	470	779	26.6	C	425.9			
		R	S. Gulph WB	309							
	S. Gulph WB	S	S. Gulph WB	103	117	41.8	D	40.2			
		R	Church NB	14							

Table B-7 (continued): Henderson Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	72							
		S	S. Gulph WB	707	779	4.1	A	92.1			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	299							
		L	S. Gulph WB	205	504	36.5	D	304.6			
		S	Driveway NB	0					2,412	27.9	C
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
	S. Gulph EB	S	S. Gulph EB	814							
		R	Brooks SB	315	1,129	40.5	D	1,279.1			
		L	Driveway NB	0							
Henderson & Prince Frederick	Henderson SB	L	Prince Frederick EB	457							
		T	Henderson SB	816	1,295	19.2	B	1,402.2			
		R	Prince Frederick WB	22							
	Prince Frederick WB	R	Henderson NB	132							
		T	Prince Frederick WB	17	225	31.0	C	136.1			
		L	Henderson SB	76							
	Prince Frederick EB	R	Henderson SB	53					2,185	18.2	B
		L	Henderson NB	5	66	27.0	C	71.1			
		T	Prince Frederick EB	8							
	Henderson NB	T	Prince Frederick EB	540							
		L	Henderson NB	44	599	10.2	B	419.2			
		R	Prince Frederick WB	15							

Table B-8: Henderson Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Dekalb & Saulin	Dekalb WB	S	Dekalb WB	1,376	1,667	23.3	C	693.7	4,050	29.3	C
		L	Saulin SB	133							
		R	Saulin NB	158							
	Saulin SB	R	Dekalb WB	10	342	63.0	E	325.7			
		L	Dekalb EB	297							
		S	Saulin SB	35							
	Dekalb EB	S	Dekalb EB	1,619	1,660	27.1	C	1,041.8			
		R	Saulin SB	9							
		L	Saulin NB	32							
	Saulin NB	L	Dekalb WB	72	381	35.4	D	255.4			
		R	Dekalb EB	207							
		S	Saulin NB	102							
Dekalb & Henderson	Dekalb WB	R	Henderson NB	124	1,449	36.5	D	1,045.5	5,109	65.8	E
		S	Dekalb WB	1,218							
		L	Henderson SB	107							
	Henderson SB	L	Dekalb EB	159	987	64.1	E	745.7			
		R	Dekalb WB	81							
		S	Henderson SB	747							
	Dekalb EB	S	Dekalb EB	1,446	1,525	91.2	F	1,670.2			
		L	Hederson NB	20							
		R	Henderson SB	59							
	Henderson NB	R	Dekalb EB	85	1,148	70.7	E	871.1			
		S	Henderson NB	689							
		L	Dekalb WB	374							
Henderson & Monroe	Henderson SB	S	Henderson SB	774	854	31.2	C	733.5	2,154	21.6	C
		R	Monroe WB	30							
		L	Monroe EB	50							
	Henderson NB	S	Henderson NB	1,104	1,185	14.1	B	451.2			
		L	Monroe WB	19							
		R	Monroe EB	62							
	Monroe EB	L	Henderson NB	7	18	21.6	C	34.8			
		R	Henderson SB	7							
		S	Monroe EB	4							
	Monroe WB	R	Henderson NB	51	97	28.5	C	57.5			
		L	Henderson SB	39							
		S	Monroe WB	7							

Table B-8 (continued): Henderson Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Henderson & Saulin	Henderson NB	S	Henderson NB	512	1,164	41.0	D	519.1	3,548	49.6	D
		R	Saulin EB	265							
		L	Saulin WB	387							
	Saulin WB	L	Henderson SB	219	339	38.7	D	166.6			
		R	Henderson NB	17							
		S	Saulin WB	103							
	Saulin EB	R	Henderson SB	437	1,264	52.4	D	1,371.9			
		L	Henderson NB	653							
		S	Saulin EB	174							
	Henderson SB	S	Henderson SB	540	781	62.6	E	751.9			
		L	Saulin EB	6							
		R	Saulin WB	235							
Henderson & Hansen	Henderson NB	L	Hansen WB	31	1,159	0.4	A	22.1	2,336	28.0	C
		S	Henderson NB	1,128							
	Hansen EB	R	Henderson SB	10	49	143.2	F	274.8			
		L	Henderson NB	39							
	Henderson SB	S	Henderson SB	1,123	1,128	51.4	D	1,342.4			
		R	Hansen WB	5							
Henderson & Church	Church WB	R	Henderson NB	246	743	97.2	F	892.0	3,431	76.3	E
		L	Henderson SB	6							
		S	Church WB	491							
	Henderson SB	S	Henderson SB	580	1,123	65.6	E	429.6			
		L	Church EB	213							
		R	Church WB	330							
	Henderson NB	S	Henderson NB	659	894	65.7	E	789.1			
		R	Church EB	10							
		L	Church WB	225							
	Church EB	L	Henderson NB	253	671	85.0	F	716.4			
		R	Henderson SB	17							
		S	Church EB	401							
Henderson & Shoemaker	Shoemaker EB	S	Shoemaker EB	120	285	22.5	C	155.8	1,576	19.8	B
		L	Henderson NB	147							
		R	Henderson SB	18							
	Henderson NB	L	Shoemaker WB	13	418	16.7	B	178.4			
		R	Shoemaker EB	19							
		S	Henderson NB	386							
	Henderson SB	R	Shoemaker WB	211	600	19.8	B	294.5			
		L	Shoemaker EB	25							
		S	Henderson SB	364							
	Shoemaker WB	S	Shoemaker WB	85	273	21.5	C	237.4			
		R	Henderson NB	169							
		L	Henderson SB	19							

(continued)

Table B-8 (continued): Henderson Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
Henderson & S. Gulph	S. Gulph WB	S	S. Gulph WB	341	1,141	117.5	F	969.8	2,839	75.3	E
		R	Henderson NB	204							
		L	I-76 On-Ramp	596							
	S. Gulph EB	S	S. Gulph EB	732	825	41.9	D	444.3			
		L	Henderson NB	78							
		R	I-76 On-Ramp	15							
	Henderson SB	L	S. Gulph EB	384	409	52.1	D	288.1			
		R	S. Gulph WB	18							
		S	I-76 On-Ramp	7							
	I-76 Off-Ramp	R	S. Gulph EB	6	464	51.3	D	203.4			
		L	S. Gulph WB	316							
		S	Henderson NB	142							
S. Gulph & Weadley & Shoemaker	S. Gulph WB	S	S. Gulph WB	512	673	39.9	D	1,114.3	2,061	73.1	E
		L	Weadley NB	31							
		R	Shoemaker NB	130							
	S. Gulph EB	S	S. Gulph EB	728	857	51.9	D	1,664.6			
		R	Weadley NB	18							
		L	Shoemaker NB	111							
	Weadley NB	R	S. Gulph EB	62	193	103.6	F	355.9			
		L	S. Gulph WB	2							
		S	Shoemaker NB	129							
	Shoemaker SB	L	S. Gulph EB	38	338	175.5	F	1,504.7			
		R	S. Gulph WB	115							
		S	Weadley SB	185							
S. Gulph & Croton	S. Gulph WB	S	S. Gulph WB	166	1,031	22.5	C	322.2	1,630	15.9	B
		L	Croton WB	865							
	S. Gulph EB	S	S. Gulph EB	462	576	4.3	A	170.8			
		R	Croton WB	114							
	Croton EB	S	S. Gulph EB	23	23	13.1	B	4,193.0			
S. Gulph & Church	S. Gulph EB	S	S. Gulph EB	636	1,190	26.5	C	502.6	2,419	38.9	D
		L	Church NB	554							
	S. Gulph WB	S	S. Gulph WB	341	462	19.1	B	374.4			
		R	Church NB	121							
	Church SB	R	S. Gulph EB	506	767	70.0	E	476.7			
		L	S. Gulph WB	261							

Table B-8 (continued): Henderson Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay(s)	Intersection LOS
S. Gulph & Brooks	S. Gulph WB	L	Brooks SB	118							
		S	S. Gulph WB	730	848	3.8	A	95.2			
		R	Driveway NB	0							
	Brooks NB	R	S. Gulph EB	225							
		L	S. Gulph WB	244	469	42.2	D	383.0			
		S	Driveway NB	0					2,539	27.0	C
	S. Gulph EB	S	S. Gulph EB	966							
		R	Brooks SB	256	1,222	37.3	D	1,661.2			
		L	Driveway NB	0							
	Driveway SB	L	S. Gulph EB	0							
		R	S. Gulph WB	0	0	0.0	NA	NA			
Henderson & Prince Frederick	Henderson SB	L	Prince Frederick EB	53							
		S	Henderson SB	847	908	47.8	D	1,571.6			
		R	Prince Frederick WB	8							
	Prince Frederick WB	S	Prince Frederick WB	20							
		L	Henderson SB	12	166	27.2	C	126.6			
		R	Henderson NB	134					2,085	34.1	C
	Prince Frederick EB	R	Henderson SB	148							
		L	Henderson NB	5	176	17.4	B	126.2			
		T	Prince Frederick EB	23							
	Henderson NB	T	Henderson NB	755							
		R	Prince Frederick EB	4	835	24.1	C	598.3			
		L	Prince Frederick WB	76							

APPENDIX C

Welsh Road & Virginia Drive Study Area Results

Welsh Road & Virginia Drive Existing Conditions Results

Table C-1: Welsh Road Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	42							
		S	Witmer NB	205	409	22.3	C	253.2			
		L	Dresher WB	162							
	Dresher WB	L	Witmer SB	268							
		R	Witmer NB	184	1,583	22.3	C	561.6			
		S	Dresher WB	1,131							
	Dresher EB	R	Witmer SB	65					2,989	24.5	C
		S	Dreher EB	355	475	25.7	C	172.1			
		L	Witmer NB	55							
	Witmer SB	S	Witmer SB	297							
		L	Dresher EB	137	522	31.8	C	413.9			
		R	Dresher WB	88							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	62							
		S	Commerce SB	231	407	45.8	D	235.2			
		R	Blair Mill WB	114							
	Blair Mill WB	R	Witmer NB	134							
		L	Witmer SB	56	688	31.7	C	674.8			
		S	Blair Mill WB	498							
	Blair Mill EB	L	Witmer NB	191					2,623	39.3	D
		S	Blair Mill EB	390	677	34.5	C	427.8			
		R	Witmer SB	96							
	Commerce NB	S	Witmer NB	473							
		R	Blair Mill EB	92	851	46.2	D	793.0			
		L	Witmer SB	286							
Welsh & Dresher	Welsh SB	S	Welsh SB	801	1,115	19.2	B	419.8			
		L	Dresher EB	314							
	Dresher WB	L	Welsh SB	599	912	32.2	C	414.8	3,355	22.2	C
		R	Welsh NB	313							
	Welsh NB	S	Welsh NB	767	1,328	17.8	B	443.7			
		R	Dresher EB	561							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	416	1,404	21.1	C	573.3			
		S	Welsh SB	988							
	Dreshertown EB	L	Welsh NB	187	446	28.7	C	228.6	3,301	19.5	B
		R	Welsh SB	259							
	Welsh NB	S	Welsh NB	1,138	1,451	15.0	B	523.5			
		L	Dreshertown WB	313							

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	419	1,768	18.9	B	514.3	3,525	19.0	B
		S	Welsh NB	1,210							
		L	Blair Mill WB	139							
	Blair Mill WB	L	Welsh SB	154	638	27.5	C	219.9			
		R	Welsh NB	357							
		S	Prudential WB	127							
	Welsh SB	S	Welsh SB	715	1,105	13.8	B	278.2			
		L	Blair Mill EB	283							
		R	Prudential WB	107							
	Prudential EB	R	Welsh SB	6	14	43.9	D	33.0			
		S	Blair Mill EB	4							
		L	Welsh NB	4							
Welsh & Computer	Welsh SB	L	Computer EB	102	823	9.6	A	221.5	3,302	15.8	B
		S	Welsh SB	721							
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	125	429	31.4	C	181.7			
		L	Welsh SB	220							
		S	Prudential WB	84							
	Welsh NB	S	Welsh NB	1,774	2,045	15.0	B	542.6			
		R	Computer EB	268							
		L	Prudential WB	3							
	Prudential EB	L	Welsh NB	0	5	48.5	D	38.1			
		S	Computer EB	3							
		R	Welsh SB	2							
Welsh & Twining	Welsh NB	L	Twining WB	155	1,503	21.4	C	474.0	3,194	22.2	C
		S	Welsh NB	1,348							
		R	Twining EB	0							
	Twining EB	R	Welsh SB	48	744	29.8	C	561.5			
		L	Welsh NB	696							
		S	Twining EB	0							
	Welsh SB	S	Welsh SB	760	947	17.4	B	360.6			
		R	Twining WB	187							
		L	Twining EB	0							
	Twining WB	L	Welsh SB	0	0	0.0	NA	NA			
		S	Twining WB	0							
		R	Welsh NB	0							
Welsh & Kimball	Welsh SB	R	Kimball WB	92	790	7.9	A	288.4	2,344	9.3	A
		S	Welsh SB	698							
	Kimball EB	L	Welsh NB	273	285	16.7	B	145.3			
		R	Welsh SB	12							
	Moreland NB	S	Welsh NB	1,240	1,269	8.6	A	391.2			
		L	Kimball WB	29							

(continued)

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	893	976	27.9	C	379.6	2,657	27.2	C
		R	Fitzwatertown EB	42							
		L	Fitzwatertown WB	41							
	Fitzwatertown WB	L	Moreland SB	86	462	33.8	C	443.4			
		R	Moreland NB	151							
		S	Fitzwaterton WB	225							
	Fitzwatertown EB	R	Moreland SB	49	510	26.3	C	376.4			
		L	Moreland NB	139							
		S	Fitzwatertown EB	322							
	Moreland SB	S	Moreland SB	525	709	22.4	C	315.0			
		L	Fitzwatertown EB	113							
		R	Fitzwaterton WB	71							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	32	1,673	29.2	C	399.0	3,753	51.8	D
		S	Easton NB	1,420							
		R	Sycamore EB	4							
		R	Mill EB	217							
	Sycamore NB	R	Easton SB	9	18	58.9	E	50.6			
		L	Easton NB	6							
		S	Sycamore NB	0							
		R	Mill EB	3							
	Easton SB	S	Easton SB	1,286	1,362	39.8	D	471.8			
		R	Sycamore SB	5							
		L	Sycamore NB	5							
		L	Mill EB	66							
	Sycamore SB	L	Easton SB	18	22	59.1	E	72.5			
		S	Sycamore SB	4							
		R	Easton NB	0							
		L	Mill EB	0							
	Mill NB	L	Easton SB	361	678	131.0	F	1,384.2			
		L	Sycamore SB	158							
		S	Easton NB	159							
		R	Sycamore NB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	47	131	35.6	D	120.5	2,381	12.9	B
		R	Easton SB	84							
	Ramp	S	Home Depot	5	44	45.8	D	93.4			
		L	Easton SB	39							
	Easton SB	R	Home Depot	40	1,669	12.4	B	549.3			
		S	Easton SB	1,629							
	Easton NB	L	Home Depot	57	537	6.0	A	110.9			
		S	Easton NB	480							

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	989	1,886	45.6	D	1,671.3	3,652	32.7	C
		S	Easton SB	897							
	Maryland EB	L	Easton NB	342	499	35.5	D	179.7			
		R	Easton SB	157							
	Easton NB	S	Easton NB	982	1,267	12.3	B	302.9			
		L	Maryland WB	285							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	16	583	33.8	C	470.9	3,012	29.6	C
		S	Fitzwatertown EB	390							
		L	Easton NB	177							
	Easton NB	L	Fitzwatertown WB	33	745	32.9	C	323.0			
		R	Fitzwatertown EB	40							
		S	Easton NB	672							
	Fitzwatertown WB	S	Fitzwatertown WB	332	705	31.2	C	471.8			
		L	Easton SB	50							
		R	Easton NB	323							
	Easton SB	R	Fitzwatertown WB	131	979	23.3	C	344.2			
		S	Easton SB	632							
		L	Fitzwatertown EB	216							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	307	1,074	20.5	C	884.4	2,346	23.8	C
		R	Village EB	18							
		S	Welsh NB	749							
	Jarrettown EB	R	Welsh SB	277	352	23.4	C	228.8			
		S	Village EB	47							
		L	Welsh NB	28							
	Village WB	S	Jarrettown WB	16	35	31.3	C	67.8			
		L	Welsh SB	11							
		R	Welsh NB	8							
	Welsh SB	R	Jarrettown WB	6	885	27.7	C	523.4			
		S	Welsh SB	827							
		L	Village EB	52							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	5	21.2	C	31.4	2,806	1.1	A
		R	Welsh SB	3							
		L	Welsh NB	2							
	Dryden WB	S	Dryden WB	0	3	20.6	C	22.9			
		L	Welsh SB	2							
		R	Welsh NB	1							
	Welsh NB	L	Dryden WB	24	1,569	1.5	A	282.2			
		R	Dryden EB	1							
		S	Welsh NB	1,544							
	Welsh SB	R	Dryden WB	127	1,229	0.5	A	121.8			
		L	Dryden EB	0							
		S	Welsh SB	1,102							

(continued)

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	7							
		S	Easton SB	1,068	1,223	32.8	C	465.9			
		R	Blair Mill WB	148							
	Blair Mill WB	R	Easton NB	1							
		L	Easton SB	170	597	38.4	D	570.4			
		S	Blair Mill WB	426							
	Easton NB	S	Easton NB	1,097					3,566	28.4	C
		R	Blair Mill EB	168	1,509	20.5	C	508.3			
		L	Blair Mill WB	244							
	Blair Mill EB	L	Easton NB	60							
		S	Blair Mill EB	117	237	31.2	C	237.4			
		R	Easton SB	60							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	77							
		S	Dresher EB	449	536	10.0	A	180.6			
		L	Gibraltar NB	10							
	Gibraltar NB	L	Dresher WB	29							
		R	Dresher EB	45	74	25.9	C	71.1			
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	1,556					2,515	6.1	A
		L	Gibraltar SB	336	1,898	4.2	A	406.0			
		R	Gibraltar NB	6							
	Gibraltar SB	R	Dresher WB	0							
		S	Gibraltar SB	2	7	24.0	C	30.2			
		L	Dresher EB	5							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	193							
		R	Gilbraltar SB	0	361	12.5	B	182.6			
		S	Blair Mill EB	168							
	Gibraltar SB	R	Blair Mill WB	64							
		S	Gilbraltar SB	0	132	13.8	B	118.6			
		L	Blair Mill EB	68							
	Gilbraltar NB	L	Blair Mill WB	0					1,312	6.7	A
		S	Gilbraltar NB	0	0	0.0	NA	NA			
		R	Blair Mill EB	0							
	Blair Mill WB	S	Blair Mill WB	541							
		R	Gilbraltar NB	274	819	3.0	A	28.0			
		L	Gilbraltar SB	4							

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	1	26	24.8	C	44.8	2,067	7.0	A
		L	Dresher WB	9							
		R	Dreher EB	16							
	Walnut Grove SB	S	Walnut Grove SB	0	9	31.4	C	31.8			
		R	Dresher WB	6							
		L	Dresher EB	3							
	Dresher EB	R	Walnut Grove SB	153	654	8.9	A	190.9			
		L	Walnut Grove NB	45							
		S	Dresher EB	456							
	Dresher WB	L	Walnut Grove SB	147	1,378	5.7	A	354.3			
		R	Walnut Grove NB	70							
		S	Dresher EB	1,161							
Dresher & Business Center	Dresher WB	R	Business Center NB	109	1,177	1.2	A	46.0	1,966	1.2	A
		S	Dresher WB	1,068							
	Business Center SB	L	Dresher WB	14	36	7.6	A	87.5			
		R	Dresher EB	22							
	Dresher EB	S	Dresher EB	638	753	0.8	A	16.1			
		L	Business Center NB	115							
Welsh & Electronic	Electronic WB	R	Welsh NB	50	110	16.3	B	74.8	2,905	3.7	A
		L	Welsh SB	60							
	Welsh SB	L	Electronic EB	70	1,248	1.1	A	12.3			
		S	Welsh SB	1,178							
	Welsh NB	R	Electronic EB	152	1,547	4.9	A	203.1			
		S	Welsh NB	1,395							
Witmer & Prudential	Prudential EB	R	Witmer SB	5	10	12.5	B	19.4	1,270	8.5	A
		L	Witmer NB	2							
		S	Prudential EB	3							
	Witmer NB	L	Prudential WB	89	630	8.2	A	262.7			
		S	Witmer NB	391							
		R	Prudential EB	150							
	Witmer SB	R	Prudential WB	29	555	7.6	A	250.3			
		S	Witmer SB	461							
		L	Prudential EB	65							
	Prudential WB	S	Prudential WB	7	75	17.9	B	62.2			
		L	Witmer SB	40							
		R	Witmer NB	28							
Maryland & Commerce	Maryland WB	R	Commerce NB	735	1,046	4.7	A	163.3	1,590	8.0	A
		S	Maryland WB	311							
	Commerce SB	R	Maryland WB	17	328	15.7	B	259.5			
		L	Maryland EB	311							
	Maryland EB	L	Commerce NB	53	216	12.3	B	114.7			
		S	Maryland EB	163							

(continued)

(continued): Welsh Road & Virginia Drive Existing Conditions Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	91							
		S	Maryland SB	0	93	8.6	A	1.7			
		L	Driveway EB	2							
	Computer EB	L	Maryland NB	121							
		R	Maryland SB	162	288	1.6	A	0.0			
		S	Driveway EB	5							
	Maryland NB	S	Maryland NB	19					744	9.3	A
		L	Computer WB	337	358	15.7	B	85.4			
		R	Driveway EB	2							
	Driveway EB	R	Maryland NB	1							
		S	Computer WB	4	5	11.8	B	69.9			
		L	Maryland SB	0							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	22	496	8.6	A	172.7			
		S	Dresher EB	474							
	Saw Mill SB	R	Dresher WB	267	319	25.1	C	283.3	2,444	7.8	A
		L	Dresher EB	52							
	Dresher WB	R	Saw Mill NB	0	1,629	4.2	A	142.4			
		S	Dreher WB	1,629							
New & Dresher	New NB	L	Drehser WB	87	87	19.9	B	101.1			
		R	Dresher EB	0							
	Dresher EB	R	New SB	0	525	1.7	A	68.0	2,153	11.1	B
		S	Dresher EB	525							
	Dresher WB	L	New SB	0	1,541	13.8	B	467.9			
		R	Dresher WB	1,541							

