



US 13 Pedestrian Safety Study

Scarborough Road to Puncheon Run Connector

July 23, 2019

Presentation to the Advisory Council on Walkability & Pedestrian Awareness



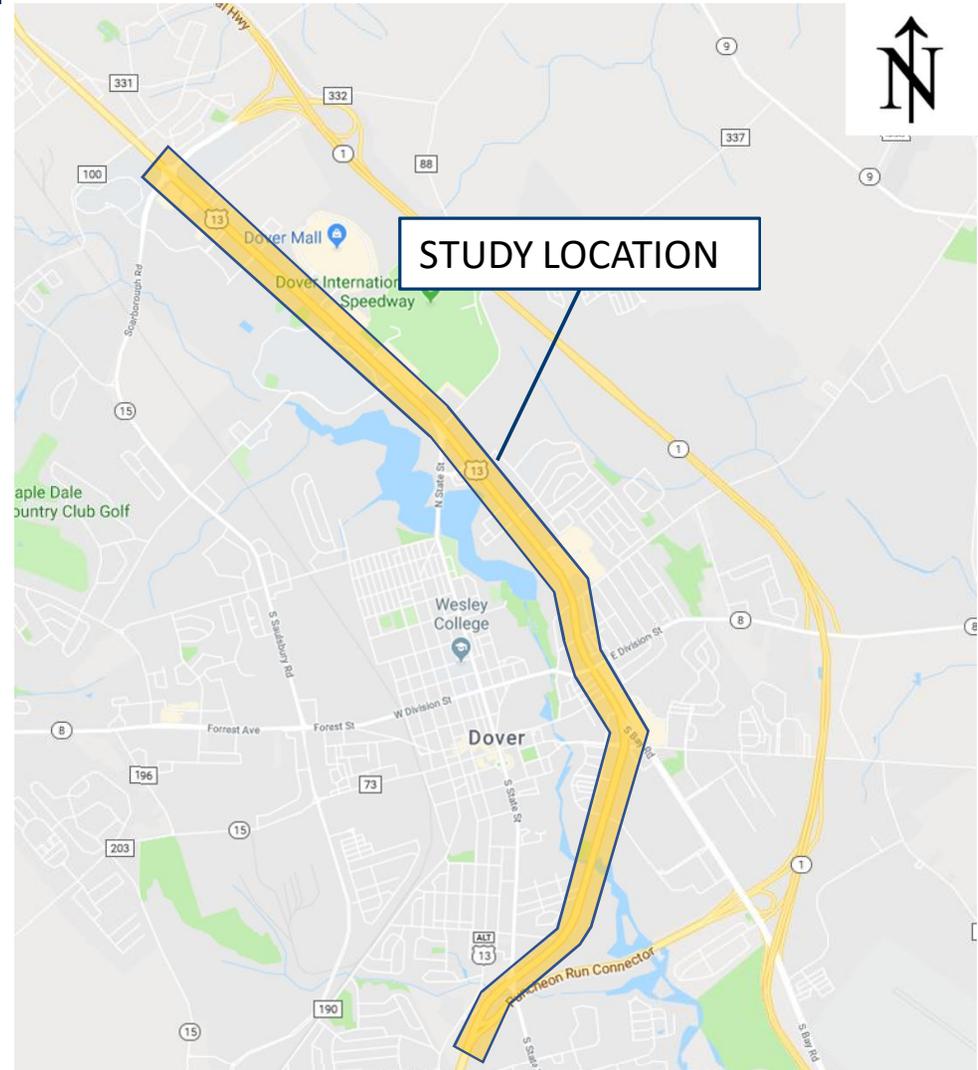
Agenda

- Project Location/Study Scope
- Existing Conditions
- Crash Data Trends
- Relevant Projects
- Corridor Wide Considerations
- Location Specific Considerations
- Next Steps
- Statewide Origin/Destination Data Assessment

Project Location/Study Scope

Study Scope

- Review pedestrian crash history
- Observe and collect pedestrian, transit, and traffic data
- Gather adjacent land use data
- Evaluate pedestrian safety along corridor and identify recommendations



EXISTING CONDITIONS

US 13 Corridor

- 5.5-mile Urban Minor Arterial
- Roadway Character
 - Scarborough Road to Bay Road: 6-lane, divided
 - Bay Road to Puncheon Run Connector: 4-lane, divided
 - Variable shoulder widths and turn lanes at major intersections
- Traffic Control
 - 22 signalized intersections
 - 13 unsignalized median crossovers/U-turn locations
 - Numerous private driveways



