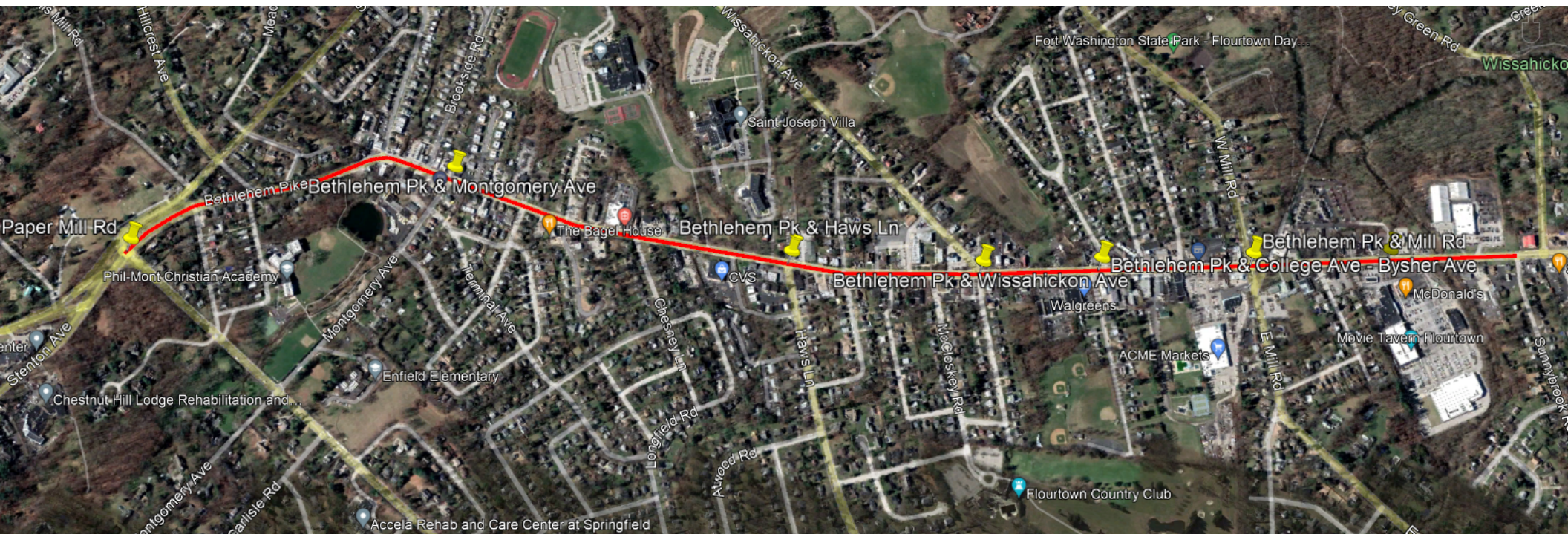


Springfield Township – Bethlehem Pike Safety Corridor Presentation

May 26, 2022 – 7:00 PM



Bethlehem Pike Safety Corridor Presentation

Introductions

PennDOT Team: Vince Cerbone – Traffic Safety & Studies Section Manager
Joe Zapata – Traffic Safety Section (Montgomery County)

PennDOT Design Consultants: Nik Kharva & Brian Williams

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Meeting Outline

1. Introductions
2. Project Description
3. Existing Condition
4. Crash History
5. Road Diet Benefits
6. Proposed Road Diet & Parking - Sketch Plans Overview
7. Q&A

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Project Description

PennDOT's Highway Safety Improvement Program (HSIP) Project includes safety treatment on Bethlehem Pike (SR 2018) in Springfield Township from Paper Mill Road to Sunnybrook Road.

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Project Description

Safety treatments proposed as part of this project include:

- Converting Bethlehem Pike from an undivided 4-lane section to a 3-lane section including a two-way-left-turn lane
- Modify left-turn signal phasing to a flashing yellow arrow (FYA)
- Coordinate arterial signals
- Add pedestrian countdown timers
- Add retroreflective backplates to improve signal visibility

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Existing Condition

- Speed limit: 35 MPH
- Project Limits Length: ~ 2 miles
- 2022 Year Average Daily Traffic (ADT) = 14,750
- 4 lane cross section, no left turn lanes
- Inside lane operates as a defacto left turn lane for turning vehicles

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Crash History

- Over the six-year period of January 1, 2016, to December 31, 2020, the corridor experienced 140 reportable crashes.

Major Crash Types:

- 63 (45%) angle
- 25 (18%) rear end
- 23 (16%) hit fixed object
- 15 (11%) head on
- 6 (4%) pedestrian

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Road Diet Benefits

A Road Diet can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life by reallocating existing lanes.

