

PATCO's Impact on the Philadelphia Metropolitan Region



We Connect People

PATCO connects people to the cultural, recreational, educational, economic and medical resources in the Philadelphia-Camden metropolitan area.



Our Mission & Vision

MISSION

As stewards of public assets, we provide for the safe and efficient operation of transportation services and facilities in a manner that creates value for the public we serve.

VISION

Together we are world-class stewards of public transportation assets. Working collaboratively across all business units, we operate, maintain, improve and protect transportation infrastructure for the benefit of the citizens we serve throughout the Greater Philadelphia Region. We are committed to building credibility, earning public trust and creating public value.



Overview

- **Connects:** Philadelphia to Camden County, NJ
- **Initial Investment:** \$96 million
- **First day of service:** February 15, 1969
- **Hours of operation:** 24/7/365
- **Route miles:** 14.2 miles
- **Number of stations:** 9 in New Jersey; 4 in Philadelphia
- **Parking spaces:** Parking is available for over 12,500 cars daily at 7 NJ stations: Lindenwold, Ashland, Woodcrest, Haddonfield, Westmont, Collingswood, and Ferry Ave.
- **2018 Annual ridership:** 10.8 million riders
- **2018 Average number of weekday riders:** 37,858
- **Transit connections:** PATCO connects to SEPTA & NJTransit



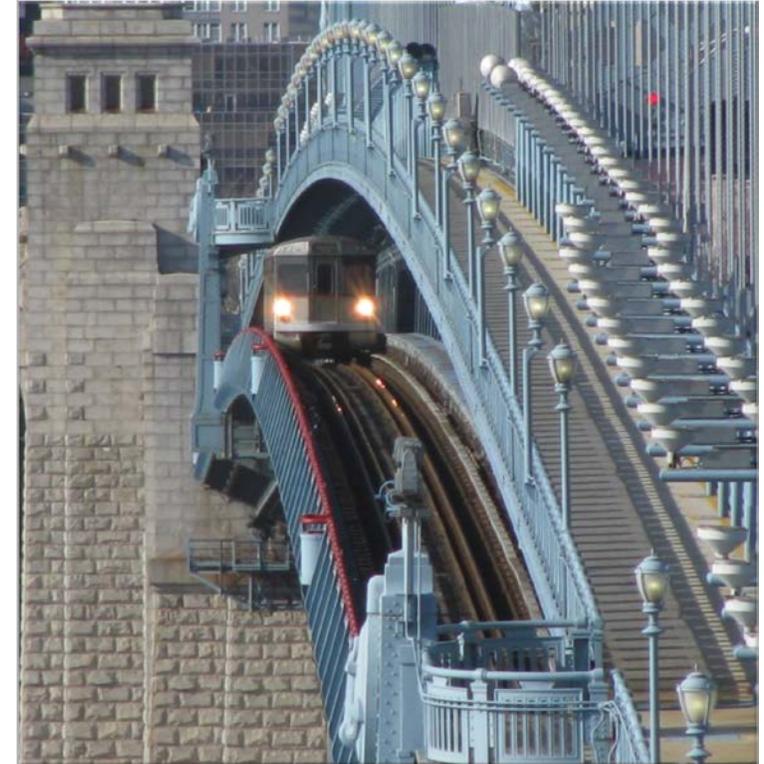
PATCO's Impact In Our Area

- Removes more than 8.6 million car trips from area roads each year.
- Saves vehicle owners \$19.2M annually on gas and maintenance costs.
- Saves travelers 18,000 hours per weekday on both sides of the river.
- Saves at least \$1B to compensate for congestion relief by adding bridge and road capacity
- Removes 139,000 tons of CO2 and other greenhouse gases from the air; saving \$800,000 annually in health and environmental costs.
- Provides employers access to 9,700 more job candidates within a reasonable distance by transit.
- Through wage taxes, commuters contribute approximately \$53M to Philadelphia's budget .



Port Authority Transit Corporation (PATCO)

- 14.7 miles of double track between Lindenwold, NJ and Philadelphia, Pa
- Full operations began on February 15, 1969
- Full operations began with 12 stations (4 in Philadelphia and 8 in NJ)
- Initially operated with 75 transit cars (25 single units and 50 married pairs)
- First of the new and modern generation of mass transportation
 - Automatic Train Control
 - Automatic Fare Control



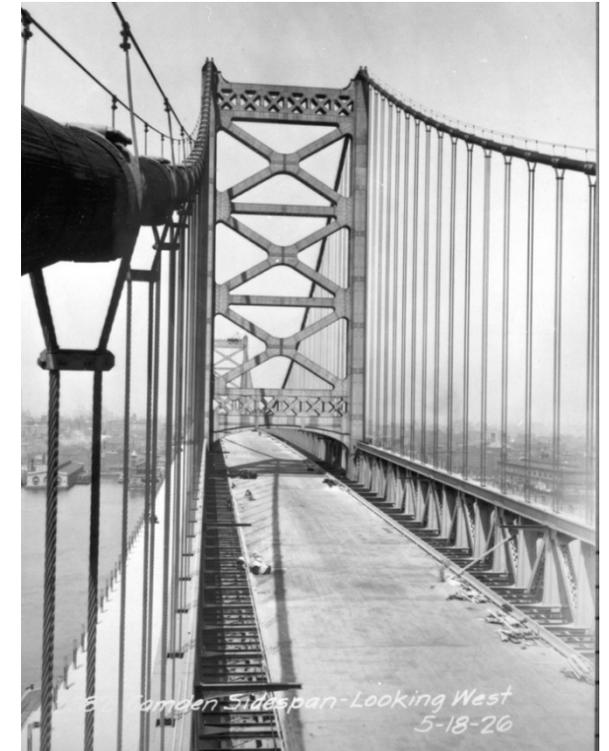
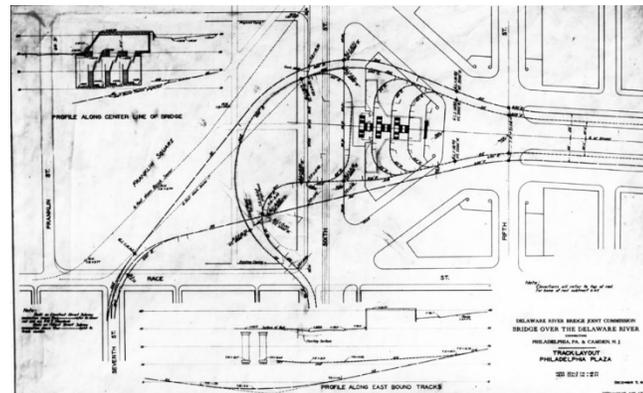
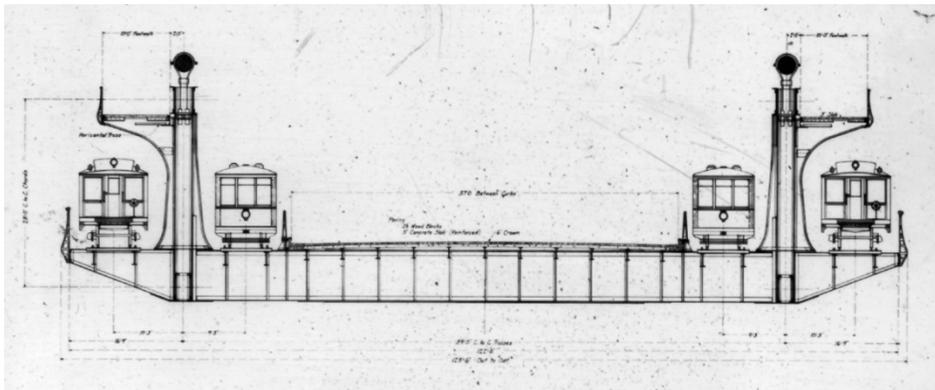
Port Authority Transit Corporation (PATCO)

- System was designed and built as a viable alternative to the automobile
- 216 scheduled round trips per day
- 38,000 trips taken per day
- 205+ million miles operated between 1969 and 2018



Delaware River Bridge - 1926

- Designed and built to include public transit
- Two heavy rail track areas
- Two trolley track areas
- Stations at bridge anchorages and Philadelphia Plaza



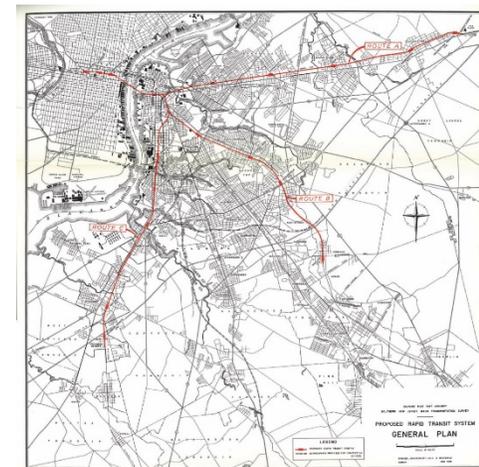
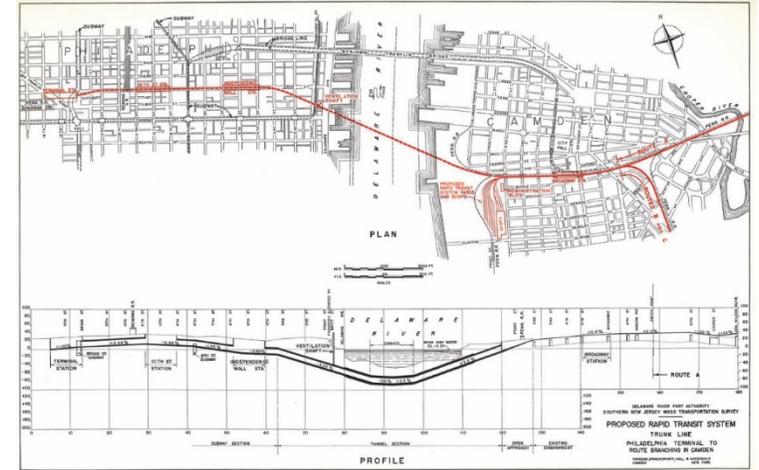
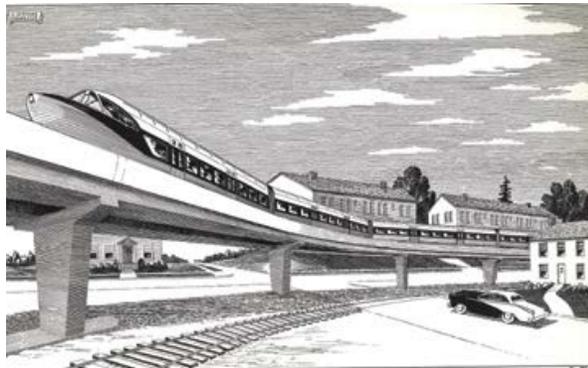
Delaware River Joint Commission - 1936

- Began operation June 6, 1936
- Cost \$8.2 million
- Service between Broadway and 8th & Market
- Integrated into Broad Street Subway's Ridge Avenue Spur
- Operated by the Philadelphia Rapid Transit Company (PRT) then Philadelphia Transit Company (PTC)
- Service expanded to 15/16th & Locust in 1953



Southern New Jersey Mass Transportation Survey - 1956

- Parsons Brinckerhoff Hall & MacDonald
- Three-route system
- Tunnel beneath the Delaware River
- Connection with Pennsylvania Railroad at Suburban Station
- Cost \$242 million



PATCO Construction – 1964-1969

- Removal of existing at-grade Pennsylvania Railroad line between Camden and Haddonfield
- Maintaining Service between Haddonfield and Lindenwold



PATCO Construction – 1964-1969

- Connection between Bridge Line and PRSL tracks
- Grade Separation between Collingswood and Lindenwold
- Open cut through Haddonfield



PATCO Construction – 1964-1969

- Construction of six new stations and parking lots
 - 4,575 parking spaces (Lindenwold)



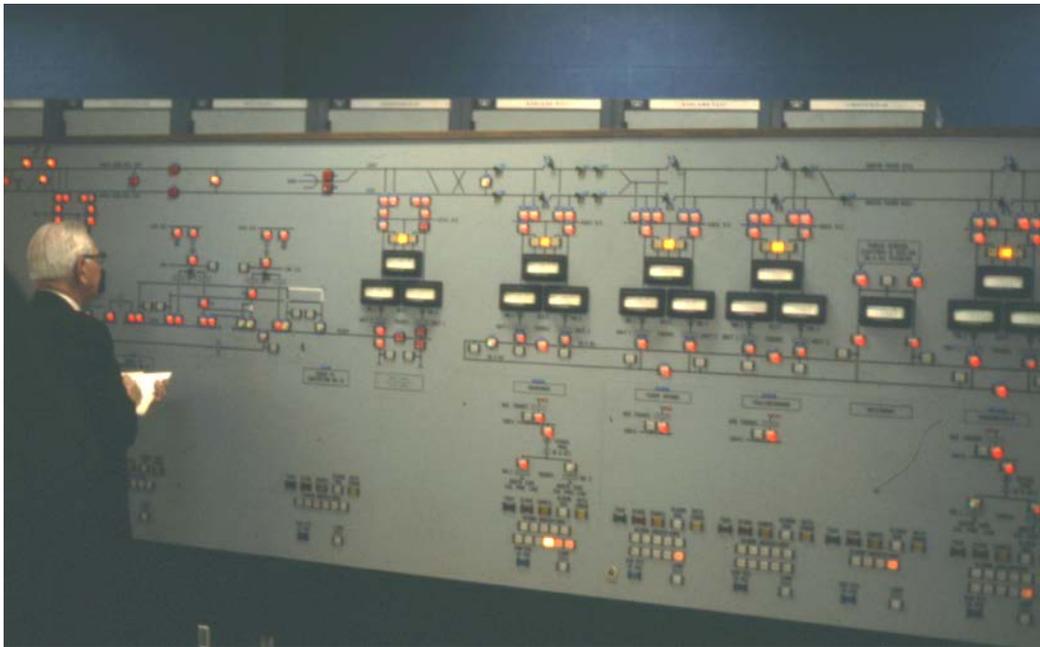
PATCO Construction – 1964-1969

- Construction of 75 stainless steel transit vehicles
 - 25 single units
 - 50 married pairs
- Manufactured by the Budd Company
- Maximum Operating Speed – 75 mph



PATCO Construction – 1964-1969

- Automatic Train Operation
- Automatic Train Control



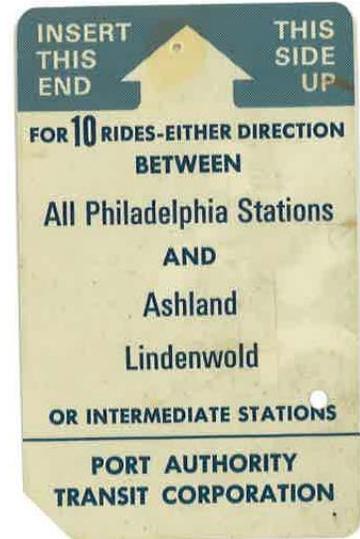
PATCO Construction – 1964-1969

- Closed Circuit Television Camera System
 - Customer Assistance
 - Security



PATCO Construction – 1964-1969

- Fare Collection
- Magnetic Farecards (Re-usable)



PATCO - Maintenance

- Lindenwold Shop – Maintenance and Administration
- Four Tracks for Train Maintenance and Inspection
- One track for exterior and interior cleaning
- Originally intended for routine inspection and minimal repairs



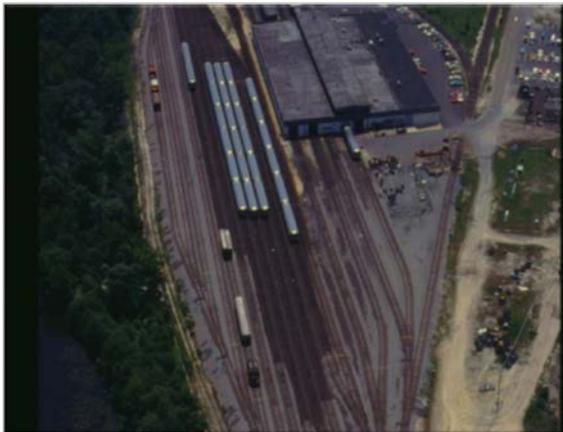
Mass Transportation Development Program - 1975

- Gannett Fleming
- New Routes to Mt. Laurel and Glassboro
- Extension from Lindenwold to Atco
- Improvements at Broadway Station, Ben Franklin Bridge and Philadelphia Subway
- Cost \$670 million (\$58 million for existing PATCO system)



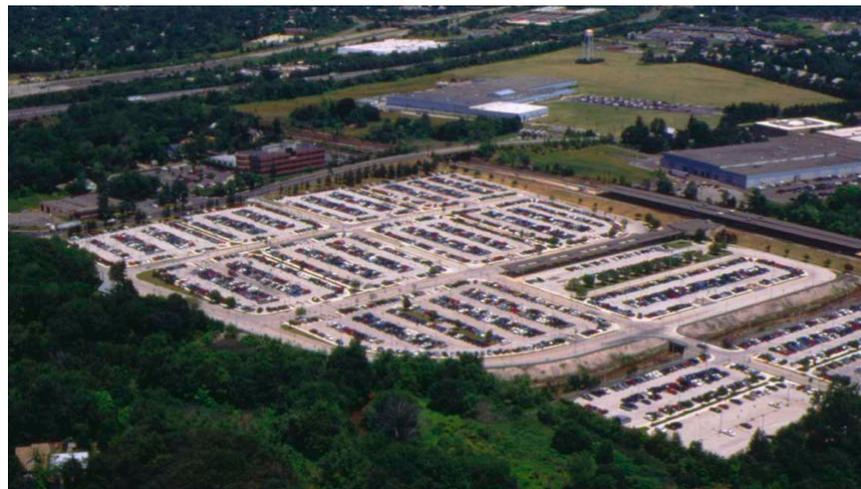
PATCO Improvements – 1970's

- Expansion of Lindenwold Shop Facility
- Expansion of Station Parking Lots
- Franklin Square Station



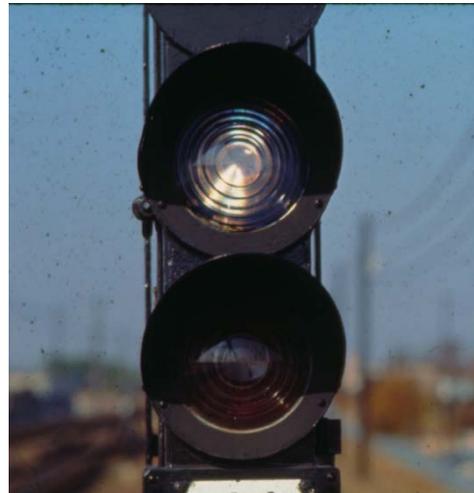
PATCO Improvements 1980's

- Woodcrest Station
- Expansion of Fleet
- Expansion of Lindenwold Storage Yard
- Improvements to Broadway Station
- Extension of Station Platforms
- Track Replacement on the BFB



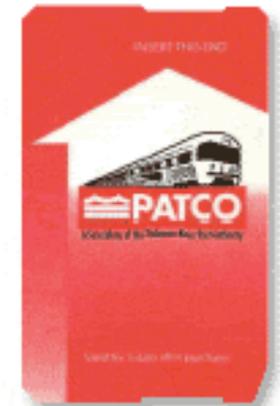
PATCO Improvements 1990's

- Reverse Signaling
- ADA Improvements to Key Stations
- Station Improvements
- Embankment Restoration



PATCO Improvements 2000's

- Tie Replacement
- Interlocking Replacement
- SCADA/CTC Upgrades
- Embankment Restoration
- Fare Collection Improvements



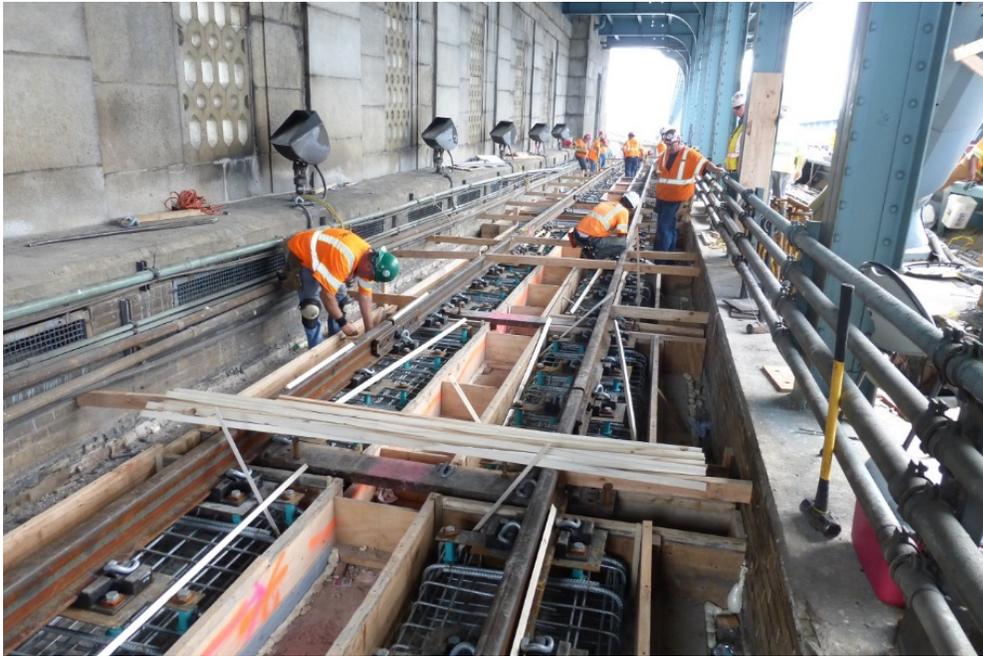
PATCO Improvements 2010's

- Transit Car Overhaul



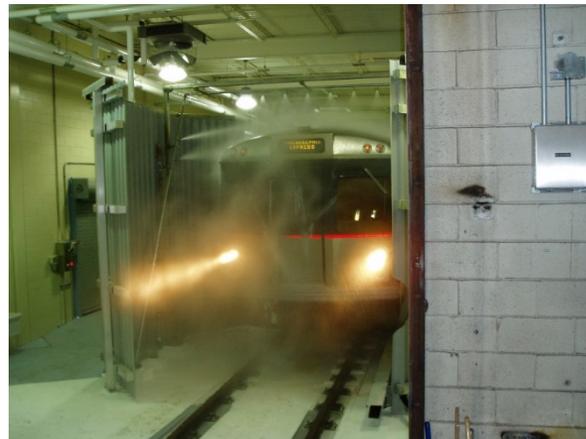
PATCO Improvements 2010's

- Transit Car Overhaul
- Track Replacement on the BFB



PATCO Improvements 2010's

- Transit Car Overhaul
- Track Replacement on the BFB
- Pole Line Rehabilitation
- Lindenwold Facility Improvements
- Elevator installation at stations



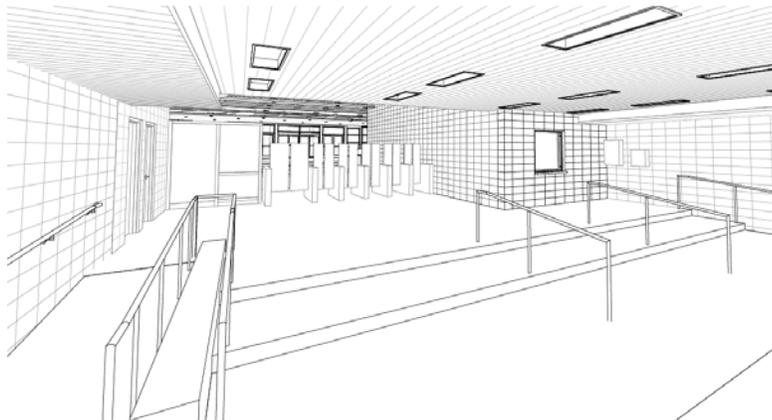
PATCO Improvements Future

- Franklin Square Station Re-opening
- Collingswood and Westmont Viaduct Rehabilitation
- Subway Rehabilitation

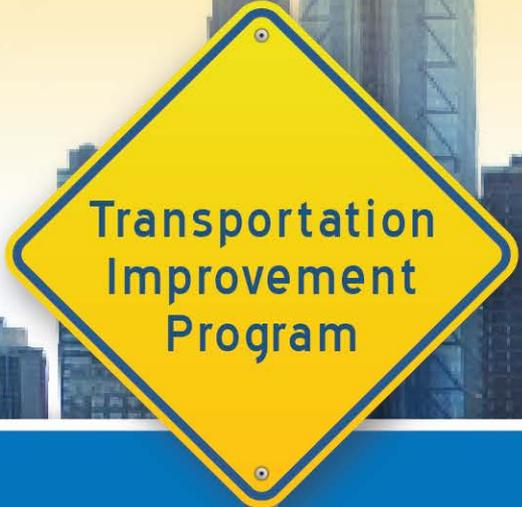


PATCO Improvements Future

- Interlocking Improvements
- Control Center Improvements/Relocation
- Woodcrest Station Improvements
- Substation Upgrades







TIP Actions

Transportation Improvement Program

New Jersey TIP (FY2018-2021)

Pennsylvania TIP (FY2019-2022)

February 2019



Morton Ave/Swarthmore Ave Intersection Improvements & Morton Ave Sidewalk

Delaware County | Remove Project from TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Remove project from TIP, including deobligating the ROW phase (FY19: \$870,000 CMAQ), and removal of CON phase (\$3,444,000 CMAQ/\$836,000 Local) in FY20 for a total of \$5,150,000
- ▶ **Background:** Due to local public opposition, the project is proposed to be removed from the TIP.