Table C-2: Virginia Drive Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Virginia WB	S	Virginia WB	684	1,475	35.2	D	610.6	2,404	33.5	C
		R	Office Center NB	183							
		L	Office Center SB	608							
	Office Center SB	L	Virginia EB	24	114	47.6	D	91.2			
		R	Virginia WB	62							
		S	Office Center SB	28							
	Virginia EB	S	Virginia EB	234	448	23.2	C	155.9			
		L	Office Center NB	128							
		R	Office Center SB	86							
	Office Center NB	R	Virginia EB	88	367	34.8	C	244.7			
		L	Virginia WB	205							
		S	Office Center NB	74							
Virginia & Susquehanna	Susquehanna SB	R	Virginia WB	247	729	25.4	C	192.3	2,744	31.0	C
		L	Virginia EB	191							
		S	Susquehanna SB	291							
	Susquehanna NB	L	Virginia WB	516	893	35.7	D	535.6			
		S	Susquehanna NB	347							
		R	Virginia EB	30							
	Virginia EB	L	Susquehanna NB	88	345	20.6	C	129.1			
		S	Virginia EB	171							
		R	Susquehanna SB	86							
	Virginia WB	S	Virginia WB	714	777	35.6	D	475.2			
		R	Susquehanna NB	59							
		L	Susquehanna SB	4							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	866	866	11.5	B	929.6	1,579	15.3	B
	Limekiln WB	L	Susquehanna SB	332	332	36.8	D	169.0			
	Susquehanna SB	S	Susquehanna SB	381	381	5.2	A	147.4			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	175	337	26.7	C	229.4	1,842	34.9	C
		R	Dreshertown EB	148							
		L	Virginia WB	14							
	Dreshertown WB	R	Limekiln NB	4	669	40.3	D	745.7			
		L	Limekiln SB	100							
		S	Virginia WB	565							
	Virginia EB	L	Limekiln NB	58	356	15.2	B	278.9			
		R	Limekiln SB	16							
		S	Dreshertown EB	282							
	Limekiln SB	S	Limekiln SB	239	480	47.7	D	487.7			
		L	Dreshertown EB	30							
		R	Virginia WB	211							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	51	738	16.6	B	578.4	2,041	20.4	C
		S	Susquehanna NB	687							
	EB Limekiln	R	Susquehanna SB	79	590	36.7	D	619.4			
		L	Susquehanna NB	511							
	Susquehanna SB	S	Susquehanna SB	378	713	10.9	B	257.6			
		R	Limekiln WB	335							

(continued)

Table C-2 (continued): Virginia Drive Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Twining	Susquehanna NB	R	Twining EB	24	518	44.4	D	611.5	1,921	24.2	C
		L	Twining WB	28							
		S	Susquehanna NB	466							
	Twining WB	L	Susquehanna SB	24	512	14.9	B	300.2			
		S	Twining WB	237							
		R	Susquehanna NB	251							
	Twining EB	R	Susquehanna SB	25	436	16.3	B	236.4			
		S	Twining EB	395							
		L	Susquehanna NB	16							
	Susquehanna SB	S	Susquehanna SB	366	455	19.2	B	329.8			
		L	Twining EB	79							
		R	Twining WB	10							
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	84	415	31.6	C	574.5	1,893	31.2	C
		R	Fitzwatertown WB	15							
		S	Susquehanna SB	316							
	Fitzwatertown WB	R	Susquehanna SB	75	478	26.2	C	428.1			
		S	Fitzwatertown WB	349							
		L	Susquehanna NB	54							
	Susquehanna NB	S	Susquehanna NB	424	571	41.1	D	805.8			
		R	Fitzwatertown EB	52							
		L	Fitzwatertown WB	95							
	Fitzwatertown EB	L	Susquehanna NB	20	429	23.1	C	336.7			
		S	Fitzwatertown EB	386							
		R	Susquehanna SB	23							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	5	45	37.7	D	81.9	1,269	20.2	C
		HL	North Hills NEB	24							
		R	Fitzwatertown WB	7							
		L	Fitzwatertown EB	9							
	Woodland NB	S	Woodland NB	23	174	30.1	C	182.5			
		BR	North Hills NEB	81							
		L	Fitzwatertown WB	54							
		R	Fitzwatertown EB	16							
	North Hills SWB	HR	Woodland NB	7	139	31.5	C	153.5			
		BL	Woodland SB	25							
		BR	Fitzwatertown WB	105							
		HL	Fitzwatertown EB	2							
	Fitzwatertown EB	L	Woodland NB	5	581	15.0	B	357.1			
		R	Woodland SB	53							
		BL	North Hills NEB	201							
		S	Fitzwatertown EB	322							
	Fitzwatertown WB	R	Woodland NB	5	330	16.9	B	225.7			
		L	Woodland SB	12							
		HR	North Hills NEB	1							
		S	Fitzwatertown WB	312							

Table C-2 (continued): Virginia Drive Existing Conditions AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	99	492	22.2	C	437.8	1,330	17.4	B
		L	Old Welsh WB	18							
		S	Fitzwatertown NB	375							
	Old Welsh WB	L	Fitzwatertown SB	66	324	17.1	B	204.8			
		S	Old Welsh WB	115							
		R	Fitzwatertown NB	143							
	Old Welsh EB	R	Fitzwatertown SB	16	95	21.5	C	88.4			
		S	Old Welsh EB	69							
		L	Fitzwatertown NB	10							
	Fitzwatertown SB	S	Fitzwatertown SB	333	419	11.2	B	216.9			
		L	Old Welsh EB	79							
		R	Old Welsh WB	7							
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	58	320	18.5	B	217.0	1,730	13.8	B
		R	Susquehanna SB	262							
	Susquehanna SB	R	Camp Hill WB	39	956	13.5	B	338.5			
		S	Susquehanna SB	917							
	Susquehanna NB	L	Camp Hill WB	71	454	11.1	B	362.3			
		S	Susquehanna NB	383							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	137	274	22.9	C	247.7	1,925	37.9	D
		R	Susquehanna SB	98							
		L	Susquehanna NB	39							
	Broad WB	S	Pinetown WB	276	413	24.9	C	356.4			
		L	Susquehanna SB	90							
		R	Susquehanna NB	47							
	Susquehanna SB	R	Pinetown WB	39	814	58.5	E	934.7			
		L	Broad EB	72							
		S	Susquehanna SB	703							
	Susquehanna NB	L	Pinetown WB	70	424	21.0	C	327.0			
		R	Broad EB	16							
		S	Susquehanna NB	338							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	359	638	13.4	B	270.4	1,378	20.3	C
		L	Jarrettown EB	279							
		R	Private Drive WB	0							
	Private Drive EB	L	Limekiln NB	0	2	5.3	A	39.9			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	309	466	28.6	C	377.5			
		L	Limekiln SB	155							
		S	Private Drive WB	2							
	Limekiln NB	S	Limekiln NB	190	272	22.5	C	241.5			
		R	Jarrettown EB	82							
		L	Private Drive WB	0							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	1	612	7.0	A	262.2	1,220	7.5	A
		R	Bantry WB	1							
		S	Dreshertown SB	610							
	Beacon Hill WB	R	Dreshertown NB	23	75	10.3	B	106.1			
		S	Bantry WB	4							
		L	Dreshertown SB	48							
	Bantry EB	L	Dreshertown NB	11	64	9.4	A	63.8			
		S	Beacon Hill EB	23							
		R	Dreshertown SB	30							
	Dreshertown NB	S	Dreshertown NB	448	469	7.3	A	145.1			
		R	Beacon Hill EB	11							
		L	Bantry WB	10							

Table C-3: Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	375	858	27.0	C	509.4	3,257	30.0	C
		S	Witmer NB	337							
		L	Dresher WB	146							
	Dresher WB	L	Witmer SB	83	714	24.7	C	277.8			
		R	Witmer NB	121							
		S	Dresher WB	510							
	Dresher EB	R	Witmer SB	118	1,161	38.6	D	566.5			
		S	Dreher EB	982							
		L	Witmer NB	61							
	Witmer SB	S	Witmer SB	227	524	22.7	C	337.4			
		L	Dresher EB	238							
		R	Dresher WB	59							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	105	705	44.9	D	533.6	2,393	29.9	C
		S	Commerce SB	442							
		R	Blair Mill WB	158							
	Blair Mill WB	R	Witmer NB	55	593	21.8	C	480.0			
		L	Witmer SB	122							
		S	Blair Mill WB	416							
	Blair Mill EB	L	Witmer NB	132	771	21.6	C	510.9			
		S	Blair Mill EB	473							
		R	Witmer SB	166							
	Commerce NB	S	Witmer NB	275	324	31.9	C	296.2			
		R	Blair Mill EB	13							
		L	Witmer SB	36							
Welsh & Dresher	Welsh SB	S	Welsh SB	660	933	24.7	C	318.8	3,370	28.4	C
		L	Dresher EB	273							
	Dresher WB	L	Welsh SB	783	1,125	39.5	D	526.3			
		R	Welsh NB	342							
	Welsh NB	S	Welsh NB	765	1,312	21.6	C	510.0			
		R	Dresher EB	547							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	466	1,439	27.4	C	587.1	3,527	29.9	C
		S	Welsh SB	973							
	Dreshertown EB	L	Welsh NB	360	744	54.9	D	847.1			
		R	Welsh SB	384							
	Welsh NB	S	Welsh NB	953	1,344	18.8	B	439.0			
		L	Dreshertown WB	391							

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	208	1,054	30.1	C	417.1	3,636	30.7	C
		S	Welsh NB	832							
		L	Blair Mill WB	14							
	Blair Mill WB	L	Welsh SB	499	866	32.1	C	259.0			
		R	Welsh NB	349							
		S	Prudential WB	18							
	Welsh SB	S	Welsh SB	1,025	1,401	26.7	C	435.2			
		L	Blair Mill EB	367							
		R	Prudential WB	9							
	Prudential EB	R	Welsh SB	76	315	46.6	D	143.8			
		S	Blair Mill EB	118							
		L	Welsh NB	121							
Welsh & Computer	Welsh SB	L	Computer EB	133	1,587	52.0	D	1,082.9	3,683	45.7	D
		S	Welsh SB	1,454							
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	64	652	69.8	E	891.3			
		L	Welsh SB	586							
		S	Prudential WB	2							
	Welsh NB	S	Welsh NB	1,046	1,313	23.7	C	535.7			
		R	Computer EB	267							
		L	Prudential WB	0							
	Prudential EB	L	Welsh NB	1	131	71.2	E	194.7			
		S	Computer EB	51							
		R	Welsh SB	79							
Welsh & Twining	Welsh NB	L	Twining WB	68	1,084	15.9	B	297.4	3,698	26.2	C
		S	Welsh NB	1,009							
		R	Twining EB	7							
	Twining EB	R	Welsh SB	197	491	42.5	D	202.3			
		L	Welsh NB	293							
		S	Twining EB	1							
	Welsh SB	S	Welsh SB	1,614	2,113	27.6	C	571.5			
		R	Twining WB	497							
		L	Twining EB	2							
	Twining WB	L	Welsh SB	4	10	53.0	D	44.4			
		S	Twining WB	1							
		R	Welsh NB	5							
Welsh & Kimball	Welsh SB	R	Kimball WB	377	1,810	10.9	B	582.2	2,883	10.9	B
		S	Welsh SB	1,433							
	Kimball EB	L	Welsh NB	194	218	28.4	C	190.4			
		R	Welsh SB	24							
	Moreland NB	S	Welsh NB	831	855	6.4	A	238.4			
		L	Kimball WB	24							

(continued)

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	631							
		R	Fitzwatertown EB	79	792	28.9	C	316.2			
		L	Fitzwatertown WB	82							
	Fitzwatertown WB	L	Moreland SB	104							
		R	Moreland NB	106	533	35.6	D	509.6			
		S	Fitzwaterton WB	323							
	Fitzwatertown EB	R	Moreland SB	60					3,166	32.1	C
		L	Moreland NB	117	450	27.9	C	332.9			
		S	Fitzwatertown EB	273							
	Moreland SB	S	Moreland SB	1,061							
		L	Fitzwatertown EB	178	1,391	33.9	C	687.4			
		R	Fitzwaterton WB	152							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	21							
		S	Easton NB	1,833	2,385	21.0	C	464.6			
		R	Sycamore EB	23							
		R	Mill EB	508							
	Sycamore NB	R	Easton SB	14							
		L	Easton NB	6	62	52.2	D	112.7			
		S	Sycamore NB	4							
		R	Mill EB	38							
	Easton SB	S	Easton SB	1,374							
		R	Sycamore SB	6	1,489	35.2	D	523.4	4,328	46.3	D
		L	Sycamore NB	3							
		L	Mill EB	106							
	Sycamore SB	L	Easton SB	19							
		S	Sycamore SB	2	21	54.3	D	70.7			
		R	Easton NB	0							
		L	Mill EB	0							
	Mill NB	L	Easton SB	266							
		L	Sycamore SB	14	371	252.5	F	1,363.1			
		S	Easton NB	90							
		R	Sycamore NB	1							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	62	156	37.0	D	131.9			
		R	Easton SB	94							
	Ramp	S	Home Depot	5	34	36.4	D	69.2			
		L	Easton SB	29							
	Easton SB	R	Home Depot	62	1,665	24.7	C	656.1	2,677	19.7	B
		S	Easton SB	1,603							
	Easton NB	L	Home Depot	71	822	5.6	A	258.6			
		S	Easton NB	751							

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	399	1,477	19.5	B	427.3	3,827	20.2	C
		S	Easton SB	1,078							
	Maryland EB	L	Easton NB	860	1,100	26.8	C	401.5			
		R	Easton SB	240							
	Easton NB	S	Easton NB	1,155	1,250	15.3	B	420.0			
		L	Maryland WB	95							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	24	565	40.7	D	558.4	3,341	33.4	C
		S	Fitzwatertown EB	364							
		L	Easton NB	177							
	Easton NB	L	Fitzwatertown WB	15	819	39.3	D	400.6			
		R	Fitzwatertown EB	44							
		S	Easton NB	760							
	Fitzwatertown WB	S	Fitzwatertown WB	310	686	32.3	C	482.3			
		L	Easton SB	86							
		R	Easton NB	290							
	Easton SB	R	Fitzwatertown WB	183	1,271	27.0	C	437.5			
		S	Easton SB	713							
		L	Fitzwatertown EB	375							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	256	1,108	23.6	C	958.4	2,204	23.5	C
		R	Village EB	11							
		S	Welsh NB	841							
	Jarrettown EB	R	Welsh SB	239	272	18.5	B	195.2			
		S	Village EB	14							
		L	Welsh NB	19							
	Village WB	S	Jarrettown WB	64	181	29.4	C	206.2			
		L	Welsh SB	92							
		R	Welsh NB	25							
	Welsh SB	R	Jarrettown WB	21	643	24.0	C	434.1			
		S	Welsh SB	602							
		L	Village EB	20							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	164	26.9	C	102.5	2,876	6.8	A
		R	Welsh SB	39							
		L	Welsh NB	125							
	Dryden WB	S	Dryden WB	0	13	22.7	C	38.2			
		L	Welsh SB	8							
		R	Welsh NB	5							
	Welsh NB	L	Dryden WB	7	1,300	6.2	A	406.0			
		R	Dryden EB	2							
		S	Welsh NB	1,291							
	Welsh SB	R	Dryden WB	0	1,399	4.8	A	311.1			
		L	Dryden EB	0							
		S	Welsh SB	1,399							

(continued)

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	19							
		S	Easton SB	1,077	1,145	27.4	C	483.1			
		R	Blair Mill WB	49							
	Blair Mill WB	R	Easton NB	18							
		L	Easton SB	215	413	50.3	D	455.4			
		S	Blair Mill WB	180							
	Easton NB	S	Easton NB	1,180					3,895	28.7	C
		R	Blair Mill EB	418	1,708	17.3	B	511.8			
		L	Blair Mill WB	110							
	Blair Mill EB	L	Easton NB	173							
		S	Blair Mill EB	274	629	47.7	D	674.1			
		R	Easton SB	182							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	23							
		S	Dresher EB	1,570	1,593	14.9	B	474.3			
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	58							
		R	Dresher EB	304	362	24.7	C	280.3			
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	655					2,651	14.4	B
		L	Gibraltar SB	36	691	7.7	A	199.3			
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	3							
		S	Gibraltar SB	0	5	22.1	C	24.6			
		L	Dresher EB	2							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	13							
		R	Gilbraltar SB	0	474	1.9	A	115.7			
		S	Blair Mill EB	461							
	Gibraltar SB	R	Blair Mill WB	210							
		S	Gilbraltar SB	0	380	21.6	C	356.7			
		L	Blair Mill EB	170							
	Gilbraltar NB	L	Blair Mill WB	0					1,196	7.9	A
		S	Gilbraltar NB	0	2	0.6	A	0.0			
		R	Blair Mill EB	2							
	Blair Mill WB	S	Blair Mill WB	271							
		R	Gilbraltar NB	69	340	1.1	A	0.0			
		L	Gilbraltar SB	0							

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0							
		L	Dresher WB	156	332	19.5	B	217.3			
		R	Dreher EB	176							
	Walnut Grove SB	S	Walnut Grove SB	3							
		R	Dresher WB	71	125	16.9	B	86.3			
		L	Dresher EB	51							
	Dresher EB	R	Walnut Grove SB	13					2,123	11.8	B
		L	Walnut Grove NB	0	951	11.4	B	256.2			
		S	Dresher EB	938							
	Dresher WB	L	Walnut Grove SB	13							
		R	Walnut Grove NB	0	715	7.9	A	239.7			
		S	Dresher EB	702							
Dresher & Business Center	Dresher WB	R	Business Center NB	42	931	0.3	A	0.0			
		S	Dresher WB	889							
	Business Center SB	L	Dresher WB	41	190	9.9	A	127.6	2,059	1.2	A
		R	Dresher EB	149							
	Dresher EB	S	Dresher EB	907	938	0.4	A	1.8			
		L	Business Center NB	31							
Welsh & Electronic	Electronic WB	R	Welsh NB	82	217	20.4	C	130.0			
		L	Welsh SB	135							
	Welsh SB	L	Electronic EB	90	1,356	1.4	A	31.5	2,999	4.2	A
		S	Welsh SB	1,266							
	Welsh NB	R	Electronic EB	164	1,426	4.4	A	149.5			
		S	Welsh NB	1,262							
Witmer & Prudential	Prudential EB	R	Witmer SB	72							
		L	Witmer NB	76	154	16.5	B	85.4			
		S	Prudential EB	6							
	Witmer NB	L	Prudential WB	12							
		S	Witmer NB	524	571	15.9	B	376.7			
		R	Prudential EB	35							
	Witmer SB	R	Prudential WB	0					1,422	14.5	B
		S	Witmer SB	359	428	10.0	A	213.4			
		L	Prudential EB	69							
	Prudential WB	S	Prudential WB	11							
		L	Witmer SB	100	269	17.5	B	134.9			
		R	Witmer NB	158							
Maryland & Commerce	Maryland WB	R	Commerce NB	204	451	7.2	A	109.7			
		S	Maryland WB	247							
	Commerce SB	R	Maryland WB	29	472	20.4	C	368.0	1,367	13.8	B
		L	Maryland EB	443							
	Maryland EB	L	Commerce NB	0	444	13.5	B	273.6			
		S	Maryland EB	444							

(continued)

Table C-3 (continued): Welsh Road Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	175							
		S	Maryland SB	37	216	9.7	A	22.5			
		L	Driveway EB	4							
	Computer EB	L	Maryland NB	101							
		R	Maryland SB	331	440	14.5	B	110.8			
		S	Driveway EB	8							
	Maryland NB	S	Maryland NB	0					858	12.8	B
		L	Computer WB	189	189	12.4	B	20.1			
		R	Driveway EB	0							
	Driveway EB	R	Maryland NB	1							
		S	Computer WB	9	13	12.5	B	84.7			
		L	Maryland SB	3							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	388	1,876	6.2	A	490.1			
		S	Dresher EB	1,488							
	Saw Mill SB	R	Dresher WB	69	124	49.3	D	194.0	2,643	7.4	A
		L	Dresher EB	55							
	Dresher WB	R	Saw Mill NB	23	643	2.6	A	80.3			
		S	Dreher WB	620							
New & Dresher	New NB	L	Drehser WB	21	21	50.3	D	62.7			
		R	Dresher EB	0							
	Dresher EB	R	New SB	145	1,544	1.9	A	187.1	2,187	4.6	A
		S	Dresher EB	1,399							
	Dresher WB	L	New SB	0	622	9.6	A	191.3			
		R	Dresher WB	622							

Table C-4: Virginia Drive Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Virginia WB	S	Virginia WB	209	664	49.4	D	637.1	2,538	36.6	D
		R	Office Center NB	20							
		L	Office Center SB	435							
	Office Center SB	L	Virginia EB	368	667	37.0	D	324.3			
		R	Virginia WB	82							
		S	Office Center SB	217							
	Virginia EB	S	Virginia EB	830	999	30.6	C	413.2			
		L	Office Center NB	17							
		R	Office Center SB	152							
	Office Center NB	R	Virginia EB	151	208	23.4	C	235.3			
		L	Virginia WB	41							
		S	Office Center NB	16							
Virginia & Susquehanna	Susquehanna SB	R	Virginia WB	78	706	73.9	E	635.8	3,155	38.3	D
		L	Virginia EB	152							
		S	Susquehanna SB	476							
	Susquehanna NB	L	Virginia WB	175	557	33.6	C	344.9			
		S	Susquehanna NB	357							
		R	Virginia EB	25							
	Virginia EB	L	Susquehanna NB	186	1,345	26.3	C	392.6			
		S	Virginia EB	551							
		R	Susquehanna SB	608							
	Virginia WB	S	Virginia WB	408	547	26.4	C	297.4			
		R	Susquehanna NB	124							
		L	Susquehanna SB	15							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	525	525	12.6	B	601.8	2,076	17.2	B
	Limekiln WB	L	Susquehanna SB	453	453	32.8	C	275.6			
	Susquehanna SB	S	Susquehanna SB	1,098	1,098	12.9	B	414.1			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	303	492	45.2	D	570.8	2,246	59.6	E
		R	Dreshertown EB	181							
		L	Virginia WB	8							
	Dreshertown WB	R	Limekiln NB	12	790	39.0	D	1,107.8			
		L	Limekiln SB	303							
		S	Virginia WB	475							
	Virginia EB	L	Limekiln NB	203	725	21.9	C	447.8			
		R	Limekiln SB	45							
		S	Dreshertown EB	477							
	Limekiln SB	S	Limekiln SB	149	239	271.8	F	1,671.3			
		L	Dreshertown EB	43							
		R	Virginia WB	47							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	112	697	21.3	C	529.3	2,953	23.0	C
		S	Susquehanna NB	585							
	EB Limekiln	R	Susquehanna SB	257	717	29.7	C	482.6			
		L	Susquehanna NB	460							
	Susquehanna SB	S	Susquehanna SB	764	1,539	20.7	C	817.5			
		R	Limekiln WB	775							