Benefits of Road Diet include:

1. Reduction of rear-end and left-turn crashes due to the dedicated left-turn lane.
2. Reduced right-angle crashes at unsignalized intersections.
3. Fewer lanes for pedestrians to cross.
4. Traffic calming and more consistent speeds.
5. A more community-focused, Complete Streets environment that better accommodates the needs of all road users.
6. Springfield Township has incorporated Road Diet as part of their Comprehensive Plan.

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Road Diet

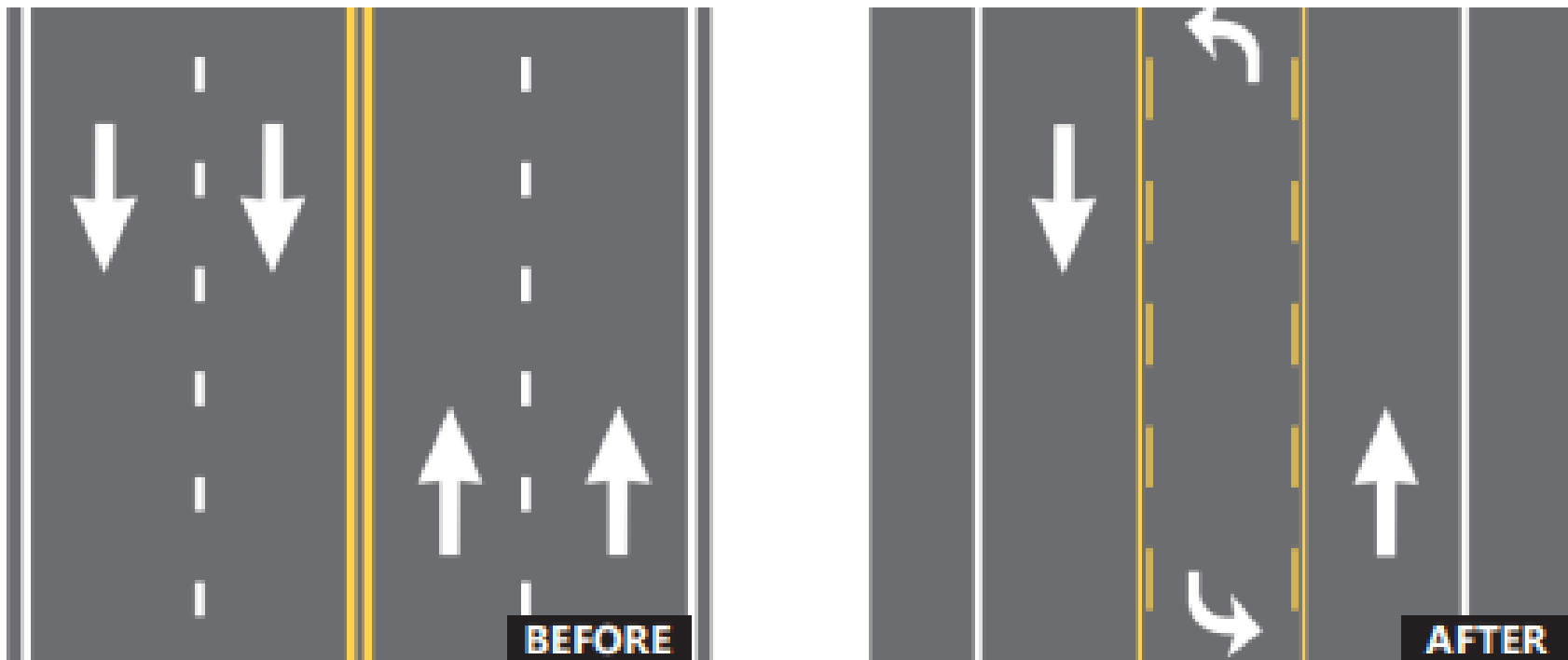
Safety Benefits:
4-Lane to 3-Lane
Road Diet Conversions
19-47%
reduction in total crashes.¹

1 Evaluation of Lane Reduction "Road Diet" Measures on Crashes, FHWA-HRT-10-053, (2010)

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Road Diet

A Road Diet can be implemented on a roadway with an average daily traffic (ADT) of 20,000 or less. 2022 Year ADT on Bethlehem Pike is ~14,750. 2044 Design Year ADT is ~15,860.



Before and after example of a Road Diet. Source: FHWA

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Road Diet: Example Photo



Before and after photos of a Road Diet project. [FHWA-SA-17-066](#)

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Road Diet Safety Benefits

Mid-block conflict points for crashes

- The figures illustrate conflict points and safety issues related to turning movements for 4-lane undivided roadways and 3-lane cross sections.
- There are fewer conflict points on the 3-lane section roadway, therefore improving safety.