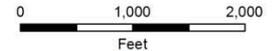
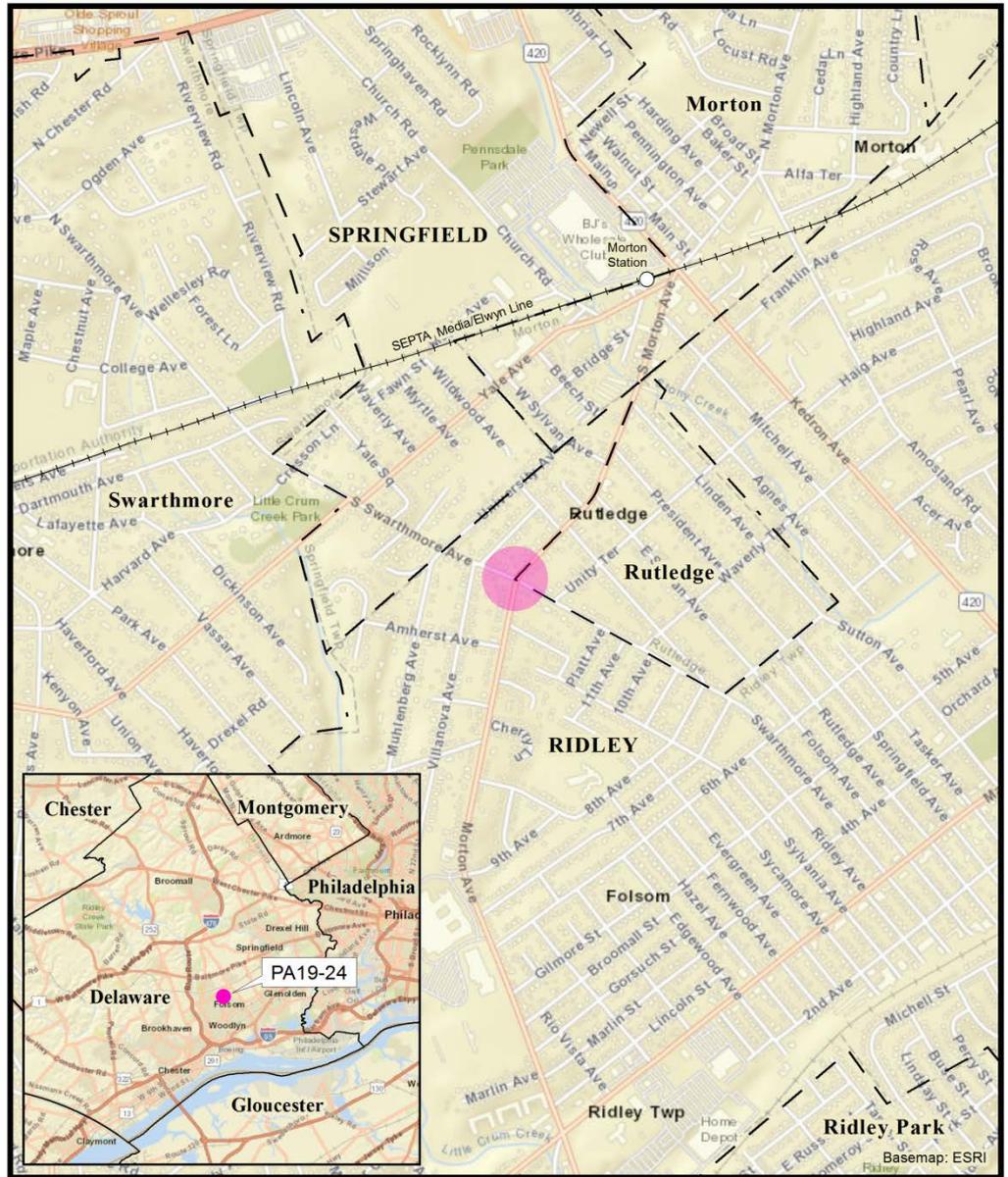


Proposed widening at intersection of Morton Ave and Swarthmore Ave

Construct sidewalks from Swarthmore Ave to Ridley H.S.

Replace 4 existing traffic signals at the intersection with new signals, including traffic responsive loop detectors.

PA19-24: Morton Avenue/Swarthmore Avenue Intersection Improvements and Morton Avenue Sidewalk



TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval of removing the Morton Avenue / Swarthmore Avenue Intersection Improvement and Morton Avenue Sidewalk project from TIP, including deobligating the ROW phase (FY19: \$870,000 CMAQ), and removal of CON phase (\$3,444,000 CMAQ/\$836,000 Local) in FY20 for a total of \$5,150,000.



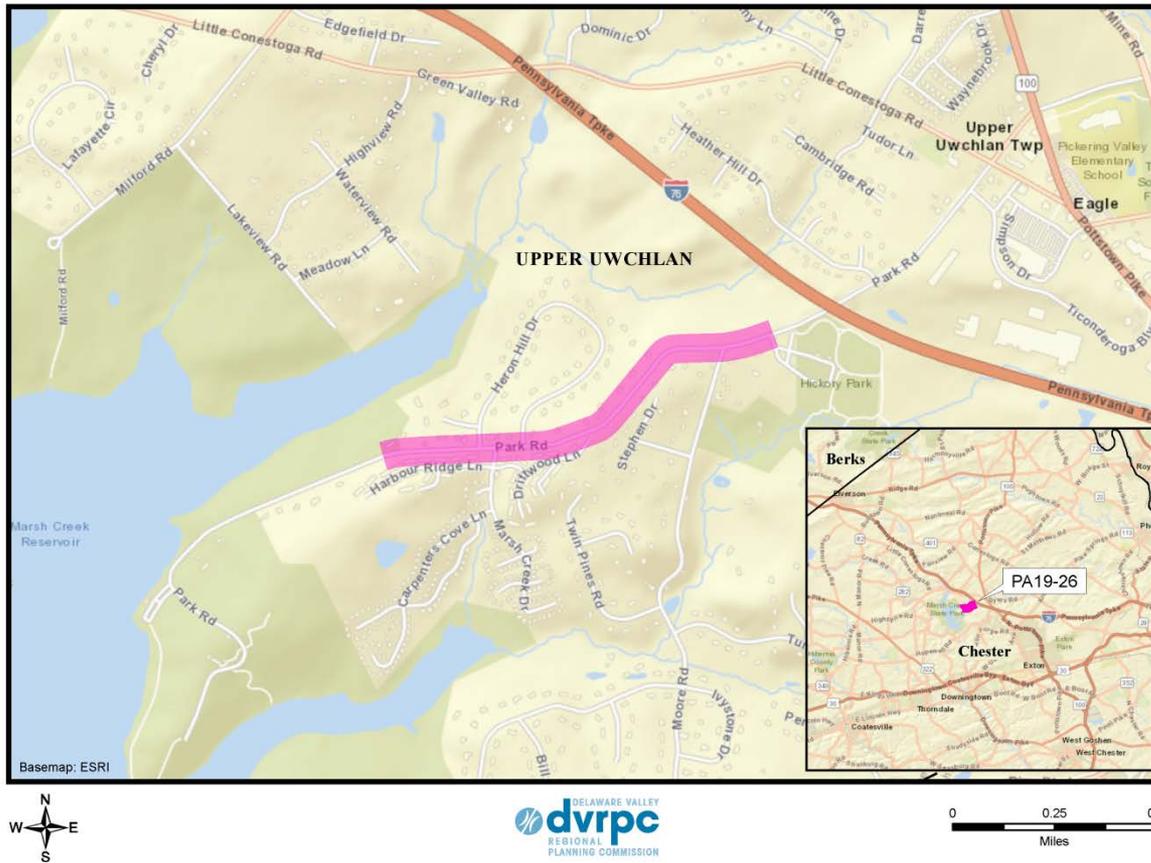
Park Road Trail

Chester County I Add Project Back into TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add project back into TIP by programming the CON phase in FY19 for \$2,389,000 CAQ/Toll Credit
- ▶ **Background:** Project was Advanced Constructed under the previous TIP and now needs to be programmed on the current TIP for conversion of federal funds.



PA19-26: Park Road Trail



Continuation of multi-use trail to Marsh Creek State Park.

No sidewalk or trail, pedestrians and cyclists must use roadway.

Proposed trail will be 6 feet wide and be within existing ROW.

TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval to add the Park Road Trail project back into the TIP in FY19 for construction for \$2,389,000 CAQ/Toll Credit.

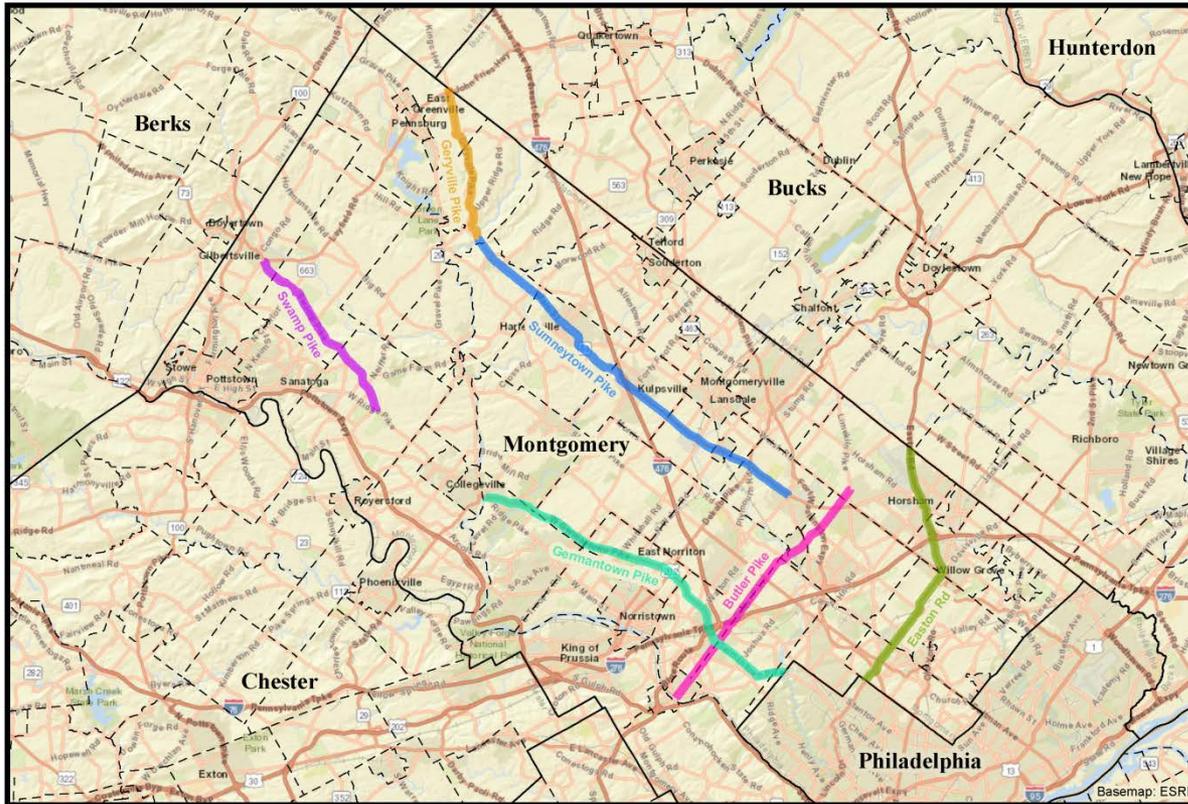
Transportation Study Montgomery County Owned Roads

Montgomery County | Add New Study to TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add new study to the TIP in FY19 for \$300,000 STP/Toll Credit
- ▶ **Background:** Study 6 county-owned road corridors spanning 42 miles on the National Highway System.
 - Principal Arterials:
 - Germantown Pike, Sumneytown Pike, and Butler Pike
 - Minor Arterials:
 - Easton Road, Swamp Pike, and Geryville Pike



PA19-27: Transportation Study Montgomery County Owned Roads



- Analyze current traffic data,
- Projection of future year performance,
- Potential environmental resources,
- Estimate cost for design and construction.

TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval to add the Transportation Study Montgomery County Owned Roads to the TIP in FY19 for \$300,000 STP/Toll Credit.

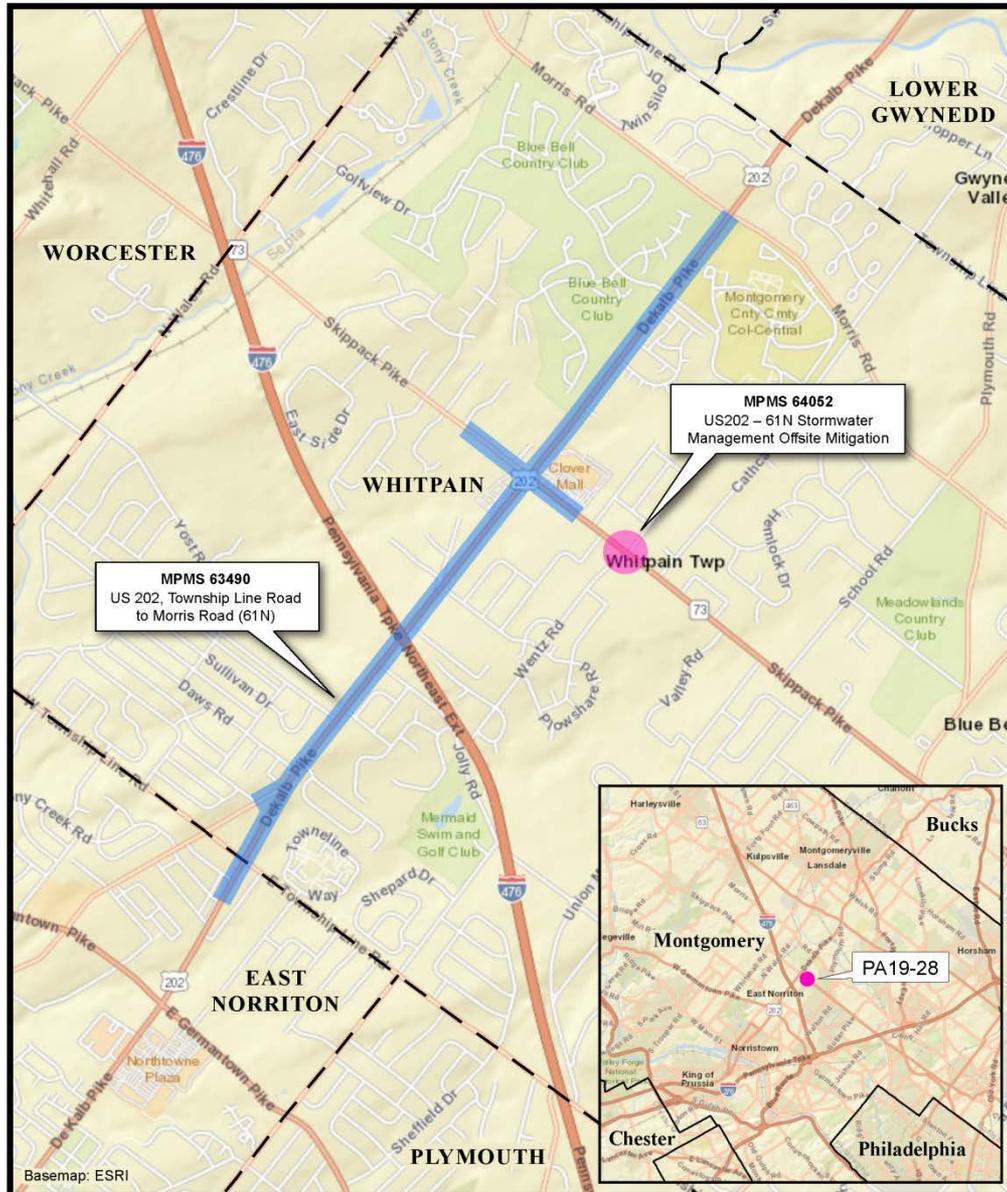
US 202 – 61N Stormwater Management Offsite Mitigation

Montgomery County | Add Breakout Project to TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add breakout project to TIP in FY19 for CON for \$4,500,000 (\$3,600,000 NHPP/\$900,000 State 581).
- ▶ **Background:** Project necessary to meet SWM requirements for mainline CON Section 61N.



PA19-28: US202 – 61N Stormwater Management Offsite Mitigation



Off-site stormwater mitigation site will be constructed at SE corner of PA 73 and Wentz Rd to mitigate runoff upstream from US 202 61N.

Intersection of Wentz Rd and PA 73 will be realigned to connect with Parkwood Rd and PA 73

Traffic signal equipment, drainage system, signage, and pavement markings to be replaced. ADA curb ramps to be installed.

TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval to add the US 202 - 61N Stormwater Management Offsite Mitigation breakout project to the TIP for construction in FY19 for \$4,500,000 (\$3,600,000 NHPP/\$900,000 State 581).

Construction Management Tasks

Various Counties | Add New Project to the TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add new project to the TIP in the amount of \$300,000 State 581 in FY20 for Planning, Research, and Administration (PRA phase).
- ▶ **Background:** Will fund Construction Management Open End Consultant that will assist with projects selected by PennDOT 6-0 and tasks appointed by the Construction Unit.



Construction Management Tasks

Various Counties | Add New Project to the TIP

► Tasks:

- Agreement Management Functions,
- AUC Resolution,
- DBE and Trainee Tracking and Shortfall Resolution,
- Project Startup Assistance,
- PennDOT Project Collaboration Center,
- Curb Ramp Verification,
- Construction Documentation Services Support,
- Additional administrative functions determined by Construction Unit.



TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval to add a new project to the TIP, Construction Management Tasks, in the amount of \$300,000 State 581 in FY20 for Planning, Research, and Administration (PRA phase).

District 6-0 Low Cost Safety Improvements

Various Counties | Add New Project to TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add new project to TIP by programming FD in FY19 for \$2,000,000 HSIP, and CON in FY20 for \$4,220,000 HSIP.
- ▶ **Background:** Implement low cost safety countermeasures at intersections with high crash rates throughout the District



District 6-0 Low Cost Safety Improvements

Various Counties | Add New Project to TIP

- ▶ Systematically target locations as part of PennDOT's Statewide Highway Safety Network Screening results and 2018 Crash Clusters
- ▶ Follow recommended countermeasures provided in 2017 SHSP
- ▶ Project is scalable and will add/delete locations depending on funding availability.



TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval adding the District 6-0 Low Cost Safety Improvements and programming FD in FY19 for \$2,000,000 HSIP and the CON phase in FY20 for \$4,220,000 HSIP.

2017 Green Light-Go Projects

Various Counties | Add New Projects to the TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Approve the list of 7 projects selected as part of PennDOT's Statewide Green Light-Go program (year four) and amend the FY2019 TIP for Pennsylvania by adding the new projects to the TIP in FY19.
- ▶ **Background:** Year 4 of the competitive round, which was established by Act 89 of 2013 to provide grants for the operation and maintenance of traffic signals along Critical Corridors (AADT above 10,000) and Designated Corridors (AADT less than 10,000) on state highways.



2017 Green Light-Go Projects

Various Counties | Add New Projects to the TIP

- ▶ **Background:** Eligible projects include: Study and removal of unwarranted traffic signals, traffic signal retiming, development of detour, special event, and operations plans, LED replacement, traffic signal operations, traffic signal maintenance, and other traffic signal improvements.
- ▶ DVRPC region received \$16,396,000 to fund 24 projects for the 2017 round. 7 projects, at a cost of **\$4,632,000**, are being added to the TIP at this time.



