

# West Chester Pike at Paoli Pike

## *Multimodal Traffic and Circulation Study*



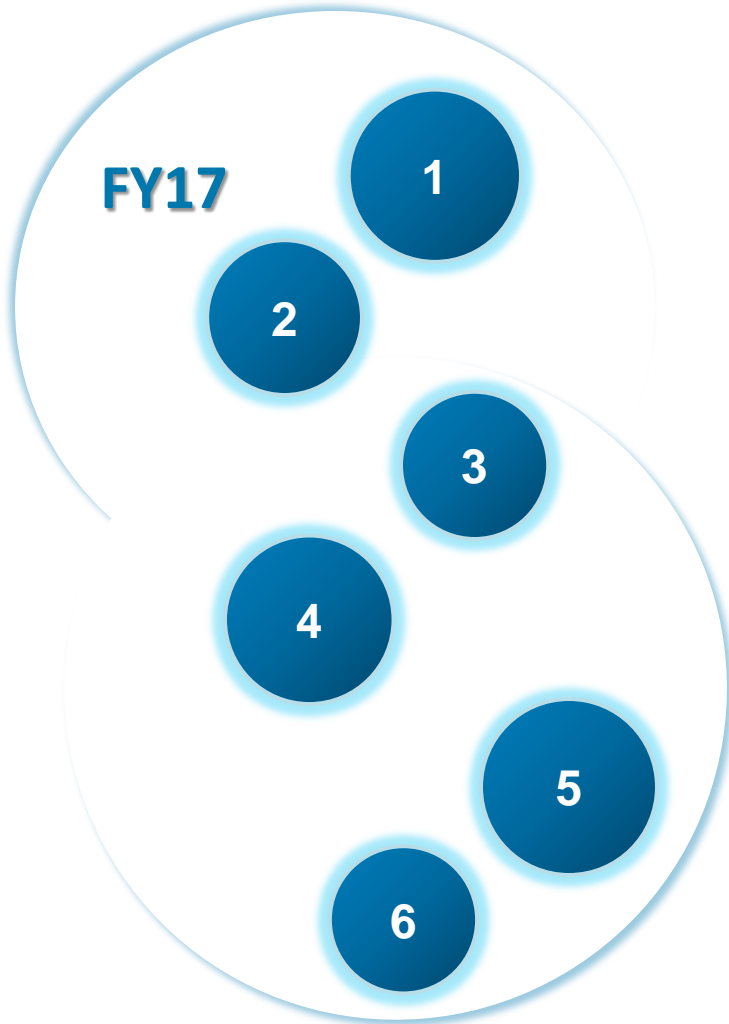
# Study Description

## Objective:

**Identify ways to improve pedestrian and bicycle travel.**

- Assess alternatives to calm traffic approaching and leaving the business districts of West Chester Borough and West Goshen Township from PA 3 and Paoli Pike.