- Posted Speed Limit
 - Puncheon Run Connector to MLK Boulevard: 50 MPH
 - MLK Blvd. to North of White Oak Road: 35 MPH
 - North of White Oak Road to N. State Street: 40 MPH
 - N. State Street to Scarborough Road: 45 MPH
- AADT (2017 DelDOT Traffic Summary)
 - South of Puncheon Run: 39,410
 - Puncheon Run to Bay Road: 30,760
 - Bay Road to Division Street: 49,580
 - Division to White Oak: 42,820
 - White Oak to N. State Street: 52,164
 - N. State Street to College Road: 73,949
 - College Road to Scarborough Road: 64,578
 - N. of Scarborough Road: 49,541
- Major Pedestrian Generators
 - Delaware State University and Wilmington University
 - Dover Downs Race Track & Casino
 - Dover Mall
 - Multiple Shopping Centers – Dover Town Center, Dover Commons, North Dover Center, Capital Commons, The Centre at Dover
 - Multiple hotels along corridor
 - Multiple stand alone restaurants – Olive Garden, Outback, Bob Evans, Red Lobster, Chick-Fil-A, Starbucks,
 - Residential developments and apartment complexes

**High Vehicular Volume
and Fluctuating
Speeds Mixed with
Numerous Pedestrian
Generators**

Transit

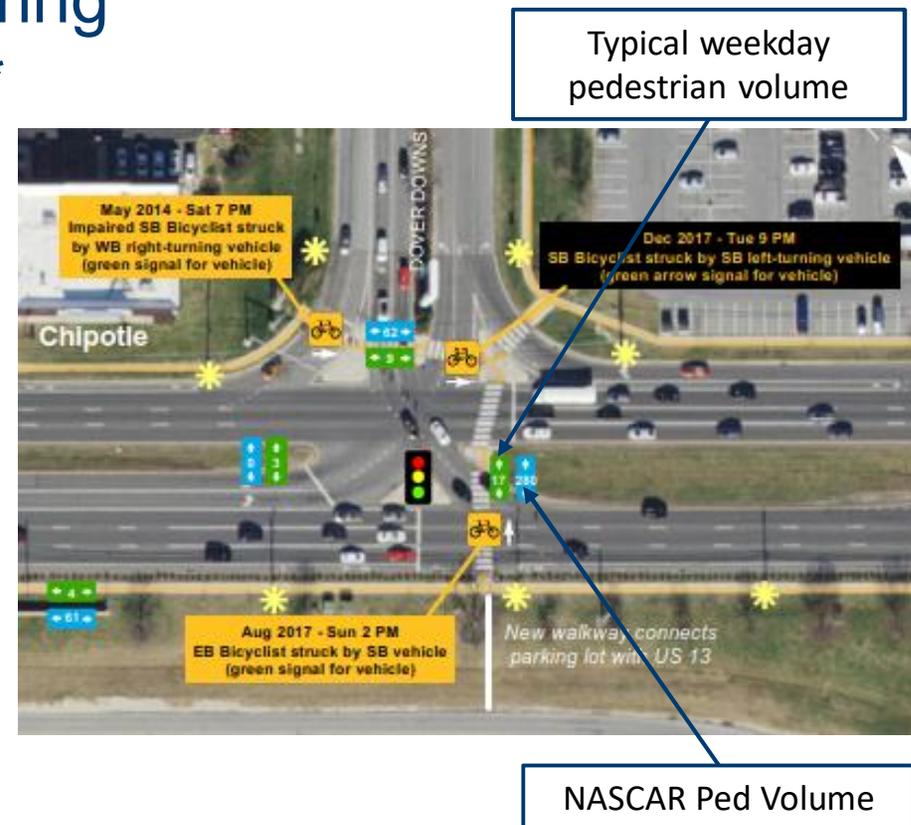


**DART Routes
106, 107, 108,
109, 112, 301
operate within
study corridor**



Pedestrian Counts

- Performed in October/November 2018 during typical weekday conditions *
 - AM Peak (7 AM – 9 AM)
 - Midday Peak (11 AM – 1 PM)
 - PM Peak (3 PM – 6 PM)
- Performed in October 2018 during a NASCAR event
 - North of Rustic Lane to Townsend Blvd.
 - Sunday October 7, 2018
- Data summarized on Existing Conditions figures



* For the purposes of these observations, a “typical weekday” was considered a non-holiday Tuesday, Wednesday, or Thursday with favorable weather conditions (i.e., minimal precipitation and fair temperatures) while local schools are in session

Ped/Bike Crash Trends

(January 2008 to December 2018)