(continued)

Table C-4 (continued): Virginia Drive Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Twining	Twining WB	L	Twining EB	32	623	21.1	C	522.0	2,645	53.1	D
		S	Twining WB	403							
		R	Susquehanna NB	188							
	Susquehanna SB	S	Susquehanna SB	736	1,010	44.5	D	1,573.9			
		L	Twining WB	261							
		R	Susquehanna NB	13							
	Twining EB	R	Susquehanna SB	125	484	24.0	C	355.8			
		S	Twining EB	330							
		L	Susquehanna NB	29							
	Susquehanna NB	R	Susquehanna SB	20	528	133.9	F	1,665.7			
		L	Twining EB	32							
		S	Twining WB	476							
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	236	888	51.5	D	1,653.4	2,340	74.2	E
		R	Fitzwatertown WB	17							
		S	Susquehanna SB	635							
	Fitzwatertown WB	R	Susquehanna SB	142	547	112.8	F	1,668.2			
		S	Fitzwatertown WB	347							
		L	Susquehanna NB	58							
	Susquehanna NB	S	Susquehanna NB	396	442	106.7	F	1,554.9			
		R	Fitzwatertown EB	37							
		L	Fitzwatertown WB	9							
	Fitzwatertown EB	L	Susquehanna NB	29	463	41.0	D	519.4			
		S	Fitzwatertown EB	407							
		R	Susquehanna SB	27							
Fitzwatertown & North Hills & Woodland	Fitzwatertown WB	R	Woodland SB	15	406	52.4	D	763.8	1,631	36.5	D
		L	North Hills NEB	31							
		HR	Fitzwatertown WB	0							
		S	Fitzwatertown EB	360							
	Woodland SB	S	Woodland NB	21	91	44.4	D	125.7			
		HL	North Hills NEB	18							
		R	Fitzwatertown WB	5							
		L	Fitzwatertown EB	47							
	Woodland NB	S	Woodland NB	7	123	42.5	D	154.7			
		BR	Woodland SB	44							
		L	Fitzwatertown WB	51							
		R	Fitzwatertown EB	21							
	North Hills SWB	HR	Woodland NB	12	283	49.8	D	342.9			
		BL	Woodland SB	69							
		BR	North Hills NEB	202							
		HL	Fitzwatertown EB	0							
	Fitzwatertown EB	L	Woodland NB	0	728	20.5	C	650.6			
		R	Woodland SB	58							
		BL	North Hills NEB	102							
		S	Fitzwatertown WB	568							

Table C-4 (continued): Virginia Drive Existing Conditions PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	173	592	78.2	E	1,531.9	1,794	39.4	D
		L	Old Welsh WB	13							
		S	Fitzwatertown NB	406							
	Old Welsh WB	L	Fitzwatertown SB	157	437	19.7	B	287.7			
		S	Old Welsh WB	130							
		R	Fitzwatertown NB	150							
	Old Welsh EB	R	Fitzwatertown SB	14	201	30.0	C	188.3			
		S	Old Welsh EB	181							
		L	Fitzwatertown NB	6							
	Fitzwatertown SB	S	Fitzwatertown SB	391	564	17.1	B	358.9			
		L	Old Welsh EB	159							
		R	Old Welsh WB	14							
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	321	516	21.0	C	252.5	1,925	19.3	B
		R	Susquehanna SB	195							
	Susquehanna SB	R	Camp Hill WB	49	693	15.5	B	281.9			
		S	Susquehanna SB	644							
	Susquehanna NB	L	Camp Hill WB	176	716	21.7	C	804.8			
		S	Susquehanna NB	540							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	256	409	31.0	C	394.4	2,221	38.4	D
		R	Susquehanna SB	76							
		L	Susquehanna NB	77							
	Broad WB	S	Pinetown WB	188	340	28.1	C	327.5			
		L	Susquehanna SB	36							
		R	Susquehanna NB	116							
	Susquehanna SB	R	Pinetown WB	26	664	41.4	D	822.6			
		L	Broad EB	89							
		S	Susquehanna SB	549							
	Susquehanna NB	L	Pinetown WB	84	808	44.0	D	1,526.3			
		R	Broad EB	35							
		S	Susquehanna NB	689							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	315	632	20.1	C	483.6	1,590	31.3	C
		L	Jarrettown EB	303							
		R	Private Drive WB	14							
	Private Drive EB	L	Limekiln NB	2	4	-0.7	F	0.0			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	339	416	38.3	D	435.7			
		L	Limekiln SB	70							
		S	Private Drive WB	7							
	Limekiln NB	S	Limekiln NB	387	538	39.1	D	890.1			
		R	Jarrettown EB	144							
		L	Private Drive WB	7							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	6	789	4.6	A	330.0	1,584	5.1	A
		R	Bantry WB	10							
		S	Dreshertown SB	773							
	Beacon Hill WB	R	Dreshertown NB	5	36	0.2	A	12.5			
		S	Bantry WB	3							
		L	Dreshertown SB	28							
	Bantry EB	L	Dreshertown NB	9	40	8.8	A	52.4			
		S	Beacon Hill EB	4							
		R	Dreshertown SB	27							
	Dreshertown NB	S	Dreshertown NB	637	719	5.7	A	187.7			
		R	Beacon Hill EB	62							
		L	Bantry WB	20							

Welsh Road & Virginia Drive No Build Scenario Results

Table C-5: Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	45							
		S	Witmer NB	221	438	21.3	C	287.0			
		L	Dresher WB	172							
	Dresher WB	L	Witmer SB	284							
		R	Witmer NB	198	1,668	20.7	C	603.7			
		S	Dresher WB	1,186							
	Dresher EB	R	Witmer SB	137					3,200	23.1	C
		S	Dreher EB	393	586	24.1	C	193.9			
		L	Witmer NB	56							
	Witmer SB	S	Witmer SB	288							
		L	Dresher EB	134	508	31.2	C	388.5			
		R	Dresher WB	86							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	68							
		S	Commerce SB	254	454	50.2	D	242.8			
		R	Blair Mill WB	132							
	Blair Mill WB	R	Witmer NB	133							
		L	Witmer SB	60	754	33.9	C	844.6			
		S	Blair Mill WB	561							
	Blair Mill EB	L	Witmer NB	235					2,806	57.9	E
		S	Blair Mill EB	448	787	87.9	F	919.1			
		R	Witmer SB	104							
	Commerce NB	S	Witmer NB	416							
		R	Blair Mill EB	101	811	55.4	E	861.8			
		L	Witmer SB	294							
Welsh & Dresher	Welsh SB	S	Welsh SB	897	1,246	33.2	C	758.1			
		L	Dresher EB	349							
	Dresher WB	L	Welsh SB	628	966	60.0	E	582.3	3,587	53.8	D
		R	Welsh NB	338							
	Welsh NB	S	Welsh NB	710	1,375	68.2	E	590.1			
		R	Dresher EB	665							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	441	1,527	19.9	B	582.6			
		S	Welsh SB	1,086							
	Dreshertown EB	L	Welsh NB	204	494	57.1	E	289.7	3,512	43.9	D
		R	Welsh SB	290							
	Welsh NB	S	Welsh NB	1,183	1,491	64.1	E	655.6			
		L	Dreshertown WB	308							

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	514							
		S	Welsh NB	1,348	2,001	68.3	E	1,126.2			
		L	Blair Mill WB	139							
	Blair Mill WB	L	Welsh SB	159							
		R	Welsh NB	375	651	103.4	F	1,087.7			
		S	Prudential WB	117							
	Welsh SB	S	Welsh SB	783					3,879	57.9	E
		L	Blair Mill EB	317	1,212	16.2	B	293.3			
		R	Prudential WB	112							
	Prudential EB	R	Welsh SB	6							
		S	Blair Mill EB	5	15	54.4	D	32.4			
		L	Welsh NB	4							
Welsh & Computer	Welsh SB	L	Computer EB	114							
		S	Welsh SB	775	889	10.6	B	221.2			
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	138							
		L	Welsh SB	249	477	44.1	D	212.0			
		S	Prudential WB	90							
	Welsh NB	S	Welsh NB	2,070					3,676	20.8	C
		R	Computer EB	232	2,305	19.9	B	553.4			
		L	Prudential WB	3							
	Prudential EB	L	Welsh NB	0							
		S	Computer EB	3		54.4	D	36.5			
		R	Welsh SB	2							
Welsh & Twining	Welsh NB	L	Twining WB	158							
		S	Welsh NB	1,393	1,551	49.9	D	896.6			
		R	Twining EB	0							
	Twining EB	R	Welsh SB	64							
		L	Welsh NB	913	977	111.4	F	1,668.4			
		S	Twining EB	0							
	Welsh SB	S	Welsh SB	820					3,577	57.1	E
		R	Twining WB	209	1,029	17.0	B	400.7			
		L	Twining EB	0							
	Twining WB	L	Welsh SB	11							
		S	Twining WB	2	20	26.9	C	43.6			
		R	Welsh NB	7							
Welsh & Kimball	Welsh SB	R	Kimball WB	101	877	7.4	A	300.5			
		S	Welsh SB	776							
	Kimball EB	L	Welsh NB	310	325	23.1	C	197.9	2,503	13.7	B
		R	Welsh SB	15							
	Moreland NB	S	Welsh NB	1,271	1,301	15.6	B	507.8			
		L	Kimball WB	30							

(continued)

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	932	1,019	28.0	C	449.8	2,822	25.9	C
		R	Fitzwatertown EB	44							
		L	Fitzwatertown WB	43							
	Fitzwatertown WB	L	Moreland SB	85	470	31.1	C	433.5			
		R	Moreland NB	149							
		S	Fitzwaterton WB	236							
	Fitzwatertown EB	R	Moreland SB	52	543	22.9	C	347.5			
		L	Moreland NB	146							
		S	Fitzwatertown EB	345							
	Moreland SB	S	Moreland SB	590	790	22.3	C	324.8			
		L	Fitzwatertown EB	124							
		R	Fitzwaterton WB	76							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	37	1,872	29.4	C	428.4	4,211	35.7	D
		S	Easton NB	1,586							
		R	Sycamore EB	3							
		HR	Mill SEB	246							
	Sycamore EB	R	Easton SB	8	17	54.3	D	55.4			
		L	Easton NB	6							
		S	Sycamore EB	0							
		BR	Mill SEB	3							
	Easton SB	S	Easton SB	1,330	1,411	33.9	C	469.7			
		R	Sycamore WB	5							
		L	Sycamore EB	5							
		BL	Mill SEB	71							
	Sycamore WB	L	Easton SB	18	22	51.6	D	64.4			
		S	Sycamore WB	4							
		R	Easton NB	0							
		HL	Mill SEB	0							
	Mill NWB	HL	Easton SB	475	889	51.0	D	1,194.7			
		BL	Sycamore WB	206							
		BR	Easton NB	208							
		HR	Sycamore EB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	50	141	62.7	E	168.8	2,616	13.7	B
		R	Easton SB	91							
	Ramp	S	Home Depot	6	47	66.9	E	112.1			
		L	Easton SB	41							
	Easton SB	R	Home Depot	42	1,835	9.9	A	510.8			
		S	Easton SB	1,793							
	Easton NB	L	Home Depot	61	593	9.7	A	121.2			
		S	Easton NB	532							

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	1,043	2,015	39.5	D	1,669.2	3,950	31.0	C
		S	Easton SB	972							
	Maryland EB	L	Easton NB	388	565	44.0	D	217.3			
		R	Easton SB	177							
	Easton NB	S	Easton NB	1,078	1,370	13.2	B	338.6			
		L	Maryland WB	292							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	17	642	44.7	D	685.1	3,259	31.9	C
		S	Fitzwatertown EB	437							
		L	Easton NB	188							
	Easton NB	L	Fitzwatertown WB	38	852	29.2	C	366.5			
		R	Fitzwatertown EB	45							
		S	Easton NB	769							
	Fitzwatertown WB	S	Fitzwatertown WB	328	697	38.1	D	533.8			
		L	Easton SB	49							
		R	Easton NB	320							
	Easton SB	R	Fitzwatertown WB	144	1,068	22.4	C	353.7			
		S	Easton SB	685							
		L	Fitzwatertown EB	239							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	304	1,032	55.9	E	1,110.7	2,457	113.1	F
		R	Village EB	17							
		S	Welsh NB	711							
	Jarrettown EB	R	Welsh SB	308	392	37.8	D	322.2			
		S	Village EB	53							
		L	Welsh NB	31							
	Village WB	S	Jarrettown WB	16	35	44.8	D	83.9			
		L	Welsh SB	11							
		R	Welsh NB	8							
	Welsh SB	R	Jarrettown WB	7	998	204.1	F	1,619.0			
		S	Welsh SB	933							
		L	Village EB	58							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	5	61.7	E	34.6	3,018	40.9	D
		R	Welsh SB	3							
		L	Welsh NB	2							
	Dryden WB	S	Dryden WB	0	3	73.0	E	22.9			
		L	Welsh SB	2							
		R	Welsh NB	1							
	Welsh NB	L	Dryden WB	21	1,660	73.5	E	1,289.2			
		R	Dryden EB	1							
		S	Welsh NB	1,638							
	Welsh SB	R	Dryden WB	143	1,350	0.6	A	130.5			
		L	Dryden EB	0							
		S	Welsh SB	1,207							

(continued)

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	7	1,259	29.4	C	430.8	3,835	28.5	C
		S	Easton SB	1,100							
		R	Blair Mill WB	152							
	Blair Mill WB	R	Easton NB	1	565	46.1	D	599.3			
		L	Easton SB	162							
		S	Blair Mill WB	402							
	Easton NB	S	Easton NB	1,266	1,724	20.9	C	566.8			
		R	Blair Mill EB	183							
		L	Blair Mill WB	275							
	Blair Mill EB	L	Easton NB	67	287	35.3	D	256.2			
		S	Blair Mill EB	132							
		R	Easton SB	88							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	79	574	12.6	B	210.5	2,671	7.7	A
		S	Dresher EB	485							
		L	Gibraltar NB	10							
	Gibraltar NB	L	Dresher WB	40	98	25.5	C	88.0			
		R	Dresher EB	58							
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	1,630	1,992	5.4	A	418.4			
		L	Gibraltar SB	356							
		R	Gibraltar NB	6							
	Gibraltar SB	R	Dresher WB	0	7	8.5	A	0.0			
		S	Gibraltar SB	2							
		L	Dresher EB	5							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	235	420	16.6	B	261.2	1,440	13.7	B
		R	Gilbraltar SB	0							
		S	Blair Mill EB	185							
	Gibraltar NB	L	Blair Mill WB	0	0	0.0	NA	NA			
		S	Gilbraltar NB	0							
		R	Blair Mill EB	0							
	Gilbraltar SB	R	Blair Mill WB	89	190	23.8	C	119.9			
		S	Gilbraltar SB	0							
		L	Blair Mill EB	101							
	Blair Mill WB	S	Blair Mill WB	545	830	9.9	A	293.9			
		R	Gilbraltar NB	281							
		L	Gilbraltar SB	4							

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	1							
		L	Dresher WB	11	31	17.6	B	40.4			
		R	Dreher EB	19							
	Walnut Grove SB	S	Walnut Grove SB	0							
		R	Dresher WB	6	9	19.8	B	31.8			
		L	Dresher EB	3							
	Dresher EB	R	Walnut Grove SB	182					2,284	4.5	A
		L	Walnut Grove NB	54	802	5.9	A	188.8			
		S	Dresher EB	566							
	Dresher WB	L	Walnut Grove SB	152							
		R	Walnut Grove NB	73	1,442	3.4	A	278.1			
		S	Dresher EB	1,217							
Dresher & Business Center	Dresher WB	R	Business Center NB	116	1,240	4.8	A	324.5			
		S	Dresher WB	1,124							
	Dresher EB	S	Dresher EB	786	890	1.9	A	102.7	2,166	3.8	A
		L	Business Center NB	104							
	Business Center SB	L	Dresher EB	14	36	15.2	B	45.2			
		R	Dresher WB	22							
Welsh & Electronic	Electronic WB	R	Welsh NB	52	110	115.9	f	264.4			
		L	Welsh SB	58							
	Welsh SB	L	Electronic EB	78	1,376	2.2	a	103.7	3,110	23.6	c
		S	Welsh SB	1,298							
	Welsh NB	R	Electronic EB	171	1,624	35.5	e	439.4			
		S	Welsh NB	1,453							
Witmer & Prudential	Prudential EB	R	Witmer SB	5							
		L	Witmer NB	2	10	14.3	B	19.6			
		S	Prudential EB	3							
	Witmer NB	L	Prudential WB	106							
		S	Witmer NB	354	640	11.0	B	306.4			
		R	Prudential EB	180							
	Witmer SB	R	Prudential WB	32					1,326	11.3	B
		S	Witmer SB	474	579	10.1	B	234.0			
		L	Prudential EB	73							
	Prudential WB	S	Prudential WB	9							
		L	Witmer SB	53	97	21.1	C	89.6			
		R	Witmer NB	35							
Maryland & Commerce	Maryland WB	R	Commerce NB	752	1,094	3.9	A	50.0			
		S	Maryland WB	342							
	Commerce SB	R	Maryland WB	16	356	20.8	C	297.7	1,639	8.3	A
		L	Maryland EB	340							
	Maryland EB	L	Commerce NB	0	189	10.2	B	134.9			
		S	Maryland EB	189							

(continued)

Table C-5 (continued): Welsh Road No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	98							
		S	Maryland SB	0	100	8.7	a	8.3			
		L	Driveway EB	2							
	Computer EB	L	Maryland NB	125							
		R	Maryland SB	128	259	1.6	a	0.0			
		S	Driveway EB	6							
	Maryland NB	S	Maryland NB	21					764	10.7	b
		L	Computer WB	376	400	17.0	c	80.3			
		R	Driveway EB	3							
	Driveway EB	R	Maryland NB	1							
		S	Computer WB	4	5	12.4	b	70.2			
		L	Maryland SB	0							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	29							
		S	Dresher EB	515	544	9.4	A	181.7			
	Saw Mill SB	R	Dresher WB	291							
		L	Dresher EB	59	350	24.4	C	274.9	2,598	9.0	A
	Dresher WB	R	Saw Mill NB	0							
		S	Dreher WB	1,704	1,704	5.8	A	185.8			
New & Dresher	New NB	L	Drehser WB	97							
		R	Dresher EB	0	97	20.2	C	100.3			
	Dresher EB	R	New SB	0							
		S	Dresher EB	573	573	2.0	A	74.0	2,278	14.1	B
	Dresher WB	L	New SB	0							
		R	Dresher WB	1,608	1,608	18.0	B	511.4			

Table C-6: Virginia Drive No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay	Approach LOS	Approach Queue	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Virginia WB	S	Virginia WB	671	1,346	86.2	F	1,058.0	2,609	60.8	E
		R	Office Center NB	166							
		L	Office Center SB	509							
	Office Center SB	L	Virginia EB	22	140	48.8	D	111.4			
		R	Virginia WB	62							
		S	Office Center SB	56							
	Virginia EB	S	Virginia EB	268	587	27.6	C	230.1			
		L	Office Center NB	163							
		R	Office Center SB	156							
	Office Center NB	R	Virginia EB	112	536	36.6	D	294.1			
		L	Virginia WB	275							
		S	Office Center NB	149							
Virginia & Susquehanna	Susquehanna SB	R	Virginia WB	231	728	43.0	D	258.8	2,611	61.4	E
		L	Virginia EB	210							
		S	Susquehanna SB	287							
	Susquehanna NB	L	Virginia WB	413	710	96.9	F	644.6			
		S	Susquehanna NB	273							
		R	Virginia EB	24							
	Virginia EB	L	Susquehanna NB	101	399	24.6	C	140.1			
		S	Virginia EB	199							
		R	Susquehanna SB	99							
	Virginia WB	S	Virginia WB	708	774	65.0	E	471.6			
		R	Susquehanna NB	61							
		L	Susquehanna SB	5							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	681	681	63.1	E	1,059.9	1,433	40.6	D
	Limekiln WB	L	Susquehanna SB	363	363	35.8	D	207.7			
	Susquehanna SB	S	Susquehanna SB	389	389	5.7	A	145.5			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	125	244	28.8	C	216.1	1,832	34.4	C
		R	Dreshertown EB	107							
		L	Virginia WB	12							
	Dreshertown WB	R	Limekiln NB	4	792	39.1	D	530.1			
		L	Limekiln SB	133							
		S	Virginia WB	655							
	Virginia EB	L	Limekiln NB	59	398	18.4	B	334.3			
		R	Limekiln SB	19							
		S	Dreshertown EB	320							
	Limekiln SB	S	Limekiln SB	242	398	44.2	D	381.1			
		L	Dreshertown EB	33							
		R	Virginia WB	123							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	29	584	100.9	F	1,671.9	1,783	67.3	E
		S	Susquehanna NB	555							
	EB Limekiln	R	Susquehanna SB	57	441	119.6	F	1,401.0			
		L	Susquehanna NB	384							
	Susquehanna SB	S	Susquehanna SB	386	758	11.1	B	310.2			
		R	Limekiln WB	372							

(continued)