# Study Steps



**Identify study area**

**Form project steering committee**

**Collect data on existing traffic patterns**

**Develop concepts for multimodal improvements**

**Model existing conditions and operational alternatives**

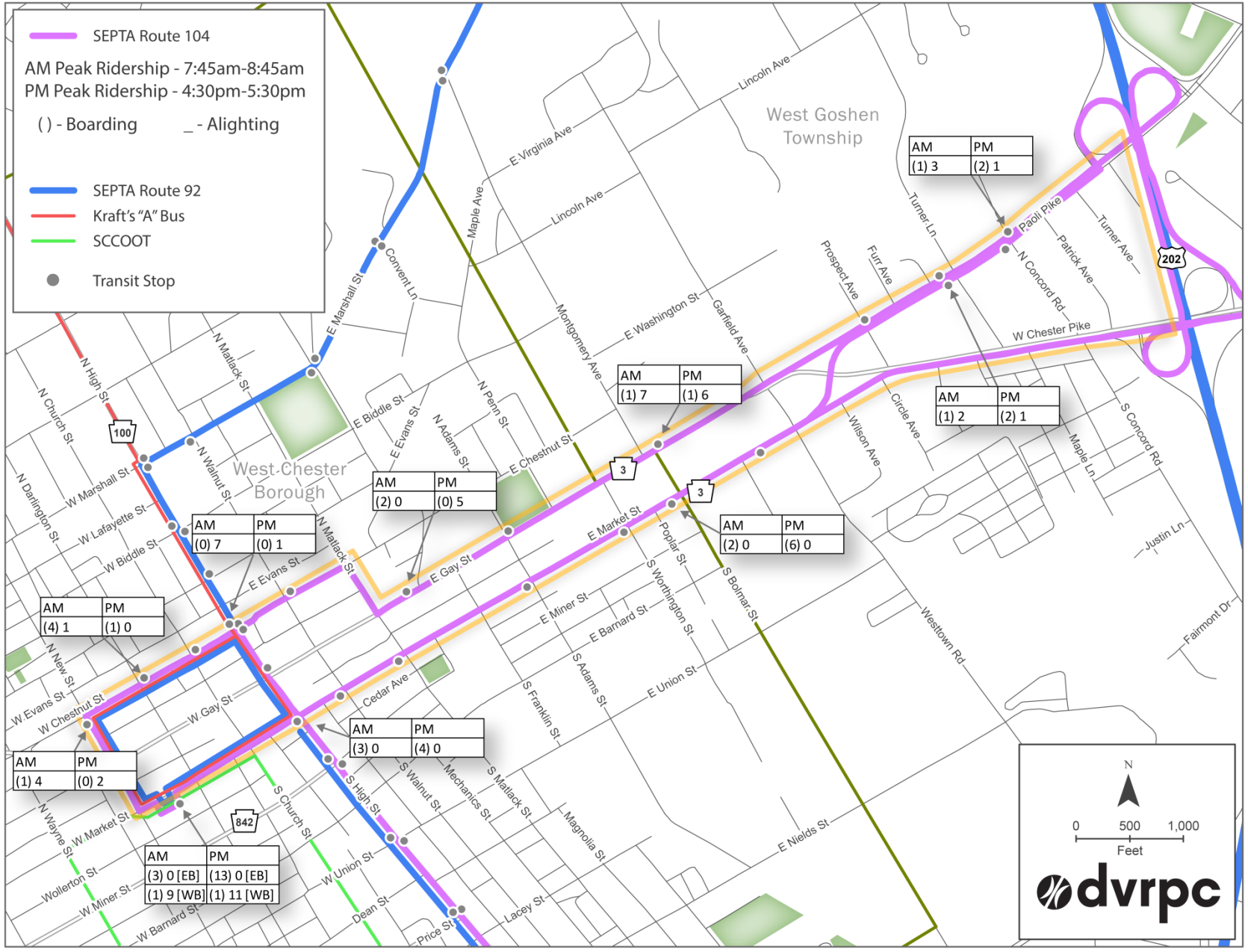
**Prepare final report**

# Study Area Description





*Study Area*



# Transit Ridership (2014)

# West Goshen

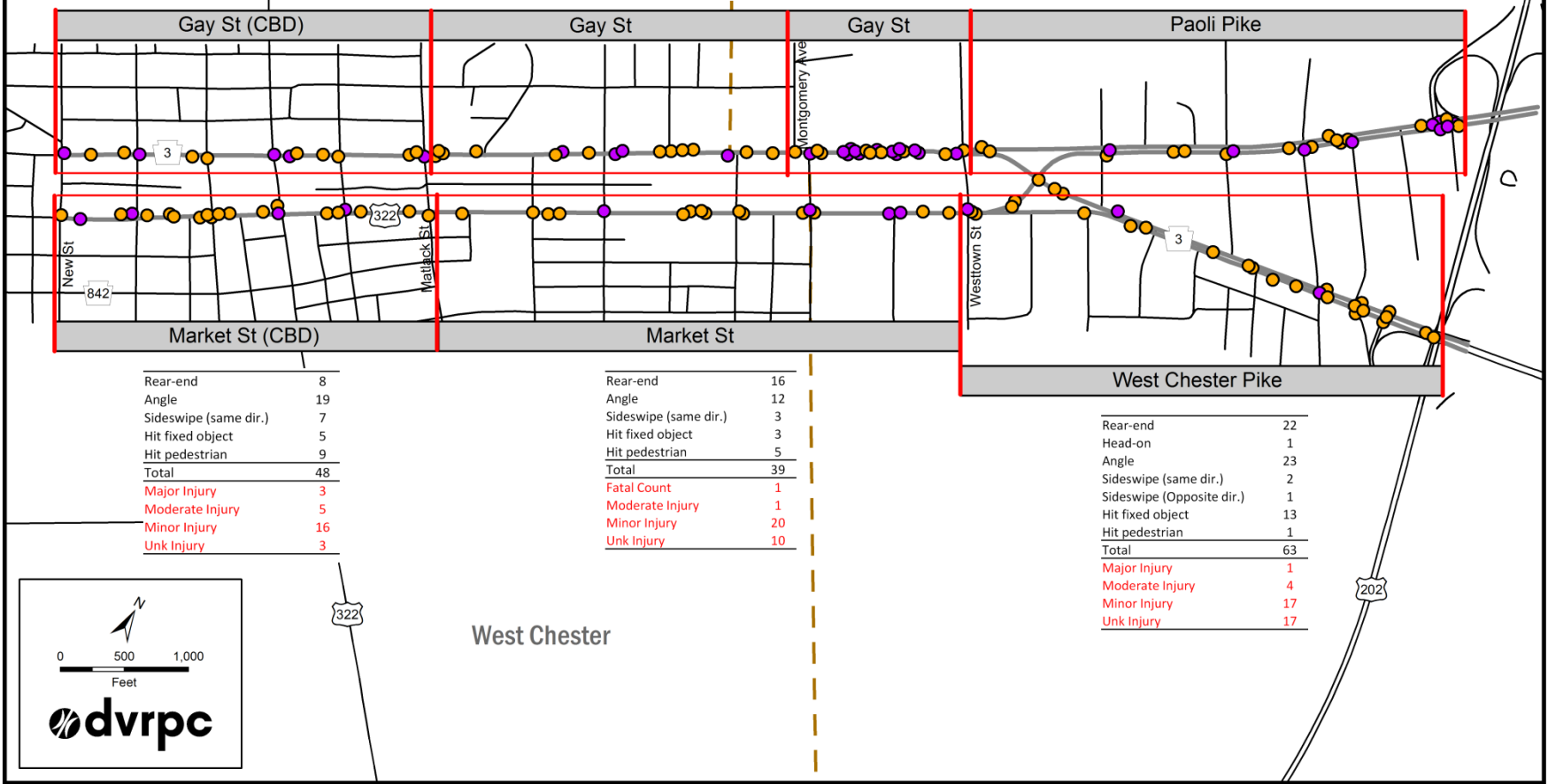
● Crash Location  
● Angle Crash Location  
 Source: Crashes - PennDOT, 2011-2015  
 \* Each crash location is not necessarily a single crash site

Rear-end	4
Angle	12
Sideswipe (same dir.)	3
Hit fixed object	4
Hit pedestrian	7
<b>Total</b>	<b>30</b>
Moderate Injury	1
Minor Injury	16
Unknown Injury	3

Rear-end	8
Angle	6
Sideswipe (same dir.)	6
<b>Total</b>	<b>20</b>
Moderate Injury	1
Minor Injury	8

Rear-end	2
Angle	26
Sideswipe (same dir.)	15
Hit fixed object	2
Hit pedestrian	2
<b>Total</b>	<b>47</b>
Minor Injury	5
Unk Injury	14

Rear-end	12
Angle	29
Sideswipe (same dir.)	1
Sideswipe (Opposite dir.)	1
Hit fixed object	7
Hit pedestrian	3
<b>Total</b>	<b>53</b>