- 52 total ped crashes; 34 total bike crashes
- 100% of ped/bike crashes resulted in an injury or a fatality
 - 9 pedestrian fatalities
 - 2 bicyclist fatalities
- During the 3-year period of 2015 to 2017, 4 (80%) of the 5 total fatalities were pedestrians
- 60% of pedestrian crashes occurred at nighttime
 - 47% of these occurred in unlit locations
- 59% of ped/bike crashes occurred from 4 PM to 12 AM
- 29% of ped/bike crashes involved a vehicle turning left or right at a driveway or intersection
- 48% of pedestrian crashes occurred on a Friday, Saturday or Sunday
- 33% of ped/bike crashes involved a ped/cyclists aged 16 to 25 years old
- 32% of bicycle crashes involved a cyclist traveling in the opposite direction of traffic
- 14% of ped/bike crashes involved an impaired ped/bicyclist

Crash Trends



Study Period		January 2008 to December 2018						January 2015 to December 2017	
Scenario		Pedestrian Crashes		Bicycle Crashes		Peds + Bikes		All Crashes*	
		No.	% of Total	No.	% of Total	No.	% of Total	No.	% of Total
Crash Severity	Fatal	9	17%	2	6%	11	13%	5	<1%
	Injury	43	83%	32	94%	75	87%	470	43%
	PDO	0	0%	0	0%	0	0%	621	57%
Lighting Condition	Daylight	21	40%	22	65%	43	50%	760	69%
	Dark-Lit	17	33%	10	29%	27	31%	250	23%
	Dark-Unlit	13	25%	2	6%	15	17%	41	4%
	Dawn/Dusk	1	2%	0	0%	1	1%	38	3.4%
	Unknown	0	0%	0	0%	0	0%	7	0.6%
Ped/Bike Impairment	Impaired	9	17%	3	9%	12	14%	n/a	n/a
	Not Impaired	43	83%	31	91%	74	86%	n/a	n/a
Totals		52	100%	34	100%	86	100%	1,096	100%