County	Project Name	Municipality	Cost
Bucks	Bensalem Twp Adaptive Traffic System	Bensalem Twp	\$740,000
Chester	Schuylkill Twp Signal Interconnection	SchuylkillTwp	\$237,000
	Willistown Twp Fiber Optic Installation	Willistown Twp	\$246,000
Montgomery	Horsham Twp Signal Modernization and Fiber Optic Installation	HorshamTwp	\$598,000
	Lower Merion Twp Adaptive Traffic System Upgrades	Lower Merion Twp	\$763,000
	Trappe Borough Coordinated Signal System	Trappe Borough	\$253,000
Philadelphia	Philadelphia Citywide Wireless Communication	City of Philadelphia	\$1,795,000
TOTAL			\$4,632,000

TIP Action | Proposed – PA

That the Regional Technical Committee recommends the Board approve the list of 7 Green Light-Go projects and add the new projects to the FY2019 TIP in FY19.

- Note these are additional funds to the region.

PennDOT Multi-Modal Transportation Fund Project

Delaware County I Add New Project to TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add new project, Media Wayfinding Signage project, to the TIP in the amount of \$339,000 (\$61,000 State 411 (MTF)/\$278,000 Local) in FY19 for construction
- ▶ **Background:** Project was awarded funds from the PennDOT Multi-Modal Transportation Fund and will install wayfinding signs on all state routes in Media Borough.
- ▶ These funds are additional to the region



TIP Action | Proposed – PA

That the Regional Technical Committee recommends the Board add new project, Media Wayfinding Signage project, to the TIP in the amount of \$339,000 (\$61,000 State 411 (MTF)/\$278,000 Local) in FY19 for construction.

Transit and Regional Rail Station Program

SEPTA I Add BUILD Grant Award

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add \$15,000,000 Federal BUILD (Better Utilizing Investments to Leverage Development) to the ERC phase in FY19 for SEPTA's 30th Street Market Frankford Line Station project.
- ▶ **Background:** SEPTA was selected, on December 11, 2018, to receive \$15,000,000 for a competitive BUILD grant to assist in the funding of the \$38,000,000 30th Street Market Frankford Line Station project.



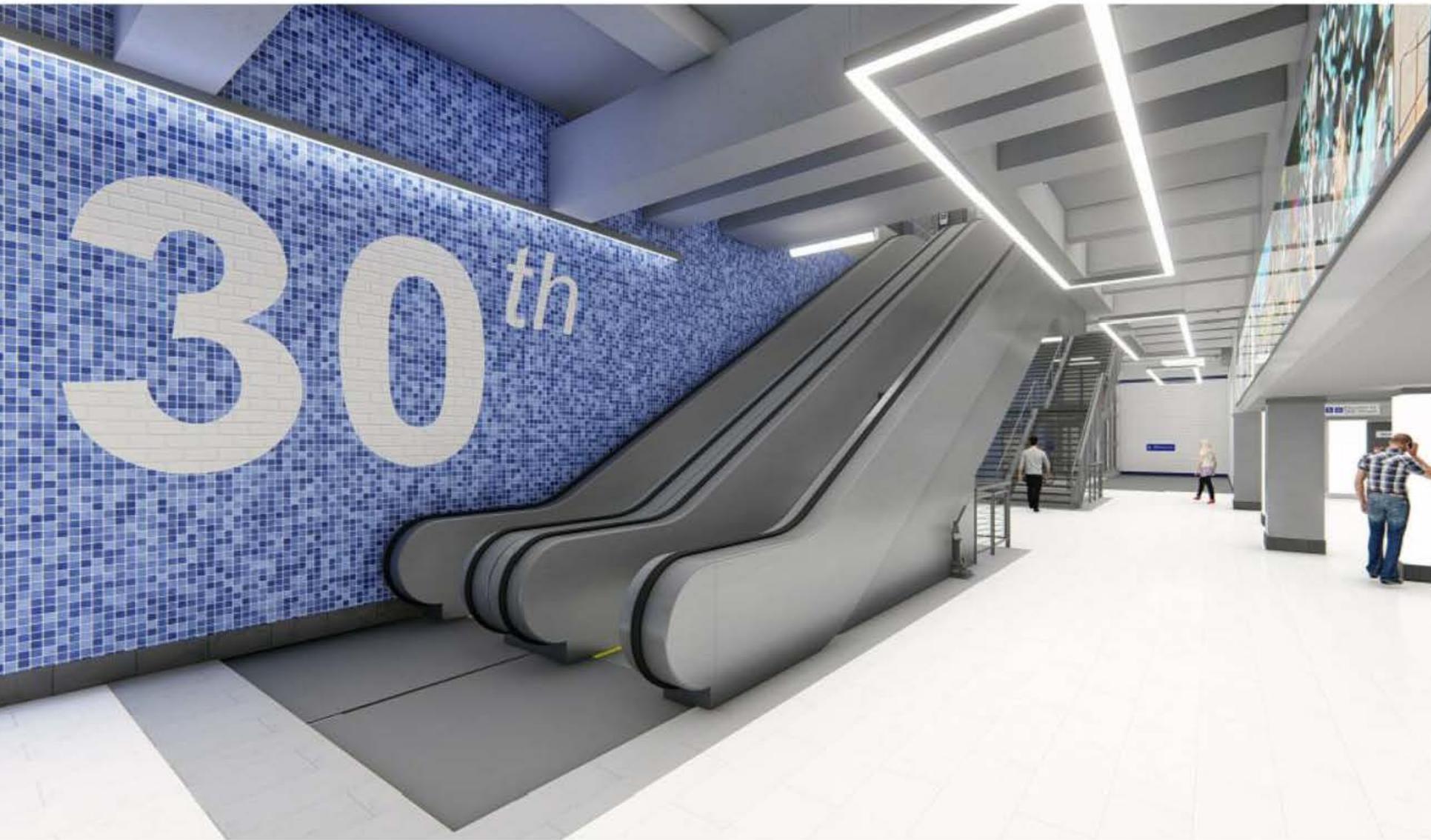


30TH STREET STATION – SECTION PERSPECTIVE

Source: SEPTA



30TH STREET STATION – STREET LEVEL PERSPECTIVE



30TH STREET STATION – STATION LEVEL PERSPECTIVE



30TH STREET STATION – MEZZANINE LEVEL FLOOR OPENING

SEPTA Bus Purchase Program

SEPTA I Reduce Funding

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Reduce PUR phase by \$5,499,000 in FY19 by removing \$15,968,000 State 1514/\$531,000 Local from PUR phase and increase by \$11,000,000 Section 5307.
- ▶ **Background:** PennDOT has developed a funding program that includes the transfer of \$15,000,000 of its FY16 and FY17 Section 5337 funding to the Capital Asset Lease Program that must be used in the Keystone Corridor.

Regional Rail Signal Modernization Program

SEPTA I Add Project Back into TIP

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add program back into the TIP by programming \$5,000,000 (\$4,000,000 Section 5337/\$968,000 State 1514/\$32,000 Local) in FY19 ERC phase to reflect current program needs.
- ▶ **Background:** This program contains the project for SEPTA's Automatic Train Control (ATC) System and the Advanced Civil Speed Enforcement System (ACSES). This project is nearing completion, but needs additional funding to finish.



Regional Rail Signal Modernization Program

SEPTA I Add Project Back into TIP

- ▶ SEPTA has implemented ATC & PTC on all Regional Rail lines.
- ▶ Funding request will enable SEPTA to complete integration and interoperability work needed to function with CSX and Norfolk Southern in the region.

TIP Action | Proposed – PA

That the Regional Technical Committee recommends Board approval to:

- ▶ Add \$15,000,000 Federal BUILD (Better Utilizing Investments to Leverage Development) to the ERC phase in FY19, of the Transit and Regional Rail Station Program, for SEPTA's 30th Street Market Frankford Line Station project;
- ▶ Reduce PUR phase by \$5,499,000 in FY19 by removing \$15,968,000 State 1514/\$531,000 Local from PUR phase and increase by \$11,000,000 Section 5307 of the SEPTA Bus Purchase Program;
- ▶ Add program back into the TIP by programming \$5,000,000 (\$4,000,000 Section 5337/\$968,000 State 1514/\$32,000 Local) in FY19 ERC phase, of the Regional Rail Signal Modernization Program, to reflect current program needs.

Route 76/676 Bridge Deck Replacements

City of Camden | Cost Increase

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Add \$11,550,000 NHPP Design phase in FY19
- ▶ **Background:** Project will now follow standard Capital Project Delivery process, which requires a formal PE and FD phase, instead of previously NJDOT Limited Scope Project Delivery process.
- ▶ Design phase contains both PE and FD phases.
- ▶ Project cost estimate increases to \$51,600,000

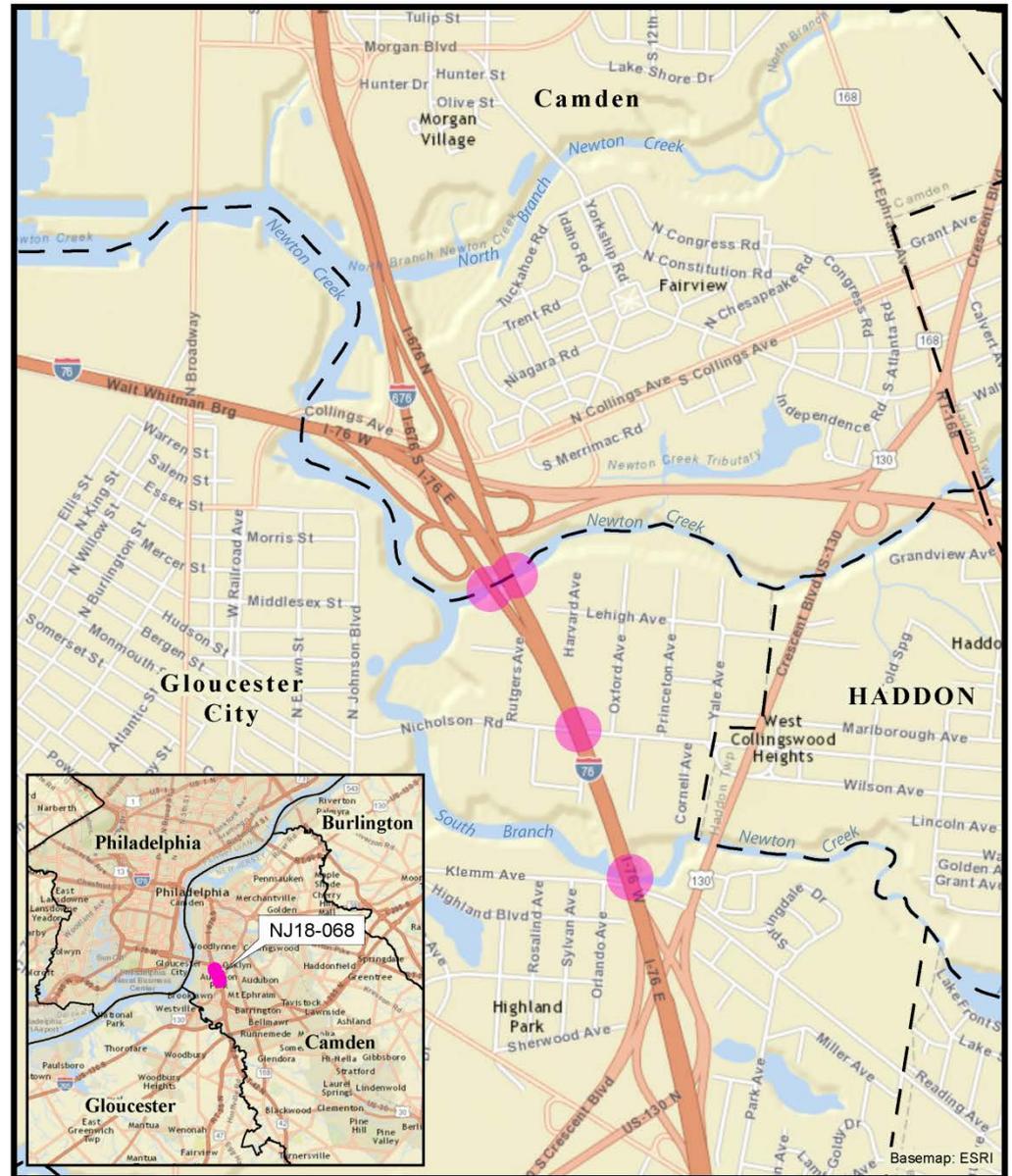


Replace bridge decks on 3 structures:

1. 76/676 over the Main Branch of Newton Creek;
2. Route 76 over Nicholson Rd;
3. Route 676 SB over the Main Branch of Newton Creek

Superstructure of Route 76 over South Branch of Newton Creek, Conrail and Lemm Ave will be replaced

NJ18-068: Route 76/676 Bridges and Pavement



TIP Action | Proposed – NJ

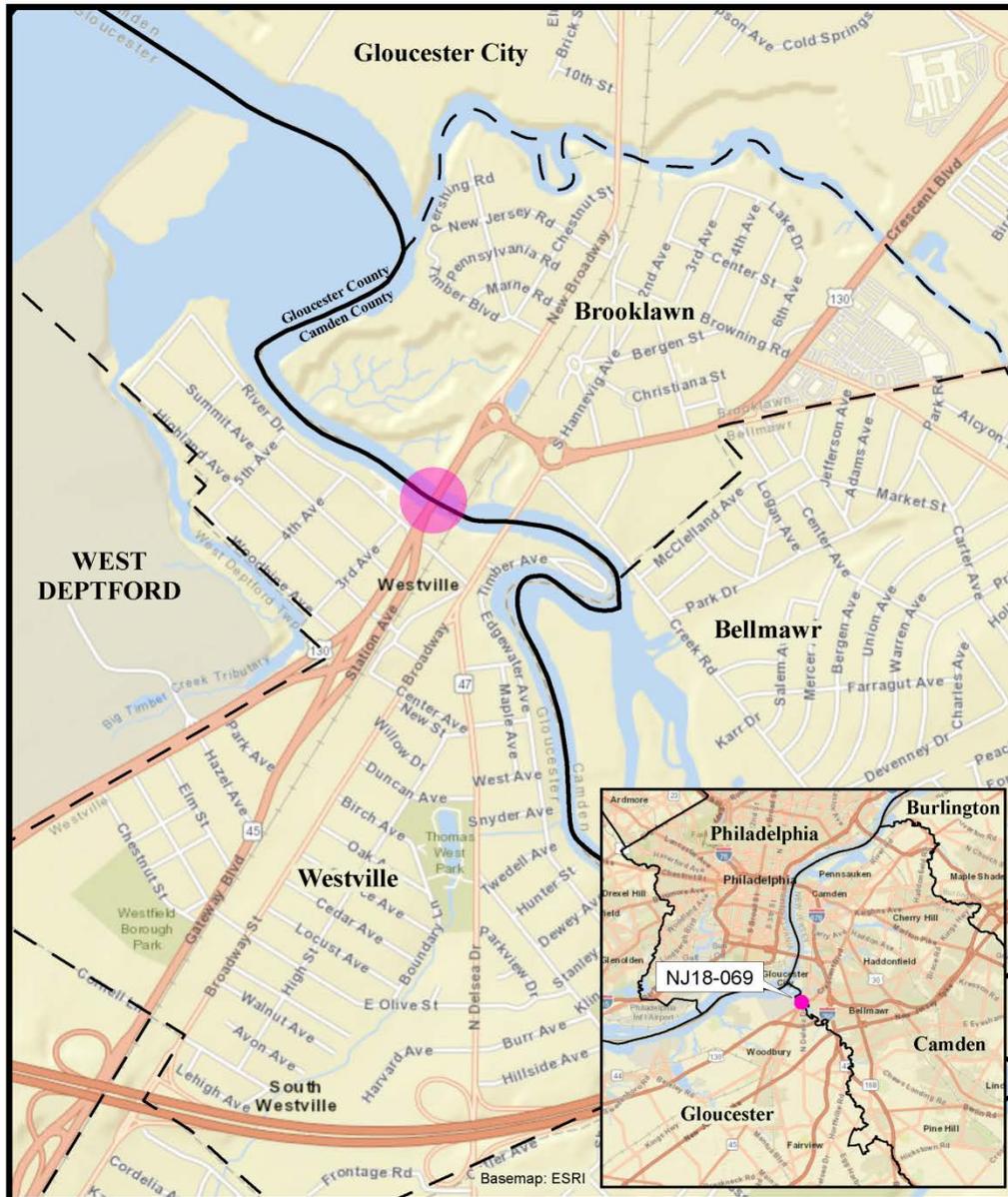
That the Regional Technical Committee recommends Board approval of adding \$11,550,000 NHPP Design phase in FY19 to the Route 76/676 Bridge Deck Replacements project.

Route 130, Bridge over Big Timber Creek

Camden and Gloucester Counties | Federalize

- ▶ **Action Type:** TIP amendment
- ▶ **Action:** Federalize the Design phase from \$2,500,000 STATE to \$2,500,000 NHPP in FY19.
- ▶ **Background:** Bridge is on a federal multi-solicitation list and the Design phase must be federally authorized.





TIP Action | Proposed – NJ

- ▶ That the Regional Technical Committee recommends Board approval of federalize the Design phase of Route 130, Bridge over Big Timber Creek, from \$2,500,000 STATE to \$2,500,000 NHPP in FY19.



Transportation
Improvement
Program

TIP

Thank You!

www.dvrpc.org/TIP

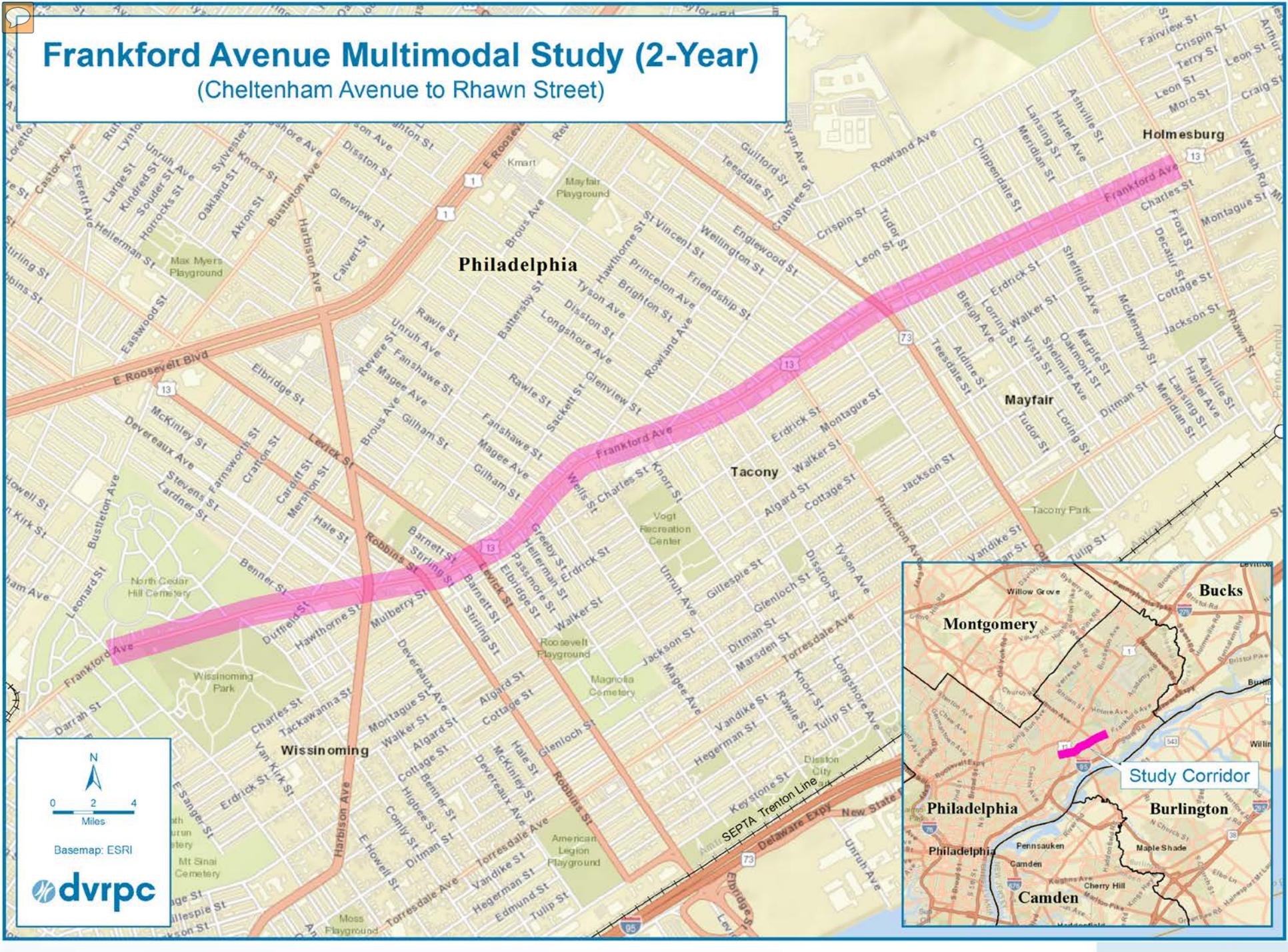


Frankford Avenue Multimodal Study

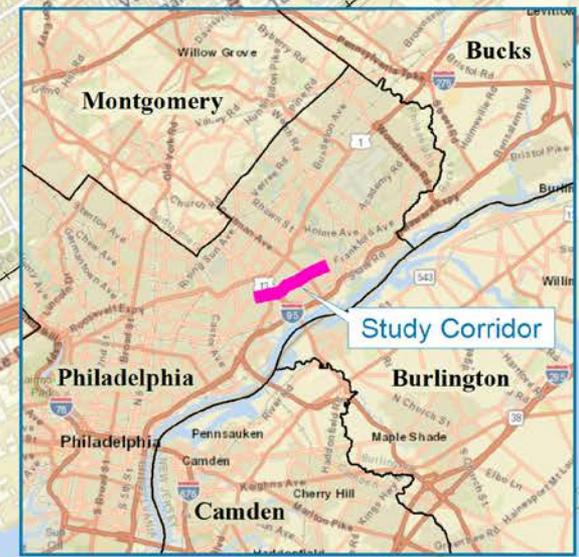
- The City of Philadelphia has requested an evaluation of the Frankford Avenue corridor in Mayfair (between Cheltenham Avenue and Rhawn Street) with the goal of **improving safety** and **predictability** for all users. It will examine opportunities to slow vehicular traffic, improve pedestrian safety and walkability, mitigate current loading challenges, designate space for bicyclists, and integrate stormwater management opportunities while considering the impact on the Route 66 and opportunities to **enhance the plaza** at Cottman and Frankford Avenues.

Frankford Avenue Multimodal Study (2-Year)

(Cheltenham Avenue to Rhawn Street)



Basemap: ESRI





Frankford Avenue Multimodal Study

Starting in FY19 and continuing into FY 20, DVRPC will study traffic calming alternatives along Frankford Avenue.