Moderate Injury	2
Moderate Injury	4
Minor Injury	20
Unk Injury	15



Rear-end	8
Angle	19
Sideswipe (same dir.)	7
Hit fixed object	5
Hit pedestrian	9
<b>Total</b>	<b>48</b>
Moderate Injury	3
Moderate Injury	5
Minor Injury	16
Unk Injury	3

Rear-end	16
Angle	12
Sideswipe (same dir.)	3
Hit fixed object	3
Hit pedestrian	5
<b>Total</b>	<b>39</b>
Fatal Count	1
Moderate Injury	1
Minor Injury	20
Unk Injury	10

Rear-end	22
Head-on	1
Angle	23
Sideswipe (same dir.)	2
Sideswipe (Opposite dir.)	1
Hit fixed object	13
Hit pedestrian	1
<b>Total</b>	<b>63</b>
Moderate Injury	1
Moderate Injury	4
Minor Injury	17
Unk Injury	17

# West Chester



# Crashes on Market and Gay Streets (2011-2015)







# Microsimulation Modeling

# Data Inputs

- Turning movement counts (TMCs) taken at 20 locations.
- **AM Peak:** 7:30 AM – 8:30 AM
- **PM Peak:** 4:30 PM – 5:30 PM
- Synchro® microsimulation software used to evaluate conditions at key signalized intersections in existing and proposed scenarios.
- Background growth rate of 1.0145 was applied to 2016 volumes to determine 2025 forecasted volumes