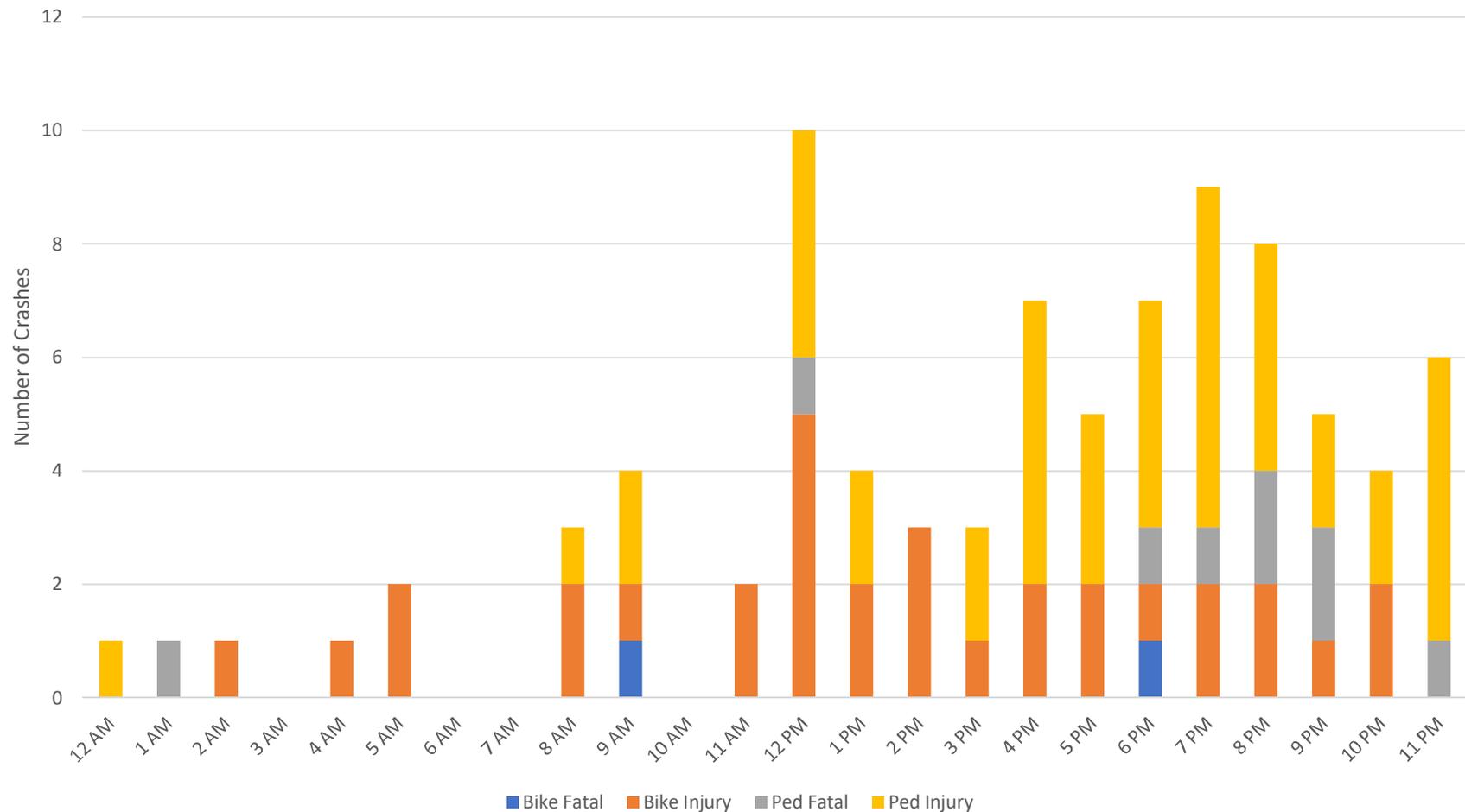
* Includes pedestrian/bicycle crashes

Ped/Bike Crash Trends

(January 2008 to December 2018)



US 13, Scarborough Road to Puncheon Run Ped and Bike Crashes by Time of Day (January 2008 to December 2018)

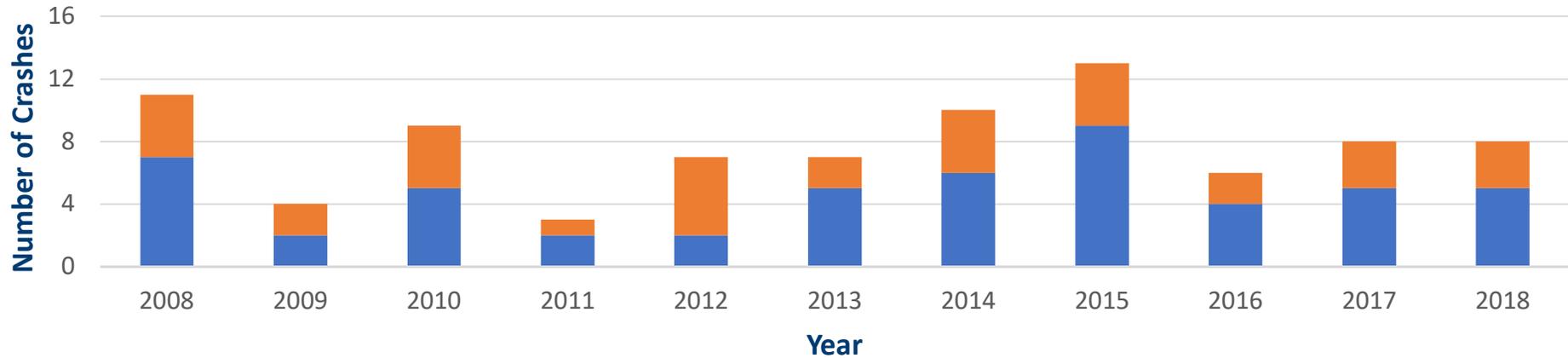


Ped/Bike Crash Trends

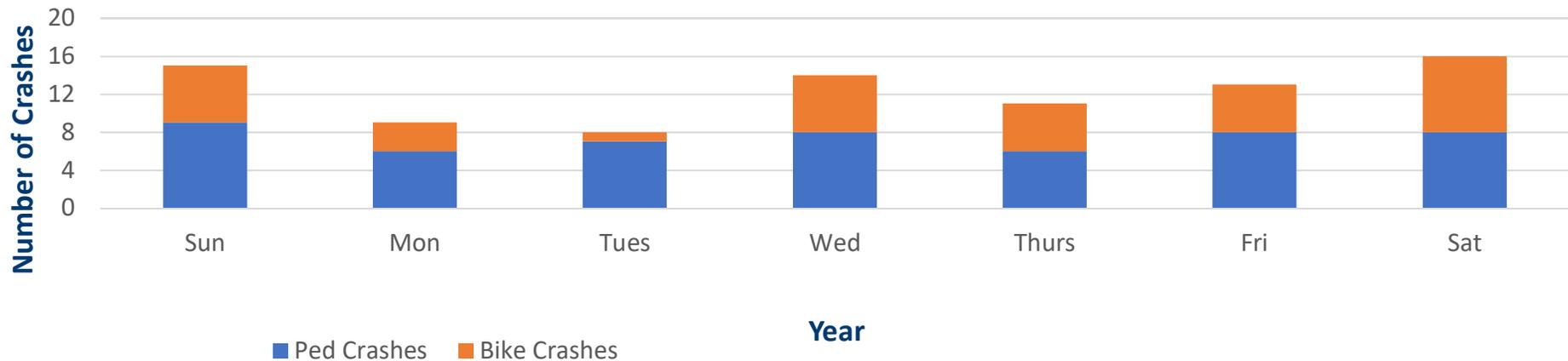
(January 2008 to December 2018)