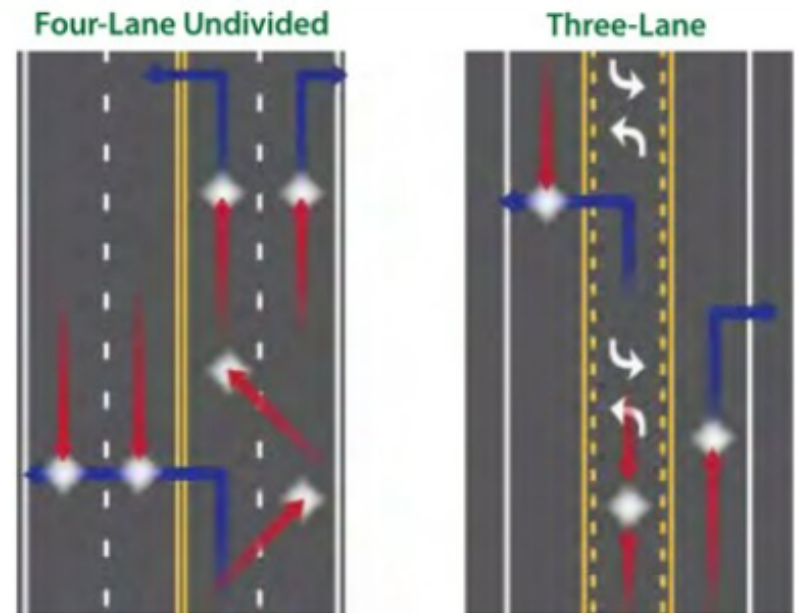


Figure 4. Mid-Block Conflict Points for Four-Lane Undivided Roadway and Three-Lane Cross Section (Adapted from Welch, 1999)

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Road Diet Safety Benefits

Improve left-turn sight distance

- The figures illustrate a major street left-turn sight distance for 4-lane undivided roadway and 3-lane cross section.
- The driver's visibility for making left turns is improved on the 3-lane cross section.
- No hidden vehicles

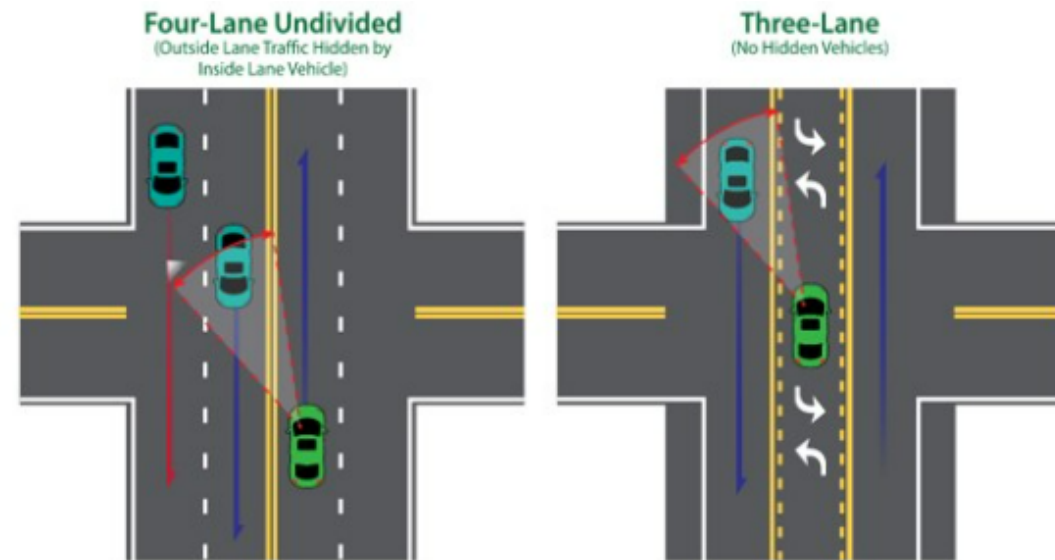


Figure 6. Major-Street Left-Turn Sight Distance for Four-Lane Undivided Roadway and Three-Lane Cross Section
(Adapted from Welch, 1999)

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Road Diet Example Projects

- **Glenolden Avenue (Glenolden Borough, Delaware County)**
 - The 5 years crash data (from 2006 to 2011) before the road diet and the 5 years crash data (from 2012 to 2017) after the road diet on MacDade Blvd from South Ave to Cook Ave showed approximately a 20 percent reduction in crashes. While traffic volumes increased through those years, there was a reduction of total crashes declining from 118 to 95, for the same number of years. Prior to the road diet there were 2 fatal crashes and after the road diet there were none.