# Scenarios

## Existing (2016)

- 2016 Traffic Counts
- PA 3, Paoli Pike, and local cross streets

## Future (2025) + Improvements

- Background growth rate of 1.0145 applied to 2016 volumes
- Proposed improvements modeled

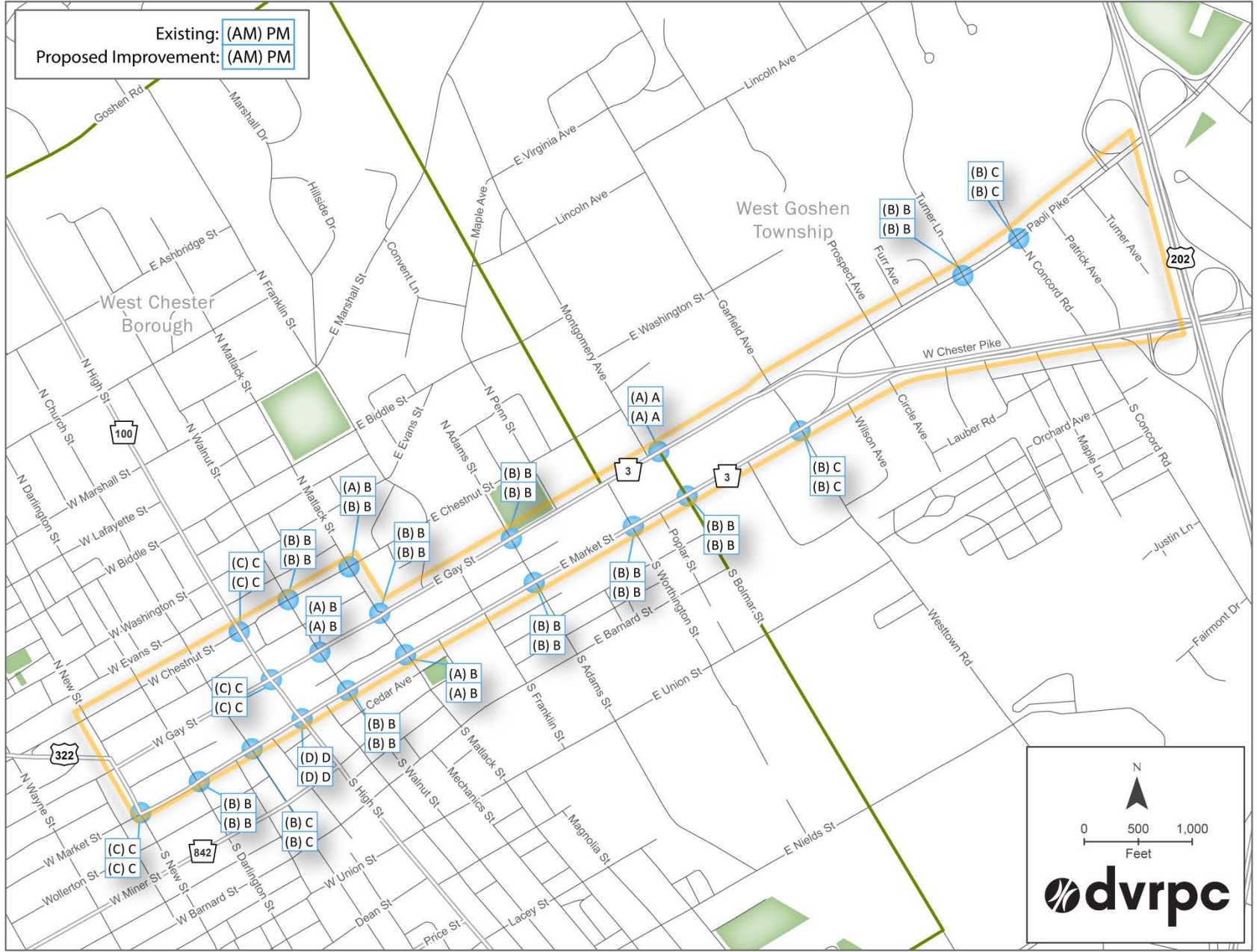
# Performance Measures

- **Delay** is the average time (in seconds) that it takes a vehicle to pass through an intersection, beyond what would be experienced in free-flow conditions.
- **Level of Service (LOS)** is the letter grade assigned to various degrees of delay.