Table C-6 (continued): Virginia Drive No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay	Approach LOS	Approach Queue	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Twining	Susquehanna NB	R	Twining EB	29	398	160.9	F	1,655.6	1,873	59.4	E
		L	Twining WB	22							
		S	Susquehanna NB	347							
	Twining WB	L	Susquehanna SB	25	524	52.5	D	1,059.5			
		S	Twining WB	241							
		R	Susquehanna NB	258							
	Twining EB	R	Susquehanna SB	30	511	18.6	B	358.2			
		S	Twining EB	462							
		L	Susquehanna NB	19							
	Susquehanna SB	S	Susquehanna SB	360	440	22.9	C	381.2			
		L	Twining EB	70							
		R	Twining WB	10							
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	89	417	35.9	D	624.0	2,000	46.0	D
		R	Fitzwatertown WB	18							
		S	Susquehanna SB	310							
	Fitzwatertown WB	R	Susquehanna SB	61	517	42.5	D	762.2			
		S	Fitzwatertown WB	376							
		L	Susquehanna NB	80							
	Susquehanna NB	S	Susquehanna NB	388	528	75.6	E	1,409.4			
		R	Fitzwatertown EB	52							
		L	Fitzwatertown WB	88							
	Fitzwatertown EB	L	Susquehanna NB	25	538	28.0	C	485.3			
		S	Fitzwatertown EB	484							
		R	Susquehanna SB	29							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	6	52	40.3	D	87.1	1,501	24.2	C
		HL	North Hills NEB	28							
		R	Fitzwatertown WB	8							
		L	Fitzwatertown EB	10							
	Woodland NB	S	Woodland NB	43	222	31.5	C	235.3			
		BR	North Hills NEB	118							
		L	Fitzwatertown WB	42							
		R	Fitzwatertown EB	19							
	North Hills SWB	HR	Woodland NB	15	165	30.8	C	187.7			
		BL	Woodland SB	30							
		BR	Fitzwatertown WB	117							
		HL	Fitzwatertown EB	3							
	Fitzwatertown EB	L	Woodland NB	6	711	21.5	C	549.2			
		R	Woodland SB	59							
		BL	North Hills NEB	257							
		S	Fitzwatertown EB	389							
	Fitzwatertown WB	R	Woodland NB	5	351	19.7	B	284.7			
		L	Woodland SB	14							
		HR	North Hills NEB	1							
		S	Fitzwatertown WB	331							

Table C-6 (continued): Virginia Drive No Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay	Approach LOS	Approach Queue	Intersection Volume	Intersection Delay	Intersection LOS
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	117	581	29.7	C	630.6	1,468	21.2	C
		L	Old Welsh WB	23							
		S	Fitzwatertown NB	441							
	Old Welsh WB	L	Fitzwatertown SB	67	333	18.0	B	223.7			
		S	Old Welsh WB	118							
		R	Fitzwatertown NB	148							
	Old Welsh EB	R	Fitzwatertown SB	21	112	23.7	C	103.3			
		S	Old Welsh EB	82							
		L	Fitzwatertown NB	9							
	Fitzwatertown SB	S	Fitzwatertown SB	352	442	11.7	B	222.1			
		L	Old Welsh EB	83							
		R	Old Welsh WB	7							
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	66	382	39.5	D	452.2	1,753	23.5	C
		R	Susquehanna SB	316				533.4			
	Susquehanna SB	R	Camp Hill WB	43	957	22.0	C	560.2			
		S	Susquehanna SB	914							
	Susquehanna NB	L	Camp Hill WB	75	414	12.4	B	359.8			
		S	Susquehanna NB	339							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	326	631	62.9	E	557.5	2,193	54.1	D
		R	Susquehanna SB	177							
		L	Susquehanna NB	128							
	Broad WB	S	Pinetown WB	322	500	28.5	C	482.3			
		L	Susquehanna SB	96							
		R	Susquehanna NB	82							
	Susquehanna SB	R	Pinetown WB	35	680	82.5	F	932.3			
		L	Broad EB	31							
		S	Susquehanna SB	614							
	Susquehanna NB	L	Pinetown WB	59	382	22.7	C	336.5			
		R	Broad EB	18							
		S	Susquehanna NB	305							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	274	894	31.5	C	1,169.5	1,613	54.4	D
		L	Jarrettown EB	620							
		R	Private Drive WB	0							
	Private Drive EB	L	Limekiln NB	0	2	28.7	C	49.6			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	311	458	119.6	F	1,602.6			
		L	Limekiln SB	145							
		S	Private Drive WB	2							
	Limekiln NB	S	Limekiln NB	181	259	18.6	B	229.7			
		R	Jarrettown EB	78							
		L	Private Drive WB	0							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	1	720	10.5	B	427.8	1,380	10.2	B
		R	Bantry WB	1							
		S	Dreshertown SB	718							
	Beacon Hill WB	R	Dreshertown NB	35	114	11.3	B	119.3			
		S	Bantry WB	6							
		L	Dreshertown SB	73							
	Bantry EB	L	Dreshertown NB	12	67	9.2	A	64.2			
		S	Beacon Hill EB	21							
		R	Dreshertown SB	34							
	Dreshertown NB	S	Dreshertown NB	464	479	9.7	A	163.3			
		R	Beacon Hill EB	8							
		L	Bantry WB	7							

Table C-7: Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	329							
		S	Witmer NB	344	803	33.3	C	631.9			
		L	Dresher WB	130							
	Dresher WB	L	Witmer SB	98							
		R	Witmer NB	145	813	42.6	D	684.3			
		S	Dresher WB	570							
	Dresher EB	R	Witmer SB	127					3,299	37.8	D
		S	Dreher EB	991	1,181	40.1	D	623.7			
		L	Witmer NB	63							
	Witmer SB	S	Witmer SB	219							
		L	Dresher EB	229	502	31.7	C	414.0			
		R	Dresher WB	54							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	113							
		S	Commerce SB	436	724	46.4	D	545.8			
		R	Blair Mill WB	175							
	Blair Mill WB	R	Witmer NB	49							
		L	Witmer SB	133	703	22.3	C	530.4			
		S	Blair Mill WB	521							
	Blair Mill EB	L	Witmer NB	141					2,469	30.6	C
		S	Blair Mill EB	496	811	22.5	C	511.4			
		R	Witmer SB	174							
	Commerce NB	S	Witmer NB	194							
		R	Blair Mill EB	13	231	34.8	C	275.3			
		L	Witmer SB	24							
Welsh & Dresher	Welsh SB	S	Welsh SB	888	1,161	109.0	F	1,000.3			
		L	Dresher EB	273							
	Dresher WB	L	Welsh SB	696	1,006	234.1	F	1,628.0	3,556	114.9	F
		R	Welsh NB	310							
	Welsh NB	S	Welsh NB	843	1,389	33.5	C	561.4			
		R	Dresher EB	546							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	435	1,581	35.9	D	600.7			
		S	Welsh SB	1,146							
	Dreshertown EB	L	Welsh NB	354	732	101.4	F	1,235.9	3,796	45.0	D
		R	Welsh SB	378							
	Welsh NB	S	Welsh NB	1,041	1,483	26.9	C	610.6			
		L	Dreshertown WB	442							

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	220	1,093	32.5	C	422.2	3,821	62.4	E
		S	Welsh NB	858							
		L	Blair Mill WB	15							
	Blair Mill WB	L	Welsh SB	484	917	61.2	E	554.0			
		R	Welsh NB	415							
		S	Prudential WB	18							
	Welsh SB	S	Welsh SB	1,060	1,480	85.1	F	1,145.8			
		L	Blair Mill EB	411							
		R	Prudential WB	9							
	Prudential EB	R	Welsh SB	79	331	63.3	E	169.9			
		S	Blair Mill EB	123							
		L	Welsh NB	129							
Welsh & Computer	Welsh SB	L	Computer EB	162	1,583	93.1	F	1,353.5	3,804	62.5	E
		S	Welsh SB	1,421							
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	43	675	66.2	E	885.6			
		L	Welsh SB	630							
		S	Prudential WB	2							
	Welsh NB	S	Welsh NB	1,128	1,407	24.3	C	538.3			
		R	Computer EB	279							
		L	Prudential WB	0							
	Prudential EB	L	Welsh NB	1	139	84.1	F	224.6			
		S	Computer EB	53							
		R	Welsh SB	85							
Welsh & Twining	Welsh NB	L	Twining WB	74	1,185	19.9	B	339.1	3,835	29.0	C
		S	Welsh NB	1,104							
		R	Twining EB	7							
	Twining EB	R	Welsh SB	201	501	46.0	D	227.0			
		L	Welsh NB	299							
		S	Twining EB	1							
	Welsh SB	S	Welsh SB	1,652	2,137	29.8	C	573.6			
		R	Twining WB	482							
		L	Twining EB	3							
	Twining WB	L	Welsh SB	5	12	64.1	E	50.8			
		S	Twining WB	1							
		R	Welsh NB	6							
Welsh & Kimball	Welsh SB	R	Kimball WB	400	1,864	11.7	B	593.9	3,127	11.8	B
		S	Welsh SB	1,464							
	Kimball EB	L	Welsh NB	220	246	30.6	C	218.0			
		R	Welsh SB	26							
	Moreland NB	S	Welsh NB	993	1,017	7.2	A	316.9			
		L	Kimball WB	24							

(continued)

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	657							
		R	Fitzwatertown EB	81	823	32.6	C	336.4			
		L	Fitzwatertown WB	85							
	Fitzwatertown WB	L	Moreland SB	89							
		R	Moreland NB	135	543	36.9	D	562.5			
		S	Fitzwaterton WB	319					3,256	34.3	C
	Fitzwatertown EB	R	Moreland SB	64							
		L	Moreland NB	124	479	28.5	C	388.8			
		S	Fitzwatertown EB	291							
	Moreland SB	S	Moreland SB	1,047							
		L	Fitzwatertown EB	212	1,411	36.3	D	715.2			
		R	Fitzwaterton WB	152							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	20							
		S	Easton NB	1,886	2,534	21.5	C	477.0			
		R	Sycamore EB	26							
		HR	Mill SEB	602							
	Sycamore EB	R	Easton SB	18							
		L	Easton NB	8	76	52.0	D	127.7			
		S	Sycamore EB	4							
		BR	Mill SEB	46							
	Easton SB	S	Easton SB	1,544							
		R	Sycamore WB	7	1,676	33.6	C	518.1	4,660	47.7	D
		L	Sycamore EB	3							
		BL	Mill SEB	122							
	Sycamore WB	L	Easton SB	21							
		S	Sycamore WB	2	23	48.4	D	76.3			
		R	Easton NB	0							
		HL	Mill SEB	0							
	Mill NWB	HL	Easton SB	254							
		BL	Sycamore WB	12	351	303.5	F	1,368.2			
		BR	Easton NB	84							
		HR	Sycamore EB	1							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	53	132	30.2	C	112.2			
		R	Easton SB	79							
	Ramp	S	Home Depot	7	7	49.6	D	33.3			
		L	Easton SB	0							
	Easton SB	R	Home Depot	65	1,834	13.6	B	594.1	2,781	11.9	B
		S	Easton SB	1,769							
	Easton NB	L	Home Depot	70	808	4.9	A	212.7			
		S	Easton NB	738							

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	323	1,368	20.8	C	444.4	3,786	21.1	C
		S	Easton SB	1,045							
	Maryland EB	L	Easton NB	904	1,171	27.7	C	406.7			
		R	Easton SB	267							
	Easton NB	S	Easton NB	1,134	1,247	15.3	B	415.5			
		L	Maryland WB	113							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	25	617	44.0	D	545.8	3,384	34.7	C
		S	Fitzwatertown EB	406							
		L	Easton NB	186							
	Easton NB	L	Fitzwatertown WB	16	811	39.2	D	410.1			
		R	Fitzwatertown EB	44							
		S	Easton NB	751							
	Fitzwatertown WB	S	Fitzwatertown WB	315	698	32.0	C	439.9			
		L	Easton SB	88							
		R	Easton NB	295							
	Easton SB	R	Fitzwatertown WB	145	1,258	28.7	C	474.4			
		S	Easton SB	726							
		L	Fitzwatertown EB	387							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	262	1,154	26.6	C	1,080.8	2,537	50.5	D
		R	Village EB	10							
		S	Welsh NB	882							
	Jarrettown EB	R	Welsh SB	212	242	61.7	E	273.5			
		S	Village EB	13							
		L	Welsh NB	17							
	Village WB	S	Jarrettown WB	75	212	56.6	E	336.2			
		L	Welsh SB	108							
		R	Welsh NB	29							
	Welsh SB	R	Jarrettown WB	29	929	75.8	E	902.8			
		S	Welsh SB	871							
		L	Village EB	29							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	182	34.0	C	112.0	3,140	16.2	B
		R	Welsh SB	43							
		L	Welsh NB	139							
	Dryden WB	S	Dryden WB	0	15	34.4	C	36.6			
		L	Welsh SB	9							
		R	Welsh NB	6							
	Welsh NB	L	Dryden WB	8	1,400	7.8	A	397.5			
		R	Dryden EB	2							
		S	Welsh NB	1,390							
	Welsh SB	R	Dryden WB	0	1,543	21.4	C	627.1			
		L	Dryden EB	0							
		S	Welsh SB	1,543							

(continued)

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	22							
		S	Easton SB	1,256	1,335	26.1	C	429.5			
		R	Blair Mill WB	57							
	Blair Mill WB	R	Easton NB	15							
		L	Easton SB	184	355	41.1	D	323.0			
		S	Blair Mill WB	156							
	Easton NB	S	Easton NB	1,216					4,093	28.5	C
		R	Blair Mill EB	424	1,732	17.8	B	527.6			
		L	Blair Mill WB	92							
	Blair Mill EB	L	Easton NB	186							
		S	Blair Mill EB	293	671	54.1	D	700.8			
		R	Easton SB	192							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	24							
		S	Dresher EB	1,522	1,546	21.8	C	576.2			
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	58							
		R	Dresher EB	421	479	40.2	D	534.2			
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	798					2,874	21.8	C
		L	Gibraltar SB	46	844	11.6	B	328.3			
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	3							
		S	Gibraltar SB	0	5	17.1	B	24.5			
		L	Dresher EB	2							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	15							
		R	Gilbraltar SB	0	514	24.6	C	460.4			
		S	Blair Mill EB	499							
	Gibraltar NB	L	Blair Mill WB	0							
		S	Gilbraltar NB	0	2	39.6	D	21.2			
		R	Blair Mill EB	2							
	Blair Mill WB	S	Blair Mill WB	241					1,250	25.3	C
		R	Gilbraltar NB	64	305	18.0	B	232.6			
		L	Gilbraltar SB	0							
	Gilbraltar SB	R	Blair Mill WB	257							
		S	Gilbraltar SB	0	429	31.2	C	328.8			
		L	Blair Mill EB	172							

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0	344	57.2	E	575.6	2,166	34.3	C
		L	Dresher WB	161							
		R	Dreher EB	183							
	Walnut Grove SB	S	Walnut Grove SB	3	133	46.2	D	102.8			
		R	Dresher WB	75							
		L	Dresher EB	55							
	Dresher EB	R	Walnut Grove SB	12	960	14.0	B	349.2			
		L	Walnut Grove NB	0							
		S	Dresher EB	948							
	Dresher WB	L	Walnut Grove SB	13	729	48.1	D	581.7			
		R	Walnut Grove NB	0							
		S	Dresher EB	716							
Dresher & Business Center	Dresher WB	R	Business Center NB	22	912	67.7	E	827.6	2,047	41.4	D
		S	Dresher WB	890							
	Dresher EB	S	Dresher EB	916	949	7.0	A	223.2			
		L	Business Center NB	33							
	Business Center SB	L	Dresher EB	42	186	87.4	F	379.5			
		R	Dresher WB	144							
Welsh & Electronic	Electronic WB	R	Welsh NB	90	233	72.3	E	403.9	3,289	13.5	B
		L	Welsh SB	143							
	Welsh SB	L	Electronic EB	105	1,521	10.4	B	254.1			
		S	Welsh SB	1,416							
	Welsh NB	R	Electronic EB	145	1,535	7.6	A	205.2			
		S	Welsh NB	1,390							
Witmer & Prudential	Prudential EB	R	Witmer SB	68	144	17.5	B	89.0	1,344	15.2	B
		L	Witmer NB	71							
		S	Prudential EB	5							
	Witmer NB	L	Prudential WB	12	467	17.0	B	366.0			
		S	Witmer NB	371							
		R	Prudential EB	84							
	Witmer SB	R	Prudential WB	0	442	10.1	B	214.0			
		S	Witmer SB	368							
		L	Prudential EB	74							
	Prudential WB	S	Prudential WB	13	291	18.7	B	145.2			
		L	Witmer SB	106							
		R	Witmer NB	172							
Maryland & Commerce	Maryland WB	R	Commerce NB	207	418	7.4	A	93.9	1,378	14.3	B
		S	Maryland WB	211							
	Commerce SB	R	Maryland WB	30	502	20.4	C	400.8			
		L	Maryland EB	472							
	Maryland EB	L	Commerce NB	0	458	14.0	B	277.1			
		S	Maryland EB	458							

(continued)

Table C-7 (continued): Welsh Road No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	177							
		S	Maryland SB	22	203	9.5	A	24.3			
		L	Driveway EB	4							
	Computer EB	L	Maryland NB	104							
		R	Maryland SB	345	459	15.0	B	127.7			
		S	Driveway EB	10							
	Maryland NB	S	Maryland NB	0					852	13.1	B
		L	Computer WB	177	177	12.0	B	5.7			
		R	Driveway EB	0							
	Driveway EB	R	Maryland NB	1							
		S	Computer WB	9	13	12.4	B	84.5			
		L	Maryland SB	3							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	411							
		S	Dresher EB	1,533	1,944	8.1	A	515.9			
	Saw Mill SB	R	Dresher WB	95							
		L	Dresher EB	76	171	50.5	D	231.6	2,898	9.4	A
	Dresher WB	R	Saw Mill NB	30							
		S	Dreher WB	753	783	3.5	A	100.5			
New & Dresher	New NB	L	Drehser WB	29							
		R	Dresher EB	0	29	44.2	D	67.7			
	Dresher EB	R	New SB	134							
		S	Dresher EB	1,473	1,607	2.3	A	210.2	2,390	6.1	A
	Dresher WB	L	New SB	0							
		R	Dresher WB	754	754	12.7	B	241.3			

Table C-8: Virginia Drive No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Virginia WB	S	Virginia WB	184							
		R	Office Center NB	21	634	110.8	F	952.1			
		L	Office Center SB	429							
	Office Center SB	L	Virginia EB	311							
		R	Virginia WB	24	636	282.9	F	1,673.4			
		S	Office Center SB	301							
	Virginia EB	S	Virginia EB	705					2,606	155.3	F
		L	Office Center NB	21	1,055	131.5	F	1,447.9			
		R	Office Center SB	329							
	Office Center NB	R	Virginia EB	183							
		L	Virginia WB	61	281	56.5	E	529.6			
		S	Office Center NB	37							
Virginia & Susquehanna	Susquehanna SB	R	Virginia WB	98							
		L	Virginia EB	279	790	128.4	F	1,626.6			
		S	Susquehanna SB	413							
	Susquehanna NB	L	Virginia WB	184							
		S	Susquehanna NB	331	547	57.4	E	572.8			
		R	Virginia EB	32							
	Virginia EB	L	Susquehanna NB	128					2,966	79.5	E
		S	Virginia EB	462	1,173	71.2	E	1,009.0			
		R	Susquehanna SB	583							
	Virginia WB	S	Virginia WB	349							
		R	Susquehanna NB	90	456	42.4	D	293.6			
		L	Susquehanna SB	17							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	514	514	30.0	C	969.5			
	Limekiln WB	L	Susquehanna SB	574	574	89.9	F	809.6	2,076	58.4	E
	Susquehanna SB	S	Susquehanna SB	988	988	54.9	D	626.4			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	246							
		R	Dreshertown EB	272	527	78.6	E	1,118.4			
		L	Virginia WB	9							
	Dreshertown WB	R	Limekiln NB	11							
		L	Limekiln SB	315	708	109.4	F	1,567.8			
		S	Virginia WB	382							
	Virginia EB	L	Limekiln NB	192					2,299	107.0	F
		R	Limekiln SB	49	772	33.8	C	452.4			
		S	Dreshertown EB	531							
	Limekiln SB	S	Limekiln SB	253							
		L	Dreshertown EB	0	292	346.3	F	2,942.7			
		R	Virginia WB	39							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	68	668	27.1	C	761.2			
		S	Susquehanna NB	600							
	EB Limekiln	R	Susquehanna SB	259	737	52.5	D	525.9	2,933	44.0	D
		L	Susquehanna NB	478							
	Susquehanna SB	S	Susquehanna SB	696	1,528	47.2	D	1,017.5			
		R	Limekiln WB	832							

(continued)

Table C-8 (continued): Virginia Drive No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Twining	Twining WB	L	Twining EB	41	648	27.9	C	721.4	2,673	60.8	E
		S	Twining WB	419							
		R	Susquehanna NB	188							
	Susquehanna SB	S	Susquehanna SB	677	948	61.7	E	1,663.8			
		L	Twining WB	256							
		R	Susquehanna NB	15							
	Twining EB	R	Susquehanna SB	161	568	32.7	C	609.0			
		S	Twining EB	368							
		L	Susquehanna NB	39							
	Susquehanna NB	R	Susquehanna SB	26	509	132.5	F	1,576.3			
		L	Twining EB	37							
		S	Twining WB	446							
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	275	865	56.3	E	1,664.6	2,421	63.9	E
		R	Fitzwatertown WB	18							
		S	Susquehanna SB	572							
	Fitzwatertown WB	R	Susquehanna SB	147	582	108.5	F	1,667.8			
		S	Fitzwatertown WB	357							
		L	Susquehanna NB	78							
	Susquehanna NB	S	Susquehanna NB	376	434	38.4	D	594.4			
		R	Fitzwatertown EB	48							
		L	Fitzwatertown WB	10							
	Fitzwatertown EB	L	Susquehanna NB	32	540	48.5	D	588.1			
		S	Fitzwatertown EB	477							
		R	Susquehanna SB	31							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	17	394	107.6	F	1,331.4	1,832	72.5	E
		HL	North Hills NEB	34							
		R	Fitzwatertown WB	0							
		L	Fitzwatertown EB	343							
	Woodland NB	S	Woodland NB	29	116	52.2	D	165.1			
		BR	North Hills NEB	24							
		L	Fitzwatertown WB	7							
		R	Fitzwatertown EB	56							
	North Hills SWB	HR	Woodland NB	8	149	42.3	D	166.9			
		BL	Woodland SB	95							
		BR	Fitzwatertown WB	24							
		HL	Fitzwatertown EB	22							
	Fitzwatertown EB	L	Woodland NB	16	358	105.1	F	1,053.8			
		R	Woodland SB	84							
		BL	North Hills NEB	258							
		S	Fitzwatertown EB	0							
	Fitzwatertown WB	R	Woodland NB	0	815	49.6	D	1,500.5			
		L	Woodland SB	79							
		HR	North Hills NEB	168							
		S	Fitzwatertown WB	568							

