



PA TURNPIKE

Interchange Study



VIRTUAL OPEN HOUSE

May 21, 2020

Agenda

- **Introduction**

Alison Hastings, Delaware Valley Regional Planning Commission (DVRPC)

- **Background on this Study**

Matt Edmond, Montgomery County Planning Commission (MCPC)

- **Project Overview and Scope of Work**

Greg Krykewycz, DVRPC

- **What We Heard at the Last Open House**

Al Beatty, DVRPC

- **Findings and Recommendations**

Kelsey McElduff, DVRPC

- **Question & Answer**

Facilitated by Alison Hastings, DVRPC

- **Thanks & Next Steps**

Matt Edmond, MCPC

Ground Rules

- Purposes of this open house:
 - **MCPC to provide context to the study**
 - **DVRPC to wrap up 2-year study and share analyses**
- Please enter questions in the Q&A tool as we move through the presentations
- Organizers will not address off-topic questions and comments
- Organizers will combine similar questions during the Q&A period
- Organizers reserve the right to ignore and strike from the materials offensive or inappropriate questions and comments
- Organizers may remove an attendee being disruptive, antagonistic, or threatening

Poll

Study Background

Matt Edmond - MCPC



Turnpike Corridor Reinvestment Project

Prepared by the Montgomery County Planning Commission, 2015

<http://www.montcopa.org/TurnpikeCorridorProject>

Purpose of the 2015 PA Turnpike Corridor Reinvestment Study

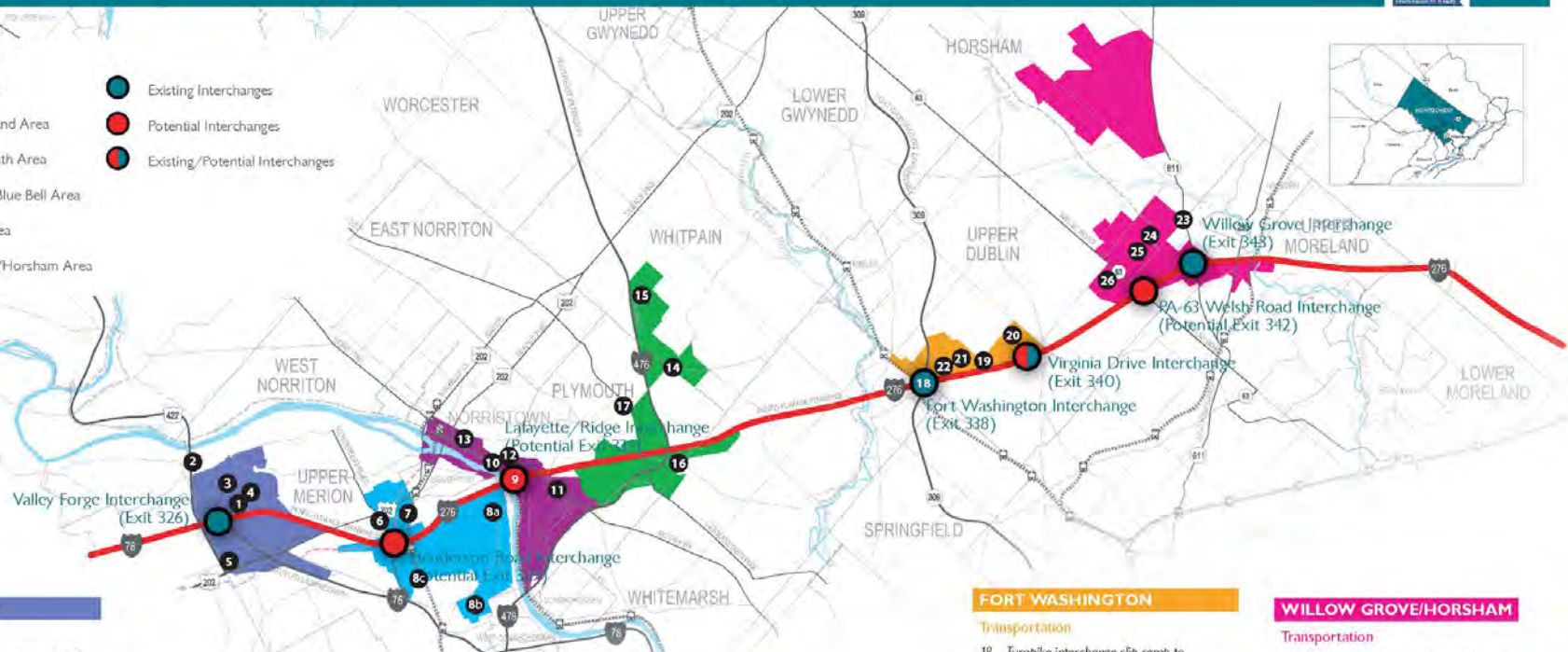
- Encourage **economic revitalization and reinvestment** in Montgomery County's aging business parks
- Provide **more direct connections** to key employment centers
- **Better distribute** local and regional traffic
- Bring **new revenue** to the Turnpike Commission to pay for the interchanges



REINVESTMENT AREAS

- King of Prussia Area
- Gulph Mills/Swedeland Area
- Norristown/Plymouth Area
- Plymouth Meeting/Blue Bell Area
- Fort Washington Area
- Willow Grove Area/Horsham Area

- Existing Interchanges
- Potential Interchanges
- Existing/Potential Interchanges



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 of 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 with 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

Full System Investment (“Full Build”)

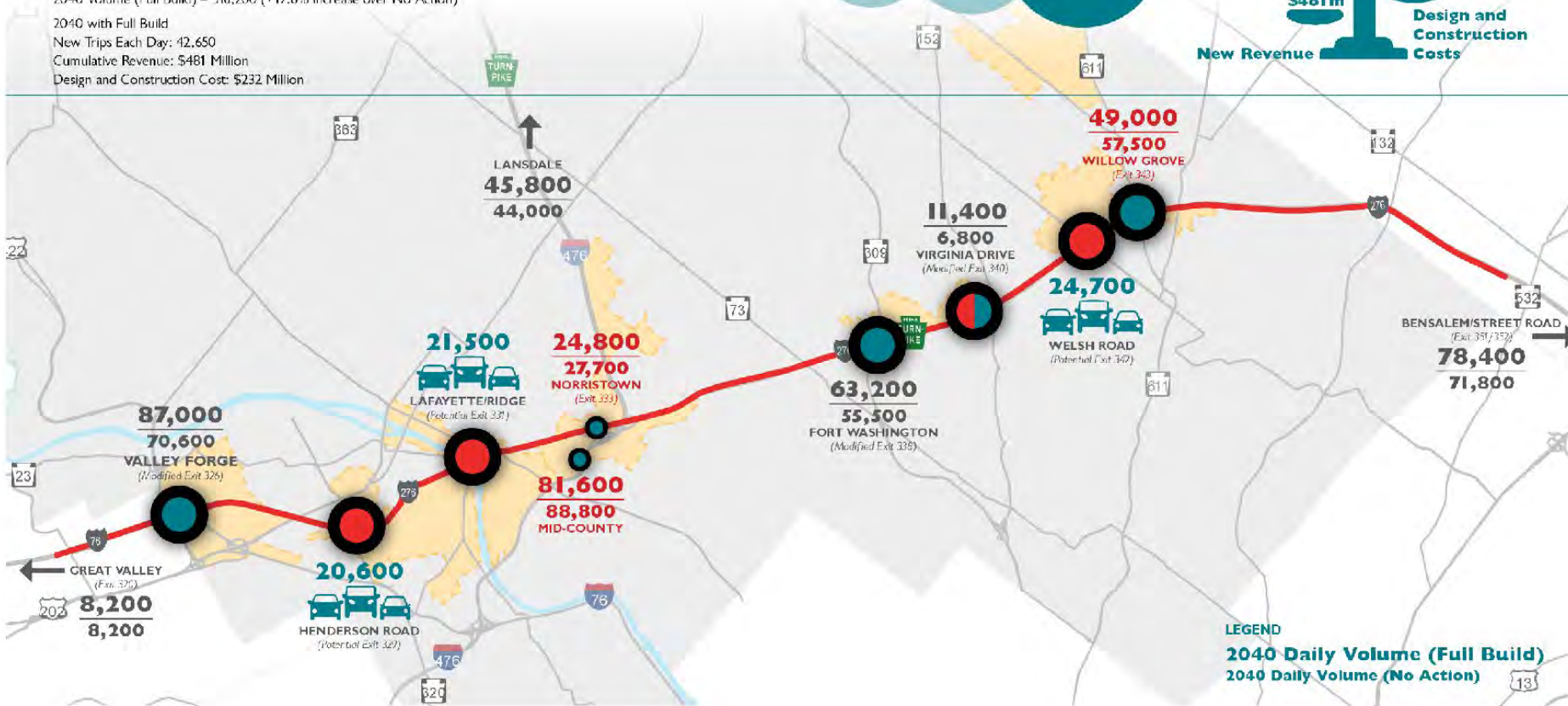
This scenario would provide three new interchanges at Henderson Road, Lafayette Street/Ridge Pike, and PA 68 Welsh Road, add east bound off and east bound on ramps at the current Virginia Drive interchange, and construct a new Commerce Drive connector ramp at the Fort Washington interchange. It would modernize the PA-611 Willow Grove interchange and the Valley Forge interchange by providing direct ramps to First Avenue in the King of Prussia Business Park both from the Turnpike and the Schuylkill Expressway.