# LOS Definitions

LOS ( $v/c \leq 1.0$ )	Control Delay (sec/vehicle)	Qualitative Description of Traffic Operations
A	$\leq 10$	Stable and Predictable
B	$> 10-20$	
C	$> 20-35$	
D	$> 35-55$	Predictable, but Approaching Unstable
E	$> 55-80$	Unstable and Unpredictable
F	$> 80$	



# Study Area Level of Service (LOS)

# Proposed Improvements

# Locations of Recommendations

- Matlack Street and Chestnut Street;
- Gay Street from Matlack Street to High Street;
- Paoli Pike/Gay Street from Prospect Avenue to N. Adams Street;
- Market Street from Franklin Street to Prospect Avenue;
- West Chester Pike (PA Route 3) from Prospect Avenue to Westtown Road; and
- Market Street from Darlington Street to Church Street



# Matlack Street Realignment

## *Existing Conditions*

- Matlack Street has 3 travel lanes: 2 left-turn lanes and one through/right-turn lane
- Capacity drops from 2 lanes on Matlack Street to 1 on Chestnut Street after the left-turn



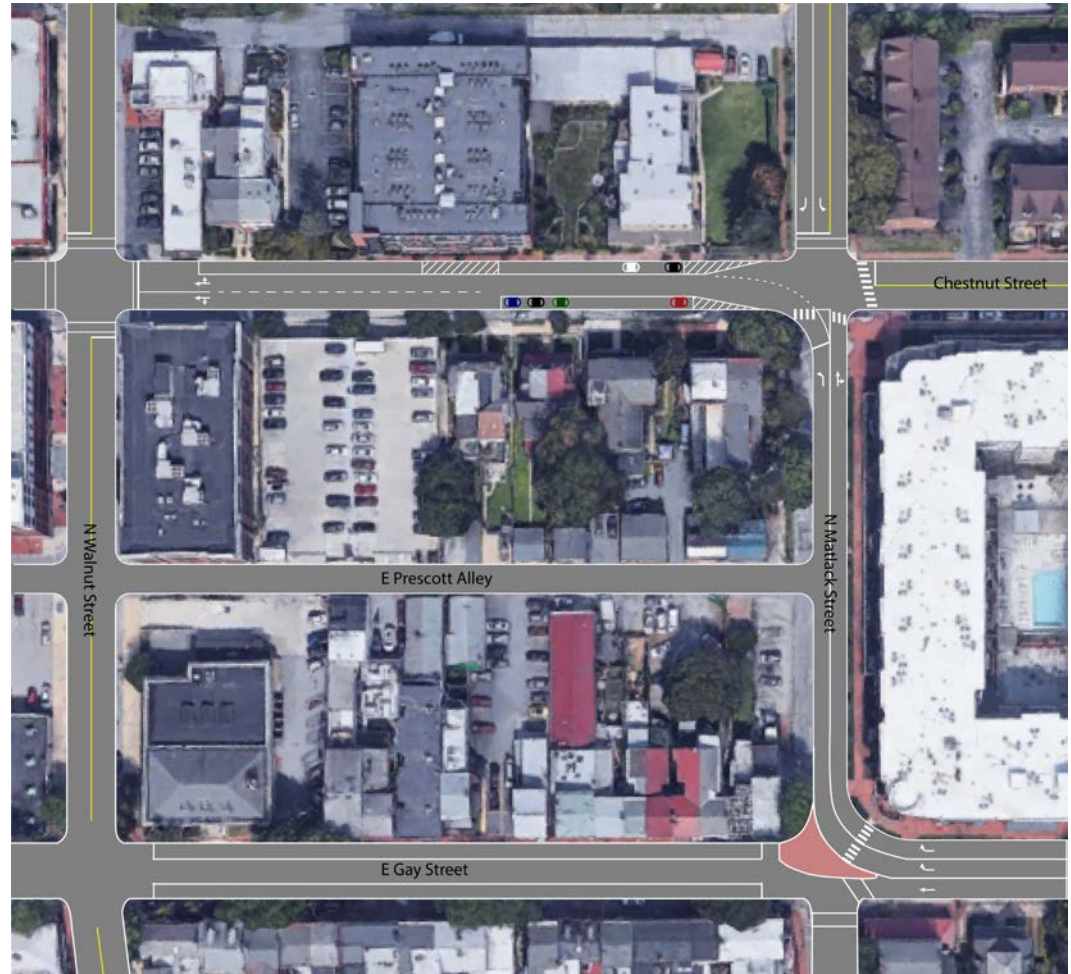
Sources: Google, 2017; DVRPC, 2017

# Matlack Street Realignment

## *Proposed Improvement*

- Road diet from 3 to 2 lanes on NB Matlack Street
- Pavement markings through the intersection to guide the left-turn