DVRPC will:

- Conduct traffic counts and safety data to be used as input in a microsimulation model of the study area
- Perform field views of roadway conditions and the immediate development context.
- Additional tasks will be undertaken in FY 20.

Recommended RTC Action:

- Recommend to the Board to amend the FY2019 Unified Planning Work Program to add the project Frankford Avenue Multimodal Study (19-52-130).
- Funding: Amend the FY2019 TIP for PA to add the Frankford Avenue Multimodal Study (MPMS #111067), by programming \$300,000 (FY19: \$150,000 State 581, FY20: \$150,000 State 581) in the PA TIP to support this work.

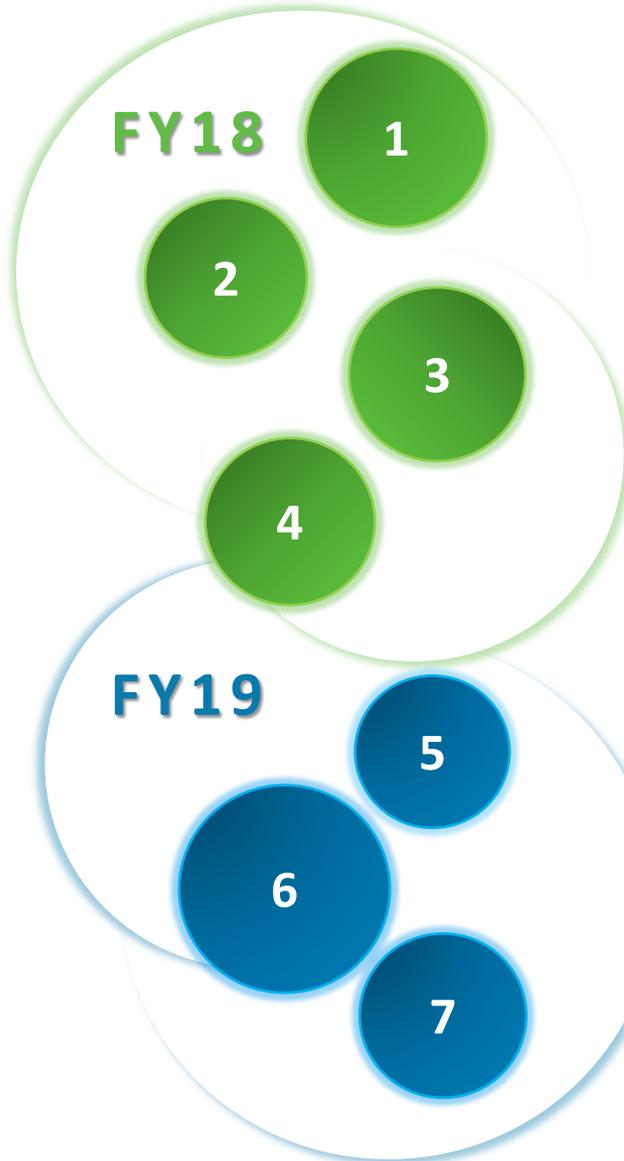
POTTSTOWN REGION TRAFFIC ANALYSIS



Camden Palvino
Transportation Engineer
Office of Corridor Planning

DVRPC
Regional Technical Committee
February 12, 2019

Project Timeline



FY18

1

2

3

4

FY19

5

6

7

Confirm scope of work

Collect and share local data

Identify critical locations

Analyze existing conditions

Model conditions and analyze the impact of future development

Identify short-, medium-, and long-term improvements and congestion mitigation strategies

Deliver final report

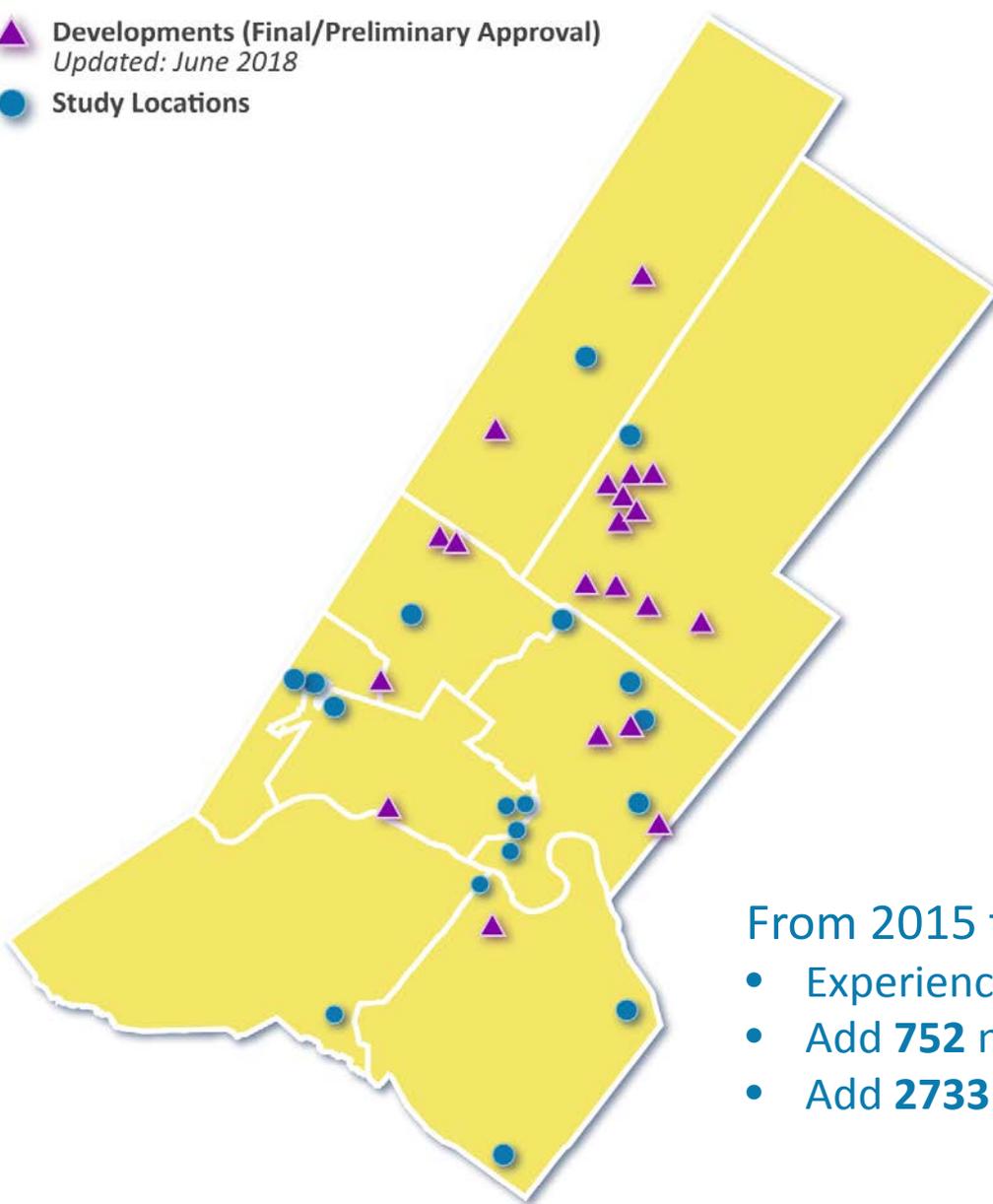
Objective

- **Identify low cost roadway improvements to support future traffic growth in the Pottstown Region with a focus on locations selected by the PMRPC.**

What exactly is the PMRPC?

- Pottstown Metropolitan Regional Planning Committee (PMRPC)
- Formed in October 2005
- 8 municipalities
- *Intergovernmental Cooperative Implementation Agreement for Regional Planning*
- **DVRPC assists** the PMRPC **in implementing transportation planning** activities and efforts

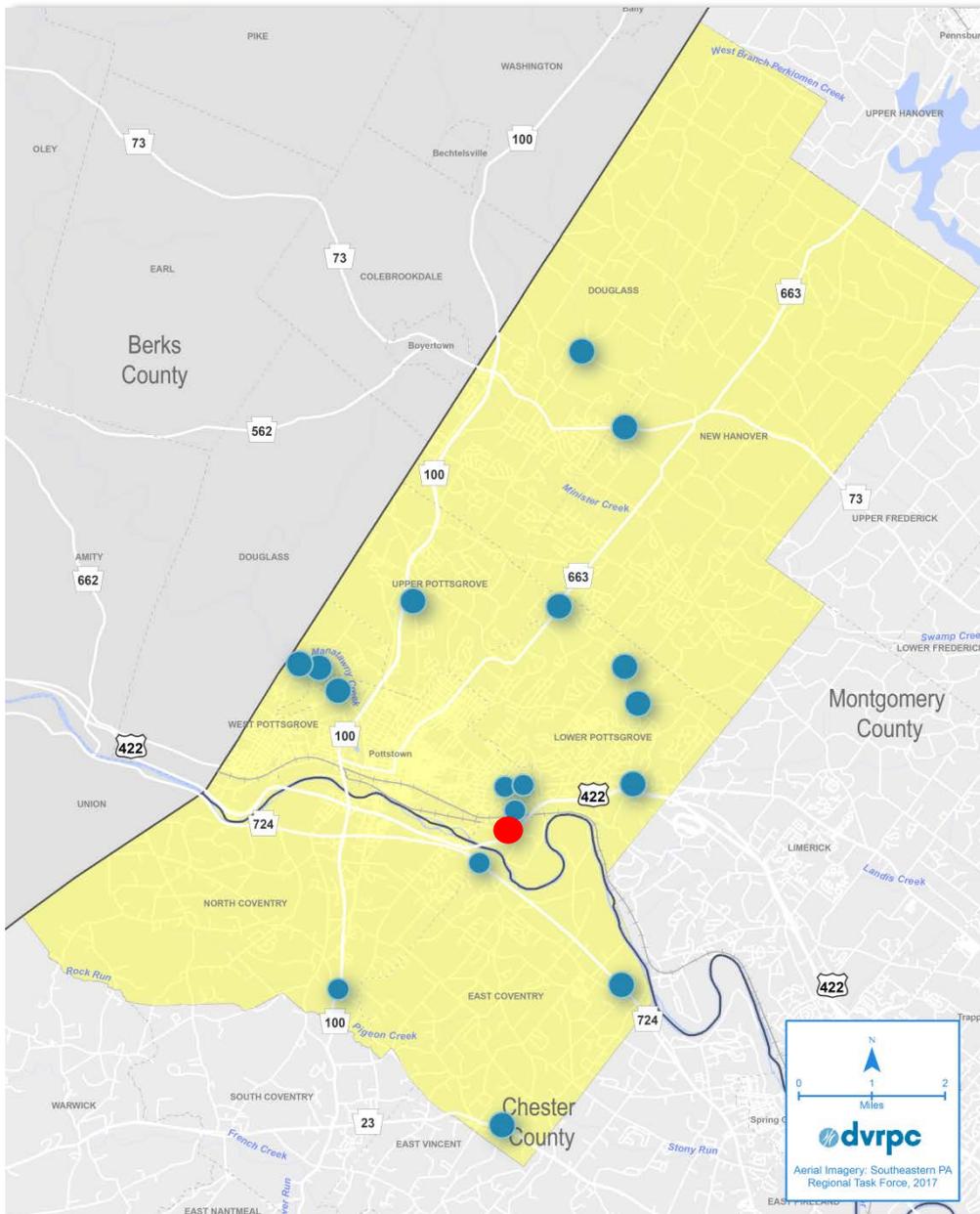
- ▲ Developments (Final/Preliminary Approval)
Updated: June 2018
- Study Locations



From 2015 to 2025, the study area is projected to:

- Experience a **nine percent** population growth
- Add **752** new jobs
- Add **2733** new households

18 locations across 8 municipalities in 2 counties



Armand Hammer Boulevard and Industrial Highway

- Links East Pottstown and US 422
- PMRPC concerned about motorist and pedestrian safety at intersection

Armand Hammer Boulevard and Industrial Highway

Peak Hour TMC Counts

	AM	PM
AM - 7:15AM - 8:15AM		
PM - 4:30PM - 5:30PM		



AM Existing: 1630
PM Existing: 1859
AM 2025 Estimate: 1697
PM 2025 Estimate: 1933

dvrpc

Aerial Imagery: Southeastern PA
Regional Task Force, 2017



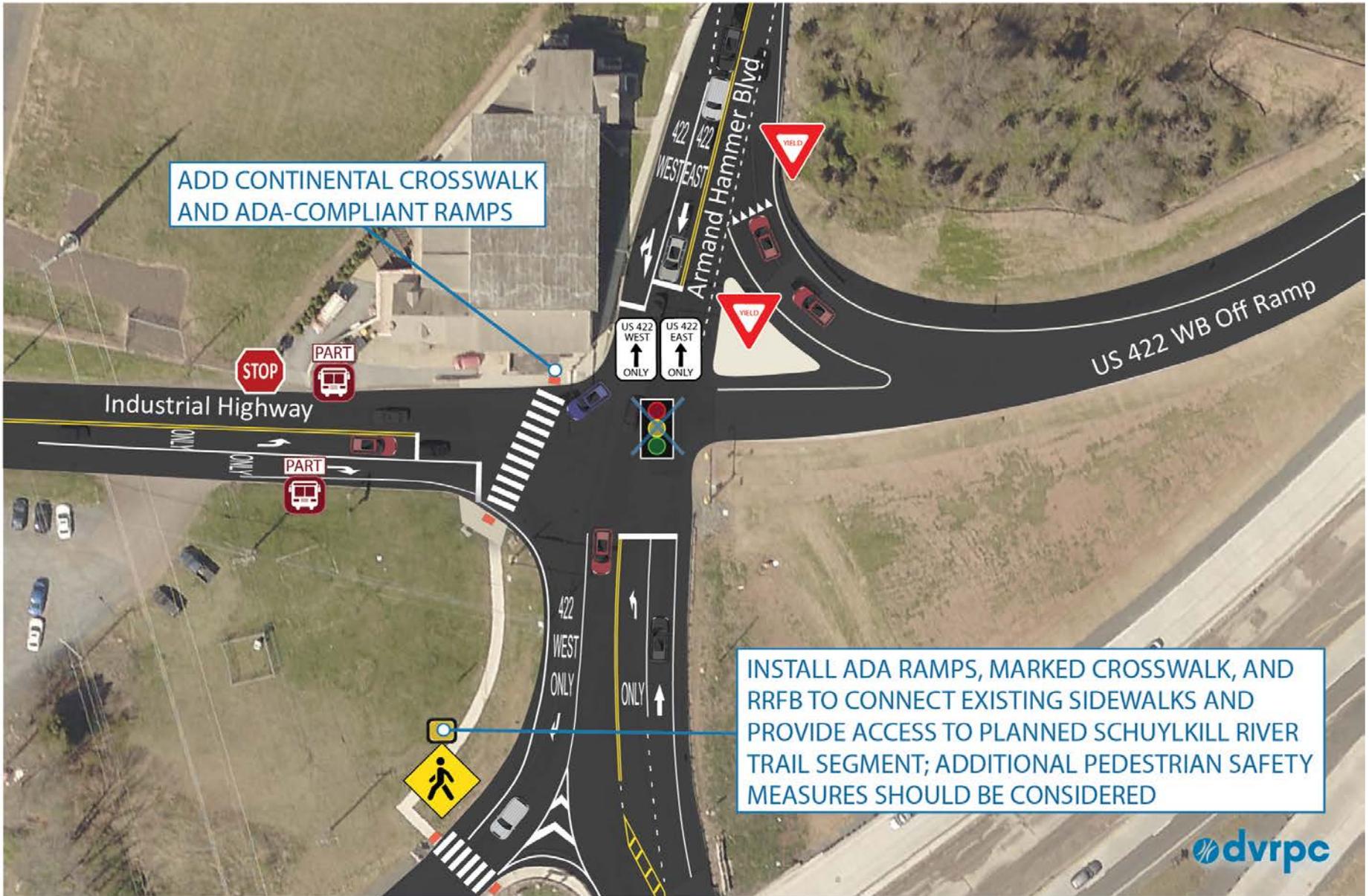


Armand Hammer Blvd Southbound



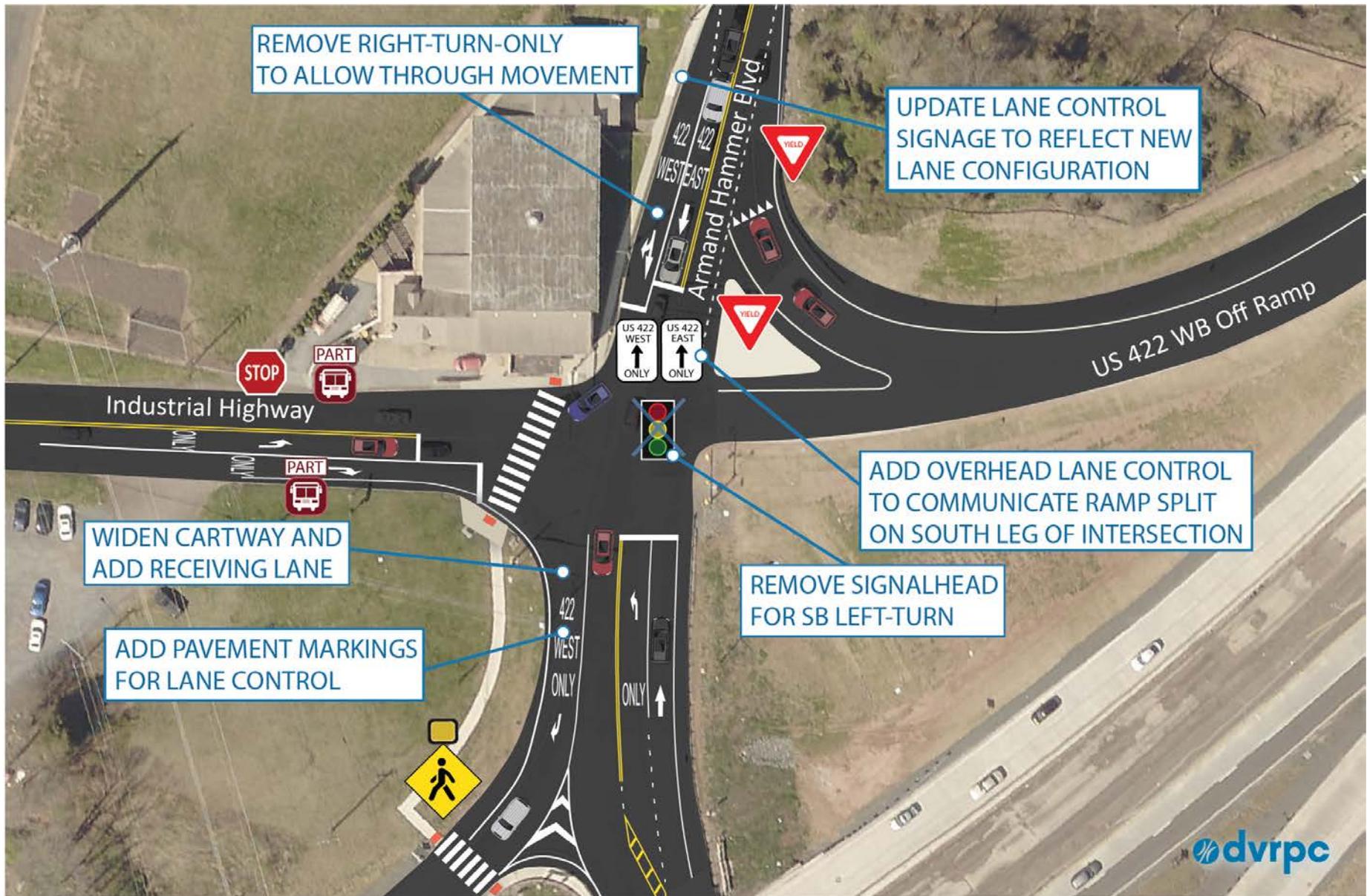
Southbound Through Movement





ADD CONTINENTAL CROSSWALK AND ADA-COMPLIANT RAMPs

INSTALL ADA RAMPs, MARKED CROSSWALK, AND RRFB TO CONNECT EXISTING SIDEWALKS AND PROVIDE ACCESS TO PLANNED SCHUYLKILL RIVER TRAIL SEGMENT; ADDITIONAL PEDESTRIAN SAFETY MEASURES SHOULD BE CONSIDERED



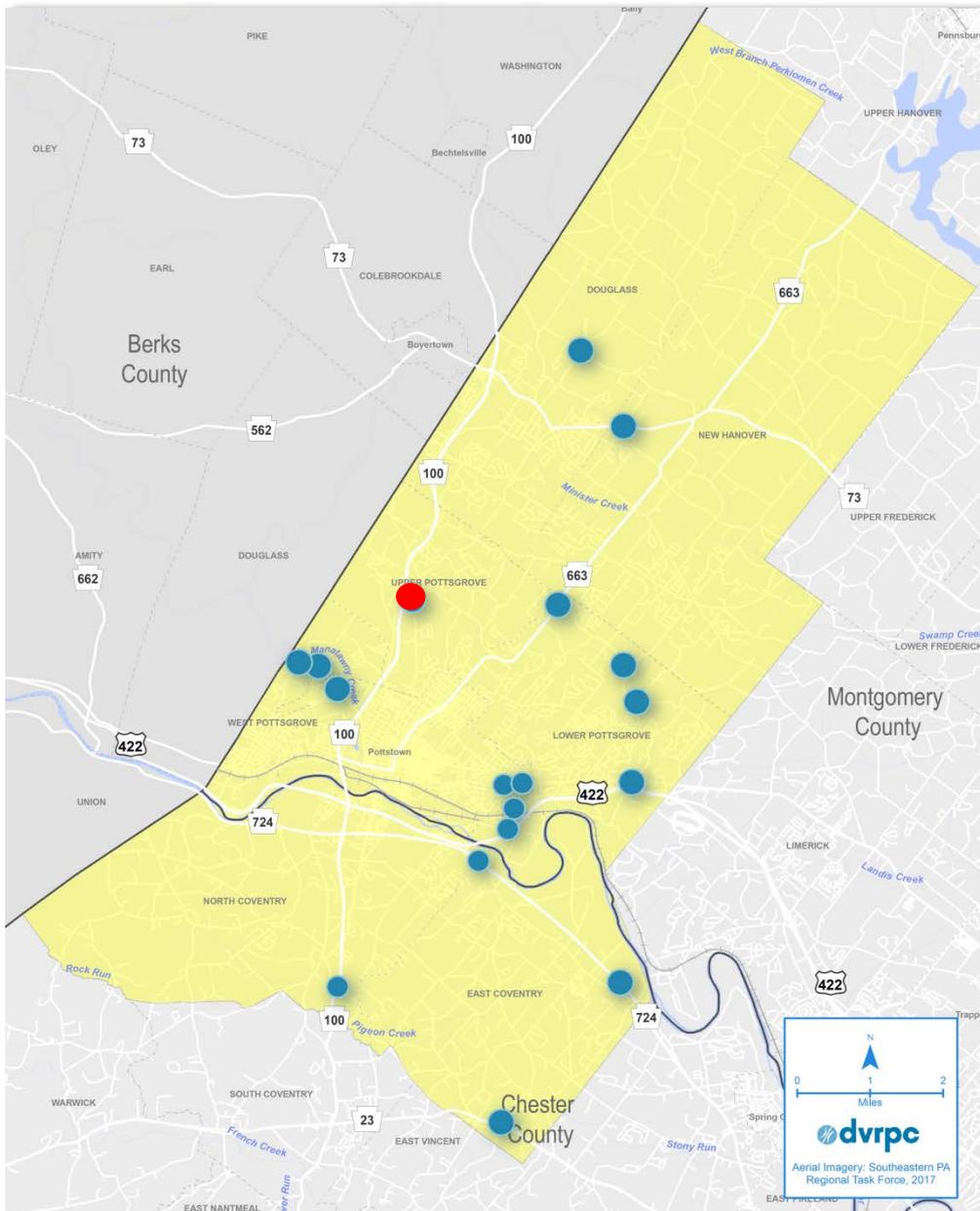
Intersection LOS and Delay

Approach Direction	Peak Hour	Existing LOS (2018)	Future No Build LOS (2025)	Future Improvements LOS (2025)
NB (Armand Hammer)	AM	A	A	A
	PM	B	B	B
SB (Armand Hammer)		C	C	B
		E	E	C
EB (Industrial Highway)		C	C	C
		B	B	B
WB (422 Off Ramp)		B	B	B
		B	B	B
Intersection Delay (sec)		17.3	18.1	15.3
		28.8	35.8	18.3
Intersection LOS		B	B	B
		C	D	B



	safety issue addressed	cost estimate	crash reduction factor
CENTERLINE MARKINGS	driver safety	\$2.50 linear foot	0-36%
SIDEWALKS	pedestrian safety	\$32.00 linear foot	65-89%
MARKED CROSSWALKS	visibility	\$8.50 linear foot	25-60%
STOP/YIELD SIGNAGE	angle crashes	\$350.00 each	40%