US 13, Puncheon Run to Scarborough Road Ped and Bike Crashes by Year (January 2008 to December 2018)



US 13, Puncheon Run to Scarborough Road Ped and Bike Crashes by Day of Week (January 2008 to December 2018)

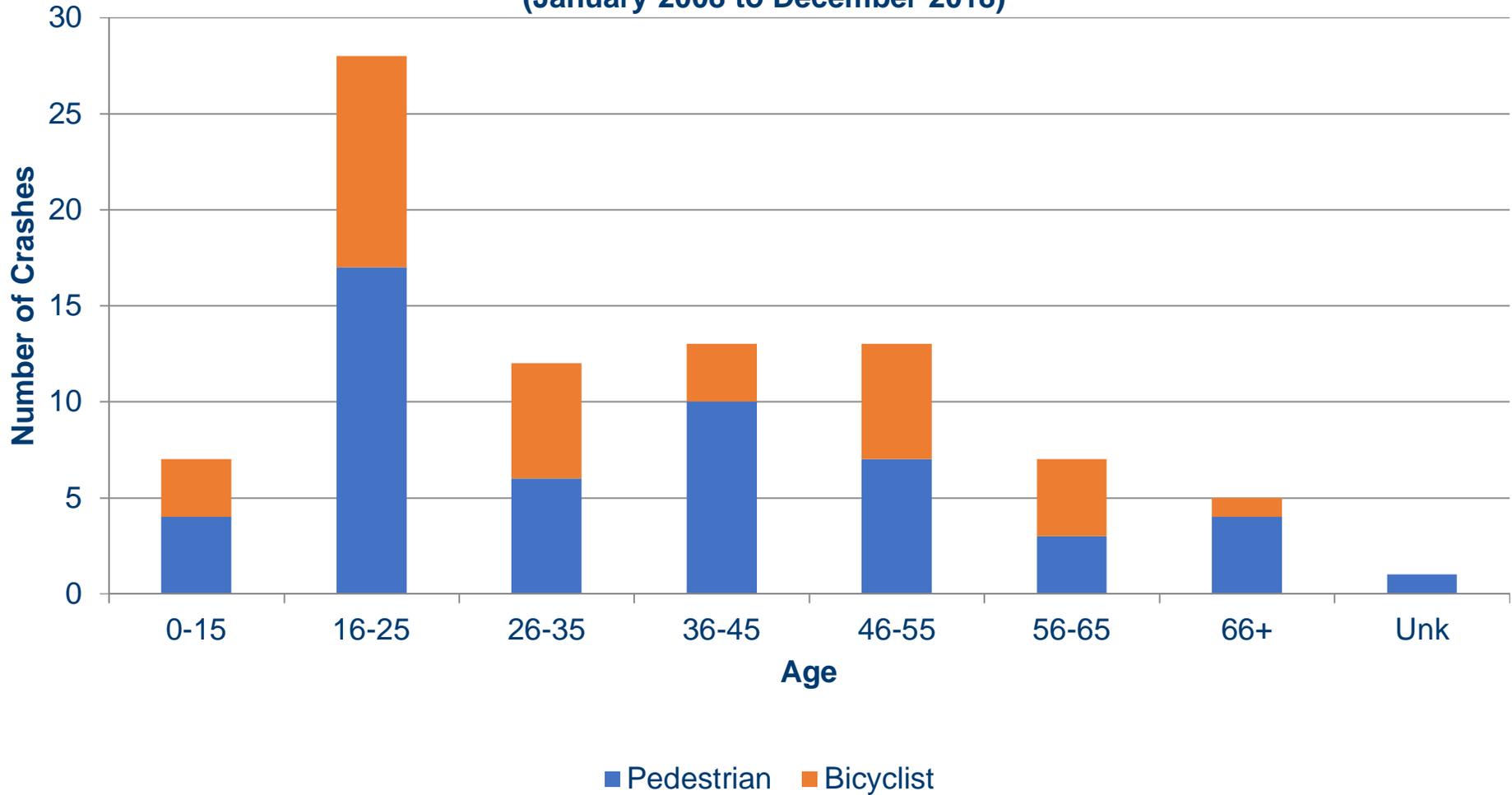


Ped/Bike Crash Trends

(January 2008 to December 2018)



US 13, Puncheon Run to Scarborough Road
Ped and Bike Crashes by Age of Pedestrian/Bicyclist
(January 2008 to December 2018)