Existing (2016)	Future (2025) + Improvements
AM Peak LOS A	AM Peak LOS B
PM Peak LOS B	PM Peak LOS B



Sources: Google, 2017; DVRPC, 2017



# Gay Street Road Diet

## Existing Conditions

- Gay Street is one-way westbound with two travel lanes and on-street parking on both sides
- Restaurants on the south side of the street



Sources: Google, 2017; DVRPC, 2017

# Gay Street Road Diet

## *Proposed Improvements*

- Removal of left lane to allow room for streetscape improvements
- Parking restrictions
- **No change in LOS at nearby intersections**



Sources: Google, 2017; DVRPC, 2017



# Paoli Pike/Gay Street Road Diet

- Connects US 202 to West Chester Borough through West Goshen Township
- Road diet recommended involves the removal of the right-most travel lane between Prospect Avenue and N. Adams Street
- Bicycle lane in the vacated travel lane

## *Existing Conditions*



Sources: Google, 2017; DVRPC, 2017

# Proposed Bicycle Facilities



Sources: Google, 2017; DVRPC, 2017



# Market Street Proposed Bike Lane

- Right shoulder on Market Street can accommodate a bicycle lane from Franklin Street to Prospect Avenue



Existing (2016)	Future (2025) + Improvements
AM Peak LOS B	AM Peak LOS B
PM Peak LOS B	PM Peak LOS B

Sources: Google, 2017; DVRPC, 2017

# West Chester Pike Lane Removal

- Elimination of 1 travel lane and widening of shoulders from Prospect Avenue to Westtown Road

## *Existing Conditions*



## *Proposed Improvement*



Sources: Google, 2017; DVRPC, 2017



# Market Street Road Diet

## Existing Conditions

- 2 through lanes and 1 through/right-turn lane to Darlington Street
- Capacity drops back to 2 lanes at Market Street and Church Street



Sources: Google, 2017; DVRPC, 2017

 On-Street Parking



# Market Street Road Diet

## Existing Conditions

- Eliminate right lane on Market Street between Darlington and Church Streets
- Space to accommodate high pedestrian traffic
- **No change in LOS at nearby intersections**



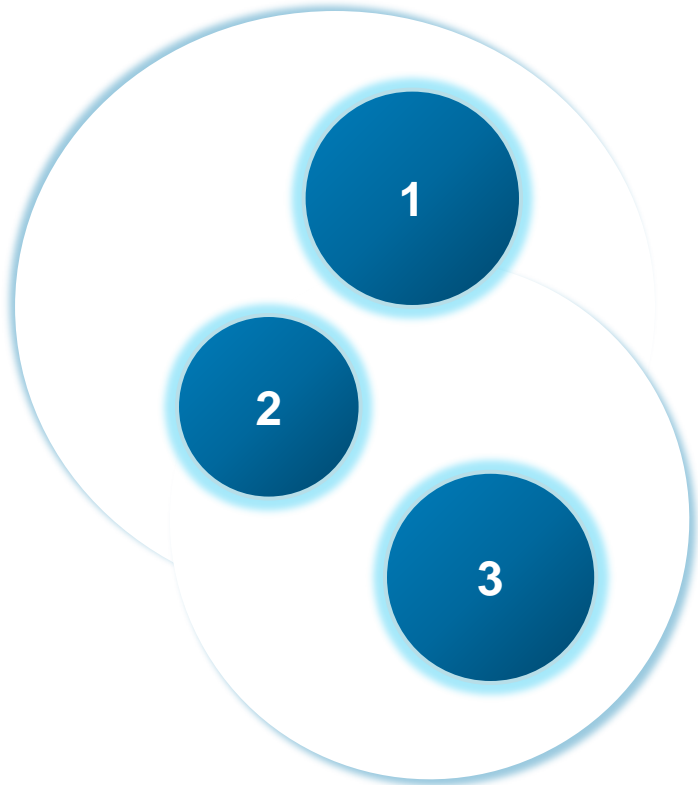
Sources: Google, 2017; DVRPC, 2017

-  Pedestrian Amenities/Streetscape Elements
-  On-Street Parking



# Next Steps

# Coalition Actions



**Identify funding sources (MTF, TA Set-Aside, resurfacing)**

**Explore a bicycle lane demo**

**Identify concepts that could be replicated along the corridor**

# Questions



Visit the DVRPC Corridor Planning web page:  
[www.dvrpc.org/Corridors](http://www.dvrpc.org/Corridors)