- Current Daily Volume = 389,300
- 2040 Volume (No Action) = 430,900 (+10.7% increase over Current)
- 2040 Volume (Full Build) = 516,200 (+19.8% increase over No Action)
- 2040 with Full Build
- New Trips Each Day: 42,650
- Cumulative Revenue: \$481 Million
- Design and Construction Cost: \$232 Million

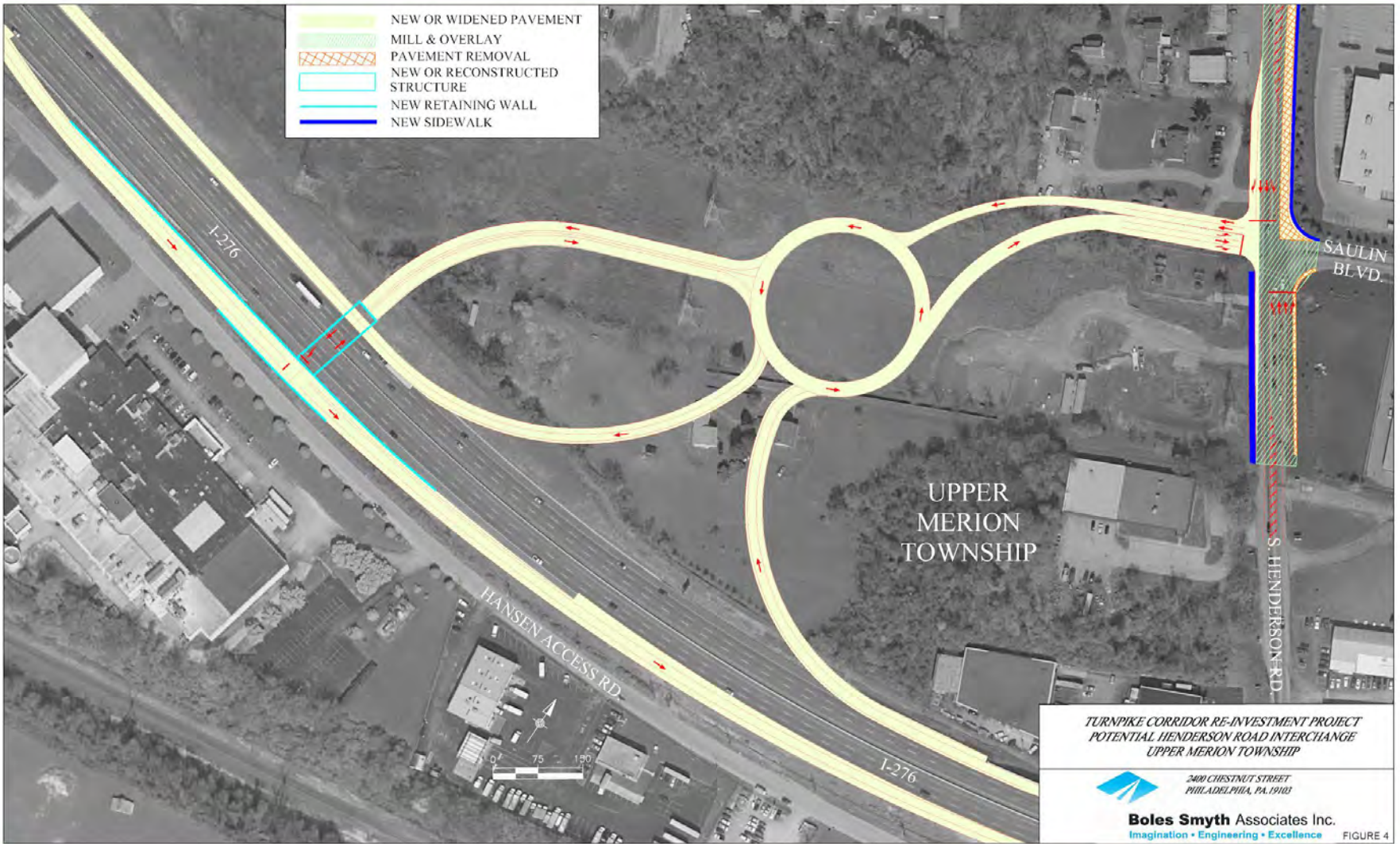
Southeastern Pennsylvania Interchanges

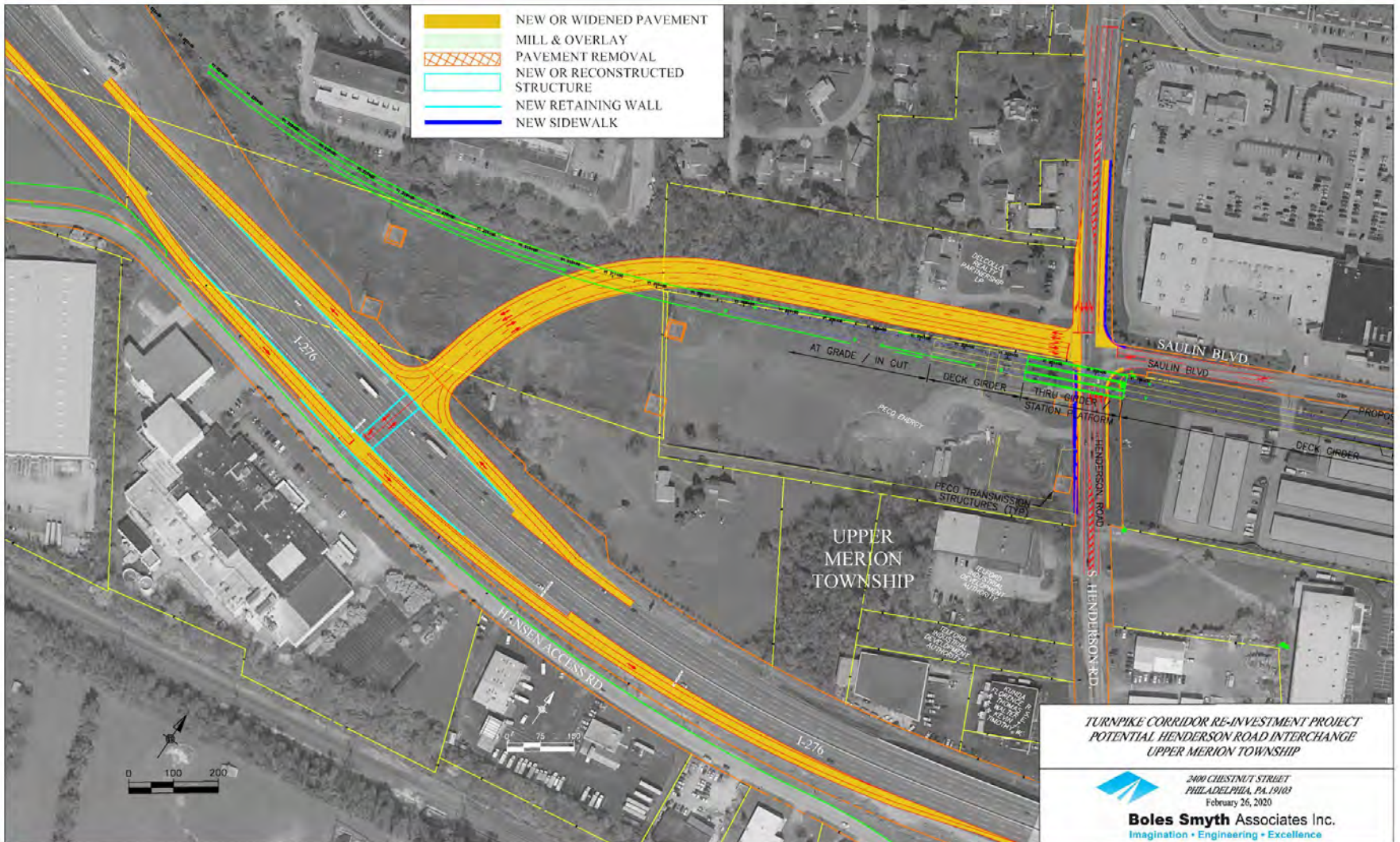


19.8%
42,650 New Trips



LEGEND
2040 Daily Volume (Full Build)
2040 Daily Volume (No Action)





What is the new 2020 PA Turnpike Interchange Study?

- Consists of 2 Study Areas
 - **Henderson Road Interchange**
 - **Welsh Road and Virginia Drive Interchanges**
- A deeper traffic analysis than in 2015 - this time looking at local impacts to Levels of Service (LOS)
 - **2015 modeling showed traffic increased and decreased in different locations - what does that mean for congestion?**
- Modeling includes new developments, zoning, and transportation projects since 2015
 - **Includes SEPTA KOP Rail and the Chester Valley Trail**

Why are we doing the new 2020 PA Turnpike Interchange Study?

- Earnestly address concerns from citizens and elected officials about traffic impacts from the new interchanges
- Meant to answer two questions:
 - **Do the roads still work when the interchange is built?**
 - **If the answer is no, what road improvements need to be made beforehand to make it work?**

Project Overview

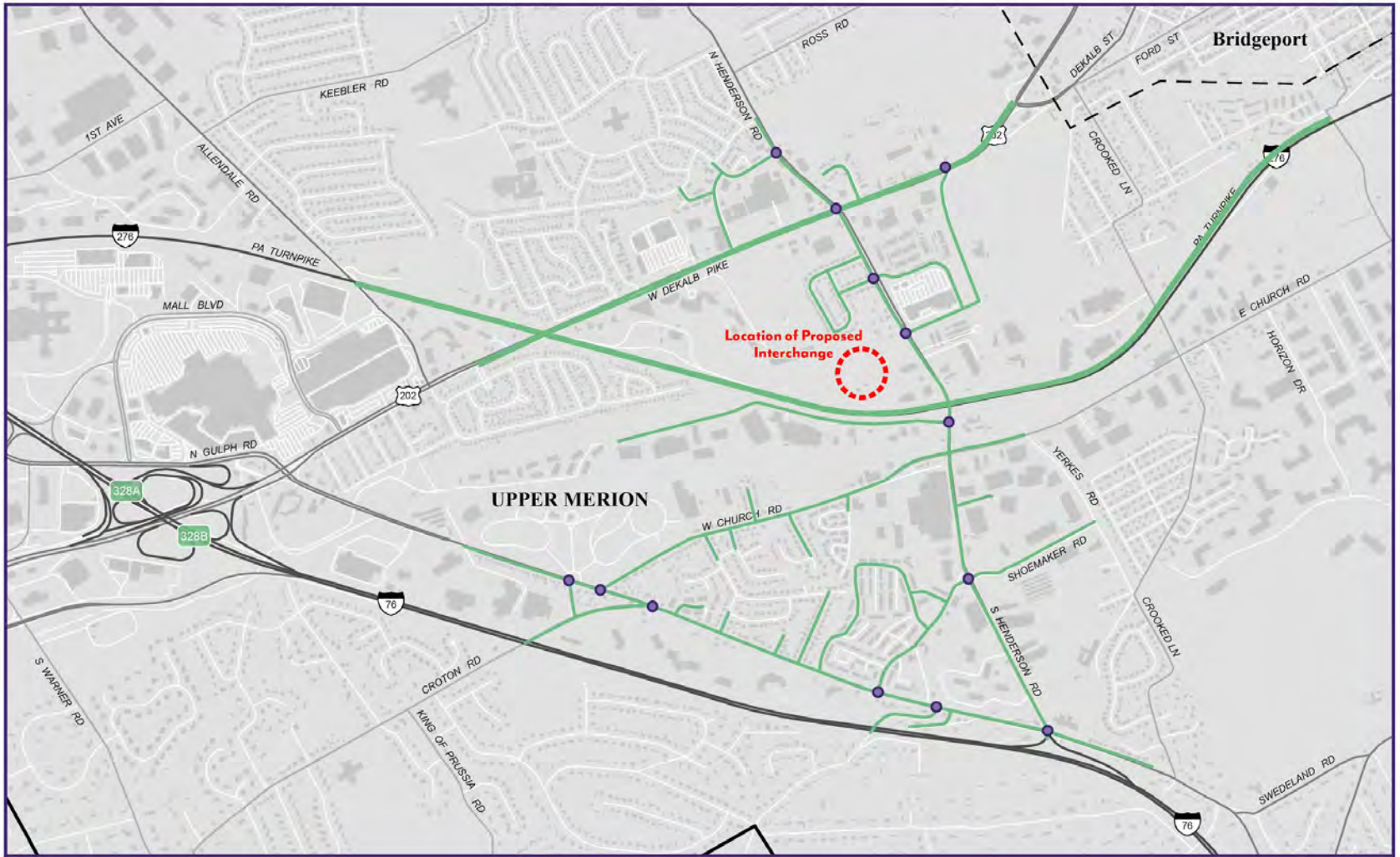
Greg Krykewycz - DVRPC

Project Purpose

- Identify the potential impacts of the proposed new interchange on local traffic
- Identify areas where traffic congestion may increase as a result of the proposed new interchange
 - **Provide a more detailed analysis of the impacts on the new interchange on local traffic flow**
- Develop recommendations to ease traffic congestion on local roads
 - **Peak hour traffic conditions and needs**
 - **Provide analytical support and develop supplemental strategies for the proposed new PA Turnpike Interchanges**