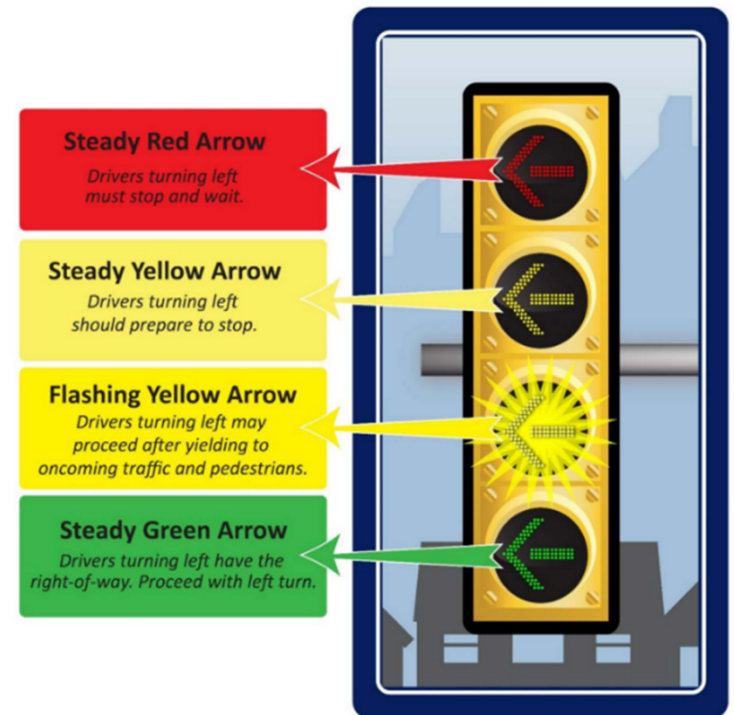
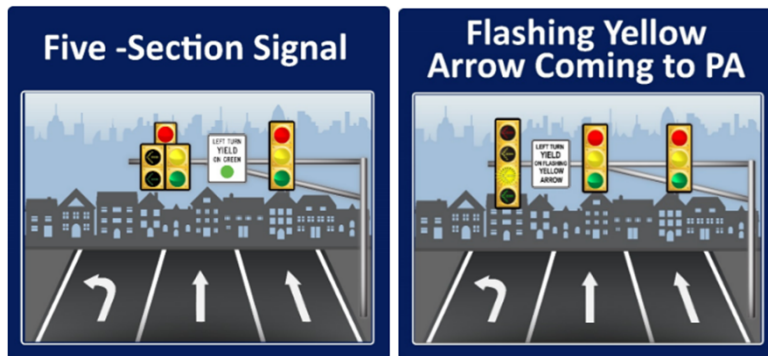
- **Township Line Road (Upper Darby/Haverford Twps., Delaware County)**
 - This project construction was completed in early 2018 year. The project added a center left turn lane to improve safety along the Route 1 Corridor (Township Line Rd). Center left turn lane is typically applied with a road diet treatment. The before and after study for a 2 year period indicated a 35 percent reduction of crashes. Prior to the road diet there were 2 fatal crashes and after the road diet there were none. The data also indicated a reduction in crashes that involved injuries.

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Flashing Yellow Arrow Signal

Benefits of Flashing Yellow Arrow Signals

- More intuitive to motorists
- According to national data, can reduce left-turn crashes as much as 20%
- Keeps traffic moving by offering motorists more opportunities to make left turns
- Consistency with other states adopting the signal



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Proposed Road Diet for Bethlehem Pike Level of Service

Intersection	Peak Hour	2041 without Road Diet		2041 with Road Diet	
		LOS	Delay (sec)	LOS	Delay (sec)
Bethlehem Pk & Flourtown Shopping Center	AM	A	5	A	9
	PM	A	10	A	8
Bethlehem Pk & Mill Rd	AM	C	27	B	11
	PM	B	19	B	12
Bethlehem Pk & College Ave/Bysher Ave	AM	B	16	D	40
	PM	B	15	C	29
Bethlehem Pk & Wissahickon Ave	AM	C	30	C	21
	PM	C	25	C	23
Bethlehem Pk & Haws Ln	AM	C	22	C	29
	PM	A	7	A	7
Bethlehem Pk & Montgomery Ave	AM	A	9	B	16
	PM	A	6	B	12

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Proposed Road Diet for Bethlehem Pike

Sketch Plan

Questions?