Field Meeting

- Held March 22, 2019
- Stakeholders
 - DeIDOT Traffic
 - DeIDOT Planning
 - DeIDOT PAR/ADA
 - OHS
 - DSP
 - DTC
 - FHWA
 - Bike Delaware
 - Dover/Kent MPO
 - City of Dover
- Identified potential pedestrians improvements at focus areas based on a review of Existing Condition figures and field conditions
- Field meeting outcomes used to guide this study's assessments



Field Meeting Focus Areas



- Ordered from South to North
 - Represent 85% of all ped/bike crashes in corridor
- Lotus Street to Evergreen Drive
 - 2 pedestrian crashes (1 resulted in a fatality)
 - 2 bicycle crashes
 - All crashes occurred during 8-month period from July 2015 to March 2016
- Loockerman Street
 - 4 pedestrian crashes (1 resulted in a fatality)
 - 2 bicycle crashes
 - 5 of 6 crashes occurred at nighttime
- Centre Drive to White Oak Road/Kings Highway
 - 11 pedestrian crashes
 - 3 bicycle crashes
 - 4 hotels and several restaurants
 - High number of midblock crossings observed

Field Meeting Focus Areas



- North of Leipsic Road/N. State Street to Lepore Drive
 - 6 pedestrian crashes
 - 6 bicycle crashes
 - High number of midblock crossings observed (especially during NASCAR observations)
- Dover Downs to College Road
 - 1 pedestrian crash (resulted in a fatality)
 - 8 bicycle crashes (1 resulted in a fatality)
 - Bicyclist “at-fault” in 5 of 8 bicycle crashes
- Delaware State University
 - 6 pedestrian crashes
 - 1 bicycle crash
 - 5 of 6 pedestrian crashes occurred at nighttime
 - 3 of 6 pedestrian crashes involved a pedestrian crossing outside the signalized crosswalk

- Rustic Lane to Dover Mall Entrance – North
 - 8 pedestrian crashes (3 resulted in a fatality)
 - 3 bicycle crashes (1 resulted in a fatality)
 - 6 of 11 crashes occurred at nighttime
 - 5 of 11 crashes involved an impaired pedestrian or bicyclist
- Holiday Boulevard to Cedar Chase Drive
 - 3 pedestrian crashes
 - 3 bicycle crashes
 - Immediately south of Scarborough Road exit from SR 1 (change in driving environment)

RELEVANT PROJECTS

Relevant Projects



- US 13 Corridor Lighting Improvements
 - Lighting analysis and design currently underway
 - Purchasing new luminaires for City of Dover to install on utility poles
 - Additional lighting being installed at US 13 and Scarborough Road
- Corridor Signal Retiming along US 13 implemented in June, 2017
- US 13 @ Delaware State University Signal Improvements
 - Convert side street to split phasing to address pedestrian safety
 - Currently in construction
- US 13 Dover Sidewalks (T201601201)
 - Continuous sidewalk along east side of US 13 from Townsend Blvd. to Leipsic Road
 - Currently in construction
- Crawford Carroll Avenue Extension (T201609502)
 - Extends Crawford Carroll Avenue to the south behind Lowes and connects to US 13 at the northern Dover Mall access point
 - Currently in design

- Developer Projects
 - Capitol Station
 - West side of US 13, north side of Division Street
 - Currently under construction
 - Lidl
 - West side of US 13, south of White Oak Road
 - Berry Van Lines Property (aka Dover Commons)
 - East side of US 13, south side of Leipsic Road
 - Various plan submissions
 - Nothing currently active

CORRIDOR-WIDE CONSIDERATIONS

- Continuous sidewalk/shared-use paths
 - Gaps in sidewalk throughout corridor
 - Developer improvements where possible
- Access management
 - Coordination with Development Coordination and City of Dover
 - Incorporate into redevelopment plans
- Bus stop improvements
 - Bus stop assessment underway
 - Coordination with DTC
 - Possible addition of stops within southern limits of study area

- Reduced lane widths throughout study area
 - Consistent design
 - Consistent posted speed limit
 - Reduction in speeds
 - Speed studies underway
- Road diet – suggested by member of field audit team
 - 4 lanes with bus/bike/right-turn lane
 - Analysis underway
 - Would require extensive stakeholder coordination
- Barrier assessment
 - Minimize uncontrolled midblock crossings
 - Median or edge of road

LOCATION-SPECIFIC ASSESSMENTS (ONGOING)