Table C-8 (continued): Virginia Drive No Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	170	539	99.6	F	1,648.9	1,983	46.4	D
		L	Old Welsh WB	4							
		S	Fitzwatertown NB	365							
	Old Welsh WB	L	Fitzwatertown SB	182	518	20.8	C	358.4			
		S	Old Welsh WB	140							
		R	Fitzwatertown NB	196							
	Old Welsh EB	R	Fitzwatertown SB	36	274	32.3	C	242.9			
		S	Old Welsh EB	232							
		L	Fitzwatertown NB	6							
	Fitzwatertown SB	S	Fitzwatertown SB	382	652	28.6	C	604.1			
		L	Old Welsh EB	255							
		R	Old Welsh WB	15							
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	438	791	47.3	D	846.7	2,148	37.1	D
		R	Susquehanna SB	353							
	Susquehanna SB	R	Camp Hill WB	48	749	26.5	C	688.7			
		S	Susquehanna SB	701							
	Susquehanna NB	L	Camp Hill WB	107	608	36.7	D	949.0			
		S	Susquehanna NB	501							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	190	475	54.2	D	530.6	2,389	54.5	D
		R	Susquehanna SB	96							
		L	Susquehanna NB	189							
	Broad WB	S	Pinetown WB	240	378	25.3	C	389.3			
		L	Susquehanna SB	12							
		R	Susquehanna NB	126							
	Susquehanna SB	R	Pinetown WB	35	735	71.9	E	930.3			
		L	Broad EB	75							
		S	Susquehanna SB	625							
	Susquehanna NB	L	Pinetown WB	83	801	52.6	D	1,638.0			
		R	Broad EB	49							
		S	Susquehanna NB	669							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	357	754	43.1	D	1,139.7	1,881	46.9	D
		L	Jarrettown EB	381							
		R	Private Drive WB	16							
	Private Drive EB	L	Limekiln NB	2	4	-0.5	F	0.0			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	314	403	76.7	E	667.6			
		L	Limekiln SB	84							
		S	Private Drive WB	5							
	Limekiln NB	S	Limekiln NB	465	720	34.5	C	954.8			
		R	Jarrettown EB	247							
		L	Private Drive WB	8							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	18	847	22.2	C	1,281.7	1,695	13.7	B
		R	Bantry WB	12							
		S	Dreshertown SB	817							
	Beacon Hill WB	R	Dreshertown NB	8	56	9.0	A	25.1			
		S	Bantry WB	4							
		L	Dreshertown SB	44							
	Bantry EB	L	Dreshertown NB	9	13	9.0	A	31.5			
		S	Beacon Hill EB	4							
		R	Dreshertown SB	0							
	Dreshertown NB	S	Dreshertown NB	674	779	4.9	A	229.5			
		R	Beacon Hill EB	81							
		L	Bantry WB	24							

Welsh Road & Virginia Drive Build Scenario Results

Table C-9: Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	51							
		S	Witmer NB	121	207	25.2	C	133.5			
		L	Dresher WB	35							
	Dresher WB	L	Witmer SB	256							
		R	Witmer NB	332	1,217	19.1	B	522.0			
		S	Dresher WB	629							
	Dresher EB	R	Witmer SB	5					2,386	20.4	C
		S	Dreher EB	459	486	17.5	B	210.6			
		L	Witmer NB	22							
	Witmer SB	S	Witmer SB	193							
		L	Dresher EB	273	476	24.5	C	261.5			
		R	Dresher WB	10							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	53							
		S	Commerce SB	38	108	43.5	D	105.1			
		R	Blair Mill WB	17							
	Blair Mill WB	R	Witmer NB	43							
		L	Witmer SB	21	335	24.5	C	1,656.6			
		S	Blair Mill WB	271							
	Blair Mill EB	L	Witmer NB	37					971	26.5	C
		S	Blair Mill EB	158	247	11.0	B	195.7			
		R	Witmer SB	52							
	Commerce NB	S	Witmer NB	126							
		R	Blair Mill EB	152	281	36.1	D	360.9			
		L	Witmer SB	3							
Welsh & Dresher	Welsh SB	S	Welsh SB	885	1,048	49.5	D	1,048.5			
		L	Dresher EB	163							
	Dresher WB	L	Welsh SB	482	647	90.3	F	980.1	2,692	65.9	E
		R	Welsh NB	165							
	Welsh NB	S	Welsh NB	768	997	67.2	E	544.9			
		R	Dresher EB	229							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	539	1,344	33.4	C	599.8			
		S	Welsh SB	805							
	Dreshertown EB	L	Welsh NB	311	430	74.7	E	900.2	2,503	45.1	D
		R	Welsh SB	119							
	Welsh NB	S	Welsh NB	668	729	49.3	D	386.0			
		L	Dreshertown WB	61							

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	16							
		S	Welsh NB	942	958	19.8	B	376.3			
		L	Blair Mill WB	0							
	Blair Mill WB	L	Welsh SB	8							
		R	Welsh NB	21	31	227.1	F	1,657.3			
		S	Prudential WB	2							
	Welsh SB	S	Welsh SB	616					2,032	56.2	E
		L	Blair Mill EB	45	694	107.1	F	1,264.1			
		R	Prudential WB	33							
	Prudential EB	R	Welsh SB	0							
		S	Blair Mill EB	113	349	39.9	D	159.2			
		L	Welsh NB	236							
Welsh & Computer	Welsh SB	L	Computer EB	37							
		S	Welsh SB	593	630	8.6	A	193.1			
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	9							
		L	Welsh SB	147	185	49.4	D	152.8			
		S	Prudential WB	29							
	Welsh NB	S	Welsh NB	1,130					2,841	48.6	D
		R	Computer EB	170	1,821	47.9	D	558.8			
		L	Prudential WB	521							
	Prudential EB	L	Welsh NB	0							
		S	Computer EB	73	205	177.0	F	556.4			
		R	Welsh SB	132							
Welsh & Twining	Welsh NB	L	Twining WB	141							
		S	Welsh NB	1,220	1,361	122.7	F	1,317.9			
		R	Twining EB	0							
	Twining EB	R	Welsh SB	314							
		L	Welsh NB	604	918	123.6	F	1,664.1			
		S	Twining EB	0							
	Twining WB	L	Welsh SB	22					3,180	92.4	F
		S	Twining WB	0	24	57.7	E	64.3			
		R	Welsh NB	2							
	Welsh SB	S	Welsh SB	781							
		R	Twining WB	96	877	13.8	B	253.8			
		L	Twining EB	0							
Welsh & Kimball	Welsh SB	R	Kimball WB	136	985	9.9	A	391.1			
		S	Welsh SB	849							
	Kimball EB	L	Welsh NB	276	318	59.0	E	317.0	2,444	62.1	E
		R	Welsh SB	42							
	Moreland NB	S	Welsh NB	1,111	1,141	108.0	F	1,664.3			
		L	Kimball WB	30							

(continued)

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	994	1,005	70.1	E	940.2	2,980	67.5	E
		R	Fitzwatertown EB	7							
		L	Fitzwatertown WB	4							
	Fitzwatertown WB	L	Moreland SB	85	629	66.0	E	1,318.8			
		R	Moreland NB	253							
		S	Fitzwaterton WB	291							
	Fitzwatertown EB	R	Moreland SB	5	459	99.6	F	1,147.2			
		L	Moreland NB	55							
		S	Fitzwatertown EB	399							
	Moreland SB	S	Moreland SB	728	887	49.1	D	582.2			
		L	Fitzwatertown EB	159							
		R	Fitzwaterton WB	0							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	7	1,510	44.4	D	1,128.7	3,883	62.6	E
		S	Easton NB	1,340							
		R	Sycamore EB	38							
		HR	Mill SEB	125							
	Sycamore EB	R	Easton SB	0	5	61.8	E	31.8			
		L	Easton NB	5							
		S	Sycamore EB	0							
		BR	Mill SEB	0							
	Easton SB	S	Easton SB	1,530	1,620	39.0	D	546.7			
		R	Sycamore WB	12							
		L	Sycamore EB	0							
		BL	Mill SEB	78							
	Sycamore WB	L	Easton SB	23	93	69.9	E	220.6			
		S	Sycamore WB	0							
		R	Easton NB	70							
		HL	Mill SEB								
	Mill NWB	HL	Easton SB	404	655	161.8	F	1,374.5			
		BL	Sycamore WB	0							
		BR	Easton NB	251							
		HR	Sycamore EB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	0	73	44.9	D	129.0	3,123	6.1	A
		R	Easton SB	73							
	Ramp	S	Home Depot	0	0	0.0	NA	NA			
		L	Easton SB	0							
	Easton SB	R	Home Depot	0	1,969	6.0	A	524.1			
		S	Easton SB	1,969							
	Easton NB	L	Home Depot	24	1,081	3.6	A	545.7			
		S	Easton NB	1,057							

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	164	1,458	12.4	B	498.4	3,010	10.9	B
		S	Easton SB	1,294							
	Maryland EB	L	Easton NB	125	203	24.3	C	106.1			
		R	Easton SB	78							
	Easton NB	S	Easton NB	1,233	1,349	7.2	A	374.1			
		L	Maryland WB	116							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	0	560	192.6	F	1,668.5	3,528	62.5	E
		S	Fitzwatertown EB	278							
		L	Easton NB	282							
	Easton NB	L	Fitzwatertown WB	0	910	36.8	D	437.5			
		R	Fitzwatertown EB	63							
		S	Easton NB	847							
	Fitzwatertown WB	S	Fitzwatertown WB	513	720	48.6	D	862.4			
		L	Easton SB	99							
		R	Easton NB	108							
	Easton SB	R	Fitzwatertown WB	229	1,338	32.9	C	698.3			
		S	Easton SB	951							
		L	Fitzwatertown EB	158							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	150	952	51.3	D	1,107.0	2,076	105.6	F
		R	Village EB	0							
		S	Welsh NB	802							
	Jarrettown EB	R	Welsh SB	233	241	60.8	E	368.4			
		S	Village EB	0							
		L	Welsh NB	8							
	Village WB	S	Jarrettown WB	0	0	0.0	NA	NA			
		L	Welsh SB	0							
		R	Welsh NB	0							
	Welsh SB	R	Jarrettown WB	3	883	176.4	F	1,618.8			
		S	Welsh SB	880							
		L	Village EB	0							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	4	114.3	F	25.1	1,630	40.3	D
		R	Welsh SB	2							
		L	Welsh NB	2							
	Dryden WB	S	Dryden WB	0	87	80.0	E	110.0			
		L	Welsh SB	67							
		R	Welsh NB	20							
	Welsh NB	L	Dryden WB	0	664	16.3	B	282.9			
		R	Dryden EB	1							
		S	Welsh NB	663							
	Welsh SB	R	Dryden WB	0	875	54.2	D	739.9			
		L	Dryden EB	130							
		S	Welsh SB	745							

(continued)

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	0							
		S	Easton SB	1,046	1,196	63.7	E	1,540.0			
		R	Blair Mill WB	150							
	Blair Mill WB	R	Easton NB	0							
		L	Easton SB	268	447	104.0	F	652.3			
		S	Blair Mill WB	179							
	Easton NB	S	Easton NB	1,137					3,765	79.7	E
		R	Blair Mill EB	42	1,460	78.3	E	1,293.1			
		L	Blair Mill WB	281							
	Blair Mill EB	L	Easton NB	261							
		S	Blair Mill EB	189	662	95.0	F	737.5			
		R	Easton SB	212							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	118							
		S	Dresher EB	570	688	32.5	C	717.4			
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	7							
		R	Dresher EB	88	95	40.6	D	133.4			
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	1,184					2,355	23.6	C
		L	Gibraltar SB	381	1,565	18.6	B	502.7			
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	0							
		S	Gibraltar SB	2	7	28.4	C	23.2			
		L	Dresher EB	5							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	7							
		R	Gilbraltar SB	0	364	39.9	D	348.6			
		S	Blair Mill EB	357							
	Gibraltar NB	L	Blair Mill WB	0							
		S	Gilbraltar SB	0	0	0.0	NA	NA			
		R	Blair Mill EB	0							
	Gilbraltar SB	R	Blair Mill WB	12					1,249	105.0	F
		S	Gilbraltar NB	0	297	377.0	F	1,668.1			
		L	Blair Mill EB	285							
	Blair Mill WB	S	Blair Mill WB	294							
		R	Gilbraltar NB	256	588	8.0	A	813.7			
		L	Gilbraltar SB	38							

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0	70	17.2	B	67.9	1,166	4.5	A
		L	Dresher WB	0							
		R	Dreher EB	70							
	Walnut Grove SB	S	Walnut Grove SB	0	10	13.4	B	27.9			
		R	Dresher WB	7							
		L	Dresher EB	3							
	Dresher EB	R	Walnut Grove SB	0	409	3.9	A	149.6			
		L	Walnut Grove NB	0							
		S	Dresher EB	409							
	Dresher WB	L	Walnut Grove SB	10	677	3.5	A	199.5			
		R	Walnut Grove NB	0							
		S	Dresher EB	667							
Dresher & Business Center	Dresher WB	R	Business Center NB	0	675	0.7	A	112.7	1,106	2.9	A
		S	Dresher WB	675							
	Business Center SB	L	Dresher WB	391	394	5.6	A	170.8			
		R	Dresher EB	3							
	Dresher EB	S	Dresher EB	15	37	14.7	B	48.9			
		L	Business Center NB	22							
Welsh & Electronic	Electronic WB	R	Welsh NB	20	64	47.7	e	93.1	1,642	21.6	c
		L	Welsh SB	44							
	Welsh SB	L	Electronic EB	0	891	25.7	d	362.8			
		S	Welsh SB	891							
	Welsh NB	R	Electronic EB	2	687	13.8	b	36.6			
		S	Welsh NB	685							
Witmer & Prudential	Prudential EB	R	Witmer SB	32	65	9.3	A	38.6	336	8.5	A
		L	Witmer NB	18							
		S	Prudential EB	15							
	Witmer NB	L	Prudential WB	0	131	6.0	A	102.7			
		S	Witmer NB	79							
		R	Prudential EB	52							
	Witmer SB	R	Prudential WB	0	63	4.6	A	56.2			
		S	Witmer SB	40							
		L	Prudential EB	23							
	Prudential WB	S	Prudential WB	38	77	15.4	B	63.8			
		L	Witmer SB	11							
		R	Witmer NB	28							
Maryland & Commerce	Maryland WB	R	Commerce NB	122	279	2.8	A	56.6	501	4.6	A
		S	Maryland WB	157							
	Commerce SB	R	Maryland WB	20	103	10.7	B	83.5			
		L	Maryland EB	83							
	Maryland EB	L	Commerce NB	0	119	3.6	A	96.8			
		S	Maryland EB	119							

(continued)

Table C-9 (continued): Welsh Road Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	55							
		S	Maryland SB	0	55	6.5	a	0.0			
		L	Driveway EB	0							
	Computer EB	L	Maryland NB	200							
		R	Maryland SB	105	325	2.5	a	0.0			
		S	Driveway EB	20							
	Maryland NB	S	Maryland NB	57					630	6.0	a
		L	Computer WB	63	177	10.2	b	7.2			
		R	Driveway EB	57							
	Driveway EB	R	Maryland NB	5							
		S	Computer WB	54	73	11.2	b	109.2			
		L	Maryland SB	14							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	20							
		S	Dresher EB	644	664	10.7	B	268.1			
	Saw Mill SB	R	Dresher WB	198							
		L	Dresher EB	151	349	57.0	E	712.0	2,410	19.8	B
	Dresher WB	R	Saw Mill NB	0							
		S	Dreher WB	1,397	1,397	14.9	B	289.3			
New & Dresher	New NB	L	Drehser WB	77							
		R	Dresher EB	0	77	41.1	D	250.2			
	Dresher EB	R	New SB	96							
		S	Dresher EB	700	796	3.4	A	128.4	2,206	23.5	C
	Dresher WB	L	New SB	0							
		R	Dresher WB	1,333	1,333	34.5	C	815.6			

Table C-10: Virginia Drive Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Office Center SB	R	Virginia WB	53	132	22.1	C	71.8	2,015	6.5	A
		L	Virginia EB	79							
	Virginia WB	S	Virginia WB	1,010	1,498	5.7	A	418.8			
		R	Office Center NB	488							
	Virginia EB	S	Virginia EB	348	385	4.3	A	88.1			
		L	Office Center NB	37							
Virginia & Susquehanna	Virginia EB	L	Virginia WB	67	526	15.7	B	209.9	2,760	33.3	C
		S	Virginia EB	228							
		R	Susquehanna SB	231							
	Susquehanna SB	R	Virginia WB	242	643	24.9	C	114.1			
		L	Susquehanna NB	165							
		S	Virginia EB	236							
	Susquehanna NB	L	Susquehanna NB	473	891	43.2	D	600.0			
		S	Virginia EB	391							
		R	Susquehanna SB	27							
	Virginia WB	S	Virginia WB	637	700	41.5	D	375.5			
		R	Susquehanna NB	58							
		L	Susquehanna SB	5							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	864	864	16.7	B	1,043.4	1,675	17.0	B
	Limekiln WB	L	Susquehanna SB	337	337	33.4	C	196.7			
	Susquehanna SB	S	Susquehanna SB	474	474	5.8	A	143.2			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	151	296	28.0	C	208.9	1,744	22.6	C
		R	Dreshertown EB	133							
		L	Virginia WB	12							
	Dreshertown WB	R	Limekiln NB	4	698	13.0	B	214.0			
		L	Limekiln SB	123							
		S	Virginia WB	571							
	Virginia EB	L	Limekiln NB	68	375	18.8	B	305.7			
		R	Limekiln SB	19							
		S	Dreshertown EB	288							
	Limekiln SB	S	Limekiln SB	225	375	40.0	D	323.9			
		L	Dreshertown EB	29							
		R	Virginia WB	121							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	19	694	24.5	C	803.1	2,058	24.7	C
		S	Susquehanna NB	675							
	EB Limekiln	R	Susquehanna SB	66	548	45.0	D	855.7			
		L	Susquehanna NB	482							
	Susquehanna SB	S	Susquehanna SB	475	816	11.3	B	314.0			
		R	Limekiln WB	341							
Susquehanna & Twining	Susquehanna NB	R	Twining EB	26	482	46.9	D	567.5	1,932	25.7	C
		L	Twining WB	30							
		S	Susquehanna NB	426							
	Twining WB	L	Susquehanna SB	21	513	14.7	B	277.7			
		S	Twining WB	243							
		R	Susquehanna NB	249							
	Twining EB	R	Susquehanna SB	23	404	16.8	B	253.5			
		S	Twining EB	366							
		L	Susquehanna NB	15							
	Susquehanna SB	S	Susquehanna SB	439	533	23.9	C	492.0			
		L	Twining EB	78							
		R	Twining WB	16							

(continued)

Table C-10 (continued): Virginia Drive Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	84	486	47.8	D	967.7	2,067	40.2	D
		R	Fitzwatertown WB	16							
		S	Susquehanna SB	386							
	Fitzwatertown WB	R	Susquehanna SB	49	508	32.6	C	590.2			
		S	Fitzwatertown WB	405							
		L	Susquehanna NB	54							
	Susquehanna NB	S	Susquehanna NB	412	563	52.3	D	1,103.9			
		R	Fitzwatertown EB	55							
		L	Fitzwatertown WB	96							
	Fitzwatertown EB	L	Susquehanna NB	24	510	27.4	C	495.5			
		S	Fitzwatertown EB	459							
		R	Susquehanna SB	27							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	5	47	40.5	D	84.1	1,454	26.5	C
		HL	North Hills NEB	26							
		R	Fitzwatertown WB	7							
		L	Fitzwatertown EB	9							
	Woodland NB	S	Woodland NB	85	237	32.3	C	256.6			
		BR	North Hills NEB	78							
		L	Fitzwatertown WB	50							
		R	Fitzwatertown EB	24							
	North Hills SWB	HR	Woodland NB	15	161	33.3	C	206.5			
		BL	Woodland SB	32							
		BR	Fitzwatertown WB	111							
		HL	Fitzwatertown EB	3							
	Fitzwatertown EB	L	Woodland NB	6	649	24.2	C	589.4			
		R	Woodland SB	54							
		BL	North Hills NEB	222							
		S	Fitzwatertown EB	367							
	Fitzwatertown WB	R	Woodland NB	6	360	22.1	C	338.3			
		L	Woodland SB	11							
		HR	North Hills NEB	1							
		S	Fitzwatertown WB	342							
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	107	519	33.1	C	640.1	1,370	22.7	C
		L	Old Welsh WB	20							
		S	Fitzwatertown NB	392							
	Old Welsh WB	L	Fitzwatertown SB	101	325	16.7	B	202.5			
		S	Old Welsh WB	99							
		R	Fitzwatertown NB	125							
	Old Welsh EB	R	Fitzwatertown SB	27	116	25.4	C	117.1			
		S	Old Welsh EB	82							
		L	Fitzwatertown NB	7							
	Fitzwatertown SB	S	Fitzwatertown SB	326	410	13.5	B	269.5			
		L	Old Welsh EB	78							
		R	Old Welsh WB	6							

Table C-10 (continued): Virginia Drive Build Scenario AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	54	310	25.4	C	275.7	1,655	17.6	B
		R	Susquehanna SB	256							
	Susquehanna SB	R	Camp Hill WB	42	868	17.5	B	411.5			
		S	Susquehanna SB	826							
	Susquehanna NB	L	Camp Hill WB	70	477	12.6	B	407.1			
		S	Susquehanna NB	407							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	202	407	25.9	C	395.5	1,867	42.1	D
		R	Susquehanna SB	124							
		L	Susquehanna NB	81							
	Broad WB	S	Pinetown WB	262	391	22.1	C	351.3			
		L	Susquehanna SB	88							
		R	Susquehanna NB	41							
	Susquehanna SB	R	Pinetown WB	34	629	80.1	F	933.2			
		L	Broad EB	10							
		S	Susquehanna SB	585							
	Susquehanna NB	L	Pinetown WB	52	440	20.5	C	345.5			
		R	Broad EB	15							
		S	Susquehanna NB	373							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	247	728	20.2	C	565.7	1,341	24.6	C
		L	Jarrettown EB	481							
		R	Private Drive WB	0							
	Private Drive EB	L	Limekiln NB	0	1	28.0	C	49.6			
		R	Limekiln SB	1							
		S	Jarrettown EB	0							
	Jarrettown WB	R	Limekiln NB	210	358	37.6	D	406.6			
		L	Limekiln SB	147							
		S	Private Drive WB	1							
	Limekiln NB	S	Limekiln NB	180	254	18.8	B	200.0			
		R	Jarrettown EB	74							
		L	Private Drive WB	0							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	1	609	9.0	A	307.1	1,237	9.6	A
		R	Bantry WB	1							
		S	Dreshertown SB	607							
	Beacon Hill WB	R	Dreshertown NB	33	106	10.8	B	117.8			
		S	Bantry WB	5							
		L	Dreshertown SB	68							
	Bantry EB	L	Dreshertown NB	11	62	10.5	B	69.1			
		S	Beacon Hill EB	19							
		R	Dreshertown SB	32							
	Dreshertown NB	S	Dreshertown NB	430	460	10.1	B	153.4			
		R	Beacon Hill EB	22							
		L	Bantry WB	8							
Ramps & Virginia Drive	Virginia WB	S	Virginia WB	840	1,353	20.6	C	541.6	2,771	18.7	B
		R	On-Ramps NB	513							
	Virginia EB	S	Virginia EB	190	426	19.5	B	215.6			
		L	On-Ramps NB	236							
	Off-Ramps SB	L	Virginia EB	335	992	15.8	B	409.0			
		R	Virginia WB	657							