State Road and Farmington Avenue



State Road and Farmington Avenue

- Connects Upper Pottsgrove residents to PA 100 and Pottstown Borough
- PMRPC concerned about motorist safety and approach geometry at intersection

Peak Hour TMC Counts
AM - 7:15AM - 8:15AM
PM - 4:30PM - 5:30PM

AM
PM

197
148

66
58

109
219

42
47

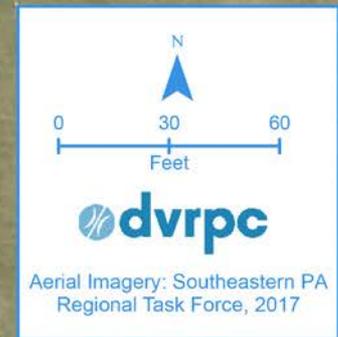
73
158

13
13

Farmington Avenue

State Road

AM Existing: 500
PM Existing: 643
AM 2025 Estimate: 580
PM 2025 Estimate: 746



PennDOT Crash Data (2012-2017)

- Rear-end
- Hit fixed object
- Head-on
- Angle
- ⊗ Serious Injury



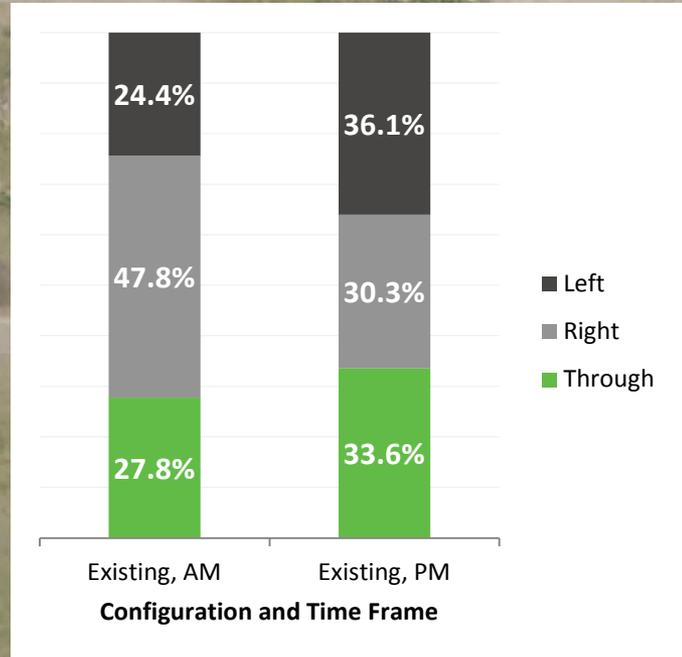
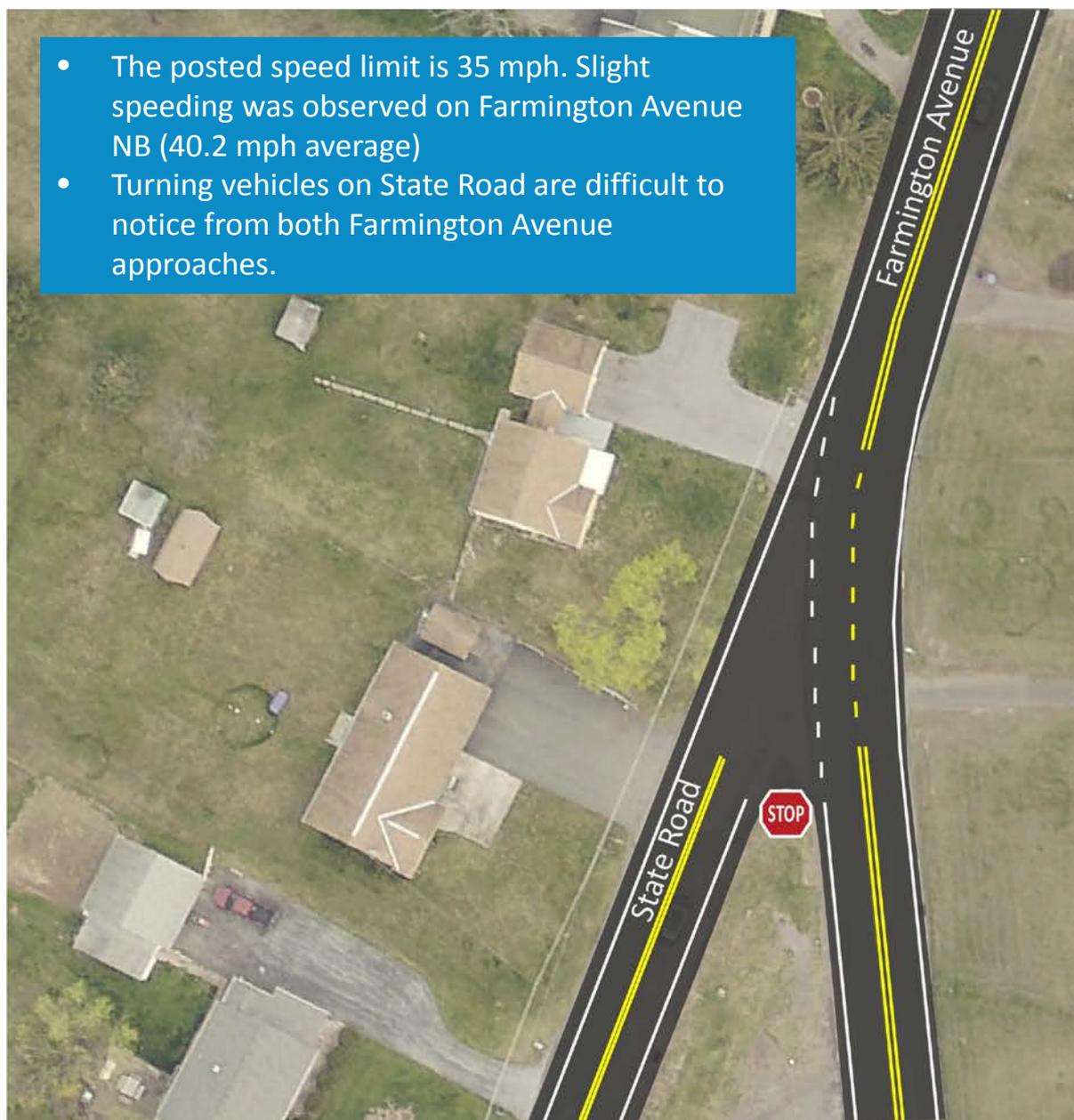
- Grade at State Road stop ranges from 24.7%-34.5%.





Parking Lot Owned by Upper Pottsgrove

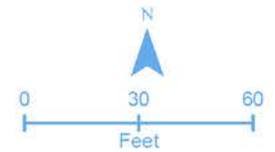
- The posted speed limit is 35 mph. Slight speeding was observed on Farmington Avenue NB (40.2 mph average)
- Turning vehicles on State Road are difficult to notice from both Farmington Avenue approaches.



dvrpc
 Aerial Imagery: Southeastern PA
 Regional Task Force, 2017

Roundabout Advantages

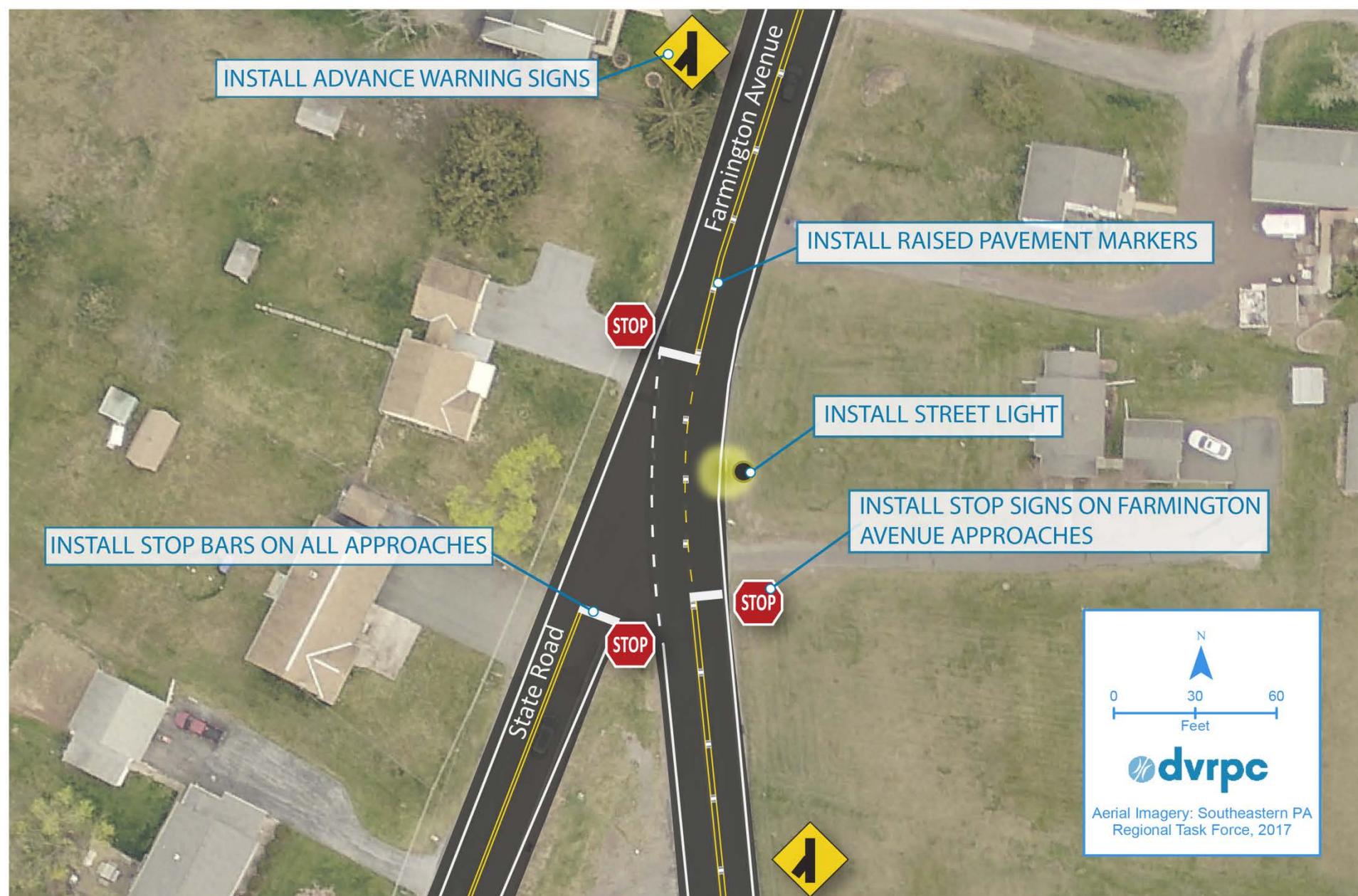
- Speed control
- Remedy awkward approach geometry and sight lines
- Minimize number of turns across traffic
- Enhance traffic flow



Aerial Imagery: Southeastern PA
Regional Task Force, 2017



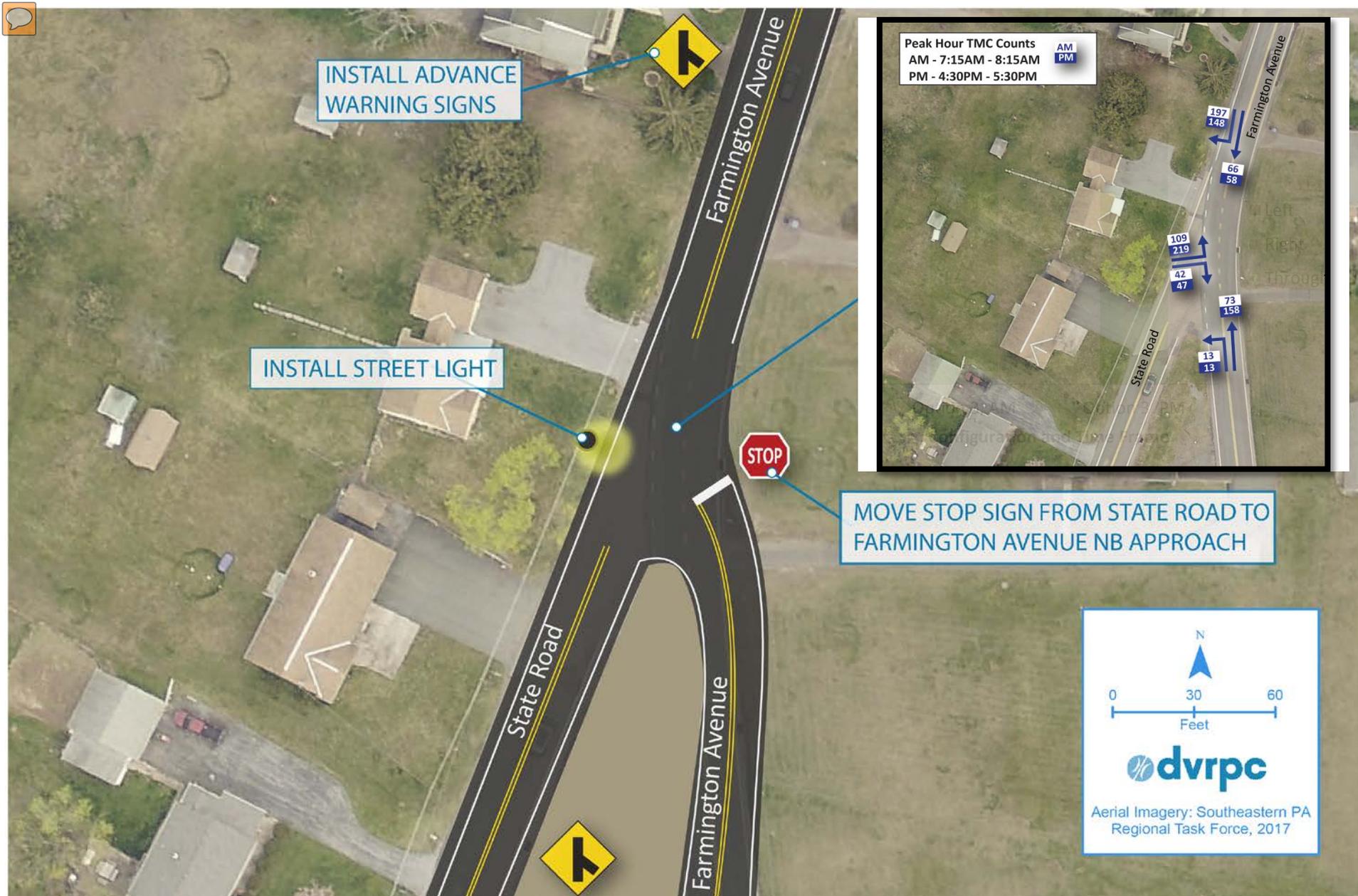
Roundabout analysis

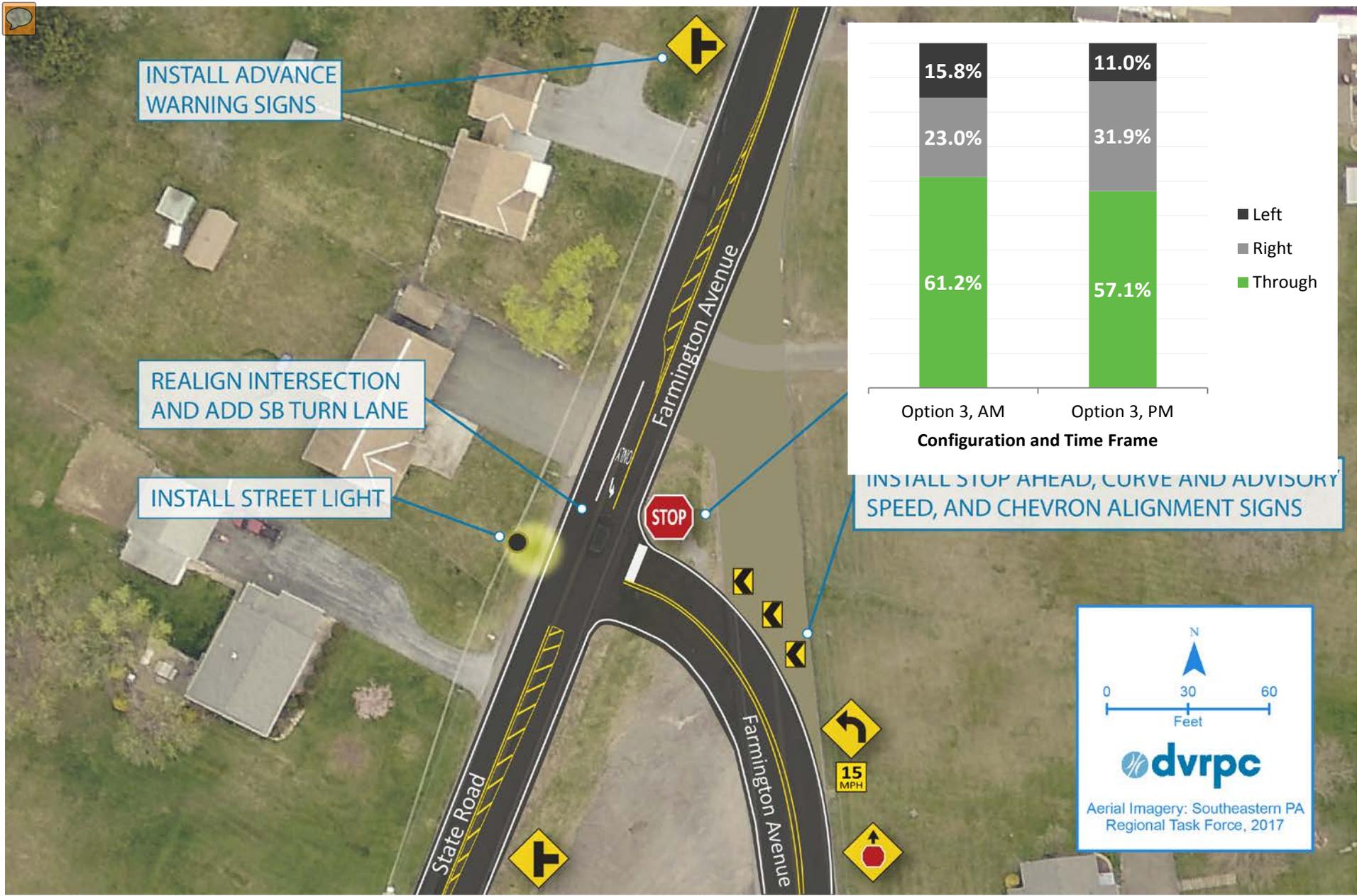


Option 1- All-way stop installation

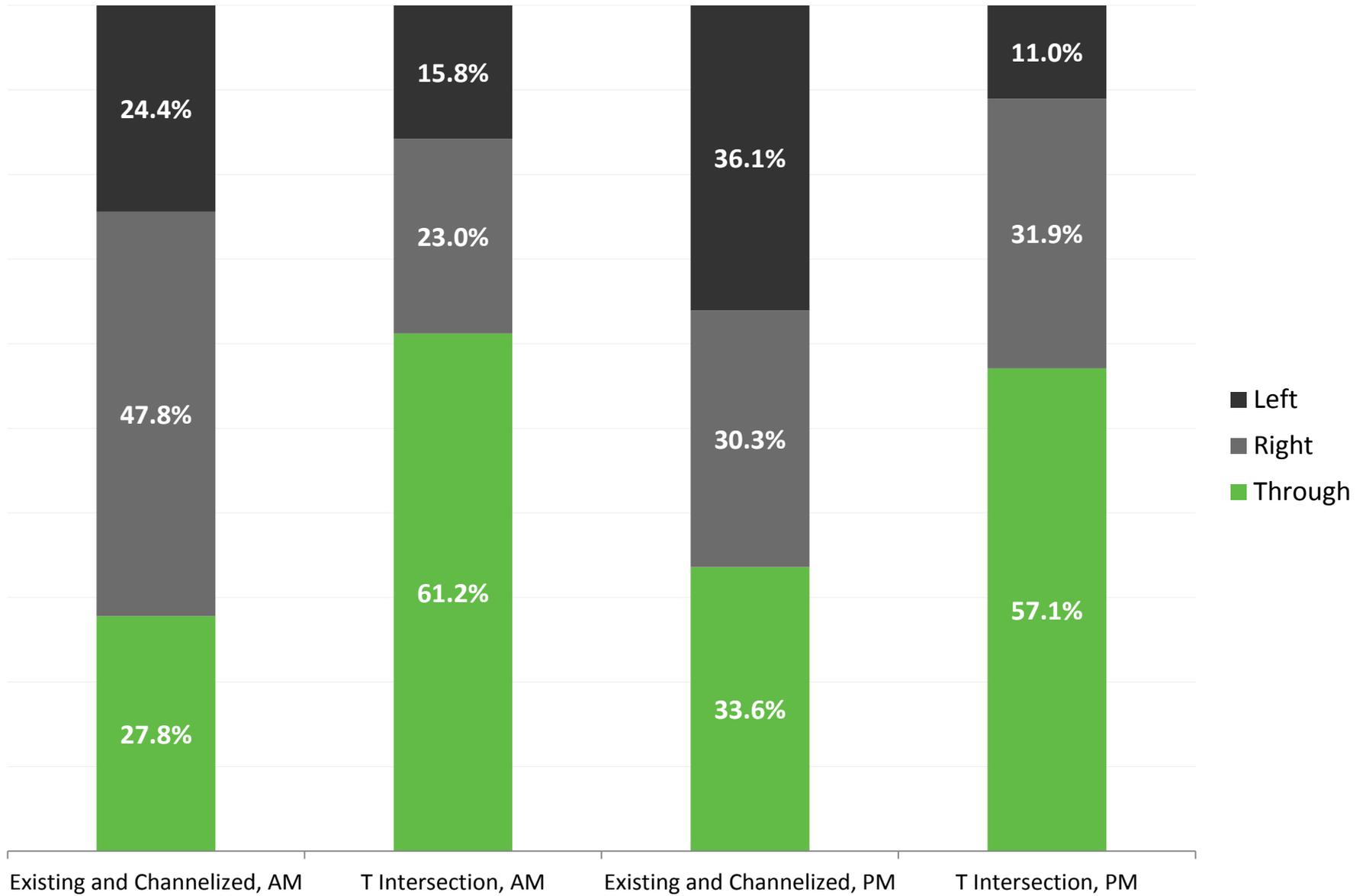


Option 2- Channelized turn lanes, SBR yield





Option 4- T intersection through firehouse lot





	safety issue addressed	cost estimate	crash reduction factor
SB LEFT-TURN LANE	driver safety	\$1,000.00 lump sum	44%
STREET LIGHT	visibility	\$6000.00 each	62%
RECONFIGURE LANE CROSS-SECTION	driver safety	\$13,500.00 Lump sum	50%
ADVANCE WARNING SIGNAGE	driver safety	\$350.00 each	30%