- US 13 @ Rustic Lane
 - Consideration of ped crossings on all four approaches
- US 13 @ Del State Univ.
 - Consider adding fourth crosswalk across northern leg
- US 13 @ Lepore Road
 - Consider signaling northbound US 13 in order to provide a signalized pedestrian crossing across US 13
- US 13, Lake Club Apartments to White Oak Road
 - Access management
 - Consider addressing midblock crossings
 - Fourth crosswalk at White Oak Road
 - Geometry improvements at White Oak Road to minimize crossing distances

- US 13 @ Bay Road/MLK Blvd.
 - Pedestrian barrier assessment
 - Consider fourth leg crosswalk at Bay Road/MLK Blvd.
- US 13 @ Roosevelt
 - No existing pedestrian accommodations
 - Consider crosswalks on all four legs of intersection
- US 13 @ S. State St.
 - No existing pedestrian accommodations
 - Consider crosswalks on all four legs of intersection

NEXT STEPS

Next Steps

- Location assessments currently underway
- Coordination meetings to be held:
 - DTC
 - Dover Police
- Complete studies and document results by end of 2019.
- Present findings to stakeholders – early 2020
- Being implementing improvements – early 2020

STATEWIDE ORIGIN/DESTINATION DATA ASSESSMENT

Pedestrian O-D Data Review



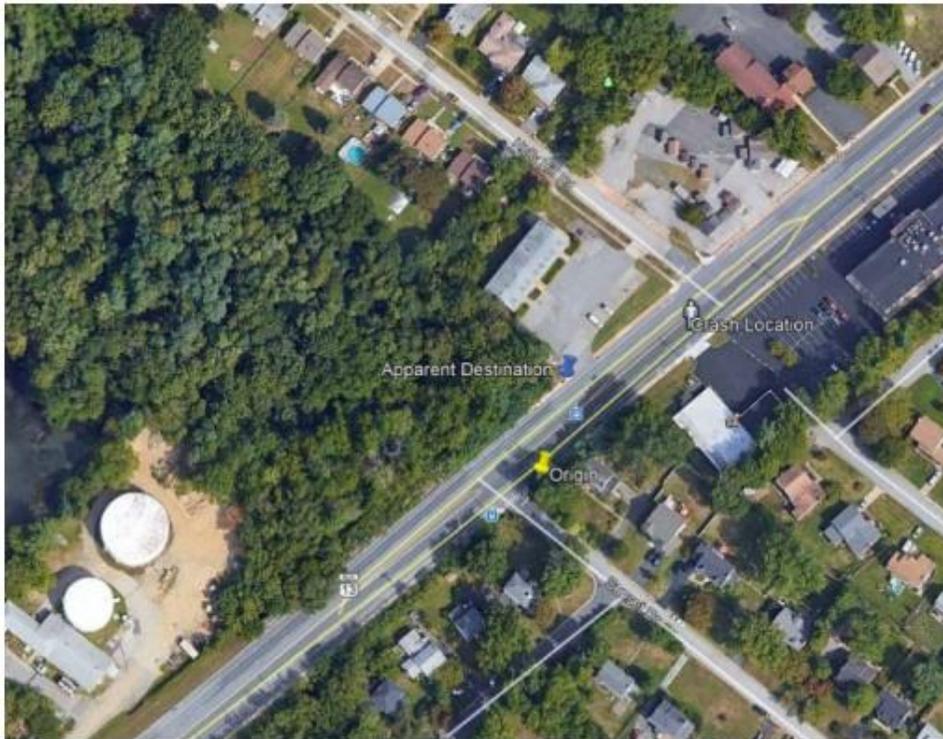
- Crash report updated in 2017 with two new data fields
 - Originating Destination
 - Arriving Destination
- OHS reviewed compliance with data fields
- WRA reviewed 48 fatal pedestrian crashes from 2017 and 2018
 - Origin and destination provided in 20 records
 - Data found to be “useful” in 7 crash records
 - Origin only was provided in 16 records
 - No information provided in 12 records

- Examples of “useful” origin and destination data inputs
 - *Origin – “Parking lot of Fairfax Shopping Center (area of Walgreens)”*
 - *Origin – “Pedestrian exited a DART bus on Philadelphia Pike northbound just south of Holly Hill Road”*
 - *Origin – “Sidewalk on the south side of Walker Road across the street from 767 Walker Rd, Dover, DE 19904”*
 - *Destination – “Walking to Christina Meadows to pick up vehicle from family member”*
 - *Destination – “Pedestrian ran across roadway to catch another DART bus on Philadelphia Pike southbound just south of Holly Hill Road when pedestrian was struck”*
 - *Destination – “Home Instead Senior Care, located at 755 Walker Rd Suite A, Dover, DE 19904”*
- Plotted crash location, origin and destination in Google Earth
 - Purpose – determine if conclusions could be drawn from the data