Table C-11: Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	71							
		S	Witmer NB	59	180	68.9	E	350.1			
		L	Dresher WB	50							
	Dresher WB	L	Witmer SB	3							
		R	Witmer NB	116	371	21.0	C	289.1			
		S	Dresher WB	252					1,422	68.3	E
	Dresher EB	R	Witmer SB	56							
		S	Dreher EB	424	575	97.5	F	851.2			
		L	Witmer NB	95							
	Witmer SB	S	Witmer SB	57							
		L	Dresher EB	203	296	70.7	E	623.4			
		R	Dresher WB	36							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	0							
		S	Commerce SB	252	333	54.9	D	313.2			
		R	Blair Mill WB	81							
	Blair Mill WB	R	Witmer NB	22							
		L	Witmer SB	73	504	49.2	D	1,652.7			
		S	Blair Mill WB	409					1,273	213.2	F
	Blair Mill EB	L	Witmer NB	20							
		S	Blair Mill EB	236	288	570.0	F	1,673.9			
		R	Witmer SB	32							
	Commerce NB	S	Witmer NB	53							
		R	Blair Mill EB	95	148	433.1	F	1,659.9			
		L	Witmer SB	0							
Welsh & Dresher	Welsh SB	S	Welsh SB	1,079	1,312	24.6	C	432.5			
		L	Dresher EB	233							
	Dresher WB	L	Welsh SB	561	777	50.7	D	559.0	3,618	38.5	D
		R	Welsh NB	216							
	Welsh NB	S	Welsh NB	1,036	1,529	44.3	D	590.1			
		R	Dresher EB	493							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	351	1,643	16.7	B	585.0			
		S	Welsh SB	1,292							
	Dreshertown EB	L	Welsh NB	491	660	161.4	F	1,266.1	3,505	52.5	D
		R	Welsh SB	169							
	Welsh NB	S	Welsh NB	1,048	1,202	41.8	D	513.6			
		L	Dreshertown WB	154							

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	46	691	27.4	C	333.0	3,246	57.1	E
		S	Welsh NB	645							
		L	Blair Mill WB	0							
	Blair Mill WB	L	Welsh SB	110	621	195.6	F	1,051.1			
		R	Welsh NB	180							
		S	Prudential WB	331							
	Welsh SB	S	Welsh SB	1,285	1,633	20.1	C	599.4			
		L	Blair Mill EB	115							
		R	Prudential WB	233							
	Prudential EB	R	Welsh SB	0	301	41.1	D	164.7			
		S	Blair Mill EB	137							
		L	Welsh NB	164							
Welsh & Computer	Welsh SB	L	Computer EB	9	1,397	17.3	B	383.6	3,277	80.3	F
		S	Welsh SB	1,388							
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	115	787	62.5	E	1,002.2			
		L	Welsh SB	371							
		S	Prudential WB	301							
	Welsh NB	S	Welsh NB	611	940	90.1	F	543.5			
		R	Computer EB	18							
		L	Prudential WB	311							
	Prudential EB	L	Welsh NB	0	153	687.9	F	1,673.8			
		S	Computer EB	12							
		R	Welsh SB	141							
Welsh & Twining	Welsh NB	L	Twining WB	78	983	219.6	F	1,318.0	2,975	78.8	E
		S	Welsh NB	0							
		R	Twining EB	905							
	Twining EB	R	Welsh SB	40	81	58.2	E	98.3			
		L	Welsh NB	0							
		S	Twining EB	41							
	Welsh SB	S	Welsh SB	1,595	1,906	7.0	A	398.6			
		R	Twining WB	311							
		L	Twining EB	0							
	Twining WB	L	Welsh SB	3	5	60.5	E	33.0			
		S	Twining WB	0							
		R	Welsh NB	2							
Welsh & Kimball	Welsh SB	R	Kimball WB	256	1,537	11.6	B	721.2	2,547	85.4	F
		S	Welsh SB	1,281							
	Kimball EB	L	Welsh NB	203	219	129.3	F	328.1			
		R	Welsh SB	16							
	Moreland NB	S	Welsh NB	747	791	216.5	F	1,672.2			
		L	Kimball WB	44							

(continued)

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	691							
		R	Fitzwatertown EB	35	731	127.2	F	1,097.6			
		L	Fitzwatertown WB	5							
	Fitzwatertown WB	L	Moreland SB	20							
		R	Moreland NB	209	467	96.9	F	1,446.8			
		S	Fitzwaterton WB	238					3,074	59.7	E
	Fitzwatertown EB	R	Moreland SB	4							
		L	Moreland NB	0	489	23.8	C	475.7			
		S	Fitzwatertown EB	485							
	Moreland SB	S	Moreland SB	1,161							
		L	Fitzwatertown EB	132	1,387	24.3	C	669.2			
		R	Fitzwaterton WB	94							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	0							
		S	Easton NB	1,125	1,254	121.5	F	1,572.4			
		R	Sycamore EB	18							
		HR	Mill SEB	111							
	Sycamore EB	R	Easton SB	0							
		L	Easton NB	8	8	113.3	F	39.2			
		S	Sycamore EB	0							
		BR	Mill SEB	0							
	Easton SB	S	Easton SB	1,218							
		R	Sycamore WB	6	1,351	74.0	E	1,213.3	2,918	123.1	F
		L	Sycamore EB	0							
		BL	Mill SEB	127							
	Sycamore WB	L	Easton SB	0							
		S	Sycamore WB	0	42	101.1	F	96.6			
		R	Easton NB	42							
		HL	Mill SEB	0							
	Mill NWB	HL	Easton SB	43							
		BL	Sycamore WB	0	263	386.5	F	1,367.6			
		BR	Easton NB	220							
		HR	Sycamore EB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	2	95	32.1	C	130.7			
		R	Easton SB	93							
	Ramp	S	Home Depot	0	0	0.0	NA	NA			
		L	Easton SB	0					2,274	18.8	B
	Easton SB	R	Home Depot	0	1,264	5.2	A	306.6			
		S	Easton SB	1,264							
	Easton NB	L	Home Depot	100	915	36.2	D	1,147.6			
		S	Easton NB	815							

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	20	1,288	13.3	B	437.6	2,737	19.5	B
		S	Easton SB	1,268							
	Maryland EB	L	Easton NB	99	281	29.6	C	176.0			
		R	Easton SB	182							
	Easton NB	S	Easton NB	1,105	1,168	23.8	C	1,036.5			
		L	Maryland WB	63							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	93	621	97.4	F	1,361.8	3,524	45.5	D
		S	Fitzwatertown EB	196							
		L	Easton NB	332							
	Easton NB	L	Fitzwatertown WB	0	836	36.0	D	592.2			
		R	Fitzwatertown EB	86							
		S	Easton NB	750							
	Fitzwatertown WB	S	Fitzwatertown WB	416	707	43.0	D	857.2			
		L	Easton SB	101							
		R	Easton NB	190							
	Easton SB	R	Fitzwatertown WB	211	1,360	29.0	C	625.1			
		S	Easton SB	1,038							
		L	Fitzwatertown EB	111							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	202	1,262	27.0	C	1,098.9	2,707	22.8	C
		R	Village EB	0							
		S	Welsh NB	1,060							
	Jarrettown EB	R	Welsh SB	209	212	15.5	B	168.3			
		S	Village EB	0							
		L	Welsh NB	3							
	Village WB	S	Jarrettown WB	74	219	24.6	C	210.0			
		L	Welsh SB	113							
		R	Welsh NB	32							
	Welsh SB	R	Jarrettown WB	6	1,014	18.7	B	309.1			
		S	Welsh SB	1,008							
		L	Village EB	0							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	185	24.5	C	134.6	2,678	10.0	A
		R	Welsh SB	140							
		L	Welsh NB	45							
	Dryden WB	S	Dryden WB	0	119	22.7	C	91.1			
		L	Welsh SB	51							
		R	Welsh NB	68							
	Welsh NB	L	Dryden WB	0	915	10.2	B	345.5			
		R	Dryden EB	0							
		S	Welsh NB	915							
	Welsh SB	R	Dryden WB	0	1,459	6.9	A	505.3			
		L	Dryden EB	13							
		S	Welsh SB	1,446							

(continued)

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	0							
		S	Easton SB	1,259	1,317	53.6	D	1,282.2			
		R	Blair Mill WB	58							
	Blair Mill WB	R	Easton NB	0							
		L	Easton SB	39	295	93.1	F	645.1			
		S	Blair Mill WB	256							
	Easton NB	S	Easton NB	940					3,377	110.4	F
		R	Blair Mill EB	67	1,242	164.7	F	1,297.8			
		L	Blair Mill WB	235							
	Blair Mill EB	L	Easton NB	180							
		S	Blair Mill EB	168	523	134.2	F	739.2			
		R	Easton SB	175							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	18							
		S	Dresher EB	534	552	126.7	F	1,669.9			
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	79							
		R	Dresher EB	128	207	57.3	E	706.0			
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	278					1,085	93.7	F
		L	Gibraltar SB	43	321	61.4	E	511.9			
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	4							
		S	Gibraltar SB	0	5	35.6	D	28.2			
		L	Dresher EB	1							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	0							
		R	Gilbraltar SB	0	331	250.9	F	1,671.9			
		S	Blair Mill EB	331							
	Gibraltar SB	R	Blair Mill WB	1							
		S	Gilbraltar SB	0	2	91.6	F	29.4			
		L	Blair Mill EB	1							
	Gilbraltar NB	L	Blair Mill WB	408					1,045	195.9	F
		S	Gilbraltar NB	104	512	25.3	C	754.9			
		R	Blair Mill EB	0							
	Blair Mill WB	S	Blair Mill WB	2							
		R	Gilbraltar NB	2	200	542.8	F	1,673.8			
		L	Gilbraltar SB	196							

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0							
		L	Dresher WB	142	251	73.5	E	1,201.5			
		R	Dreher EB	109							
	Walnut Grove SB	S	Walnut Grove SB	3							
		R	Dresher WB	85	122	48.8	D	120.5			
		L	Dresher EB	34							
	Dresher EB	R	Walnut Grove SB	44					1,265	49.5	D
		L	Walnut Grove NB	0	549	60.4	E	938.1			
		S	Dresher EB	505							
	Dresher WB	L	Walnut Grove SB	77							
		R	Walnut Grove NB	0	343	14.6	B	157.2			
		S	Dresher EB	266							
Dresher & Business Center	Dresher WB	R	Business Center NB	0	496	6.2	A	173.4			
		S	Dresher WB	496							
	Business Center SB	L	Dresher WB	595	597	26.5	C	1,504.4	1,275	18.4	B
		R	Dresher EB	2							
	Dresher EB	S	Dresher EB	26	182	25.3	C	200.8			
		L	Business Center NB	156							
Welsh & Electronic	Electronic WB	R	Welsh NB	186	186	91.8	f	479.9			
		L	Welsh SB	0							
	Welsh SB	L	Electronic EB	0	1,462	1.0	a	0.0	2,677	11.3	b
		S	Welsh SB	1,462							
	Welsh NB	R	Electronic EB	18	1,029	11.4	b	123.8			
		S	Welsh NB	1,011							
Witmer & Prudential	Prudential EB	R	Witmer SB	41							
		L	Witmer NB	18	78	100.1	F	351.0			
		S	Prudential EB	19							
	Witmer NB	L	Prudential WB	2							
		S	Witmer NB	30	50	40.4	D	1,653.5			
		R	Prudential EB	18							
	Witmer SB	R	Prudential WB	0					293	98.0	F
		S	Witmer SB	84	101	129.4	F	1,366.2			
		L	Prudential EB	17							
	Prudential WB	S	Prudential WB	10							
		L	Witmer SB	37	64	91.0	F	121.0			
		R	Witmer NB	17							
Maryland & Commerce	Maryland WB	R	Commerce NB	56	81	2.4	A	15.5			
		S	Maryland WB	25							
	Commerce SB	R	Maryland WB	62	253	17.7	B	246.3	373	13.3	B
		L	Maryland EB	191							
	Maryland EB	L	Commerce NB	0	39	6.6	A	57.6			
		S	Maryland EB	39							

(continued)

Table C-11 (continued): Welsh Road Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	164							
		S	Maryland SB	0	183	13.8	b	107.0			
		L	Driveway EB	19							
	Computer EB	L	Maryland NB	103							
		R	Maryland SB	15	119	53.7	f	900.5			
		S	Driveway EB	1							
	Maryland NB	S	Maryland NB	0					420	24.3	c
		L	Computer WB	64	89	8.6	a	0.0			
		R	Driveway EB	25							
	Driveway EB	R	Maryland NB	6							
		S	Computer WB	0	29	17.9	c	152.5			
		L	Maryland SB	23							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	57							
		S	Dresher EB	609	666	6.3	A	289.1			
	Saw Mill SB	R	Dresher WB	82							
		L	Dresher EB	0	82	393.3	F	828.0	1,085	68.4	E
	Dresher WB	R	Saw Mill NB	31							
		S	Dreher WB	306	337	111.9	F	294.7			
New & Dresher	New NB	L	Drehser WB	14							
		R	Dresher EB	0	14	314.5	F	154.5			
	Dresher EB	R	New SB	107							
		S	Dresher EB	503	610	1.0	A	57.1	965	64.8	E
	Dresher WB	L	New SB	0							
		R	Dresher WB	341	341	168.6	F	872.2			

Table C-12: Virginia Drive Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Office Center SB	R	Virginia WB	14	512	284.1	F	1,673.8	1,528	206.8	F
		L	Virginia EB	498							
	Virginia WB	S	Virginia WB	253	299	11.5	B	139.2			
		R	Office Center NB	46							
	Virginia EB	S	Virginia EB	711	717	233.0	F	1,424.6			
		L	Office Center NB	6							
Virginia & Susquehanna	Virginia EB	L	Virginia WB	70	992	21.0	C	428.7	3,049	57.6	E
		S	Virginia EB	379							
		R	Susquehanna SB	543							
	Susquehanna SB	R	Virginia WB	142	952	89.0	F	1,189.4			
		L	Susquehanna NB	386							
		S	Virginia EB	424							
	Susquehanna NB	L	Susquehanna NB	275	638	63.6	E	606.5			
		S	Virginia EB	336							
		R	Susquehanna SB	27							
	Virginia WB	S	Virginia WB	343	467	63.1	E	334.3			
		R	Susquehanna NB	108							
		L	Susquehanna SB	16							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	609	609	34.4	C	1,044.0	2,332	39.1	D
	Limekiln WB	L	Susquehanna SB	752	752	61.2	E	798.7			
	Susquehanna SB	S	Susquehanna SB	971	971	25.0	C	544.9			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	226	461	54.1	D	534.6	2,515	70.9	E
		R	Dreshertown EB	235							
		L	Virginia WB	0							
	Dreshertown WB	R	Limekiln NB	14	817	100.9	F	1,445.9			
		L	Limekiln SB	464							
		S	Virginia WB	339							
	Virginia EB	L	Limekiln NB	165	787	29.7	C	442.6			
		R	Limekiln SB	45							
		S	Dreshertown EB	577							
	Limekiln SB	S	Limekiln SB	286	450	105.5	F	877.7			
		L	Dreshertown EB	49							
		R	Virginia WB	115							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	81	663	27.5	C	628.2	3,120	33.0	C
		S	Susquehanna NB	582							
	EB Limekiln	R	Susquehanna SB	228	755	49.9	D	529.6			
		L	Susquehanna NB	527							
	Susquehanna SB	S	Susquehanna SB	769	1,702	27.6	C	992.9			
		R	Limekiln WB	933							
Susquehanna & Twining	Twining WB	L	Twining EB	48	640	27.4	C	708.5	2,633	56.2	E
		S	Twining WB	416							
		R	Susquehanna NB	176							
	Susquehanna SB	S	Susquehanna SB	706	988	46.9	D	1,648.1			
		L	Twining WB	266							
		R	Susquehanna NB	16							
	Twining EB	R	Susquehanna SB	116	481	26.3	C	431.8			
		S	Twining EB	330							
		L	Susquehanna NB	35							
	Susquehanna NB	R	Susquehanna SB	23	524	136.2	F	1,667.5			
		L	Twining EB	45							
		S	Twining WB	456							

(continued)

Table C-12 (continued): Virginia Drive Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	211	853	51.7	D	1,545.4	2,381	69.2	E
		R	Fitzwatertown WB	19							
		S	Susquehanna SB	623							
	Fitzwatertown WB	R	Susquehanna SB	136	563	105.9	F	1,570.0			
		S	Fitzwatertown WB	343							
		L	Susquehanna NB	84							
	Susquehanna NB	S	Susquehanna NB	400	457	72.9	E	1,088.4			
		R	Fitzwatertown EB	48							
		L	Fitzwatertown WB	9							
	Fitzwatertown EB	L	Susquehanna NB	31	508	54.4	D	584.7			
		S	Fitzwatertown EB	448							
		R	Susquehanna SB	29							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	20	385	46.4	D	549.5	1,805	54.4	D
		HL	North Hills NEB	32							
		R	Fitzwatertown WB	0							
		L	Fitzwatertown EB	333							
	Woodland NB	S	Woodland NB	45	142	48.8	D	209.5			
		BR	North Hills NEB	22							
		L	Fitzwatertown WB	7							
		R	Fitzwatertown EB	68							
	North Hills SWB	HR	Woodland NB	16	232	42.1	D	283.4			
		BL	Woodland SB	128							
		BR	Fitzwatertown WB	42							
		HL	Fitzwatertown EB	46							
	Fitzwatertown EB	L	Woodland NB	16	319	48.0	D	378.0			
		R	Woodland SB	84							
		BL	North Hills NEB	219							
		S	Fitzwatertown EB	0							
	Fitzwatertown WB	R	Woodland NB	0	727	66.4	E	1,620.3			
		L	Woodland SB	47							
		HR	North Hills NEB	124							
		S	Fitzwatertown WB	556							
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	154	545	95.8	F	1,648.0	1,960	45.9	D
		L	Old Welsh WB	4							
		S	Fitzwatertown NB	387							
	Old Welsh WB	L	Fitzwatertown SB	166	493	21.4	C	371.3			
		S	Old Welsh WB	132							
		R	Fitzwatertown NB	195							
	Old Welsh EB	R	Fitzwatertown SB	31	290	34.0	C	254.3			
		S	Old Welsh EB	255							
		L	Fitzwatertown NB	4							
	Fitzwatertown SB	S	Fitzwatertown SB	362	632	27.6	C	690.5			
		L	Old Welsh EB	255							
		R	Old Welsh WB	15							
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	314	720	23.4	C	481.5	2,072	20.4	C
		R	Susquehanna SB	406							
	Susquehanna SB	R	Camp Hill WB	55	778	19.3	B	394.7			
		S	Susquehanna SB	723							
	Susquehanna NB	L	Camp Hill WB	113	574	17.9	B	451.3			
		S	Susquehanna NB	461							

Table C-12 (continued): Virginia Drive Build Scenario PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	162							
		R	Susquehanna SB	110	454	37.0	D	496.9			
		L	Susquehanna NB	182							
	Broad WB	S	Pinetown WB	215							
		L	Susquehanna SB	15	307	22.1	C	281.1			
		R	Susquehanna NB	77							
	Susquehanna SB	R	Pinetown WB	31					2,179	46.1	D
		L	Broad EB	55	703	68.3	E	931.2			
		S	Susquehanna SB	617							
	Susquehanna NB	L	Pinetown WB	82							
		R	Broad EB	35	715	40.4	D	1,203.9			
		S	Susquehanna NB	598							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	421							
		L	Jarrettown EB	315	755	17.5	B	536.9			
		R	Private Drive WB	19							
	Private Drive EB	L	Limekiln NB	2							
		R	Limekiln SB	1	4	0.1	A	1.7			
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	234					1,687	26.6	C
		L	Limekiln SB	92	330	31.7	C	321.4			
		S	Private Drive WB	4							
	Limekiln NB	S	Limekiln NB	416							
		R	Jarrettown EB	173	598	35.4	D	691.2			
		L	Private Drive WB	9							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	18							
		R	Bantry WB	12	888	7.0	A	715.7			
		S	Dreshertown SB	858							
	Beacon Hill WB	R	Dreshertown NB	7							
		S	Bantry WB	4	56	3.6	A	23.6			
		L	Dreshertown SB	45							
	Bantry EB	L	Dreshertown NB	8					1,722	5.9	A
		S	Beacon Hill EB	4	12	10.0	A	29.7			
		R	Dreshertown SB	0							
	Dreshertown NB	S	Dreshertown NB	658							
		R	Beacon Hill EB	89	766	4.8	A	222.1			
		L	Bantry WB	19							
Ramps & Virginia Drive	Virginia WB	S	Virginia WB	209	754	38.4	D	463.6	2,394	86.8	F
		R	On-Ramps NB	545	1,750						
	Virginia EB	S	Virginia EB	645	1,205	111.5	F	569.7			
		L	On-Ramps NB	560	995	126.8	F	817.7			
	Ramps SB	L	Virginia EB	346	435	102.4	F	1,137.0			
		R	Virginia WB	89	2,785	96.6	F	1,215.7			