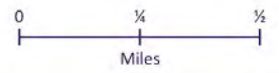
Study Area

- The proposed Henderson Road interchange will provide a **two-way connection to I-276** at Saulin Boulevard
- Major local roads and intersections connecting routes to and from Henderson Road were evaluated for potential traffic impact



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● Network Node
— Network Link
VISSIM Microsimulation Network



Scope of Work

Phase 1:

- Project steering committee was formed
- Traffic counts and field data were collected
- Base network of roads within the study area was prepared with traffic simulation software

Phase 2:

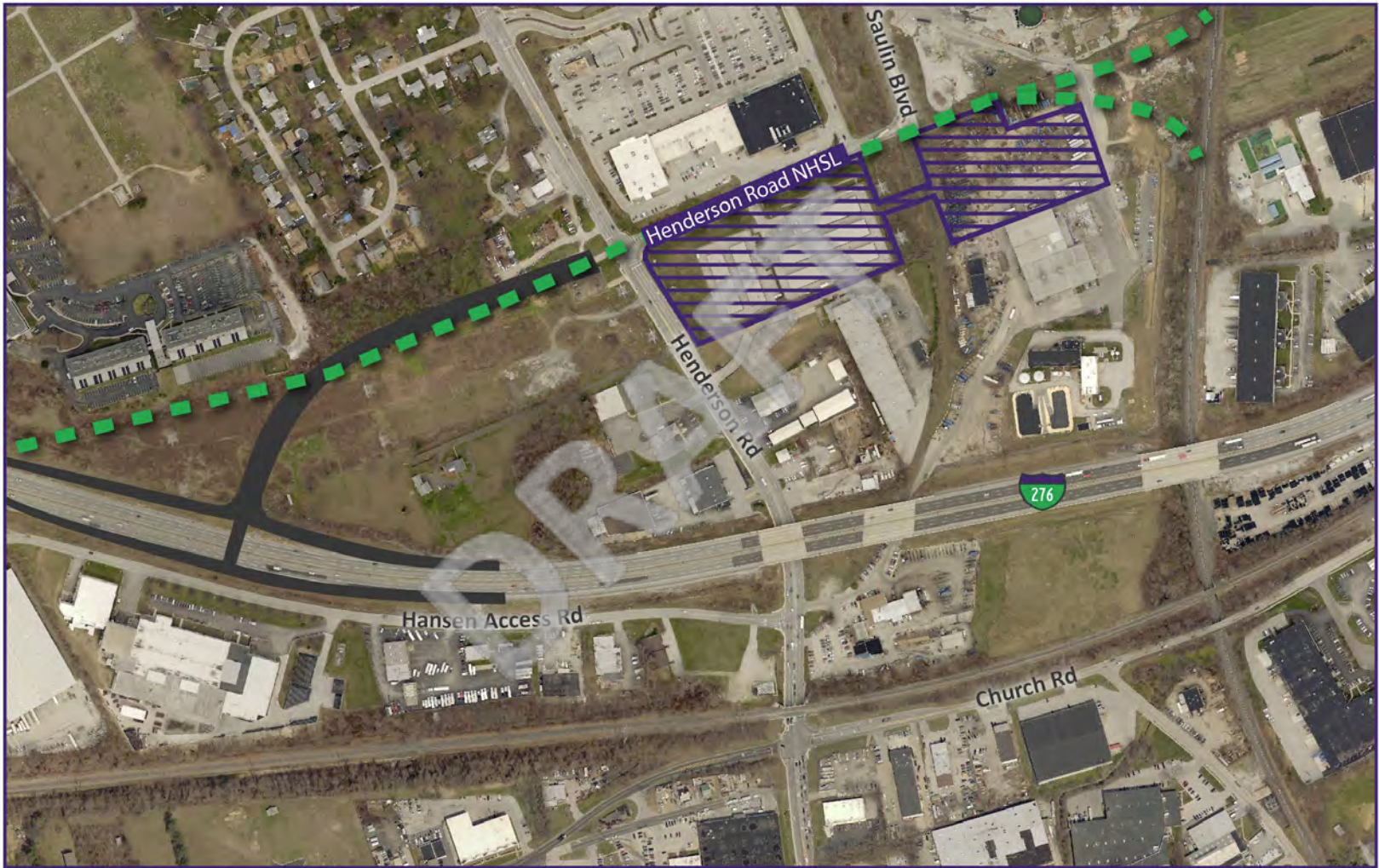
- Traffic operational modeling was conducted
- Deficiencies in the transportation network were identified
- Solutions were modeled

2017

2020

Project Steering Committee

- Montgomery County Planning Commission
- SEPTA
- Pennsylvania Department of Transportation
- PA Turnpike Commission
- King of Prussia Business Improvement District
- Upper Merion Township
- Upper Merion Transportation Authority
- Greater Valley Forge Transportation Management Assoc.
- Boles Smyth Associates



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New Interchange

■■■ NHSL Alignment



SEPTA Park-n-Ride

0 1/8 1/4 1/2 Miles

Source: DVRPC, Boles Smyth Associates,
SEPTA, Southeastern PA Regional Task Force (2017
Imagery)



Study Area



Interchange / Park-and-Ride Concept

Fall 2018 Open House

Al Beatty - DVRPC

Fall 2018 Open House

- September 24, 2018
- Upper Merion Township Building
- Objectives:
 - **Introduce the project**
 - **Gather early public input - benefits and concerns**
- Information presented:
 - **Project background and scope**
 - **Study area description**
 - **Existing traffic conditions**



Poll


Fall 2018 Open House

- Information collected
 - 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?



Fall 2018 Open House

- 46 attendees
- 8 surveys completed
 - 7 respondents lived in the study area
 - 7 listed shopping in the study area as another interest
- Additional feedback through post-its and conversations

STATION 06 PA Turnpike Interchange Study at HENDERSON ROAD **Feedback** 

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?

Fall 2018 Open House

Potential Benefits?

- **Improved traffic** at the Valley Forge interchange and mall area
- Potential **improvements to traffic** on Henderson Road, Church Road, and S. Gulph Road
- Higher **home values** and **economic development**
- More transportation **options and convenience**

Concerns?

- **Increased traffic** on Henderson Road and on Route 202, Church Road, and Gulph Road
- **Increased congestion** in general, especially at rush hour

Source: survey results and post-it activity from Fall 2018 Open House

Findings & Recommendations

Kelsey McElduff - DVRPC

DVRPC Regional Model

- DVRPC uses a well-tested regional travel demand model to simulate the travel behavior of people in the 9-county region.
- The model is guided by Federal Highway Administration guidelines and industry standards, and model forecasts are approved by the DVRPC Board.

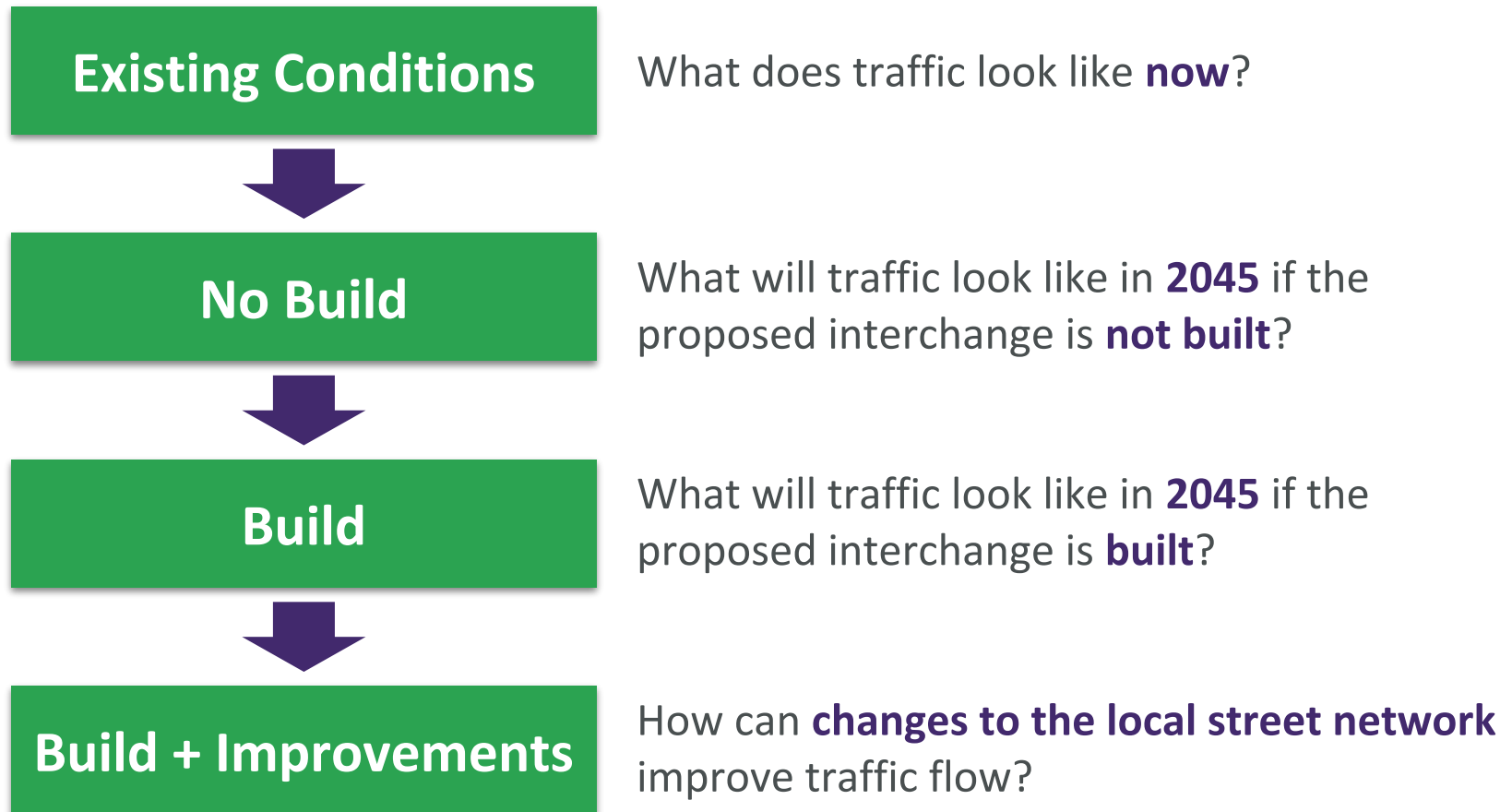


Microsimulation Modeling

Microsimulation is a method for evaluating the localized impacts of proposed improvements to the transportation system, such as the proposed interchange at Henderson Road.