Questions

Camden Palvino
Transportation Engineer, Office of Corridor Planning
Delaware Valley Regional Planning Commission
cpalvino@dvrpc.org
(215) 238-2853

Mercer County

2019 Bicycle Master Plan



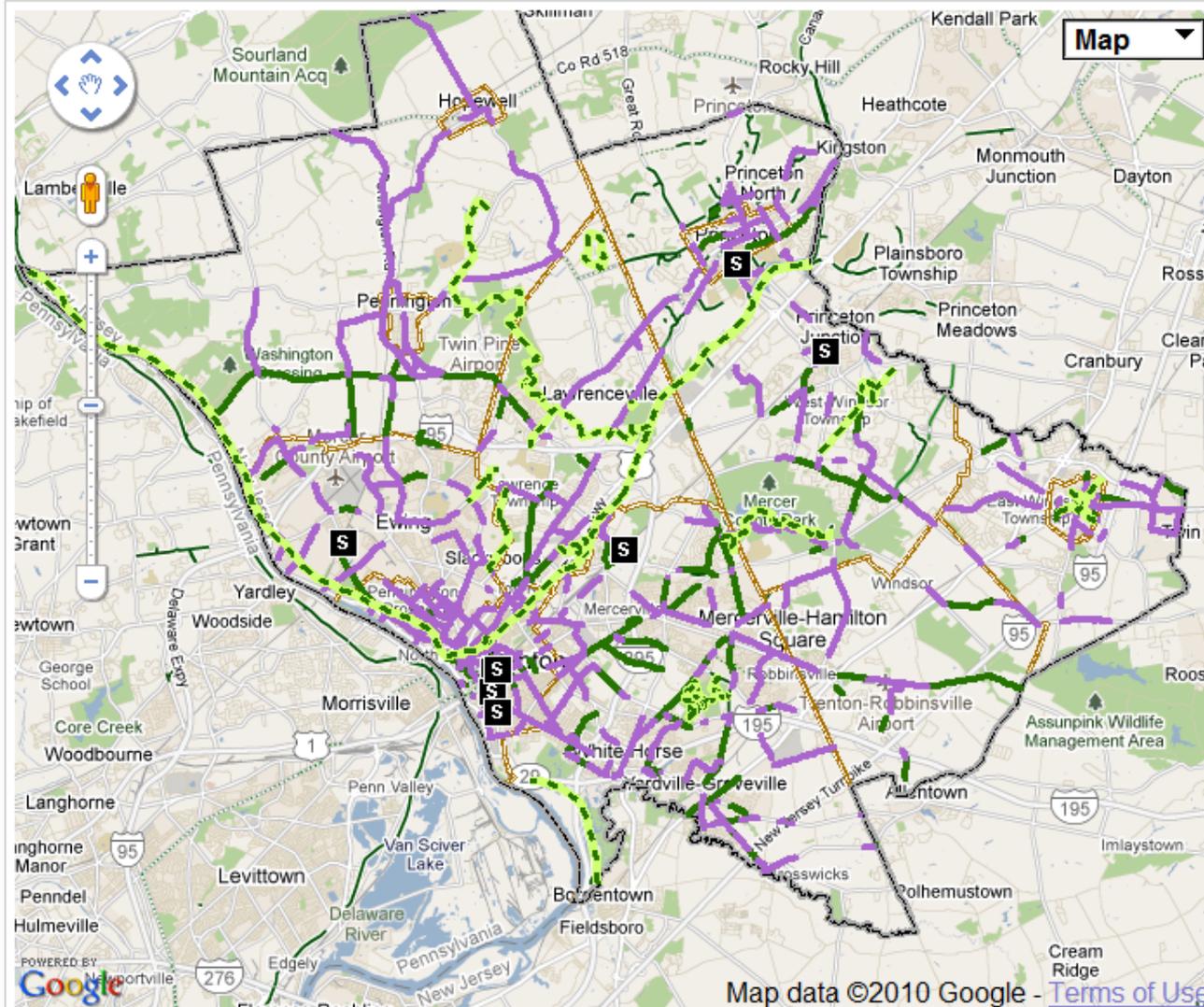
Matthew Lawson, PP, AICP
Regional Transportation Committee
Delaware Valley Regional Planning Commission
February 12, 2019

Planning History



- ❧ 2007 Mercer County Bicycle & Pedestrian Task Force
- ❧ **2009 DVRPC Bicycle Level of Service Analysis (Krykewycz) and Wiki map (Pollard)**
- ❧ 2011 NJDOT (RBA/NV5) Multi-Jurisdiction Bicycle Plan
- ❧ 2011 NJDOT (M Baker) CR 546 Bike Plan
- ❧ 2010 & 2012 Mercer County complete streets policies
- ❧ 2012-15 MCBPTF identify priority routes
- ❧ **2017 DVRPC/Mercer Bike Plan (Kickoff w/Stead)**
- ❧ 2017 NJDOT Complete Streets Design Guide
- ❧ **2018 DVRPC Bike Plan Process Memo (Stead)**
- ❧ 2019 Mercer County Bicycle Master Plan (Zochowski)
- ❧ 2019 GMTMA Greater Mercer Trail Plan
- ❧ **2020 DVRPC Bicycle Facility Design Review (Palvino)**

[About This Site](#) | [Legend](#) | [How To Use](#) | [Disclaimer](#)



⊗ Show/Hide Tools

Layers

Bikeable Mercer County Trails

Rail Stations in Mercer County

Places (click to identify)

Bikeability Scores

Major Roads

Excellent

Fair

Unfavorable

Unbikeable

Minor Roads

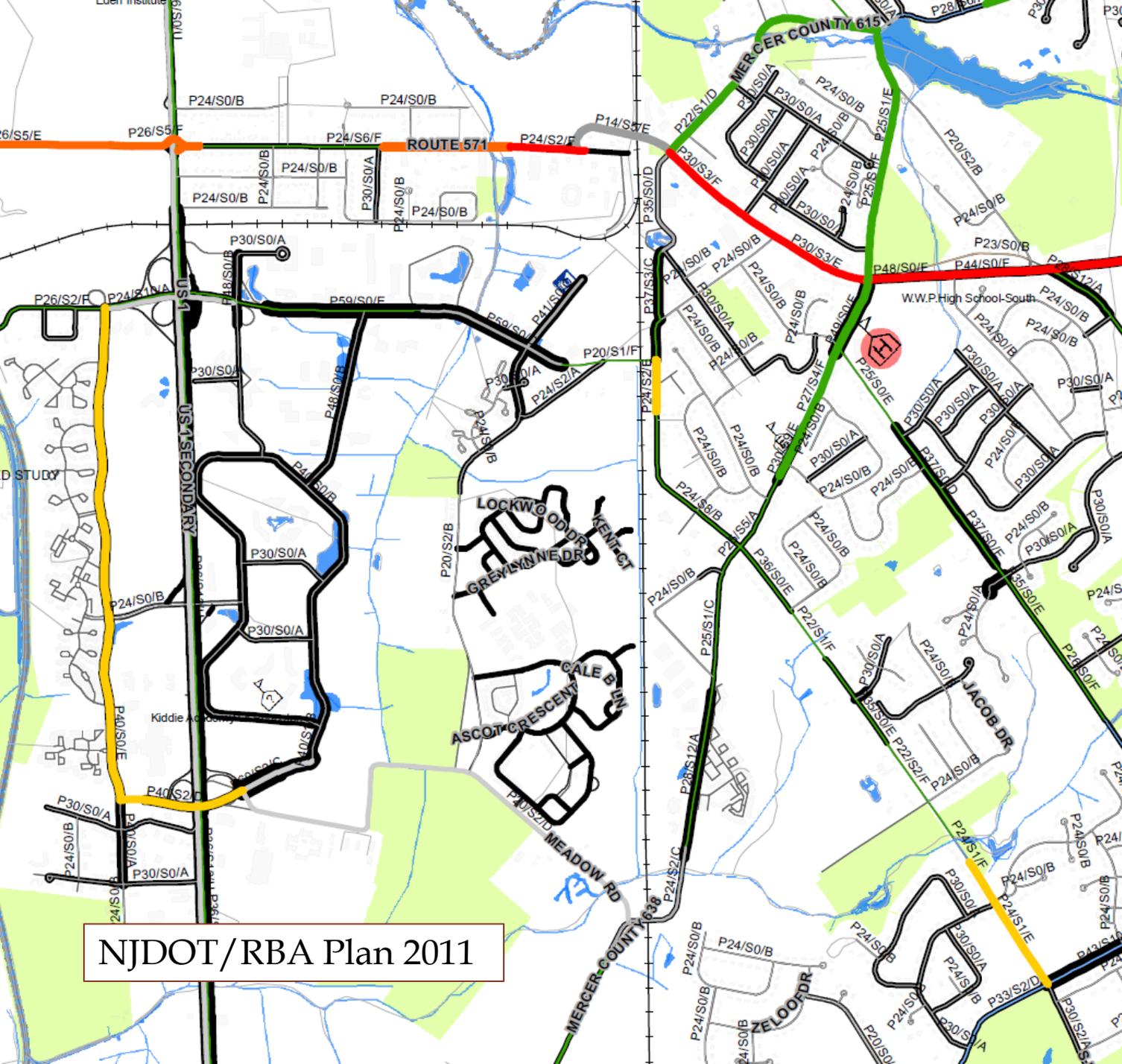
Favorable

Unfavorable

NOTE: We are still collecting additional information on existing bikeable trails. New trails will be added periodically; please check back for updated trails mapping.

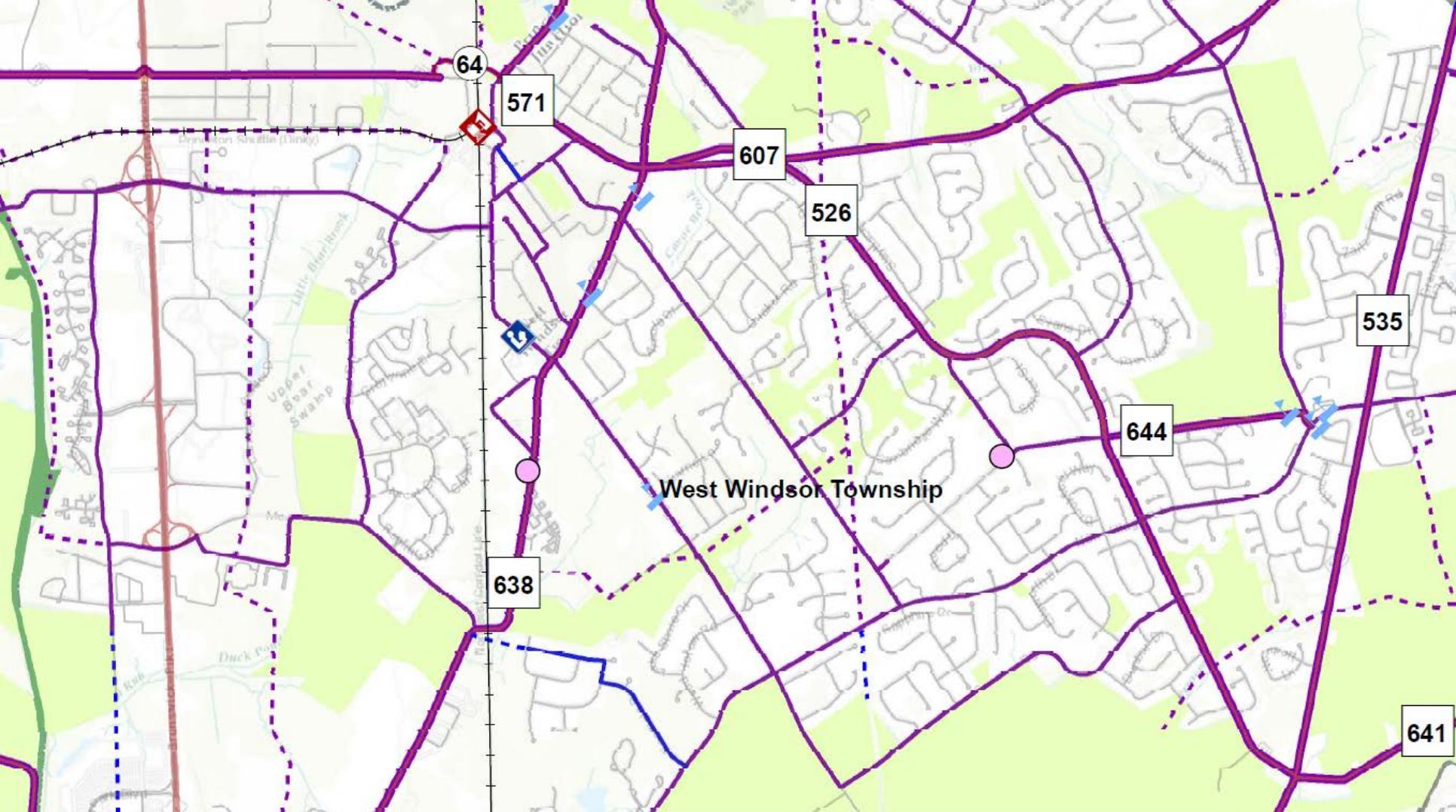
Zoom To...

Map data ©2010 Google - [Terms of Use](#)



Priority Reccs	
	Sharrow
	Striping Only
	No Parking
	Road Diet
	Diet or Widen
	Widening - Minor
	Widening
Bikeway Reccs	
	No Recc
	Shared Low Vol
	Shared Lane 14'
	Shoulder 4'
	Shoulder 6'
	Shoulder 8'
	Bike Lane 5'
	Bike Lane 6'
Cartway Width (ft)	
	0 - 25
	26 - 36
	37 - 48
	49 - 60
	61 - 72

NJDOT/RBA Plan 2011



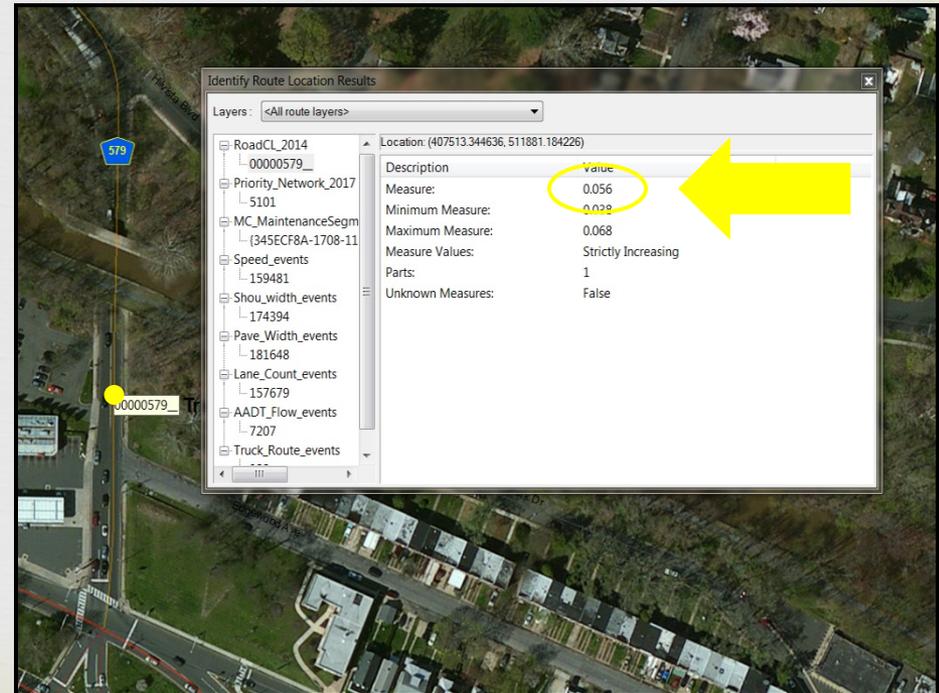
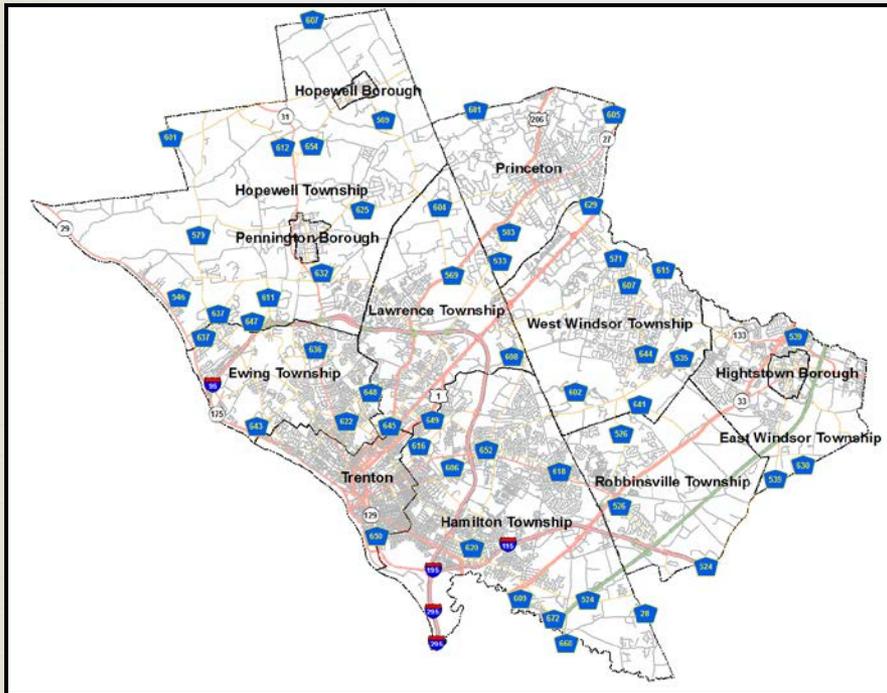
Legend

Priority_Network_2017	Trail/Muni	Local/Muni	County/Plan	County/Muni	State/Muni
<all other values>	Local/Muni	Local/Muni	County/Muni	State/Muni	State/Muni
Trail/Muni	Local/Muni	Local/Muni	County/Plan	State/Muni	State/Muni
Trail/Plan	Local/Plan	Local/Muni	County/Plan	State/Plan	
Trail/Plan	Local/Muni	Local/Muni	County/Muni	State/Muni	
Trail/Plan	Local/Plan	County/Muni	County/Muni	State/Muni	
Trail/Muni	Local/Plan	County/Muni	County/Muni	State/Plan	

2017 Methods



- NJOGIS 2014 centerline adopted as MC standard routes, linear referencing allows segments of any length to be created



Mercer County Bike Plan
Coded Values

Category	Code	Description	Cost/mi	Notes
Facility_Type	1	Sharrow		ADT<10,000; Speed<25; or obstructing structure
	2	Shoulder		ADT<10,000; Speed<35
	3	Lane		ADT<10,000; Speed<35; signed route
	4	Buffered		ADT>10,000; Speed<50
	6	Side Path		ADT>10,000; Speed>50
Speed	NULL	No Change		Desired speed to accommodate facility type
	##	Desired		
Improvement	0	None	\$ -	
	2	Sharrow	\$ 10,560	Plaque & sign every 1000'
	0.5	Edge Stripe	\$ 2,640	Paint edge line (x2)
	1.3	Lane Diet (10')	\$ 6,864	Mill & paint edge line (x2)
	1.4	Lane Diet (11')	\$ 7,392	Mill & paint edge line (x2)
	3.5	Road Diet	\$ 18,480	Mill 5, paint 4, TWTL plaque OR multiple lane diets
	2.2	No Parking	\$ 11,616	Sign every 100(x2), edge line (x2)
	2.8	Half Parking	\$ 14,784	Sign every 100(x1), mill & stripe CL, edge line (x2)
	110	Widen (<6')	\$ 580,800	Mill, subbase, 8" HMA, edge line
	170	Widen (6-12')	\$ 897,600	Mill, subbase, 8" HMA, edge line
	320	Widen (16')	\$ 1,689,600	Mill, subbase, 8" HMA, edge line
	200	Side Path	\$ 1,056,000	Widen (6-12') + Clearing 18'
1000	Intersection	\$ -	New signals & stripes, 200' segment (\$200k total)	
Design	1	Paint	\$ 5,280	Simple
	2	Paint & Signs	\$ 10,560	More complex
	20	Widen	\$ 105,600	Consider drainage, etc.
	50	ROW	\$ 264,000	DES only, ROW cost not included
	60	ROW & NEPA	\$ 316,800	DES & permitting, ROW cost not included