Welsh Road & Virginia Drive Build + Improvements Results

Table C-13: Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	51							
		S	Witmer NB	126	213	26.4	C	139.1			
		L	Dresher WB	36							
	Dresher WB	L	Witmer SB	307							
		R	Witmer NB	401	1,466	18.8	B	463.5			
		S	Dresher WB	758							
	Dresher EB	R	Witmer SB	6					2,689	20.8	C
		S	Dreher EB	506	534	19.4	B	179.7			
		L	Witmer NB	22							
	Witmer SB	S	Witmer SB	193							
		L	Dresher EB	273	476	26.2	C	274.0			
		R	Dresher WB	10							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	55							
		S	Commerce SB	40	129	25.6	C	65.8			
		R	Blair Mill WB	34							
	Blair Mill WB	R	Witmer NB	51							
		L	Witmer SB	49	587	10.9	B	174.4			
		S	Blair Mill WB	487							
	Blair Mill EB	L	Witmer NB	58					1,656	16.7	B
		S	Blair Mill EB	513	626	10.7	B	245.2			
		R	Witmer SB	55							
	Commerce NB	S	Witmer NB	136							
		R	Blair Mill EB	172	314	35.7	D	282.4			
		L	Witmer SB	6							
Welsh & Dresher	Welsh SB	S	Welsh SB	1,167	1,364	83.3	F	1,058.2			
		L	Dresher EB	197							
	Dresher WB	L	Welsh SB	623	823	50.2	D	694.9	3,481	51.2	D
		R	Welsh NB	200							
	Welsh NB	S	Welsh NB	1,044	1,294	17.9	B	514.4			
		R	Dresher EB	250							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	693	1,792	19.8	B	591.0			
		S	Welsh SB	1,099							
	Dreshertown EB	L	Welsh NB	337	487	30.6	C	240.6	3,317	19.3	B
		R	Welsh SB	150							
	Welsh NB	S	Welsh NB	956	1,038	13.1	B	344.3			
		L	Dreshertown WB	82							

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	18							
		S	Welsh NB	1,082	1,754	57.1	E	907.9			
		L	Blair Mill WB	654							
	Blair Mill WB	L	Welsh SB	68							
		R	Welsh NB	267	509	31.3	C	187.1			
		S	Prudential WB	174							
	Welsh SB	S	Welsh SB	908					4,234	43.6	D
		L	Blair Mill EB	66	1,174	34.2	C	325.4			
		R	Prudential WB	200							
	Prudential EB	R	Welsh SB	15							
		S	Blair Mill EB	468	797	35.7	D	220.2			
		L	Welsh NB	314							
Welsh & Computer	Welsh SB	L	Computer EB	51							
		S	Welsh SB	940	991	18.9	B	342.5			
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	0							
		L	Welsh SB	322	322	35.7	D	350.2			
		S	Prudential WB	0							
	Welsh NB	S	Welsh NB	408					4,059	21.6	C
		R	Computer EB	39	447	8.8	A	335.3			
		L	Prudential WB	0							
	Prudential EB	L	Welsh NB	163							
		S	Computer EB	1,942	2,299	23.3	C	521.1			
		R	Welsh SB	194							
Welsh & Twining	Welsh NB	L	Twining WB	168							
		S	Welsh NB	1,423	1,591	29.4	C	654.0			
		R	Twining EB	0							
	Twining EB	R	Welsh SB	362							
		L	Welsh NB	710	1,072	50.1	D	1,288.1			
		S	Twining EB	0							
	Twining WB	L	Welsh SB	22					4,188	31.1	C
		S	Twining WB	0	24	52.5	D	58.1			
		R	Welsh NB	2							
	Welsh SB	S	Welsh SB	1,377							
		R	Twining WB	124	1,501	18.8	B	422.1			
		L	Twining EB	0							
Welsh & Kimball	Welsh SB	R	Kimball WB	185	1,519	21.1	C	750.5			
		S	Welsh SB	1,334							
	Kimball EB	L	Welsh NB	281	322	26.7	C	292.8	3,151	16.4	B
		R	Welsh SB	41							
	Moreland NB	S	Welsh NB	1,277	1,310	8.4	A	490.6			
		L	Kimball WB	33							

(continued)

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	1,056	1,067	42.2	D	592.7	3,524	61.5	E
		R	Fitzwatertown EB	7							
		L	Fitzwatertown WB	4							
	Fitzwatertown WB	L	Moreland SB	90	660	48.9	D	907.2			
		R	Moreland NB	267							
		S	Fitzwaterton WB	303							
	Fitzwatertown EB	R	Moreland SB	5	475	81.0	F	1,129.6			
		L	Moreland NB	56							
		S	Fitzwatertown EB	414							
	Moreland SB	S	Moreland SB	1,133	1,322	76.4	E	1,253.5			
		L	Fitzwatertown EB	189							
		R	Fitzwaterton WB	0							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	8	1,883	37.7	D	509.3	4,405	59.8	E
		S	Easton NB	1,513							
		R	Sycamore EB	42							
		HR	Mill SEB	320							
	Sycamore EB	R	Easton SB	0	6	54.4	D	30.2			
		L	Easton NB	6							
		S	Sycamore EB	0							
		BR	Mill SEB	0							
	Easton SB	S	Easton SB	1,608	1,727	45.1	D	581.2			
		R	Sycamore WB	21							
		L	Sycamore EB	0							
		BL	Mill SEB	98							
	Sycamore WB	L	Easton SB	25	101	58.3	E	173.4			
		S	Sycamore WB	0							
		R	Easton NB	76							
		HL	Mill SEB								
	Mill NWB	HL	Easton SB	416	688	157.7	F	1,372.5			
		BL	Sycamore WB	0							
		BR	Easton NB	272							
		HR	Sycamore EB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	0	73	45.5	D	125.7	3,449	5.3	A
		R	Easton SB	73							
	Ramp	S	Home Depot	0	0	0.0	NA	NA			
		L	Easton SB	0							
	Easton SB	R	Home Depot	0	2,053	5.4	A	496.3			
		S	Easton SB	2,053							
	Easton NB	L	Home Depot	25	1,323	2.9	A	296.0			
		S	Easton NB	1,298							

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	166	1,553	15.7	B	533.4	3,322	14.2	B
		S	Easton SB	1,387							
	Maryland EB	L	Easton NB	318	408	25.6	C	189.1			
		R	Easton SB	90							
	Easton NB	S	Easton NB	1,245	1,361	9.1	A	424.3			
		L	Maryland WB	116							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	0	607	199.5	F	1,668.1	3,655	67.2	E
		S	Fitzwatertown EB	315							
		L	Easton NB	292							
	Easton NB	L	Fitzwatertown WB	0	904	37.8	D	430.1			
		R	Fitzwatertown EB	63							
		S	Easton NB	841							
	Fitzwatertown WB	S	Fitzwatertown WB	514	722	50.4	D	890.0			
		L	Easton SB	100							
		R	Easton NB	108							
	Easton SB	R	Fitzwatertown WB	234	1,422	37.9	D	812.3			
		S	Easton SB	1,014							
		L	Fitzwatertown EB	174							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	238	1,244	14.7	B	461.8	2,634	57.3	E
		R	Village EB	0							
		S	Welsh NB	1,006							
	Jarrettown EB	R	Welsh SB	259	267	57.4	E	255.6			
		S	Village EB	0							
		L	Welsh NB	8							
	Village WB	S	Jarrettown WB	0	0	0.0	NA	NA			
		L	Welsh SB	0							
		R	Welsh NB	0							
	Welsh SB	R	Jarrettown WB	4	1,123	104.5	F	967.4			
		S	Welsh SB	1,119							
		L	Village EB	0							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	5	28.9	C	24.9	2,363	7.0	A
		R	Welsh SB	3							
		L	Welsh NB	2							
	Dryden WB	S	Dryden WB	0	95	27.9	C	95.0			
		L	Welsh SB	74							
		R	Welsh NB	21							
	Welsh NB	L	Dryden WB	0	991	7.6	A	248.7			
		R	Dryden EB	0							
		S	Welsh NB	991							
	Welsh SB	R	Dryden WB	0	1,272	4.9	A	313.6			
		L	Dryden EB	172							
		S	Welsh SB	1,100							

(continued)

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	0	1,334	43.5	D	646.6	4,580	65.2	E
		S	Easton SB	1,139							
		R	Blair Mill WB	195							
	Blair Mill WB	R	Easton NB	0	330	318.3	F	652.9			
		L	Easton SB	190							
		S	Blair Mill WB	140							
	Easton NB	S	Easton NB	1,336	1,760	53.6	D	767.9			
		R	Blair Mill EB	48							
		L	Blair Mill WB	376							
	Blair Mill EB	L	Easton NB	451	1,156	35.6	D	387.2			
		S	Blair Mill EB	348							
		R	Easton SB	357							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	146	775	18.9	B	292.6	2,825	12.8	B
		S	Dresher EB	629							
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	8	101	34.2	C	117.5			
		R	Dresher EB	93							
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	1,456	1,942	9.3	A	490.2			
		L	Gibraltar SB	486							
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	0	7	28.6	C	28.1			
		S	Gibraltar SB	2							
		L	Dresher EB	5							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	7	736	9.0	A	220.3	1,914	9.5	A
		R	Gilbraltar SB	0							
		S	Blair Mill EB	729							
	Gibraltar NB	L	Blair Mill WB	0	0	0.0	NA	NA			
		S	Gilbraltar SB	0							
		R	Blair Mill EB	0							
	Gilbraltar SB	R	Blair Mill WB	30	465	16.2	B	232.2			
		S	Gilbraltar NB	0							
		L	Blair Mill EB	435							
	Blair Mill WB	S	Blair Mill WB	335	713	5.7	A	120.9			
		R	Gilbraltar NB	327							
		L	Gilbraltar SB	51							

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0	70	18.3	B	67.0	1,347	4.6	A
		L	Dresher WB	0							
		R	Dreher EB	70							
	Walnut Grove SB	S	Walnut Grove SB	0	10	14.3	B	31.2			
		R	Dresher WB	7							
		L	Dresher EB	3							
	Dresher EB	R	Walnut Grove SB	0	461	4.1	A	114.1			
		L	Walnut Grove NB	0							
		S	Dresher EB	461							
	Dresher WB	L	Walnut Grove SB	11	806	3.5	A	201.4			
		R	Walnut Grove NB	0							
		S	Dresher EB	795							
Dresher & Business Center	Dresher WB	R	Business Center NB	0	801	0.9	A	136.2	1,284	2.1	A
		S	Dresher WB	801							
	Business Center SB	L	Dresher WB	443	446	3.4	A	125.1			
		R	Dresher EB	3							
	Dresher EB	S	Dresher EB	15	37	13.4	B	50.6			
		L	Business Center NB	22							
Welsh & Electronic	Electronic WB	R	Welsh NB	24	68	10.2	b	63.5	2,331	0.8	a
		L	Welsh SB	44							
	Welsh SB	L	Electronic EB	0	1,248	0.3	a	0.0			
		S	Welsh SB	1,248							
	Welsh NB	R	Electronic EB	23	1,015	0.7	a	0.0			
		S	Welsh NB	992							
Witmer & Prudential	Prudential EB	R	Witmer SB	32	64	9.7	A	41.0	363	8.6	A
		L	Witmer NB	17							
		S	Prudential EB	15							
	Witmer NB	L	Prudential WB	0	156	6.2	A	103.2			
		S	Witmer NB	84							
		R	Prudential EB	72							
	Witmer SB	R	Prudential WB	0	64	5.0	A	55.3			
		S	Witmer SB	40							
		L	Prudential EB	24							
	Prudential WB	S	Prudential WB	40	79	15.6	B	64.6			
		L	Witmer SB	11							
		R	Witmer NB	28							
Maryland & Commerce	Maryland WB	R	Commerce NB	122	280	3.1	A	57.4	708	5.7	A
		S	Maryland WB	158							
	Commerce SB	R	Maryland WB	20	117	12.1	B	80.4			
		L	Maryland EB	97							
	Maryland EB	L	Commerce NB	0	311	5.5	A	215.0			
		S	Maryland EB	311							

(continued)

Table C-13 (continued): Welsh Road Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	74	74	6.6	a	0.0	906	6.1	a
		S	Maryland SB	0							
		L	Driveway EB	0							
	Computer EB	L	Maryland NB	234	580	4.0	a	36.7			
		R	Maryland SB	297							
		S	Driveway EB	49							
	Maryland NB	S	Maryland NB	58	179	10.4	b	10.4			
		L	Computer WB	64							
		R	Driveway EB	57							
	Driveway EB	R	Maryland NB	5	73	11.6	b	109.3			
		S	Computer WB	54							
		L	Maryland SB	14							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	23	724	10.7	B	266.8	2,841	10.7	B
		S	Dresher EB	701							
	Saw Mill SB	R	Dresher WB	229	401	29.9	C	412.0			
		L	Dresher EB	172							
	Dresher WB	R	Saw Mill NB	0	1,716	6.2	A	260.2			
		S	Dreher WB	1,716							
New & Dresher	New NB	L	Drehser WB	91	91	23.7	C	105.9	2,587	13.3	B
		R	Dresher EB	0							
	Dresher EB	R	New SB	100	873	3.5	A	114.0			
		S	Dresher EB	773							
	Dresher WB	L	New SB	0	1,623	18.0	B	637.3			
		R	Dresher WB	1,623							

Table C-14: Virginia Drive Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Office Center SB	R	Virginia WB	58	144	21.3	C	69.3	2,184	6.3	A
		L	Virginia EB	86							
	Virginia WB	S	Virginia WB	1,093	1,627	5.6	A	371.1			
		R	Office Center NB	534							
	Virginia EB	S	Virginia EB	374	413	4.1	A	85.9			
		L	Office Center NB	39							
Virginia & Susquehanna	Virginia EB	L	Virginia WB	72	569	14.3	B	191.4	3,002	29.7	C
		S	Virginia EB	244							
		R	Susquehanna SB	253							
	Susquehanna SB	R	Virginia WB	257	696	22.9	C	118.6			
		L	Susquehanna NB	183							
		S	Virginia EB	256							
	Susquehanna NB	L	Susquehanna NB	524	980	36.5	D	514.6			
		S	Virginia EB	425							
		R	Susquehanna SB	31							
	Virginia WB	S	Virginia WB	690	757	38.6	D	382.8			
		R	Susquehanna NB	62							
		L	Susquehanna SB	5							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	950	950	9.6	A	240.0	1,835	10.8	B
	Limekiln WB	L	Susquehanna SB	369	369	20.0	B	151.8			
	Susquehanna SB	S	Susquehanna SB	516	516	6.5	A	124.5			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	163	324	15.7	B	182.9	1,892	17.4	B
		R	Dreshertown EB	148							
		L	Virginia WB	13							
	Dreshertown WB	R	Limekiln NB	4	756	14.3	B	179.3			
		L	Limekiln SB	133							
		S	Virginia WB	619							
	Virginia EB	L	Limekiln NB	75	408	18.5	B	290.7			
		R	Limekiln SB	21							
		S	Dreshertown EB	312							
	Limekiln SB	S	Limekiln SB	242	404	23.6	C	237.9			
		L	Dreshertown EB	31							
		R	Virginia WB	131							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	22	754	12.7	B	194.2	2,249	18.6	B
		S	Susquehanna NB	732							
	EB Limekiln	R	Susquehanna SB	73	605	37.8	D	694.6			
		L	Susquehanna NB	532							
	Susquehanna SB	S	Susquehanna SB	520	890	10.7	B	287.6			
		R	Limekiln WB	370							
Susquehanna & Twining	Susquehanna NB	R	Twining EB	28	519	47.1	D	556.3	2,103	25.8	C
		L	Twining WB	32							
		S	Susquehanna NB	459							
	Twining WB	L	Susquehanna SB	23	559	15.2	B	315.3			
		S	Twining WB	263							
		R	Susquehanna NB	273							
	Twining EB	R	Susquehanna SB	25	440	16.3	B	238.0			
		S	Twining EB	400							
		L	Susquehanna NB	15							
	Susquehanna SB	S	Susquehanna SB	482	585	24.1	C	525.8			
		L	Twining EB	86							
		R	Twining WB	17							

(continued)

Table C-14 (continued): Virginia Drive Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	90	531	46.7	D	864.6	2,238	41.2	D
		R	Fitzwatertown WB	18							
		S	Susquehanna SB	423							
	Fitzwatertown WB	R	Susquehanna SB	52	548	32.3	C	570.3			
		S	Fitzwatertown WB	439							
		L	Susquehanna NB	57							
	Susquehanna NB	S	Susquehanna NB	444	607	57.5	E	1,217.1			
		R	Fitzwatertown EB	60							
		L	Fitzwatertown WB	103							
	Fitzwatertown EB	L	Susquehanna NB	27	552	26.9	C	483.1			
		S	Fitzwatertown EB	495							
		R	Susquehanna SB	30							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	6	52	39.2	D	81.7	1,571	26.0	C
		HL	North Hills NEB	27							
		R	Fitzwatertown WB	8							
		L	Fitzwatertown EB	11							
	Woodland NB	S	Woodland NB	91	256	32.3	C	271.9			
		BR	North Hills NEB	85							
		L	Fitzwatertown WB	55							
		R	Fitzwatertown EB	25							
	North Hills SWB	HR	Woodland NB	18	174	33.6	C	203.9			
		BL	Woodland SB	35							
		BR	Fitzwatertown WB	118							
		HL	Fitzwatertown EB	3							
	Fitzwatertown EB	L	Woodland NB	7	702	22.7	C	607.7			
		R	Woodland SB	56							
		BL	North Hills NEB	242							
		S	Fitzwatertown EB	397							
	Fitzwatertown WB	R	Woodland NB	6	387	22.6	C	345.4			
		L	Woodland SB	12							
		HR	North Hills NEB	1							
		S	Fitzwatertown WB	368							
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	118	562	34.1	C	697.1	1,485	23.2	C
		L	Old Welsh WB	22							
		S	Fitzwatertown NB	422							
	Old Welsh WB	L	Fitzwatertown SB	110	352	17.4	B	224.0			
		S	Old Welsh WB	107							
		R	Fitzwatertown NB	135							
	Old Welsh EB	R	Fitzwatertown SB	30	128	26.7	C	127.1			
		S	Old Welsh EB	90							
		L	Fitzwatertown NB	8							
	Fitzwatertown SB	S	Fitzwatertown SB	352	443	12.9	B	240.6			
		L	Old Welsh EB	84							
		R	Old Welsh WB	7							

Table C-14 (continued): Virginia Drive Build + Improvements AM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	61	341	24.7	C	265.1	1,797	17.9	B
		R	Susquehanna SB	280							
	Susquehanna SB	R	Camp Hill WB	46	938	19.1	B	449.9			
		S	Susquehanna SB	892							
	Susquehanna NB	L	Camp Hill WB	75	518	11.2	B	322.9			
		S	Susquehanna NB	443							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	216	439	25.9	C	408.7	2,020	42.3	D
		R	Susquehanna SB	135							
		L	Susquehanna NB	88							
	Broad WB	S	Pinetown WB	286	422	21.4	C	365.8			
		L	Susquehanna SB	93							
		R	Susquehanna NB	43							
	Susquehanna SB	R	Pinetown WB	36	678	81.7	F	930.8			
		L	Broad EB	11							
		S	Susquehanna SB	631							
	Susquehanna NB	L	Pinetown WB	59	481	20.2	C	369.6			
		R	Broad EB	17							
		S	Susquehanna NB	405							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	268	787	21.2	C	602.9	1,455	25.3	C
		L	Jarrettown EB	519							
		R	Private Drive WB	0							
	Private Drive EB	L	Limekiln NB	0	2	23.4	C	51.9			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	228	389	38.2	D	413.7			
		L	Limekiln SB	160							
		S	Private Drive WB	1							
	Limekiln NB	S	Limekiln NB	197	277	19.0	B	210.5			
		R	Jarrettown EB	80							
		L	Private Drive WB	0							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	1	657	8.9	A	316.7	1,340	9.3	A
		R	Bantry WB	1							
		S	Dreshertown SB	655							
	Beacon Hill WB	R	Dreshertown NB	36	115	11.4	B	117.9			
		S	Bantry WB	6							
		L	Dreshertown SB	73							
	Bantry EB	L	Dreshertown NB	12	66	9.6	A	63.7			
		S	Beacon Hill EB	20							
		R	Dreshertown SB	34							
	Dreshertown NB	S	Dreshertown NB	470	502	9.3	A	144.7			
		R	Beacon Hill EB	23							
		L	Bantry WB	9							
Ramps & Virginia Drive	Virginia WB	S	Virginia WB	918	1,471	16.5	B	448.5	3,005	22.6	C
		R	On-Ramps NB	553							
	Virginia EB	S	Virginia EB	206	459	16.1	B	194.7			
		L	On-Ramps NB	253							
	Ramps SB	L	Virginia EB	364	1,075	33.7	C	855.7			
		R	Virginia WB	711							

Table C-15: Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Witmer & Dresher	Witmer NB	R	Dresher EB	99							
		S	Witmer NB	177	348	25.9	C	220.4			
		L	Dresher WB	72							
	Dresher WB	L	Witmer SB	7							
		R	Witmer NB	249	833	19.0	B	320.0			
		S	Dresher WB	577					2,616	23.0	C
	Dresher EB	R	Witmer SB	102							
		S	Dreher EB	718	952	27.0	C	321.6			
		L	Witmer NB	132							
	Witmer SB	S	Witmer SB	104							
		L	Dresher EB	321	483	20.3	C	233.2			
		R	Dresher WB	58							
Witmer & Blair Mill	Witmer SB	L	Blair Mill EB	0							
		S	Commerce SB	518	698	38.1	D	512.4			
		R	Blair Mill WB	180							
	Blair Mill WB	R	Witmer NB	43							
		L	Witmer SB	119	806	24.7	C	367.3			
		S	Blair Mill WB	644							
	Blair Mill EB	L	Witmer NB	71					2,494	104.7	F
		S	Blair Mill EB	585	709	204.9	F	1,673.8			
		R	Witmer SB	53							
	Commerce NB	S	Witmer NB	106							
		R	Blair Mill EB	175	281	246.6	F	1,654.8			
		L	Blair Mill WB	0							
Welsh & Dresher	Welsh SB	S	Welsh SB	1,077	1,327	27.7	C	411.3			
		L	Dresher EB	250							
	Dresher WB	L	Welsh SB	737	1,070	41.0	D	555.6	4,249	26.5	C
		R	Welsh NB	333							
	Welsh NB	S	Welsh NB	1,300	1,852	17.2	B	575.5			
		R	Dresher EB	552							
Welsh & Dreshertown	Welsh SB	R	Drehsertown WB	500	1,807	20.5	C	588.9			
		S	Welsh SB	1,307							
	Dreshertown EB	L	Welsh NB	522	705	120.3	F	1,323.2	4,056	37.7	D
		R	Welsh SB	183							
	Welsh NB	S	Welsh NB	1,333	1,544	20.2	C	539.1			
		L	Dreshertown WB	211							