Pedestrian O-D Data Review



- Example of “Useful” O-D Information



Crash 3

Complaint: 01-17-134121

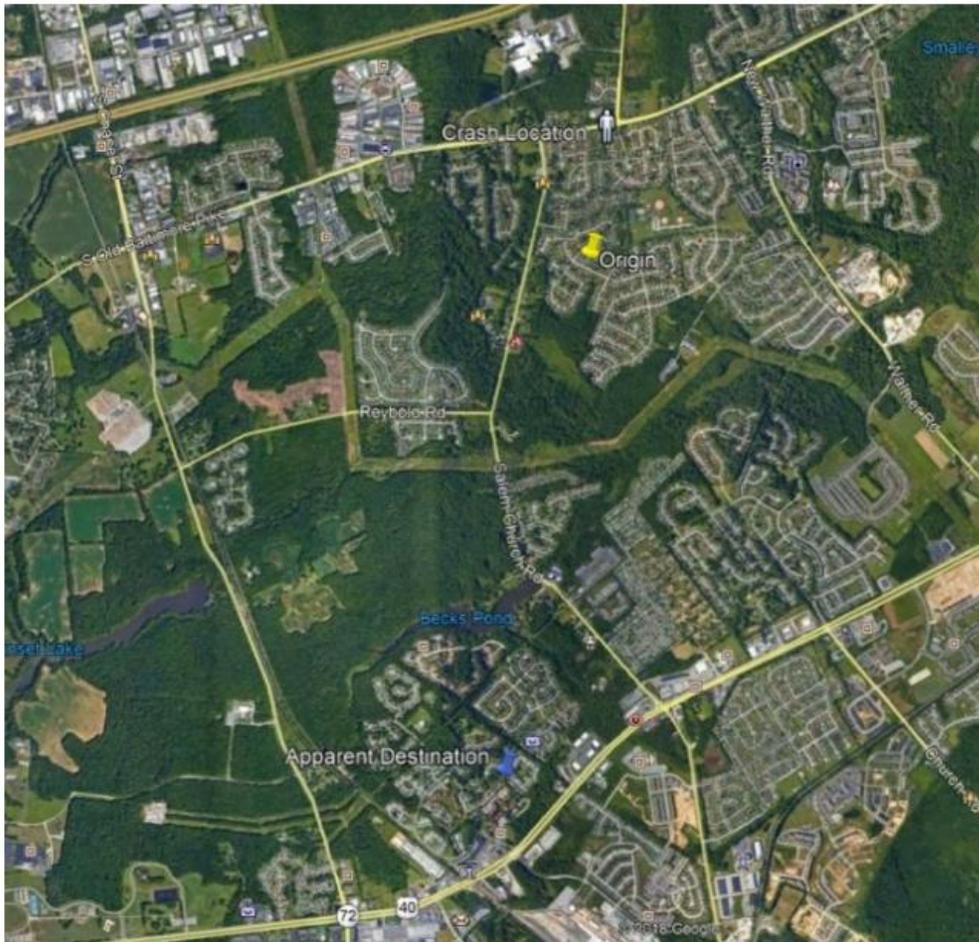
Crash Location: Philadelphia Pike, south of Holly Hill Road

Origin: Pedestrian exited a DART bus on Philadelphia Pike northbound just south of Holly Hill Road

Destination: Pedestrian ran across roadway to catch another DART bus on Philadelphia Pike southbound just south of Holly Hill Road when pedestrian was struck.

Conclusion: Good information from origin and destination. Analyst now knows why pedestrian crossed midblock and that a DART bus stop was involved. Countermeasures could focus on information about crossing locations at the bus stop and/or information messages about crossing safely when alighting bus. Could consider bus stop relocation with this data as well.

- Example of “Not Useful” O-D Information



Example 1

Complaint: 02-17-003766

Crash Location: Old Baltimore Pike

Origin: Left parents house at 319 Jaymar Blvd., Newark, DE

Destination: Possibly walking to 3010 Kildoon Drive, Newark, DE 19702

Conclusion: Cannot draw conclusion about pedestrian's path based on origin and destination.

Pedestrian O-D Data Review



- **Conclusions**

- Data fields not being used as intended
- Likely reasons:
 - Lack of witnesses to provide information
 - Need for increased training regarding use of data fields
 - Time required to complete crash reports along with other competing priorities

- **Recommendations**

- Continue use of data fields and improve compliance/data reliability
 - Change the name of the data fields to “Origin” and “Apparent Destination”
 - Provide Tool Tip within E-Crash for each field
 - Additional law enforcement training, especially locals
 - Prepare one-page “training” handout to officers
 - Continue reviewing data trends and monitoring data quality

THANK YOU!

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WRA

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