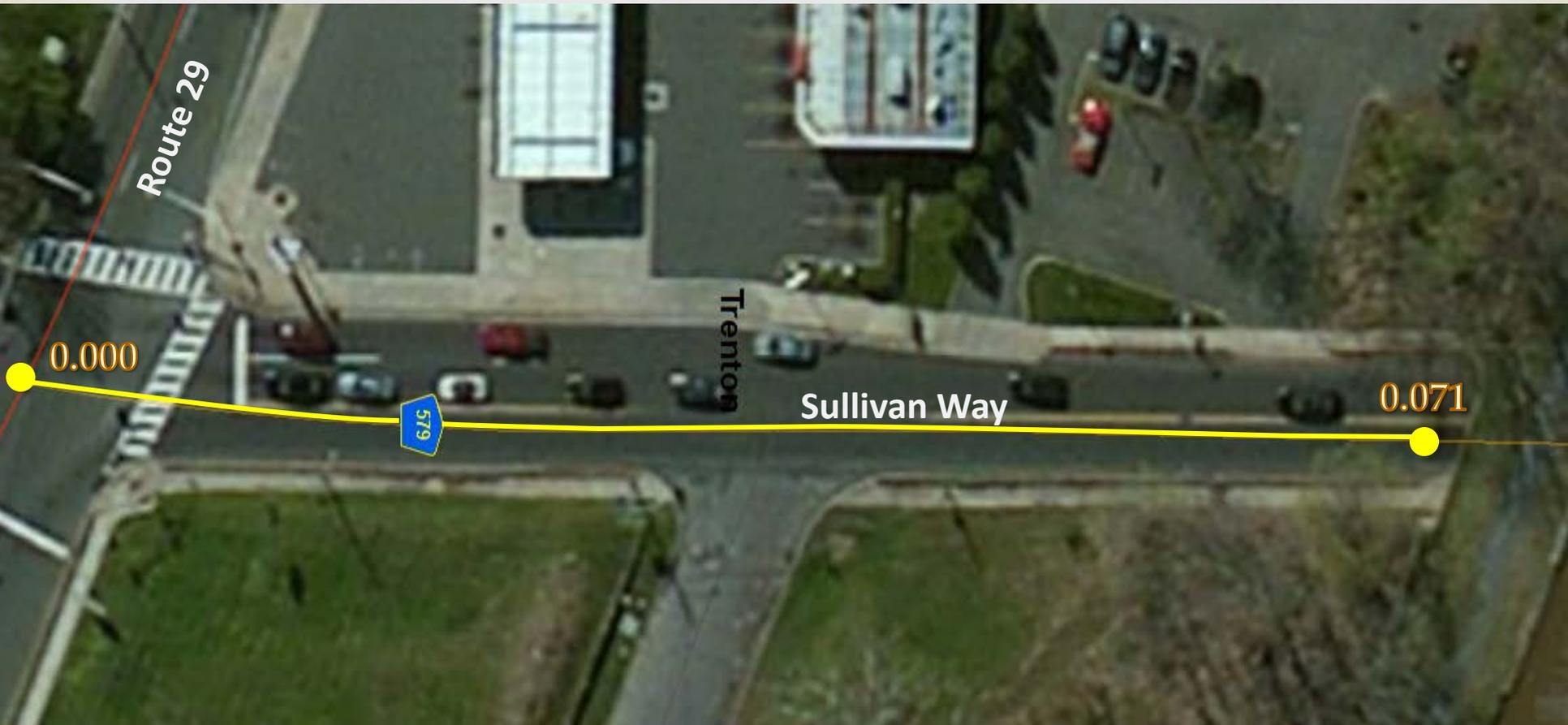
This table specifies coded values ('code') to be entered into attributes ('category') for each road segment to create a bicycle facility with a reasonable level of traffic stress. When the 'improvement' and 'design' values are multiplied by the segment length, an order of magnitude cost for implementation results. Only the 'intersection' improvement type has a pre-defined segment length (100' either side of an intersection node) to generate an appropriate improvement cost. Note that 'costs' are for planning purposes only; they are not estimates of actual project costs.

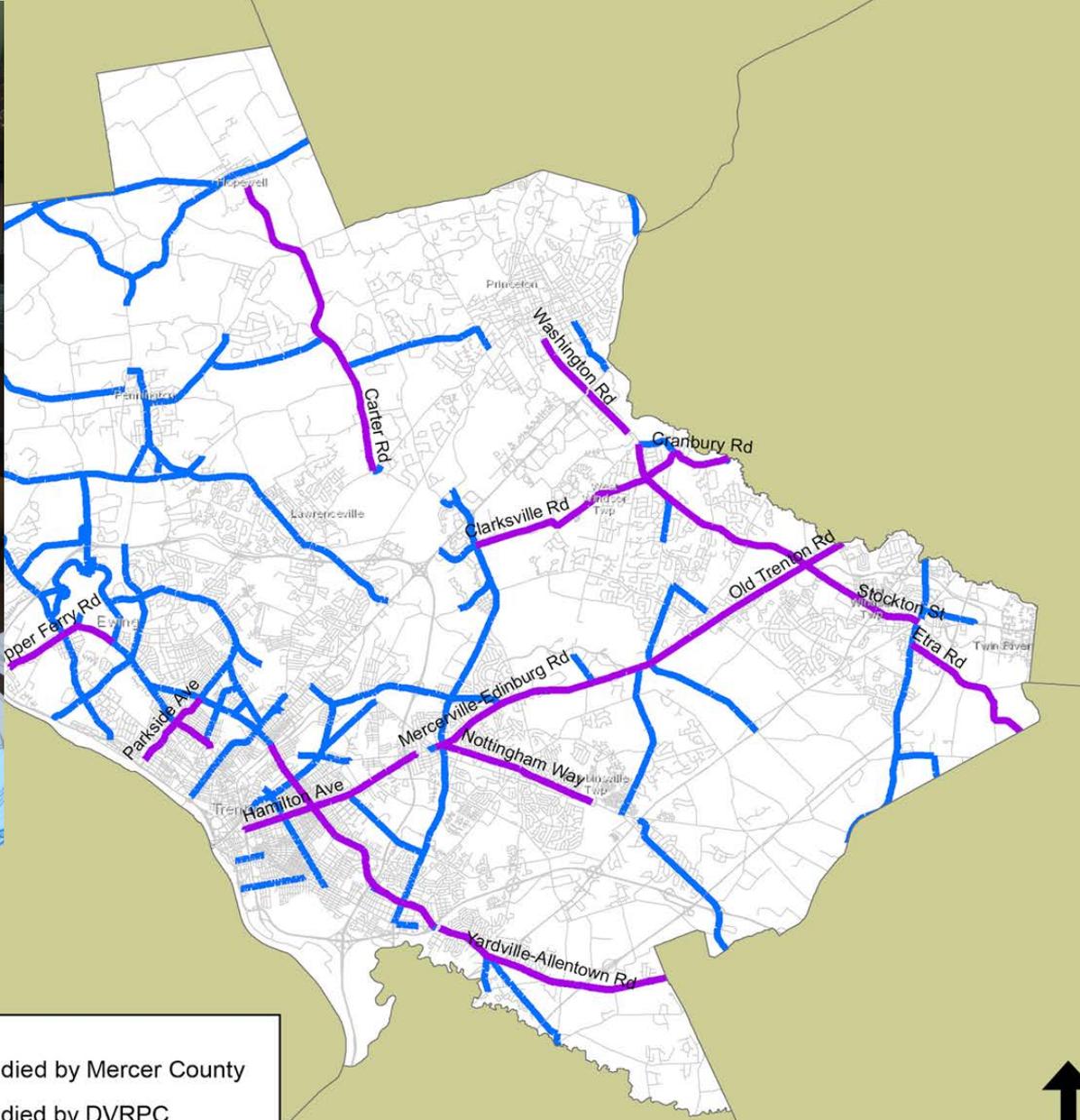
Value Codes Applied to Each Segment

Cost estimates from NJDOT 2016 construction bids and from Portland State & UNC surveys.

Minor differences in cost distinguish facility types.

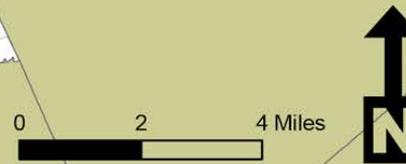
SRI	MP_Start	MP_End	Fac_Type	Speed	Improvement	Design	Comments	Length(ft)	CONcost	DEScost	TOTcost
00000579__	0.000	0.071	1	25	1.4	2	29' CW	375	\$ 525	\$ 750	\$ 1,275
00000579__	0.071	0.091	1	25	200	20	D&R Underpass onto Sidewalk	106	\$ 21,120	\$ 2,112	\$ 23,232
00000579__	0.091	0.135	1	25	1.4	2	29' CW	232	\$ 325	\$ 465	\$ 790
00000579__	0.135	0.285	2	35	170	20	need reconstruction anyway	792	\$ 134,640	\$ 15,840	\$ 150,480
00000579__	0.285	1.083	2	35	1.4	1	30' CW	4,213	\$ 5,899	\$ 4,213	\$ 10,112
00000579__	1.083	1.300	2	35	170	20	widen for LTL for NJM and Katz	1,146	\$ 194,779	\$ 22,915	\$ 217,694
00000579__	1.300	1.635	2	35	1.4	1	40' CW	1,769	\$ 2,476	\$ 1,769	\$ 4,245
00000579__	1.635	2.169	2	25	1.3	1	Grand Ave, narrow to 10' lanes	2,820	\$ 3,665	\$ 2,820	\$ 6,485
00000579__	2.169	2.210	2	25	170	20	Planned widening @ W Upper Ferry	216	\$ 36,802	\$ 4,330	\$ 41,131
00000579__	2.210	3.000	2	35	1.4	1	40' CW	4,171	\$ 5,840	\$ 4,171	\$ 10,011
00000579__	3.000	3.271	2	35	1.4	2	I-95 interchange	1,431	\$ 2,003	\$ 2,862	\$ 4,865
00000579__	3.271	4.876	2	35	1.4	1	40' CW	8,474	\$ 11,864	\$ 8,474	\$ 20,339
00000579__	4.876	7.660	2	45	0.5	1	40' CW	14,700	\$ 7,350	\$ 14,700	\$ 22,049
00000579__	7.660	8.546	2	45	1.4	1	30' CW	4,678	\$ 6,549	\$ 4,678	\$ 11,227





FY 2016 UPWP Project

- County Highways Studied by Mercer County
- County Highways Studied by DVRPC

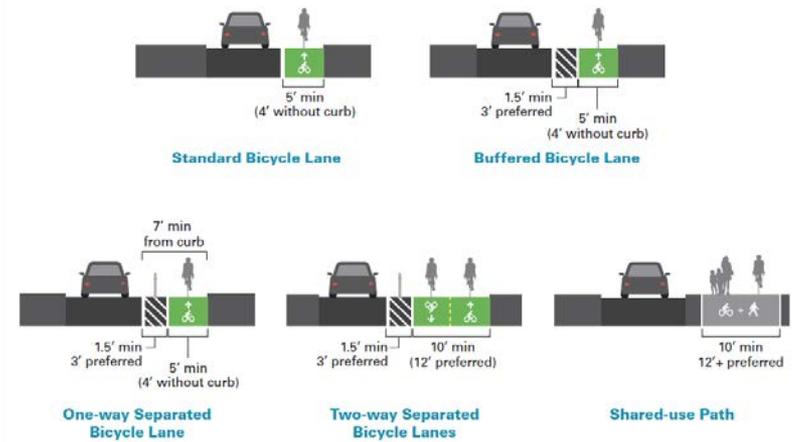





2017 State of New Jersey Complete Streets Design Guide



Bikeway Treatments and Minimum Requirements



A Bicycle Facility Table

ADT	85TH PERCENTILE SPEED ¹						
	≤ 20	25	30	35	40	45	≥50
≤ 2,500	ABCDEF	A ² BCDEF	CDEF	CDEF	CDEF	DEF	F
2,500–5,000	BCDEF	BCDEF	CDEF	CDEF	DEF	DEF	F
5,000–10,000	B ³ CDEF	B ³ CDEF	CDEF	DEF	DEF	EF	F
10,000–15,000	DEF	DEF	DEF	DEF	EF	EF	F
≥15,000	DEF	DEF	DEF	EF	EF	F	F

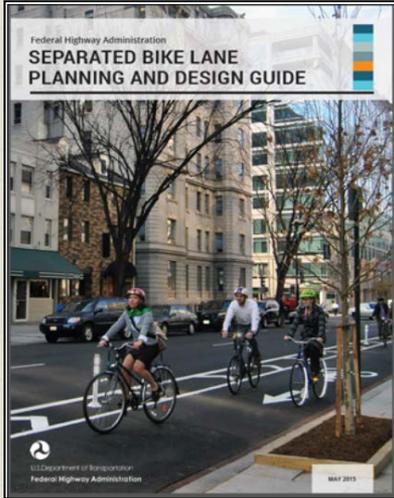
A: Shared Street/Bicycle Boulevard **B:** Shared-lane Markings **C:** Bicycle Lane **D:** Buffered Bicycle Lane
E: Separated Bicycle Lane **F:** Shared-use Path

¹If data not available, use posted speed

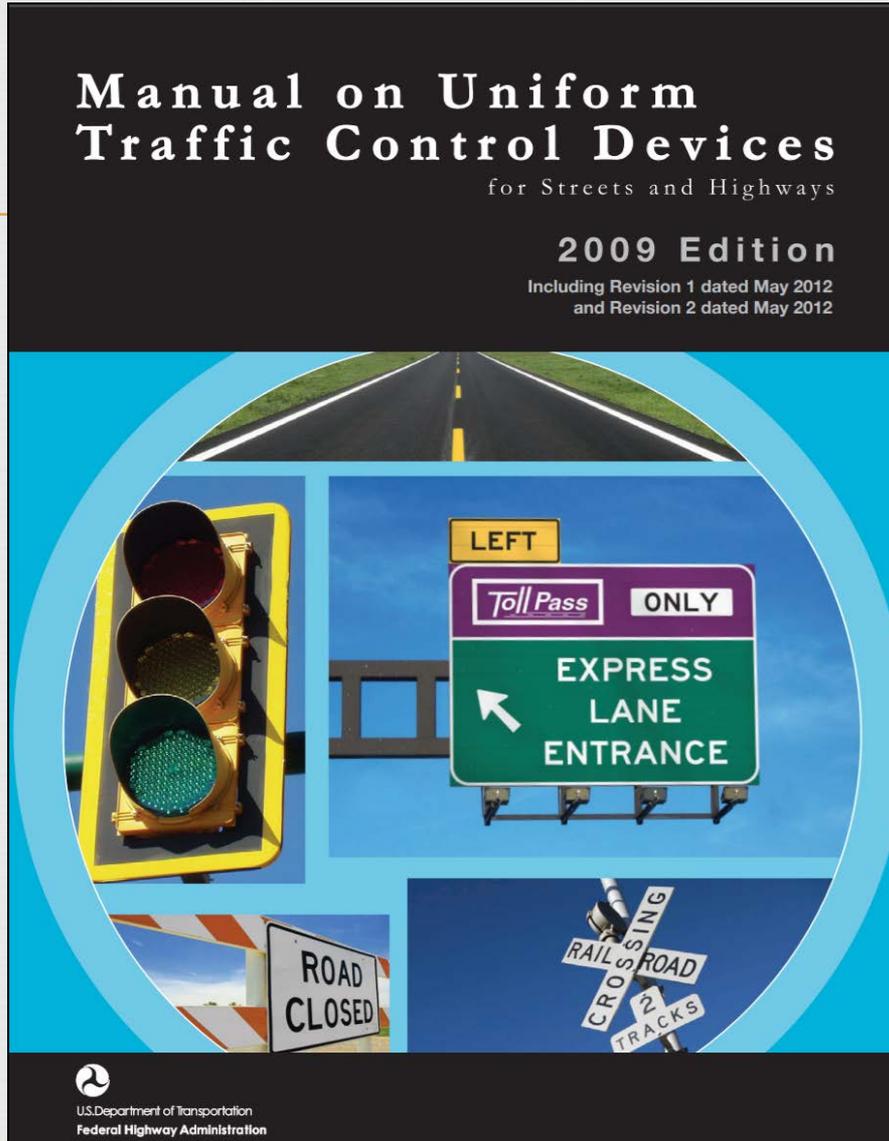
²Bicycle boulevards are preferred at speeds ≤25 mph

³Shared-lane markings are not a preferred treatment with truck percentages greater than 10%

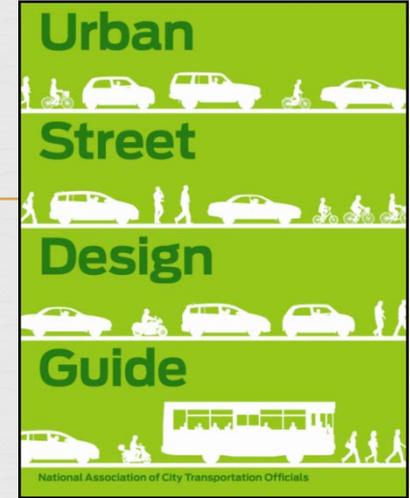
Design Flexibility / Variability



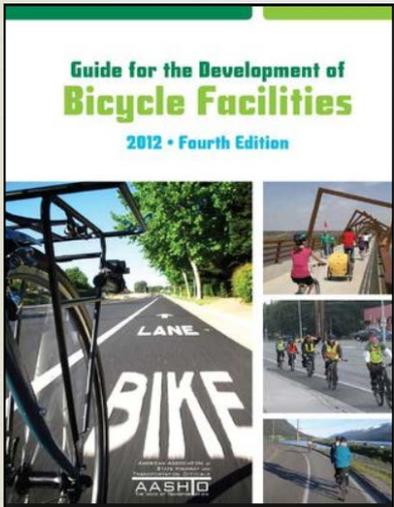
FHWA



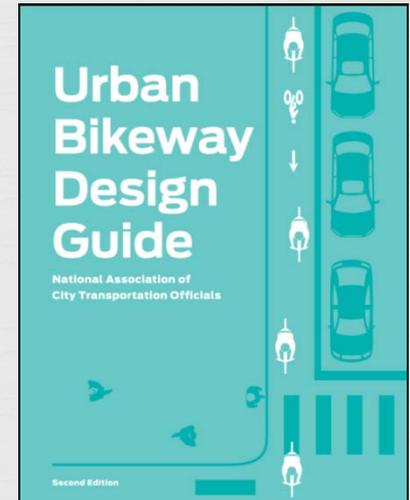
U.S. Department of Transportation
Federal Highway Administration



NACTO



AASHTO



NACTO

Mercer County Bicycle Facility Selection Table

USLIMITS2 Recommended Speed							
ADT	≤ 20	25	30	35	40	45	≥50
≤ 2,500	A B C D E F	A B C D E F	C D E F	C D E F	C D E F	D* E F	F
2,500–5,000	B C D E F	B C D E F	C D E F	C D E F	D* E F	D* E F	F
5,000–10,000	B C D E F	B C D E F	C D E F	C* D E F	D* E F	D* E F	F
10,000–15,000	C* D E F	C* D E F	C* D E F	C* D* E F	D* E F	D* E F	F
15,000-30,000	C* D E F	C* D E F	C* D E F	D* E F	E F	E* F	F
≥30,000	F	F	F	F	F	F	F

A: Shared Street/Bicycle Boulevard

B: Shared-lane Markings

C: Bicycle Lane

C*: Bicycle Lane (After careful consideration)

D: Buffered Bicycle Lane

D*: Buffered Bicycle Lane (After careful consideration)

E: Separated Bicycle Lane

E*: Separated Bicycle Lane (After careful consideration)

F: Shared-use Path

1. If USLIMITS2 data not available, use posted speed
2. Bicycle boulevards are preferred at speeds ≤25 mph
3. Shared-lane markings are not a preferred treatment with truck percentages greater than 10%
4. Buffered Bike Lanes may include Rumble Strips if designed to Mercer County Standards.



Intersection Challenges



Road Diet

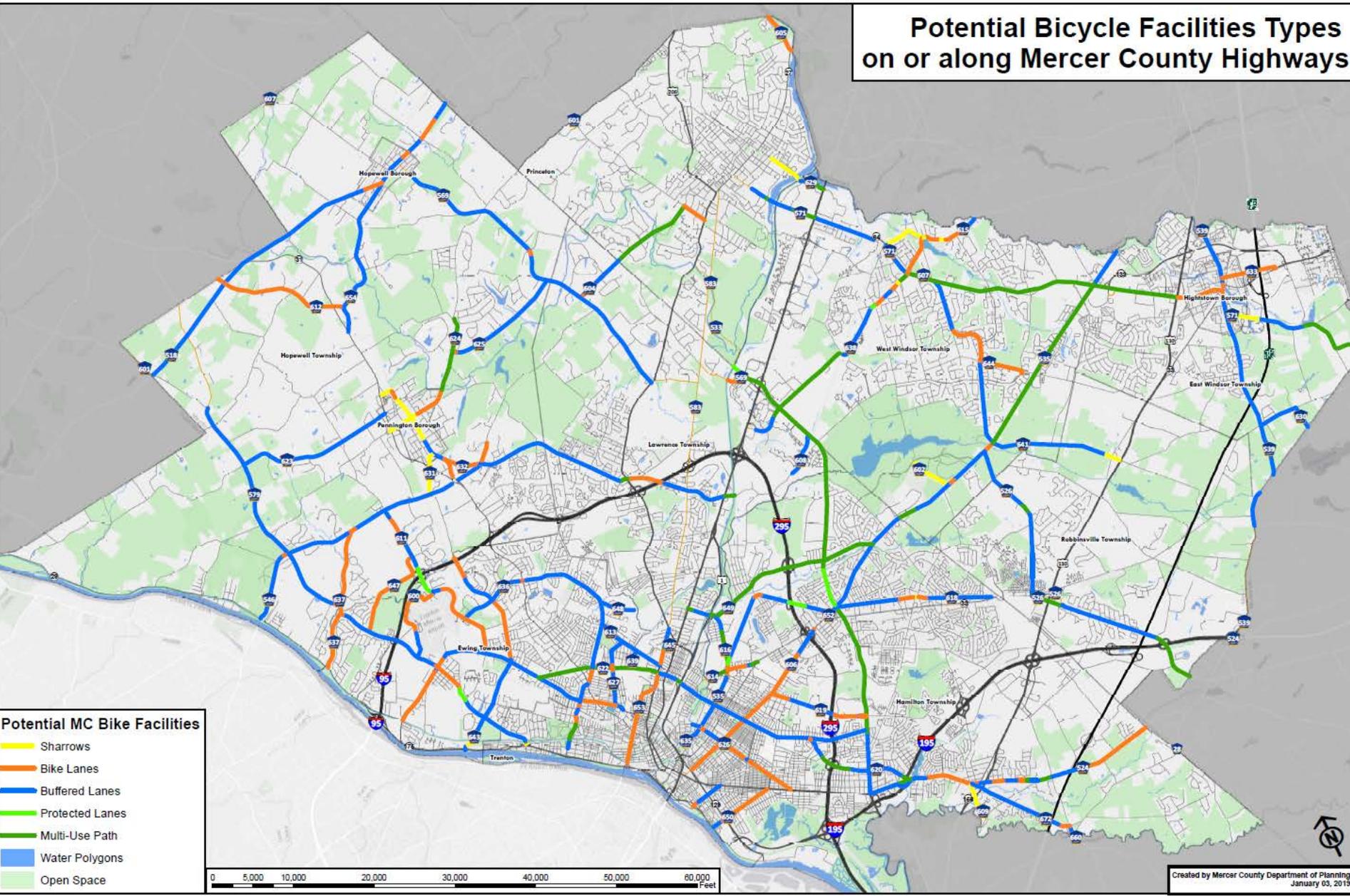


Widen? Sidepath?