- Regional model outputs are calibrated using current local traffic counts.
- By modeling the future traffic in the study area with and without the proposed improvement, we can estimate **how the improvement will affect traffic flow**.

Modeling Scenarios



Performance Measures

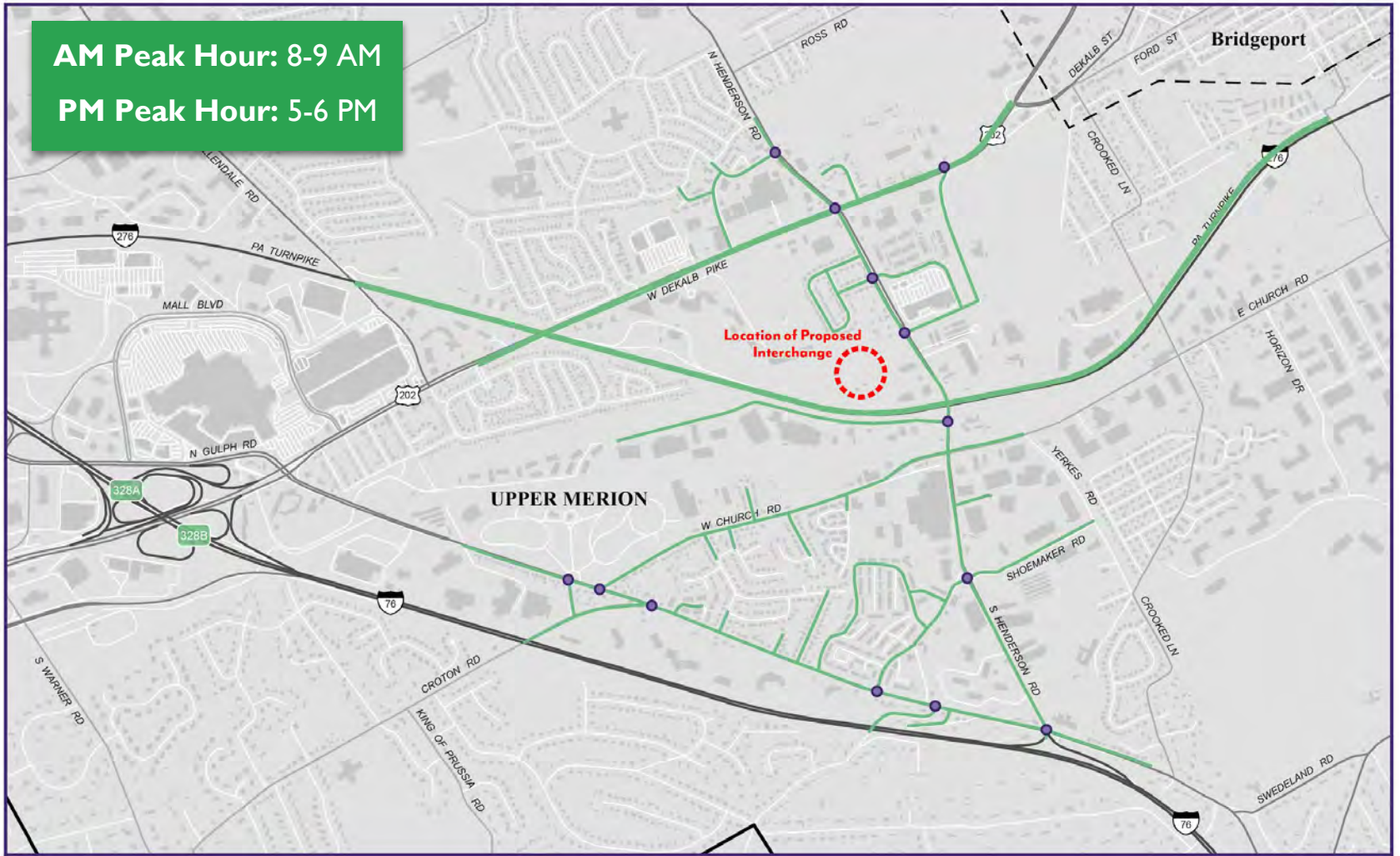
Volume is the total **number of vehicles** approaching an intersection from a given street segment in a given time period.

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.

Level of Service (LOS) values are letter grades assigned to various degrees of delay.

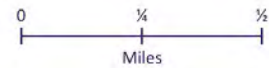
Level of Service	Delay (s)	
A	≤10	
B	>10 - 20	Predictable and Stable Flow
C	>20 - 35	
D	>35 - 55	Predictable, Approaching Unstable
E	>55 - 80	
F	>80	Unstable and Unpredictable

AM Peak Hour: 8-9 AM
PM Peak Hour: 5-6 PM



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● Network Node
— Network Link
VISSIM Microsimulation Network



Microsimulation Network

Existing Conditions (2019)

- 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 2017–2019

AM Peak Hour:

Vehicles in network:

8,800

Average delay per vehicle:

1.4 minutes

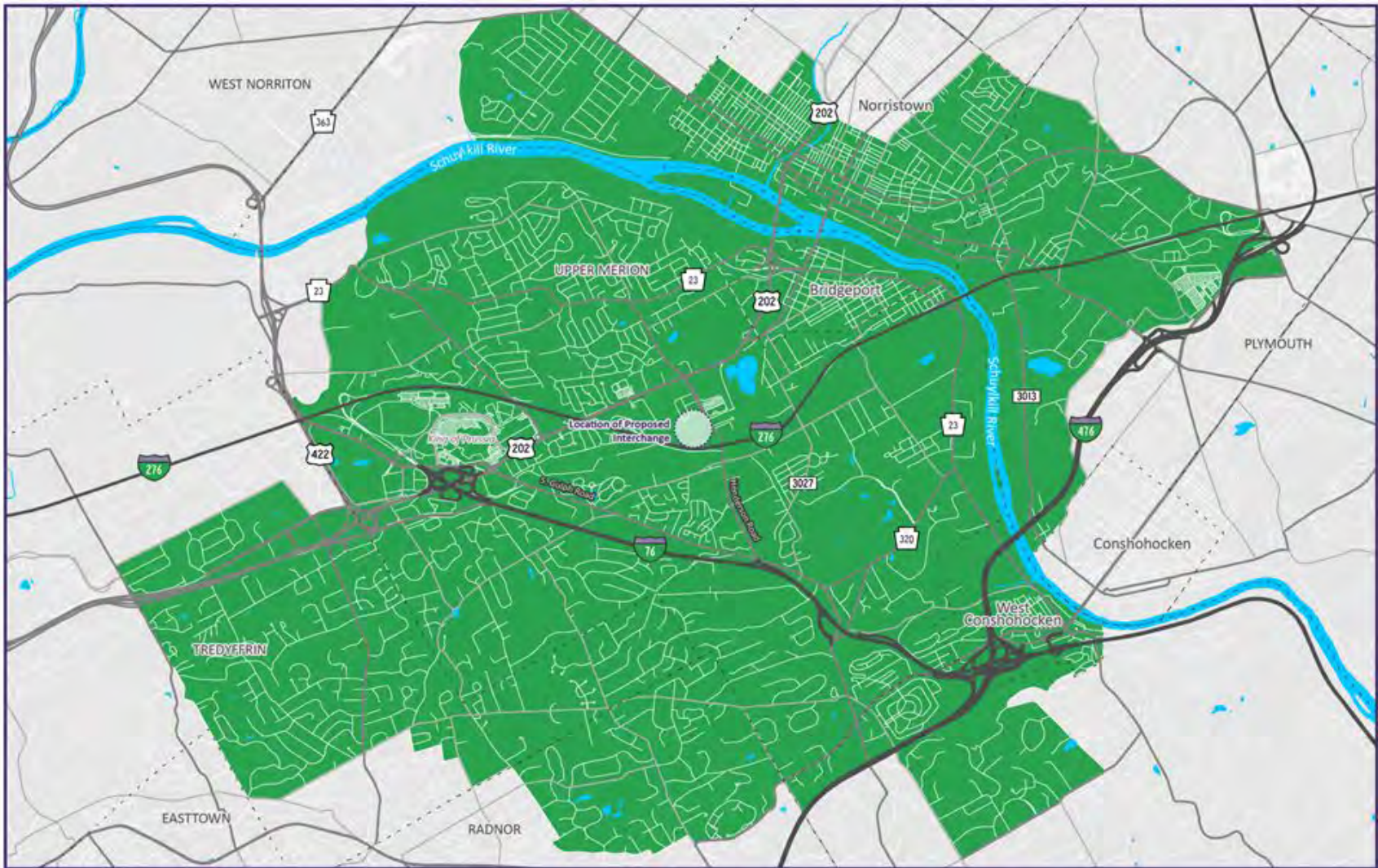
PM Peak Hour:

Vehicles in network:

10,600

Average delay per vehicle:

3.0 minutes



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Population % Change



18%

Household % Change



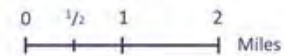
18%

Employment % Change



22%

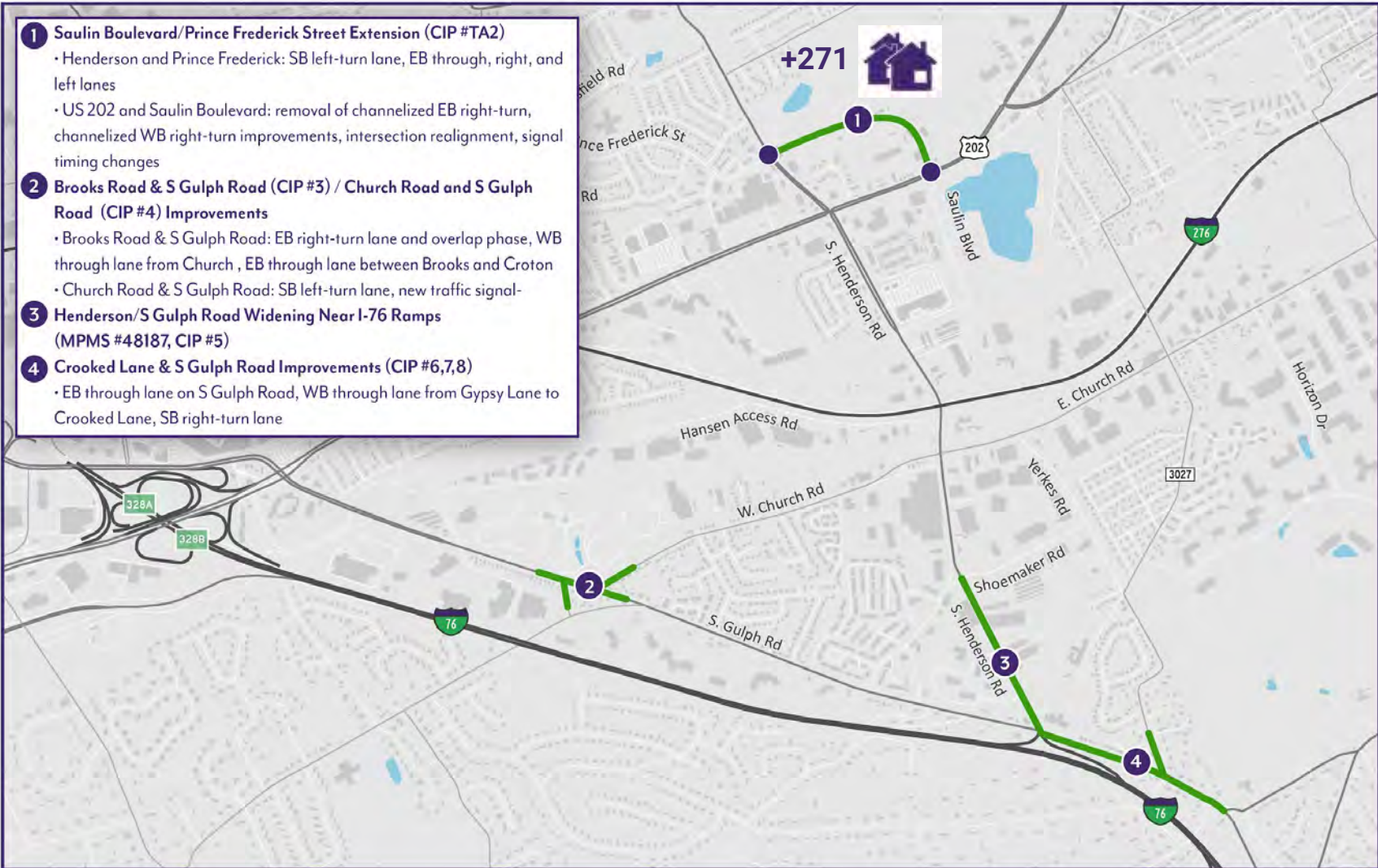
Demographic Changes (2015–2045)



Source: DVRPC

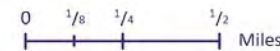


- 1 Saulin Boulevard/Prince Frederick Street Extension (CIP #TA2)**
 - Henderson and Prince Frederick: SB left-turn lane, EB through, right, and left lanes
 - US 202 and Saulin Boulevard: removal of channelized EB right-turn, channelized WB right-turn improvements, intersection realignment, signal timing changes
- 2 Brooks Road & S Gulph Road (CIP #3) / Church Road and S Gulph Road (CIP #4) Improvements**
 - Brooks Road & S Gulph Road: EB right-turn lane and overlap phase, WB through lane from Church, EB through lane between Brooks and Croton
 - Church Road & S Gulph Road: SB left-turn lane, new traffic signal-
- 3 Henderson/S Gulph Road Widening Near I-76 Ramps (MPMS #48187, CIP #5)**
- 4 Crooked Lane & S Gulph Road Improvements (CIP #6,7,8)**
 - EB through lane on S Gulph Road, WB through lane from Gypsy Lane to Crooked Lane, SB right-turn lane



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2045 No Build Microsimulation Network Adjustments



Source: DVRPC, PennDOT
Upper Merion Township



Network Adjustments

No Build (2045)

- Includes major transportation projects expected to be completed by 2045
 - **proposed new Norristown High Speed Line station and park-and-ride lot**
 - **planned developments in the study area.**
- Traffic volumes are based on DVRPC's 2045 long-range forecast which accounts for expected growth
 - **population (18%)**
 - **households (18%)**
 - **employment (22%)**

AM Peak Hour:

Vehicles in network:

12,100

Average delay per vehicle:

6.2 minutes

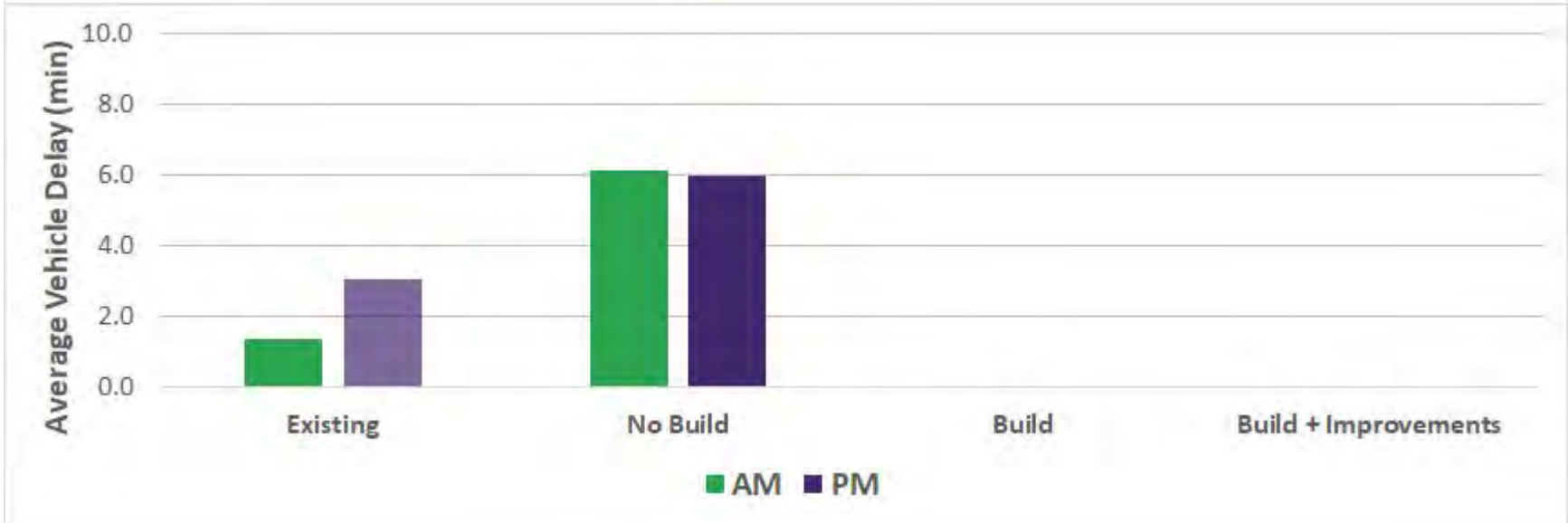
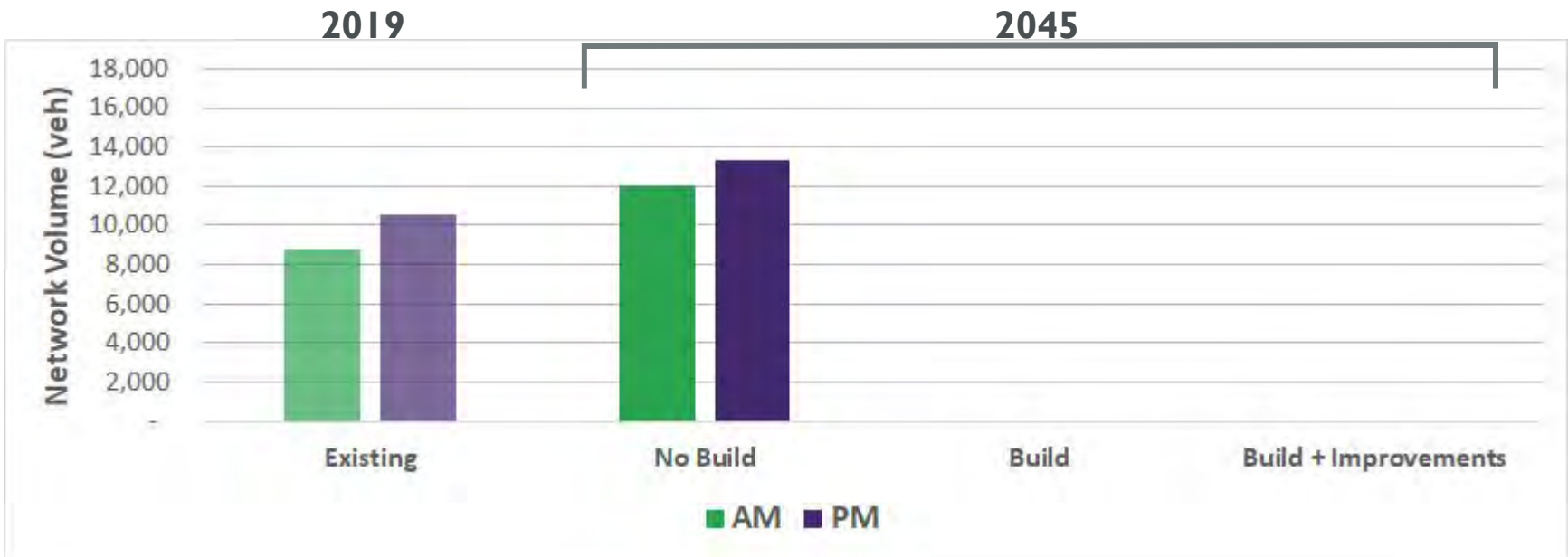
PM Peak Hour:

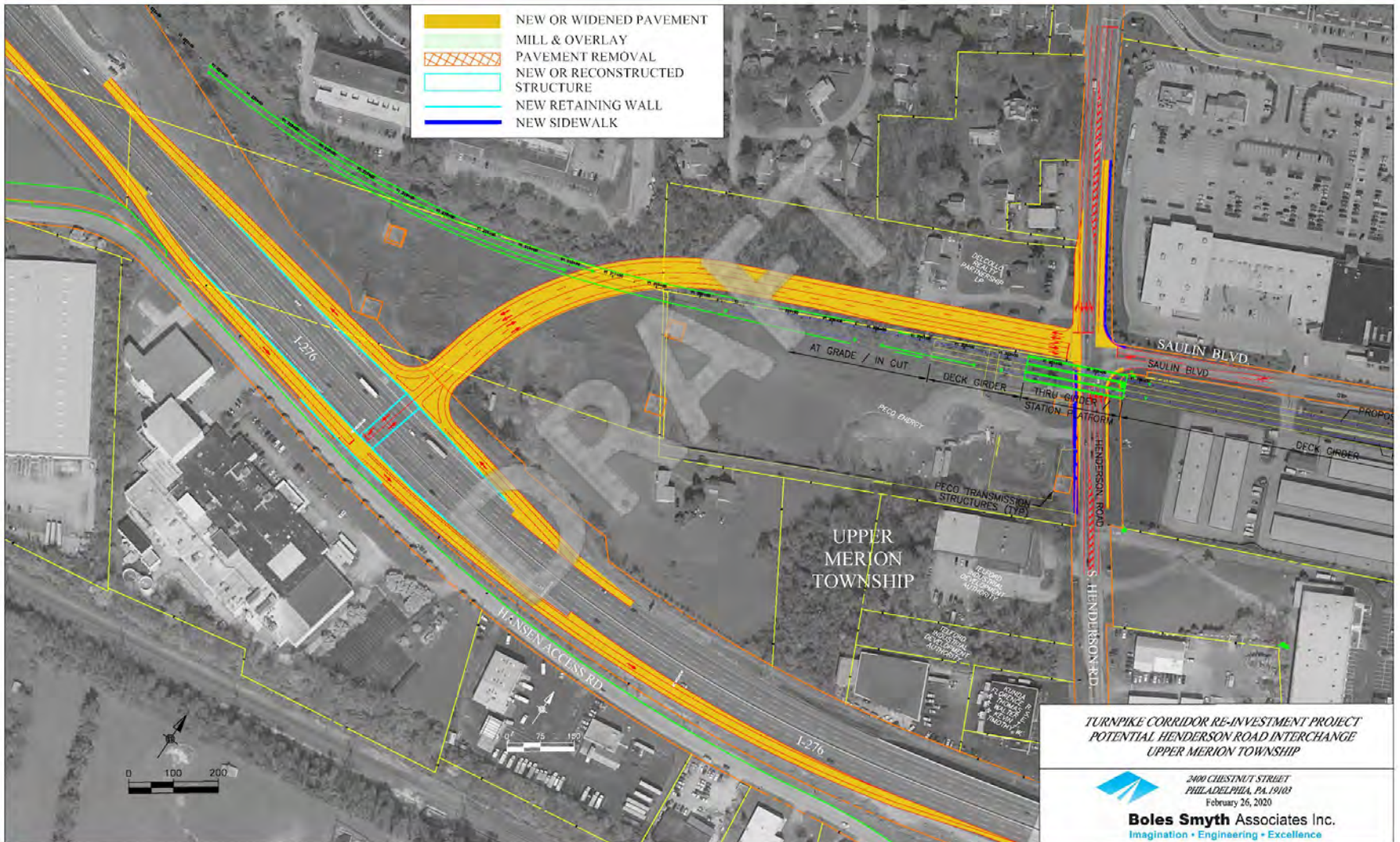
Vehicles in network:

13,400

Average delay per vehicle:

6.0 minutes





Build (2045)

- Includes the same transportation projects (including the NHSL park-and-ride lot), planned developments, and growth projections as the No Build scenario.
- In addition, it includes the **proposed new interchange** at Henderson Road.

AM Peak Hour:

Vehicles in network:

13,400

Average delay per vehicle:

8.2 minutes

PM Peak Hour:

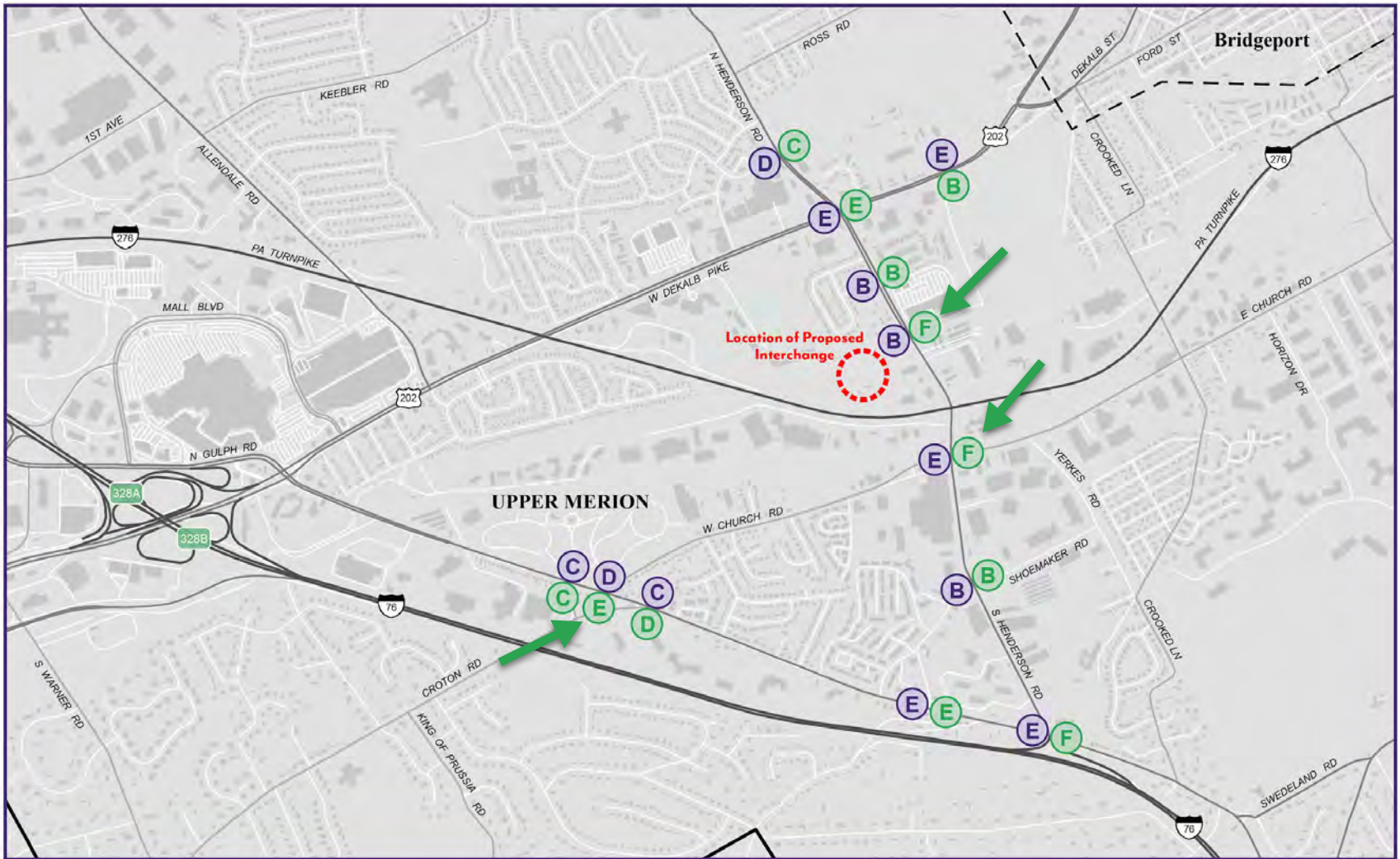
Vehicles in network:

15,400

Average delay per vehicle:

9.3 minutes





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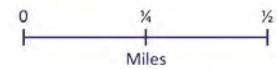
- A No Build LOS
- A Build LOS