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Welsh & Blair Mill	Welsh NB	R	Blair Mill EB	52	1,617	83.5	F	1,007.2	4,986	59.9	E
		S	Welsh NB	829							
		L	Blair Mill WB	736							
	Blair Mill WB	L	Welsh SB	115	888	49.7	D	515.7			
		R	Welsh NB	254							
		S	Prudential WB	519							
	Welsh SB	S	Welsh SB	1,302	1,667	39.6	D	729.0			
		L	Blair Mill EB	124							
		R	Prudential WB	241							
	Prudential EB	R	Welsh SB	0	814	65.9	E	455.7			
		S	Blair Mill EB	456							
		L	Welsh NB	358							
Welsh & Computer	Welsh SB	L	Computer EB	9	1,423	27.5	C	517.5	4,399	35.6	D
		S	Welsh SB	1,414							
		R	Prudential WB	0							
	Computer WB	R	Welsh NB	0	248	38.9	D	276.6			
		L	Welsh SB	248							
		S	Prudential WB	0							
	Welsh NB	S	Welsh NB	492	908	50.0	D	389.3			
		R	Computer EB	416							
		L	Prudential WB	0							
	Prudential EB	L	Welsh NB	508	1,820	34.4	C	466.5			
		S	Computer EB	1,294							
		R	Welsh SB	18							
Welsh & Twining	Welsh NB	L	Twining WB	120	1,387	8.7	A	306.3	3,889	10.4	B
		S	Welsh NB	0							
		R	Twining EB	1,267							
	Twining EB	R	Welsh SB	40	82	26.4	C	82.0			
		L	Welsh NB	0							
		S	Twining EB	42							
	Welsh SB	S	Welsh SB	2,026	2,415	10.8	B	521.6			
		R	Twining WB	389							
		L	Twining EB	0							
	Twining WB	L	Welsh SB	3	5	38.0	D	29.7			
		S	Twining WB	0							
		R	Welsh NB	2							
Welsh & Kimball	Welsh SB	R	Kimball WB	336	1,923	13.0	B	711.0	3,243	12.2	B
		S	Welsh SB	1,587							
	Kimball EB	L	Welsh NB	213	229	30.5	C	184.5			
		R	Welsh SB	16							
	Moreland NB	S	Welsh NB	1,033	1,091	7.0	A	318.0			
		L	Kimball WB	58							

(continued)

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Moreland & Fitzwatertown	Moreland NB	S	Moreland NB	852							
		R	Fitzwatertown EB	43	901	25.8	C	344.0			
		L	Fitzwatertown WB	6							
	Fitzwatertown WB	L	Moreland SB	22							
		R	Moreland NB	239	533	25.9	C	448.0			
		S	Fitzwaterton WB	272					3,616	26.8	C
	Fitzwatertown EB	R	Moreland SB	4							
		L	Moreland NB	0	488	26.0	C	482.0			
		S	Fitzwatertown EB	484							
	Moreland SB	S	Moreland SB	1,451							
		L	Fitzwatertown EB	139	1,694	28.0	C	818.6			
		R	Fitzwaterton WB	104							
Easton & Sycamore & Mill	Easton NB	L	Sycamore WB	0							
		S	Easton NB	1,251	1,563	125.7	F	1,525.5			
		R	Sycamore EB	20							
		HR	Mill SEB	292							
	Sycamore EB	R	Easton SB	0							
		L	Easton NB	9	9	128.3	F	39.4			
		S	Sycamore EB	0							
		BR	Mill SEB	0							
	Easton SB	S	Easton SB	1,340							
		R	Sycamore WB	7	1,605	62.8	E	1,199.9	3,515	117.1	F
		L	Sycamore EB	0							
		BL	Mill SEB	258							
	Sycamore WB	L	Easton SB	0							
		S	Sycamore WB	0	43	117.5	F	114.3			
		R	Easton NB	43							
		HL	Mill SEB								
	Mill NWB	HL	Easton SB	49							
		BL	Sycamore WB	0	295	366.7	F	1,365.2			
		BR	Easton NB	246							
		HR	Sycamore EB	0							
Easton & Home Depot & I-276 Ramp	Home Depot EB	L	Easton NB	2							
		R	Easton SB	94	96	34.3	C	141.7			
	Ramp	S	Home Depot	0							
		L	Easton SB	0	0	0.0	NA	0.0			
	Easton SB	R	Home Depot	0					2,643	26.8	C
		S	Easton SB	1,396	1,396	6.2	A	435.8			
	Easton NB	L	Home Depot	101							
		S	Easton NB	1,050	1,151	51.2	D	1,070.1			

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Maryland	Easton SB	R	Maryland WB	21	1,386	19.8	B	572.9	3,190	29.8	C
		S	Easton SB	1,365							
	Maryland EB	L	Easton NB	346	643	37.9	D	268.1			
		R	Easton SB	297							
	Easton NB	S	Easton NB	1,099	1,161	37.2	D	1,343.9			
		L	Maryland WB	62							
Easton & Fitzwatertown	Fitzwatertown EB	R	Easton SB	92	624	107.0	F	1,395.4	3,728	49.6	D
		S	Fitzwatertown EB	201							
		L	Easton NB	331							
	Easton NB	L	Fitzwatertown WB	0	841	40.4	D	564.9			
		R	Fitzwatertown EB	86							
		S	Easton NB	755							
	Fitzwatertown WB	S	Fitzwatertown WB	419	712	44.6	D	818.7			
		L	Easton SB	102							
		R	Easton NB	191							
	Easton SB	R	Fitzwatertown WB	231	1,551	33.9	C	815.0			
		S	Easton SB	1,189							
		L	Fitzwatertown EB	131							
Jarrettown & Welsh	Welsh NB	L	Jarrettown WB	290	1,642	13.1	B	683.6	3,089	17.2	B
		R	Village EB	0							
		S	Welsh NB	1,352							
	Jarrettown EB	R	Welsh SB	208	211	15.2	B	169.6			
		S	Village EB	0							
		L	Welsh NB	3							
	Village WB	S	Jarrettown WB	74	219	27.9	C	206.6			
		L	Welsh SB	113							
		R	Welsh NB	32							
	Welsh SB	R	Jarrettown WB	6	1,017	21.9	C	432.8			
		S	Welsh SB	1,011							
		L	Village EB	0							
Welsh & Dryden	Dryden EB	S	Dryden EB	0	183	27.0	C	155.4	3,113	8.8	A
		R	Welsh SB	139							
		L	Welsh NB	44							
	Dryden WB	S	Dryden WB	0	117	23.9	C	95.9			
		L	Welsh SB	50							
		R	Welsh NB	67							
	Welsh NB	L	Dryden WB	0	1,315	8.4	A	444.4			
		R	Dryden EB	0							
		S	Welsh NB	1,315							
	Welsh SB	R	Dryden WB	0	1,498	5.8	A	479.9			
		L	Dryden EB	13							
		S	Welsh SB	1,485							

(continued)

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Easton & Blair Mill	Easton SB	L	Blair Mill EB	0	1,325	72.1	E	1,338.6	4,202	123.4	F
		S	Easton SB	1,258							
		R	Blair Mill WB	67							
	Blair Mill WB	R	Easton NB	0	349	157.6	F	636.4			
		L	Easton SB	43							
		S	Blair Mill WB	306							
	Easton NB	S	Easton NB	1,051	1,390	150.7	F	1,298.1			
		R	Blair Mill EB	75							
		L	Blair Mill WB	264							
	Blair Mill EB	L	Easton NB	345	1,138	139.2	F	744.5			
		S	Blair Mill EB	315							
		R	Easton SB	478							
Dresher & Gibraltar	Dresher EB	R	Gibraltar SB	73	1,120	25.1	C	435.3	2,575	25.3	C
		S	Dresher EB	1,047							
		L	Gibraltar NB	0							
	Gibraltar NB	L	Dresher WB	124	522	46.4	D	586.9			
		R	Dresher EB	398							
		S	Gibraltar NB	0							
	Dresher WB	S	Dresher WB	707	928	13.6	B	251.6			
		L	Gibraltar SB	221							
		R	Gibraltar NB	0							
	Gibraltar SB	R	Dresher WB	4	5	21.3	C	26.3			
		S	Gibraltar SB	0							
		L	Dresher EB	1							
Blair Mill & Gibraltar	Blair Mill EB	L	Gilbraltar NB	0	628	265.8	F	1,673.8	1,802	184.5	F
		R	Gilbraltar SB	0							
		S	Blair Mill EB	628							
	Gibraltar NB	L	Blair Mill WB	1	2	73.8	E	27.5			
		S	Gilbraltar SB	0							
		R	Blair Mill EB	1							
	Blair Mill WB	S	Blair Mill WB	509	635	24.9	C	322.1			
		R	Gilbraltar NB	126							
		L	Gibraltar SB	0							
	Gibraltar SB	R	Blair Mill WB	3	537	278.7	F	1,666.0			
		S	Gilbraltar SB	6							
		L	Blair Mill EB	528							

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Dresher & Walnut Grove	Walnut Grove NB	S	Walnut Grove NB	0	315	23.9	C	247.9	1,984	16.9	B
		L	Dresher WB	171							
		R	Dreher EB	144							
	Walnut Grove SB	S	Walnut Grove SB	3	131	21.0	C	100.8			
		R	Dresher WB	87							
		L	Dresher EB	41							
	Dresher EB	R	Walnut Grove SB	60	831	16.8	B	258.8			
		L	Walnut Grove NB	0							
		S	Dresher EB	771							
	Dresher WB	L	Walnut Grove SB	158	707	13.2	B	188.4			
		R	Walnut Grove NB	0							
		S	Dresher EB	549							
Dresher & Business Center	Dresher WB	R	Business Center NB	0	805	6.0	A	182.3	1,799	7.0	A
		S	Dresher WB	805							
	Business Center SB	L	Dresher WB	800	803	6.1	A	146.2			
		R	Dresher EB	3							
	Dresher EB	S	Dresher EB	34	191	15.1	B	126.3			
		L	Business Center NB	157							
Welsh & Electronic	Electronic WB	R	Welsh NB	187	187	14.1	b	152.8	3,107	2.4	a
		L	Welsh SB	0							
	Welsh SB	L	Electronic EB	0	1,493	0.9	a	0.0			
		S	Welsh SB	1,493							
	Welsh NB	R	Electronic EB	73	1,427	2.5	a	23.3			
		S	Welsh NB	1,354							
Witmer & Prudential	Prudential EB	R	Witmer SB	155	306	20.6	C	180.2	1,038	21.8	C
		L	Witmer NB	49							
		S	Prudential EB	102							
	Witmer NB	L	Prudential WB	12	261	25.3	C	366.8			
		S	Witmer NB	137							
		R	Prudential EB	112							
	Witmer SB	R	Prudential WB	0	284	20.7	C	236.4			
		S	Witmer SB	190							
		L	Prudential EB	94							
	Prudential WB	S	Prudential WB	25	187	20.6	C	130.1			
		L	Witmer SB	127							
		R	Witmer NB	35							
Maryland & Commerce	Maryland WB	R	Commerce NB	59	85	3.9	A	18.0	786	14.3	B
		S	Maryland WB	26							
	Commerce SB	R	Maryland WB	93	456	17.8	B	319.5			
		L	Maryland EB	363							
	Maryland EB	L	Commerce NB	0	245	11.2	B	180.3			
		S	Maryland EB	245							

(continued)

Table C-15 (continued): Welsh Road Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Maryland & Computer	Maryland SB	R	Computer WB	299							
		S	Maryland SB	0	329	18.4	c	169.0			
		L	Driveway EB	30							
	Computer EB	L	Maryland NB	142							
		R	Maryland SB	218	382	24.9	c	637.7			
		S	Driveway EB	22							
	Maryland NB	S	Maryland NB	0					865	19.7	c
		L	Computer WB	94	121	8.5	a	0.0			
		R	Driveway EB	27							
	Driveway EB	R	Maryland NB	8							
		S	Computer WB	0	33	12.7	b	89.5			
		L	Maryland SB	25							
Dresher & Saw Mill	Dresher EB	L	Saw Mill NB	119	1,449	6.9	A	474.0			
		S	Dresher EB	1,330							
	Saw Mill SB	R	Dresher WB	155	155	46.6	D	204.6	2,445	7.9	A
		L	Dresher EB	0							
	Dresher WB	R	Saw Mill NB	69	841	2.6	A	89.1			
		S	Dreher WB	772							
New & Dresher	New NB	L	Drehser WB	26	26	41.9	D	62.5			
		R	Dresher EB	0							
	Dresher EB	R	New SB	248	1,331	1.4	A	172.4	2,173	4.2	A
		S	Dresher EB	1,083							
	Dresher WB	L	New SB	0	816	7.6	A	204.2			
		R	Dresher WB	816							

Table C-16: Virginia Drive Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Virginia & Office Center	Office Center SB	R	Virginia WB	21	702	137.0	F	1,381.0	2,248	94.6	F
		L	Virginia EB	681							
	Virginia WB	S	Virginia WB	290	354	14.1	B	145.5			
		R	Office Center NB	64							
	Virginia EB	S	Virginia EB	1,183	1,192	93.5	F	1,375.5			
		L	Office Center NB	9							
Virginia & Susquehanna	Virginia EB	L	Virginia WB	110	1,514	47.5	D	557.3	3,399	69.9	E
		S	Virginia EB	614							
		R	Susquehanna SB	790							
	Susquehanna SB	R	Virginia WB	122	740	146.0	F	1,673.9			
		L	Susquehanna NB	287							
		S	Virginia EB	331							
	Susquehanna NB	L	Susquehanna NB	261	637	43.2	D	343.1			
		S	Virginia EB	348							
		R	Susquehanna SB	28							
	Virginia WB	S	Virginia WB	374	508	59.4	E	390.5			
		R	Susquehanna NB	117							
		L	Susquehanna SB	17							
N Limekiln & Susquehanna	Susquehanna NB	S	Susquehanna NB	597	597	15.3	B	225.8	2,532	20.0	B
	Limekiln WB	L	Susquehanna SB	808	808	22.5	C	600.8			
	Susquehanna SB	S	Susquehanna SB	1,127	1,127	20.8	C	509.5			
N Limekiln & Dreshertown	Limekiln NB	S	Limekiln NB	201	399	24.6	C	205.3	2,692	35.2	D
		R	Dreshertown EB	198							
		L	Virginia WB	0							
	Dreshertown WB	R	Limekiln NB	15	910	29.3	C	589.0			
		L	Limekiln SB	522							
		S	Virginia WB	373							
	Virginia EB	L	Limekiln NB	258	923	40.8	D	460.1			
		R	Limekiln SB	52							
		S	Dreshertown EB	613							
	Limekiln SB	S	Limekiln SB	293	460	44.8	D	509.7			
		L	Dreshertown EB	50							
		R	Virginia WB	117							
S Limekiln & Susquehanna	Susquehanna NB	L	Limekiln WB	82	683	9.9	A	243.6	3,194	30.0	C
		S	Susquehanna NB	601							
	EB Limekiln	R	Susquehanna SB	177	596	103.5	F	532.2			
		L	Susquehanna NB	419							
	Susquehanna SB	S	Susquehanna SB	843	1,915	14.3	B	921.4			
		R	Limekiln WB	1,072							
Susquehanna & Twining	Twining WB	L	Twining EB	45	570	105.6	F	1,648.3	2,614	57.7	E
		S	Twining WB	380							
		R	Susquehanna NB	145							
	Susquehanna SB	S	Susquehanna SB	730	1,002	33.6	C	1,578.1			
		L	Twining WB	260							
		R	Susquehanna NB	12							
	Twining EB	R	Susquehanna SB	110	464	73.1	E	848.9			
		S	Twining EB	321							
		L	Susquehanna NB	33							
	Susquehanna NB	R	Susquehanna SB	24	578	39.7	D	769.8			
		L	Twining EB	50							
		S	Twining WB	504							

(continued)

Table C-16 (continued): Virginia Drive Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Fitzwatertown	Susquehanna SB	L	Fitzwatertown EB	173	869	52.1	D	1,661.7	2,381	60.7	E
		R	Fitzwatertown WB	17							
		S	Susquehanna SB	679							
	Fitzwatertown WB	R	Susquehanna SB	141	568	98.2	F	1,567.4			
		S	Fitzwatertown WB	344							
		L	Susquehanna NB	83							
	Susquehanna NB	S	Susquehanna NB	403	461	30.4	C	769.0			
		R	Fitzwatertown EB	48							
		L	Fitzwatertown WB	10							
	Fitzwatertown EB	L	Susquehanna NB	29	483	60.8	E	589.2			
		S	Fitzwatertown EB	426							
		R	Susquehanna SB	28							
Fitzwatertown & North Hills & Woodland	Woodland SB	S	Woodland SB	20	373	32.8	C	423.4	1,715	51.1	D
		HL	North Hills NEB	30							
		R	Fitzwatertown WB	0							
		L	Fitzwatertown EB	323							
	Woodland NB	S	Woodland NB	46	141	51.9	D	274.3			
		BR	North Hills NEB	18							
		L	Fitzwatertown WB	6							
		R	Fitzwatertown EB	71							
	North Hills SWB	HR	Woodland NB	15	219	41.0	D	437.5			
		BL	Woodland SB	122							
		BR	Fitzwatertown WB	39							
		HL	Fitzwatertown EB	43							
	Fitzwatertown EB	L	Woodland NB	16	321	41.2	D	339.7			
		R	Woodland SB	86							
		BL	North Hills NEB	219							
		S	Fitzwatertown EB	0							
	Fitzwatertown WB	R	Woodland NB	0	661	69.3	E	1,589.5			
		L	Woodland SB	39							
		HR	North Hills NEB	116							
		S	Fitzwatertown WB	506							
Fitzwatertown & Old Welsh	Fitzwatertown NB	R	Old Welsh EB	145	506	99.5	F	1,646.3	1,872	48.2	D
		L	Old Welsh WB	3							
		S	Fitzwatertown NB	358							
	Old Welsh WB	L	Fitzwatertown SB	161	482	25.0	C	406.8			
		S	Old Welsh WB	130							
		R	Fitzwatertown NB	191							
	Old Welsh EB	R	Fitzwatertown SB	29	280	33.0	C	413.6			
		S	Old Welsh EB	247							
		L	Fitzwatertown NB	4							
	Fitzwatertown SB	S	Fitzwatertown SB	343	604	30.6	C	869.3			
		L	Old Welsh EB	247							
		R	Old Welsh WB	14							

Table C-16 (continued): Virginia Drive Build + Improvements PM Peak-Hour Results

Intersection	From	Movement	To	Volume (veh)	Approach Volume	Approach Delay(s)	Approach LOS	Approach Queue(ft)	Intersection Volume	Intersection Delay	Intersection LOS
Susquehanna & Camp Hill	Camp Hill EB	L	Susquehanna NB	269	593	75.3	E	1,652.2	1,917	59.6	E
		R	Susquehanna SB	324							
	Susquehanna SB	R	Camp Hill WB	48	691	75.7	E	1,666.5			
		S	Susquehanna SB	643							
	Susquehanna NB	L	Camp Hill WB	131	633	27.3	C	839.4			
		S	Susquehanna NB	502							
Susquehanna & Pinetown	Pinetown EB	S	Broad EB	163	457	39.1	D	483.8	2,158	52.0	D
		R	Susquehanna SB	112							
		L	Susquehanna NB	182							
	Broad WB	S	Pinetown WB	216	308	21.6	C	291.6			
		L	Susquehanna SB	15							
		R	Susquehanna NB	77							
	Susquehanna SB	R	Pinetown WB	30	667	82.0	F	934.1			
		L	Broad EB	53							
		S	Susquehanna SB	584							
	Susquehanna NB	L	Pinetown WB	89	726	45.5	D	1,611.7			
		R	Broad EB	30							
		S	Susquehanna NB	607							
Limekiln & Jarrettown	Limekiln SB	S	Limekiln SB	422	756	22.2	C	796.9	1,741	29.2	C
		L	Jarrettown EB	315							
		R	Private Drive WB	19							
	Private Drive EB	L	Limekiln NB	2	4	-0.6	F	0.0			
		R	Limekiln SB	1							
		S	Jarrettown EB	1							
	Jarrettown WB	R	Limekiln NB	235	330	35.5	D	344.1			
		L	Limekiln SB	92							
		S	Private Drive WB	3							
	Limekiln NB	S	Limekiln NB	473	651	34.5	C	774.9			
		R	Jarrettown EB	168							
		L	Private Drive WB	10							
Dreshertown & Beacon Hill	Dreshertown SB	L	Beacon Hill EB	19	915	4.1	A	361.0	1,762	4.8	A
		R	Bantry WB	13							
		S	Dreshertown SB	883							
	Beacon Hill WB	R	Dreshertown NB	7	57	0.4	A	23.8			
		S	Bantry WB	4							
		L	Dreshertown SB	46							
	Bantry EB	L	Dreshertown NB	8	11	8.4	A	32.4			
		S	Beacon Hill EB	3							
		R	Dreshertown SB	0							
	Dreshertown NB	S	Dreshertown NB	675	779	6.0	A	204.4			
		R	Beacon Hill EB	88							
		L	Bantry WB	16							
Ramps & Virginia Drive	Virginia WB	S	Virginia WB	207	762	27.4	C	361.2	3,377	49.8	D
		R	On-Ramps NB	555	2,425						
	Virginia EB	S	Virginia EB	930	1,870	54.0	D	568.8			
		L	On-Ramps NB	940	1,685	58.8	E	612.3			
	Ramps SB	L	Virginia EB	598	745	62.3	E	667.2			
		R	Virginia WB	147	4,088	45.0	D	658.0			

Montgomery County: Pennsylvania Turnpike Interchange Study

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Henderson Road, Interchange, Montgomery County, PA Turnpike, Virginia Drive, Welsh Road

Abstract:
This study evaluates three proposed new or completed Pennsylvania Turnpike interchanges. The three proposed interchanges are divided into two study areas based on location. The proposed new interchange at Welsh Road and proposed completed Virginia Drive interchange were studied independently of the proposed new interchange at Henderson Road.

The main goals of the evaluations were to inform the public and local decision makers of the likely impacts of the new interchanges on the local roadway network and to identify additional roadway improvements to mitigate negative impacts.

The project team used regional and localized traffic modeling to simulate existing conditions and forecast future scenarios. There were four total scenarios compared during the AM and PM peak hours: 2019 Existing Conditions, 2045 No Build Scenario, 2045 Build Scenario, and 2045 Build + Improvements.

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