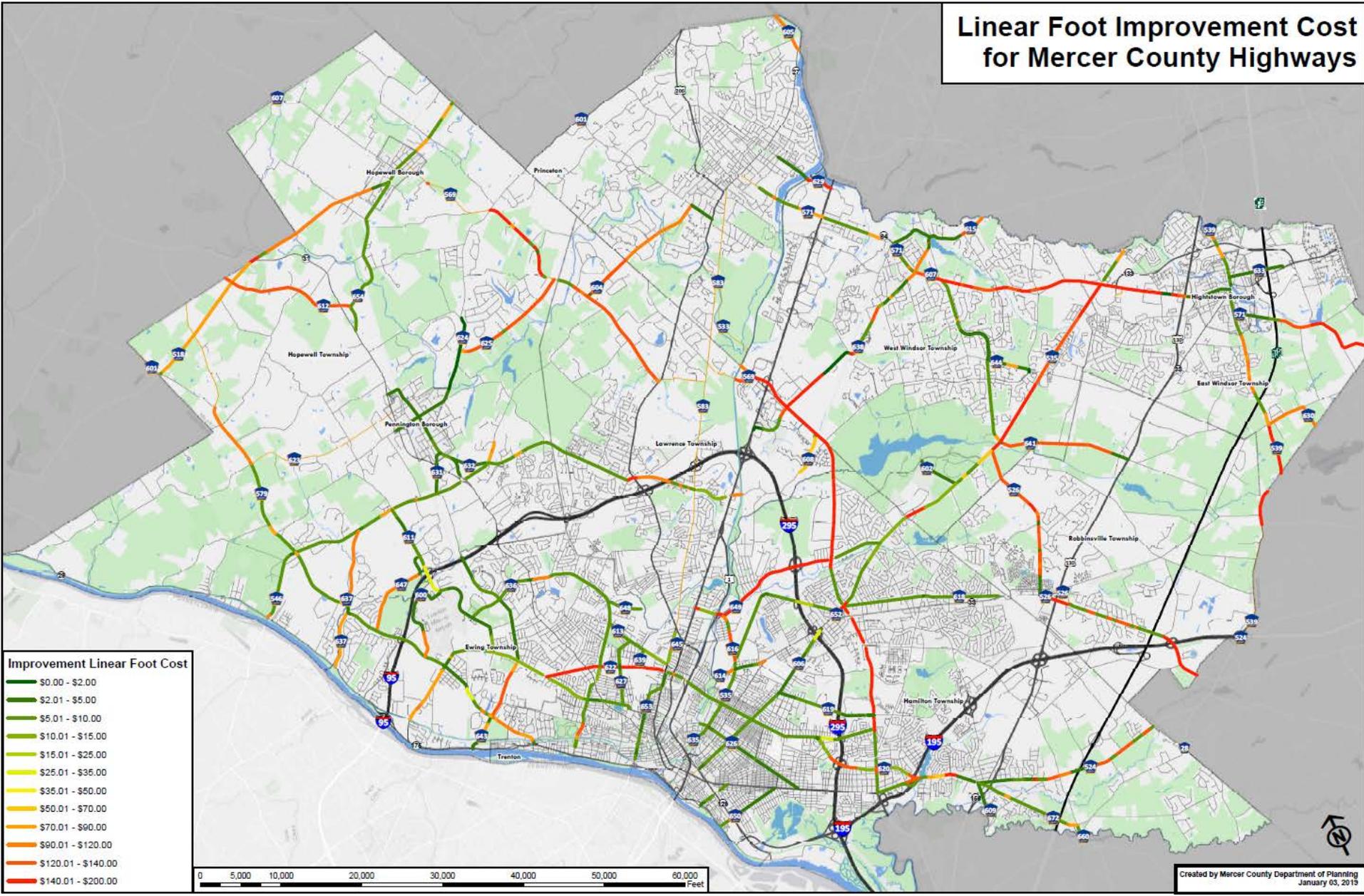


Rarely This Easy

Potential Bicycle Facilities Types on or along Mercer County Highways

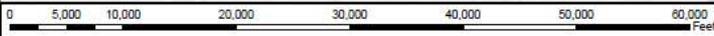


Linear Foot Improvement Cost for Mercer County Highways



Improvement Linear Foot Cost

- \$0.00 - \$2.00
- \$2.01 - \$5.00
- \$5.01 - \$10.00
- \$10.01 - \$15.00
- \$15.01 - \$25.00
- \$25.01 - \$35.00
- \$35.01 - \$50.00
- \$50.01 - \$70.00
- \$70.01 - \$90.00
- \$90.01 - \$120.00
- \$120.01 - \$140.00
- \$140.01 - \$200.00



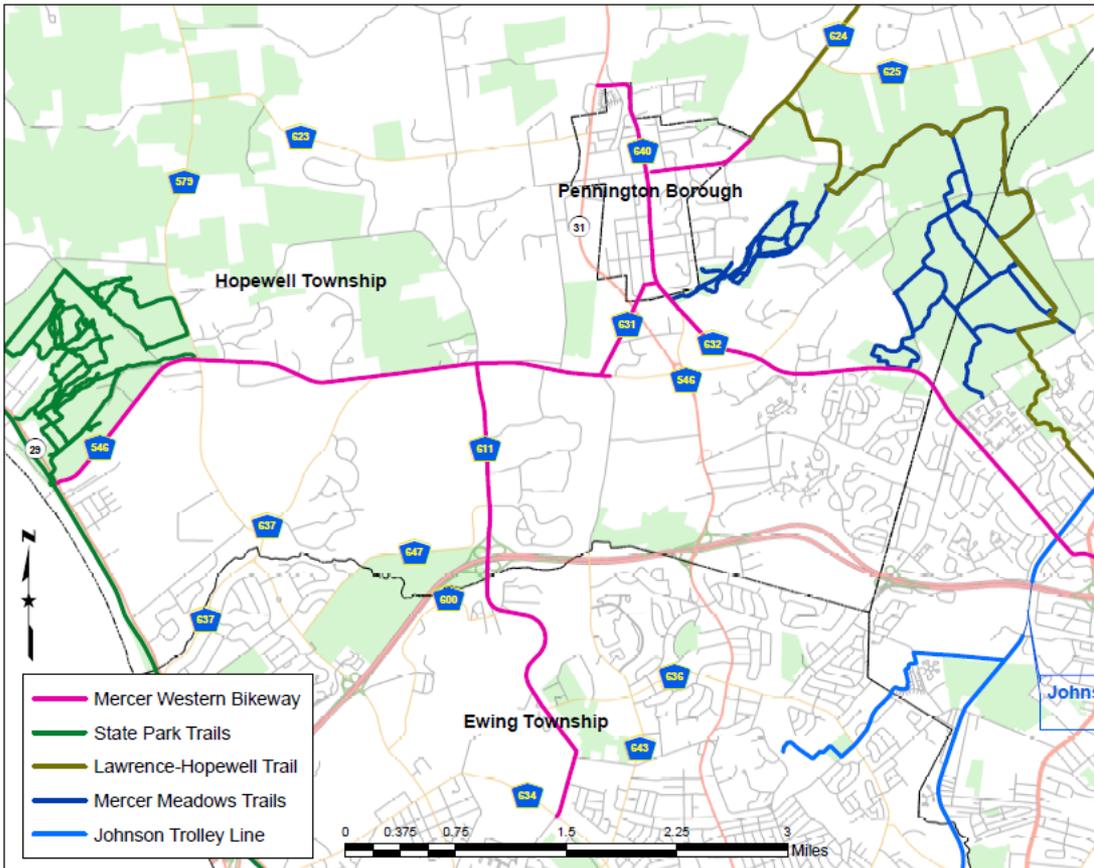
Created by Mercer County Department of Planning
January 03, 2015



Implementation



Mercer 2017 Regional TAP -- Bikeway & intersecting Trails



State of New Jersey
DEPARTMENT OF TRANSPORTATION
P.O. Box 600
Trenton, New Jersey 08625-0600

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lieutenant Governor

DIANE GUTIERREZ-SCACCETTI
Commissioner

November 7, 2018

Mr. Barry Seymour
Executive Director, DVRPC
190 N. Independence Mall West, 8th Floor
Philadelphia, PA 19106-1520

Dear Mr. Seymour:

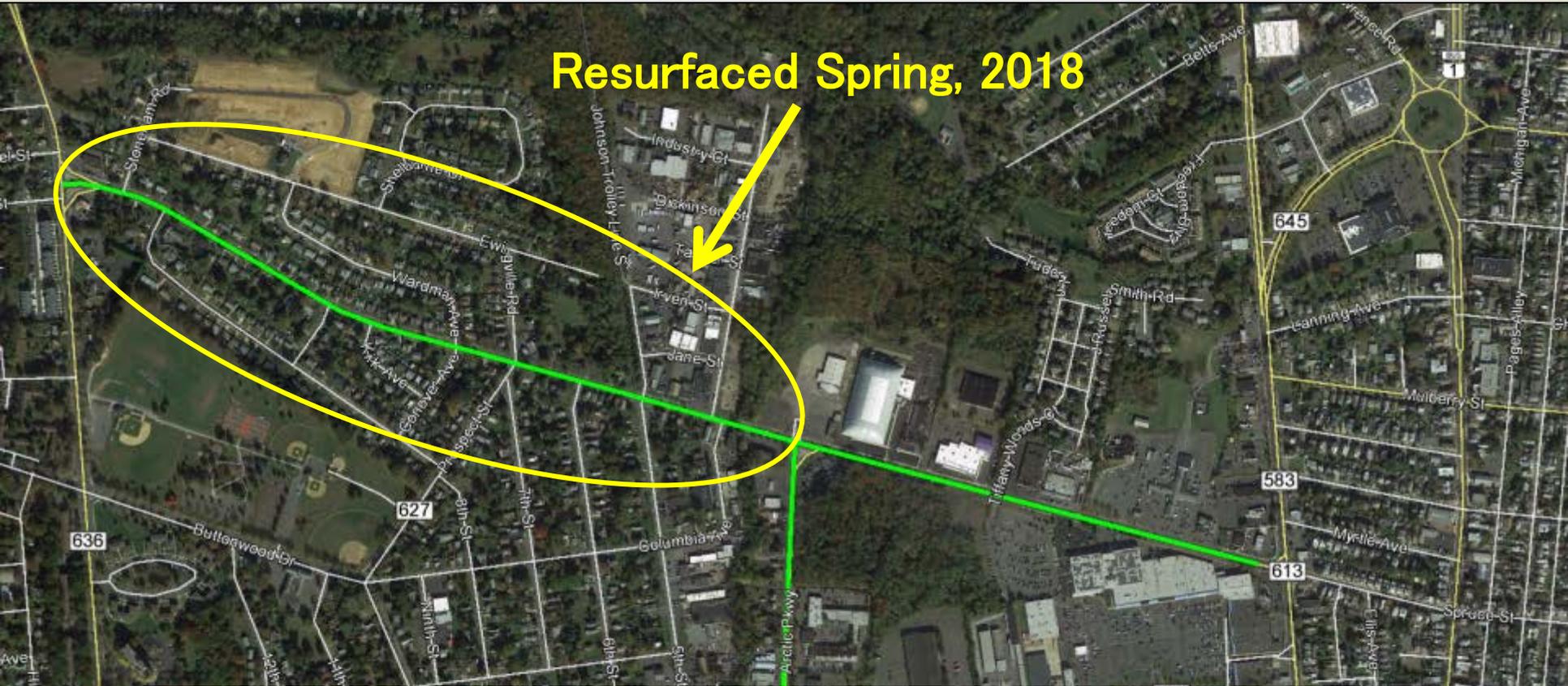
New Jersey Department of Transportation Commissioner, Diane Gutierrez-Scaccetti, recently announced her Commitment to Communities Initiative to help local governments succeed in delivering transportation projects. On behalf of the Commissioner, we are pleased to inform you the following projects in the Delaware Valley Regional Planning Commission (DVRPC) region have been selected for funding through the Regional Transportation Alternatives Program (RTAP).

Project Name	Project Sponsor	Amount
Arney's Mount - Fairgrounds Connector	Burlington County	\$3,223,000
Mercer County Great Western Bikeway and Approaches	Mercer County	\$2,365,900

As you know, the New Jersey Department of Transportation, in partnership with the North Jersey Transportation Planning Authority (NJTPA), the DVRPC, and the South Jersey Transportation Planning Organization (SJTPO), is administering the Regional TAP Program. Six projects totaling \$16,688,900 were recommended by the Regional TAP Selection Committee. The Selection Committee was comprised of representatives from NJDOT Local Aid, NJDOT Bureau of Environmental Resources, NJTPA, DVRPC and SJTPO.

NJDOT will be notifying each recipient regarding their approved Regional TAP grant. Failure to authorize within two years of this notification may jeopardize funding for these projects.

Spruce Street and Arctic Parkway (Ewing, NJ)



2018-2020 MC PAVING SCHEDULE

No.	Street Name	Township	CR	From	To	Year	Date to be completed	Budget	Remarks
2018-06	Wash Cross Penn Rd (RT 546)	Hopewell	546	River Road	Bear Tavern Road	2017	4/15/2018	Done	
2018-13	Spruce Street (CR 613)	Ewing	613	Arctic Parkway	Prospect Ave.	2016	4/15/2018	Done	
2018-14	Spruce Street (CR 613)	Ewing	613	Prospect Ave.	Parkside Ave.	2018	4/16/2018	Done	
2018-17	Monmouth Street (CR 633)	Hightstown	633	N. Main St. (RT 539)	Broad St	2017	5/21/2018	Done	
2018-18	Monmouth Street (CR 633)	Hightstown	633	Rt #33	Boro Line	2017	5/21/2018	Done	
2018-19	Monmouth Street (CR 633)	Hightstown	633	Boro Line		2017	5/21/2018	Done	
2018-22	Lower Ferry Road (CR 643)	Ewing	643	Sullivan Way	Stuyvesant Ave	2017	7/2/2018	Done	
2018-15	Penn-Harbourton Road (CR 623)	Hopewell	623	Route 31	Scotch Road	2016	7/16/2018	Done	



Before Resurfacing

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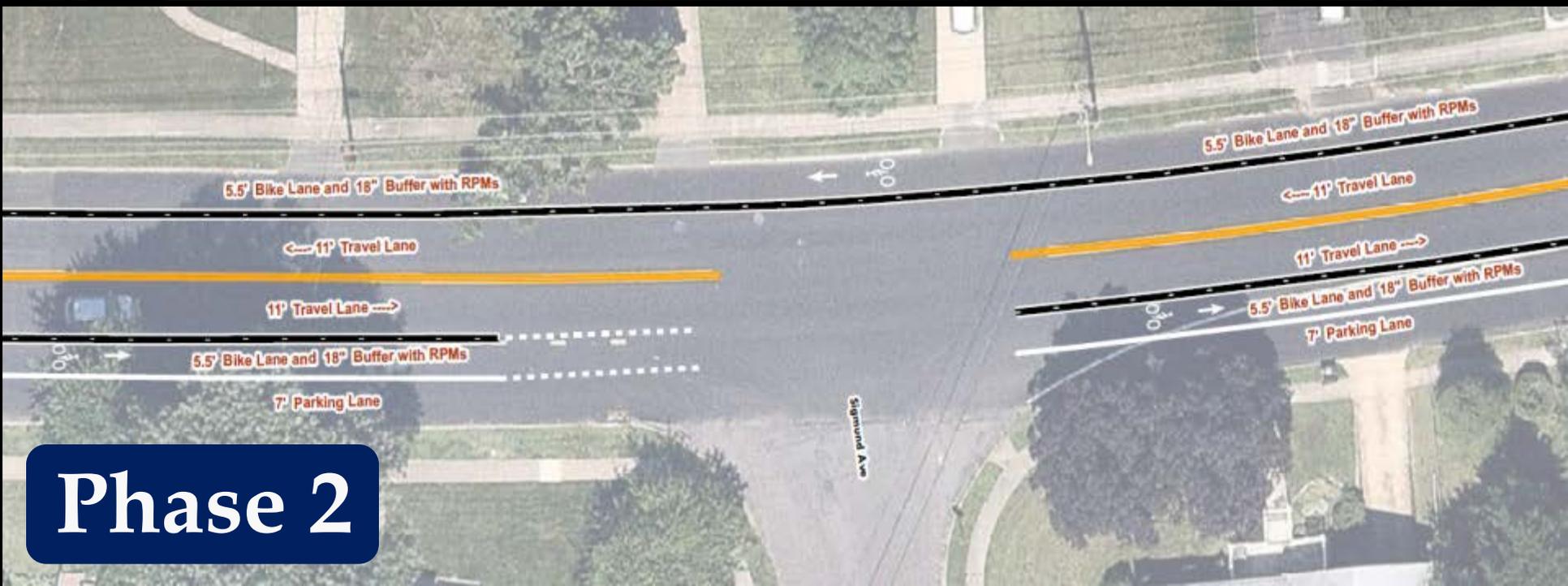
Google



After Resurfacing (Phase I)

2 Weeks from noticing sign to striping
plan coordinated with Engineering.

Phase 1

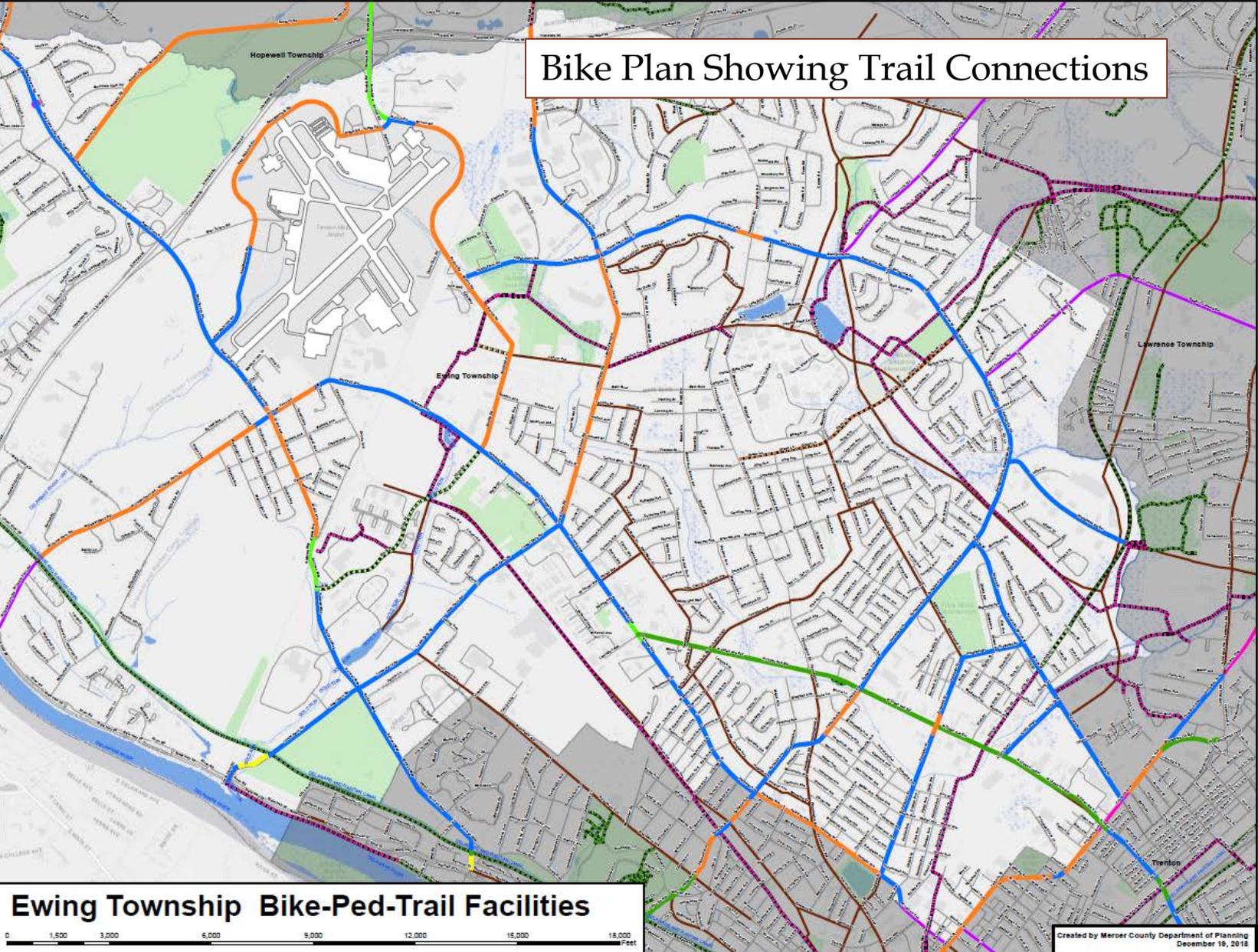


Phase 2

Bike Plan Showing Trail Connections



- Potential MC Bike Facilities**
- Sharrows
- Bike Lanes
- Buffered Lanes
- Protected Lanes
- Multi-Use Path
- Trail Network**
- Conceptual
- Existing "Trail"
- Existing Bike Lanes
- Existing Sharrows
- Proposed Trail
- Proposed Bike Lanes
- MCBPTF Connections Priorities**
- Low Priority
- Medium Priority
- High Priority
- Open Space
- Wetland



Ewing Township Bike-Ped-Trail Facilities

Mercer County

2019 Bicycle Master Plan



Matthew Lawson, PP, AICP
Regional Transportation Committee
Delaware Valley Regional Planning Commission
February 12, 2019

Thank You!

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