Stable and Predictable
A B C D E F

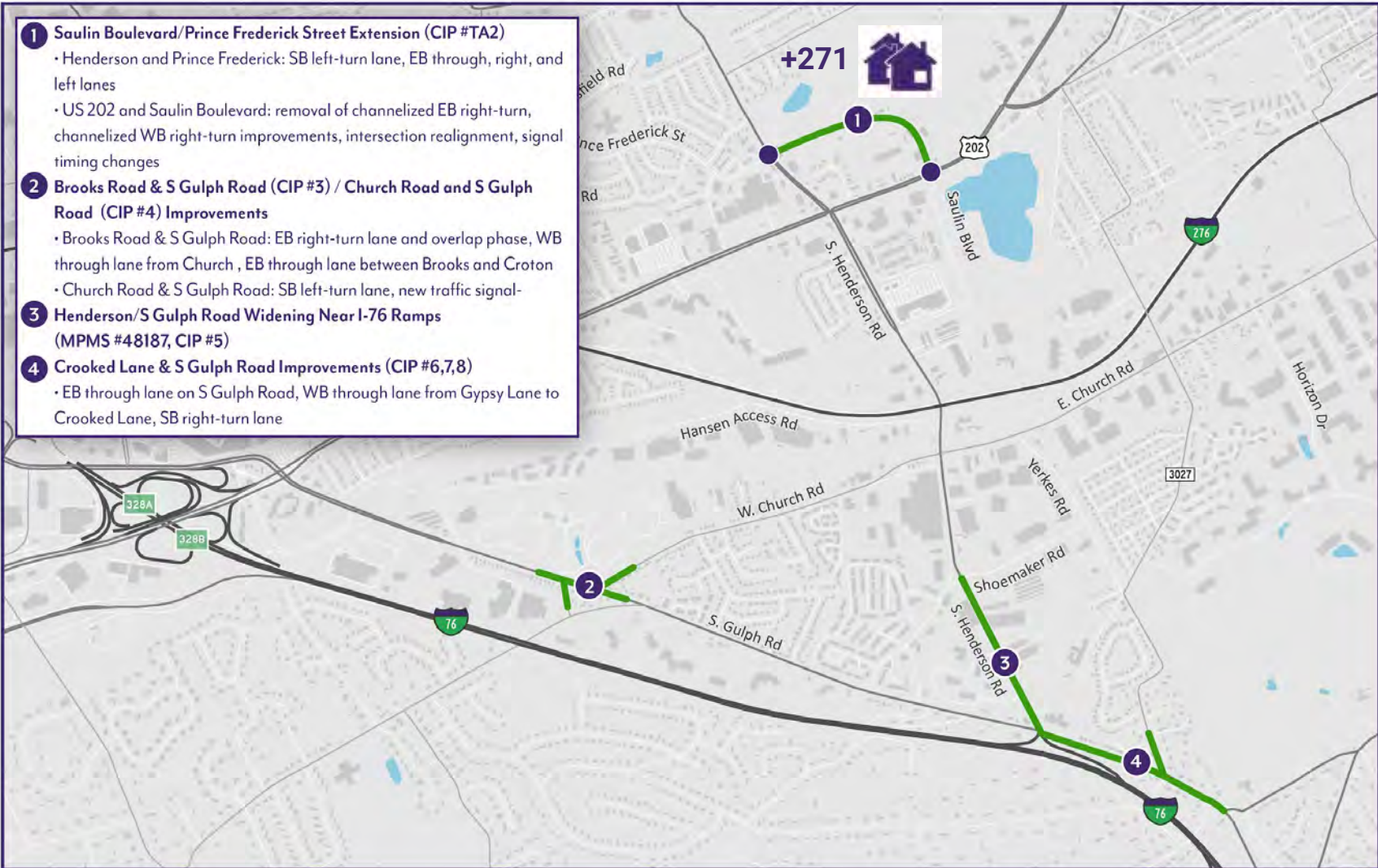
Unstable and Unpredictable
E F

Predictable, but Approaching Unstable

Evening Peak Hour (5-6 PM) Intersection Level of Service

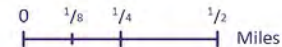


- 1 Saulin Boulevard/Prince Frederick Street Extension (CIP #TA2)**
 - Henderson and Prince Frederick: SB left-turn lane, EB through, right, and left lanes
 - US 202 and Saulin Boulevard: removal of channelized EB right-turn, channelized WB right-turn improvements, intersection realignment, signal timing changes
- 2 Brooks Road & S Gulph Road (CIP #3) / Church Road and S Gulph Road (CIP #4) Improvements**
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2045 No Build Microsimulation Network Adjustments

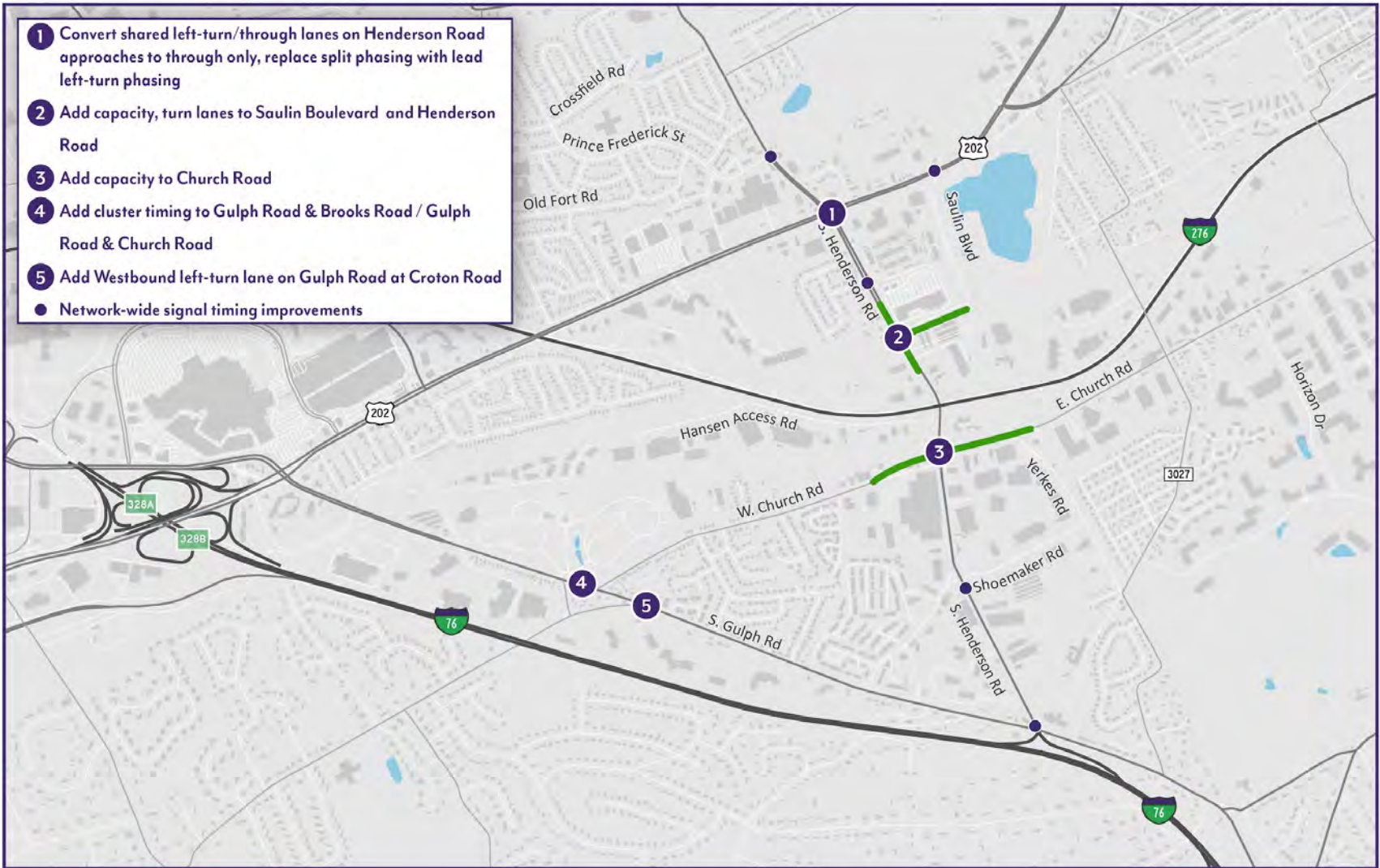


Source: DVRPC, PennDOT
Upper Merion Township



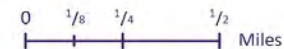
No Build Network Adjustments

- 1 Convert shared left-turn/through lanes on Henderson Road approaches to through only, replace split phasing with lead left-turn phasing
 - 2 Add capacity, turn lanes to Saulin Boulevard and Henderson Road
 - 3 Add capacity to Church Road
 - 4 Add cluster timing to Gulph Road & Brooks Road / Gulph Road & Church Road
 - 5 Add Westbound left-turn lane on Gulph Road at Croton Road
- Network-wide signal timing improvements



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Build + Improvements Recommendations



Source: DVRPC, PennDOT
Upper Merion Township



Build + Improvements

Build + Improvements (2045)

- Includes recommended changes to the local roadway network to mitigate local impacts of the proposed interchange in the Build scenario.
 - **Henderson & Saulin**
 - **Henderson & Dekalb**
 - **Henderson & Church**
 - **Gulph & Croton**
 - **Gulph & Church / Brooks**
 - **Network-wide signal timing improvements**

AM Peak Hour:

Vehicles in network:

13,400

Average delay per vehicle:

4.5 minutes

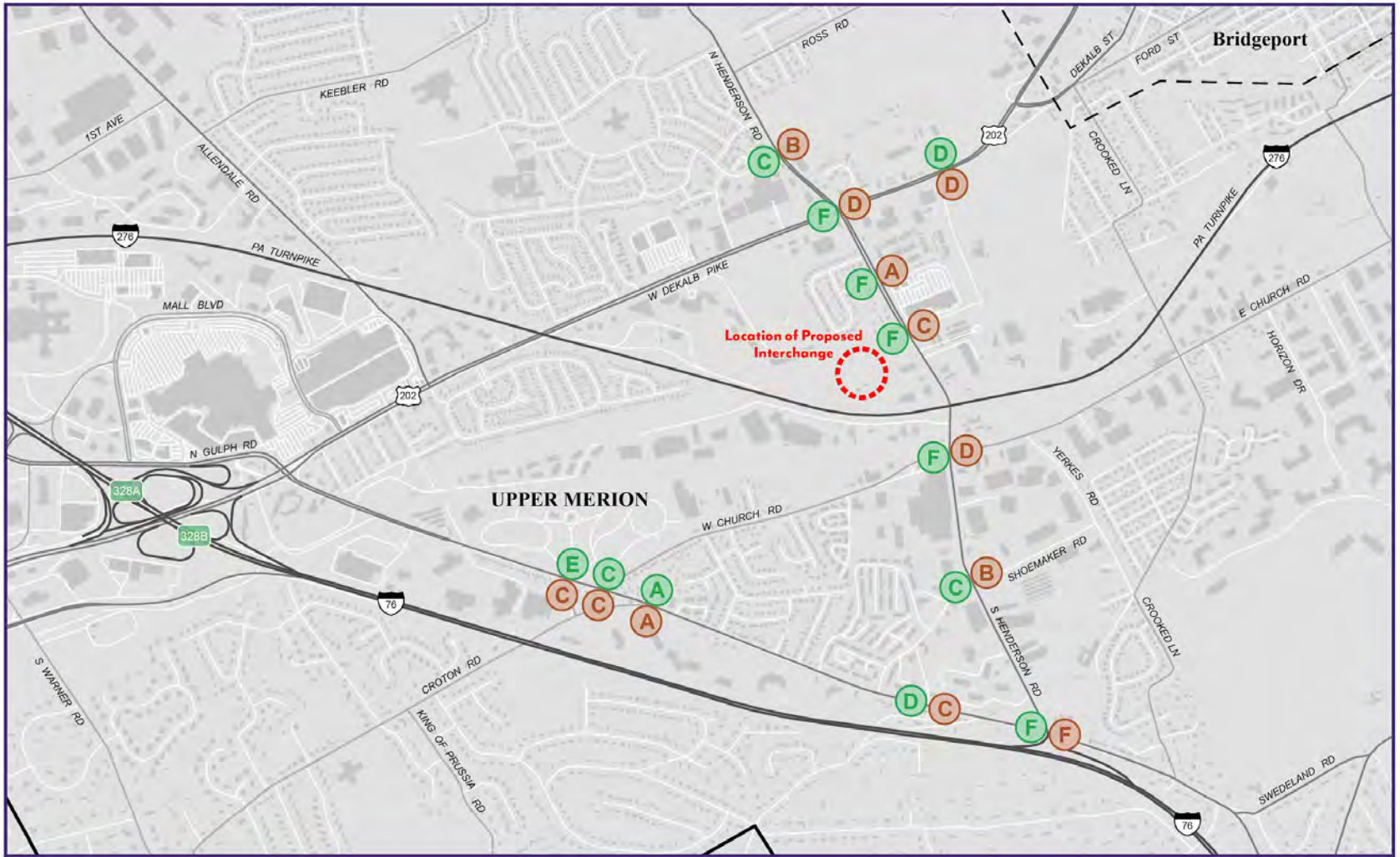
PM Peak Hour:

Vehicles in network:

15,400

Average delay per vehicle:

6.5 minutes



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A Build LOS

A Build + Improvements LOS

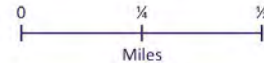
Stable and Predictable

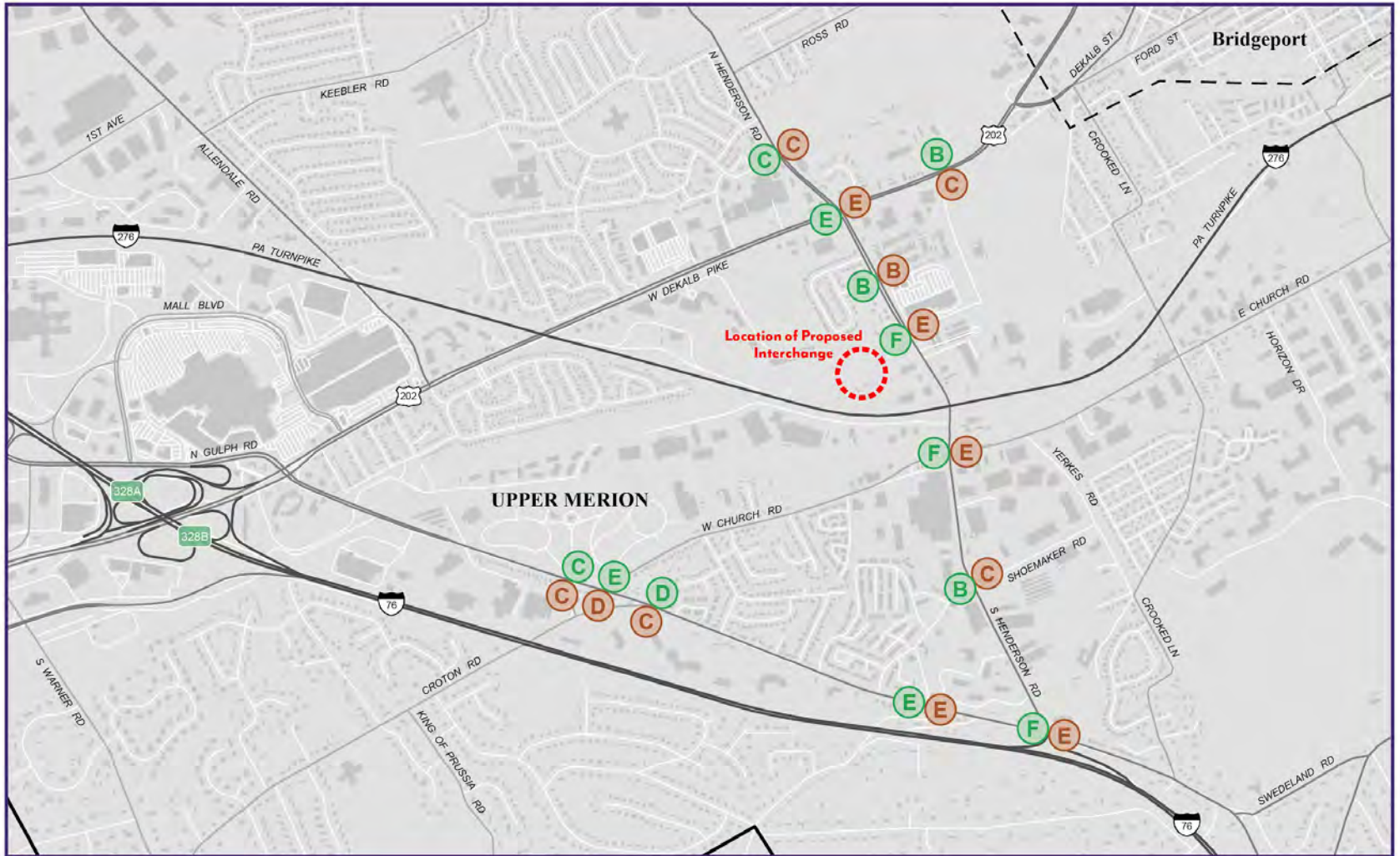


Predictable, but Approaching Unstable

Unstable and Unpredictable

Morning Peak Hour (7-8 AM) Intersection Level of Service





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A Build LOS

A Build + Improvements LOS

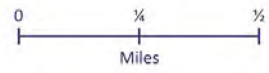
Stable and Predictable



Unstable and Unpredictable

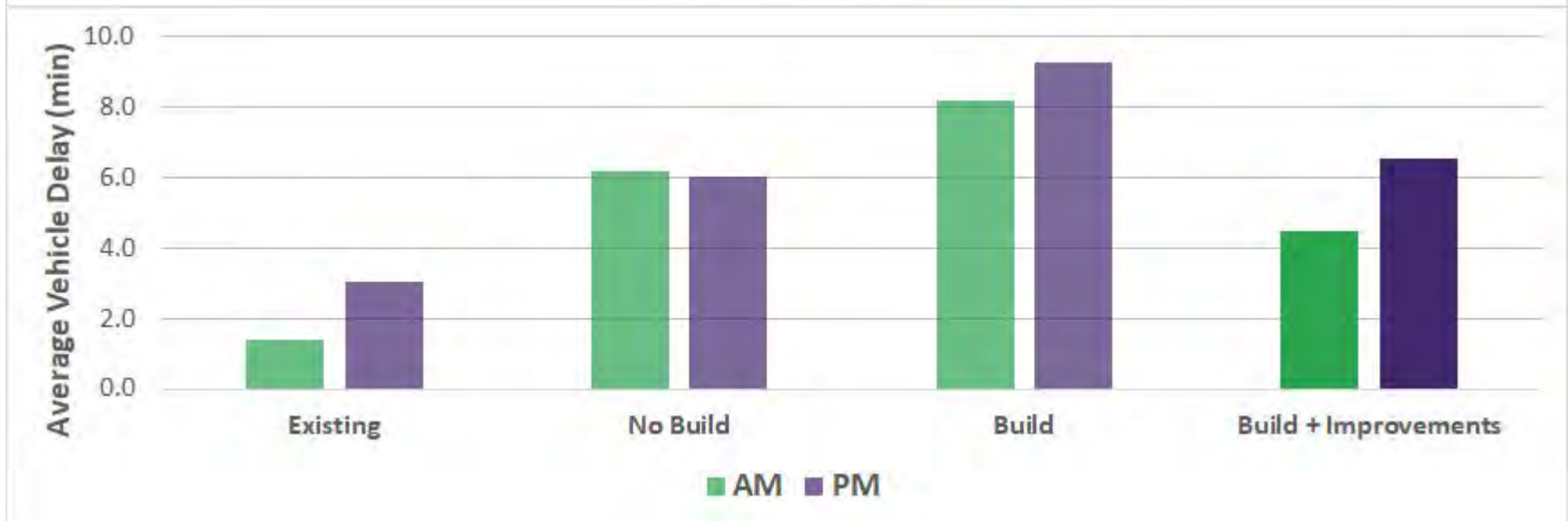
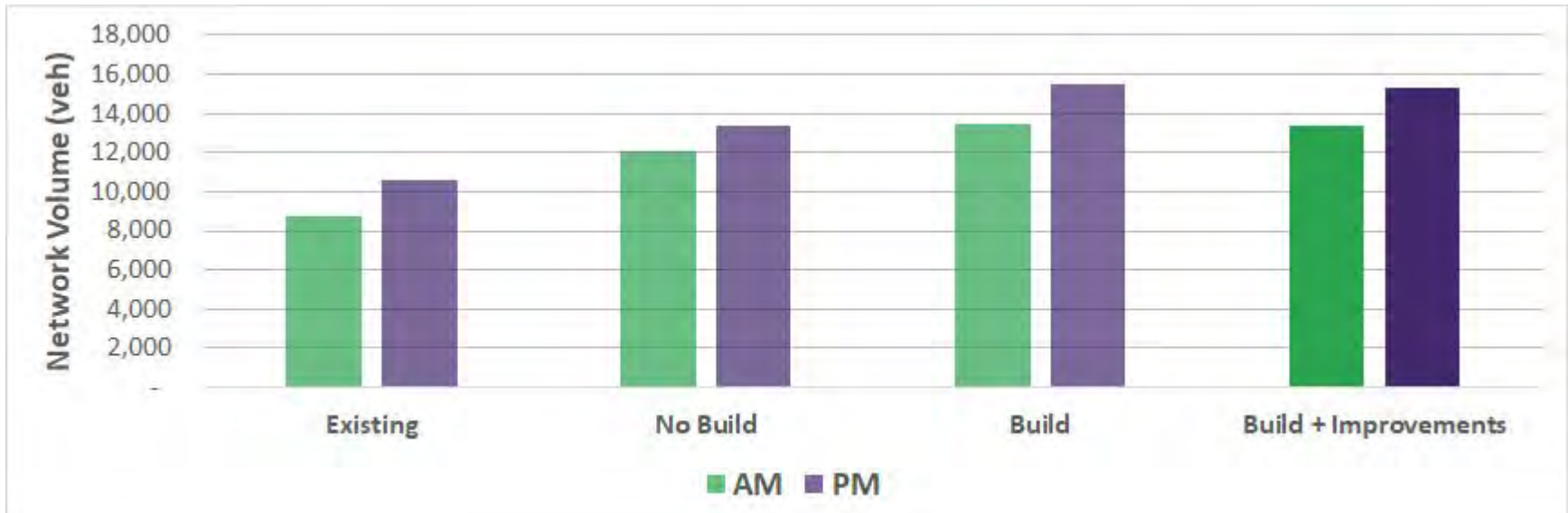
Predictable, but Approaching Unstable

Evening Peak Hour
(5-6 PM) Intersection
Level of Service



2019

2045



Q&A Session



Visit the PA Turnpike Interchange Study web
page: www.dvrpc.org/Corridors/PATurnpike

Next Steps

Matt Edmond - MCPC

Thank You!

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MEdmond@montcopa.org



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