FEDERAL RAILROAD ADMINISTRATION
RAILROAD CROSSING ELIMINATION GRANT PROGRAM

CSX/SEPTA GRADE CROSSING STUDY
Public Meeting Presentation

Woodbourne Road and Township Line Road / Big Oak Road
Middletown and Lower Makefield Townships
Bucks County, PA

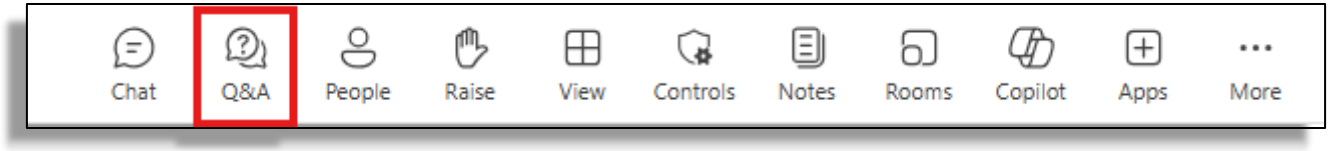
November 23, 2026

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RECORDING CONSENT

This session is being recorded. By participating in this session, you are consenting to the recording, retention, and use of this session.

At any time if you have a question or comment, feel free to place that in the Q&A, and we will respond to you as soon as possible. Please note that by doing so, you are consenting to the recording, retention, and use of your statements as part of this session.



PUBLIC MEETING AGENDA

- Welcome and Introductions
- Overview of Study & Crossings
- Potential Improvements
- FRA Grant Funding
- Next Steps
- Stakeholder Input



KEY PARTNERS

- Federal Railroad Administration (FRA)

- PennDOT Bureau of Rail, Freight, Ports and Waterways
  - Program Management Consultants: KCI and Envision Consultants, Ltd.
  - Project Design Consultants: GFT Infrastructure, Inc. and Redstone Technologies LLC.

- Key Project Stakeholders
  - Railroads: CSX Transportation
    Southeastern Pennsylvania Transportation Authority (SEPTA)
  - Local Governments: Bucks County, Middletown and Lower Makefield Townships
  - Delaware Valley Regional Planning Commission (DVRPC)

U.S. Department of Transportation
Federal Railroad Administration

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CSX

SEPTA

TOWNSHIP OF MIDDLETOWN
ESTABLISHED 1686

TOWNSHIP OF LOWER MAKEFIELD
BUCKS COUNTY, PENNSYLVANIA

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

STUDY OVERVIEW – FRA RR CROSSING GRANT PROGRAM

- In 2022, the Federal Railroad Administration (FRA) announced the Railroad Crossing Elimination Grant Program to provide funding for highway-railroad grade crossing improvement projects that focus on improving safety and mobility of people and goods.

- PennDOT was awarded a Fiscal Year (FY) 2022 Railroad Crossing Elimination Program grant to analyze three (3) crossings in the Philadelphia region:

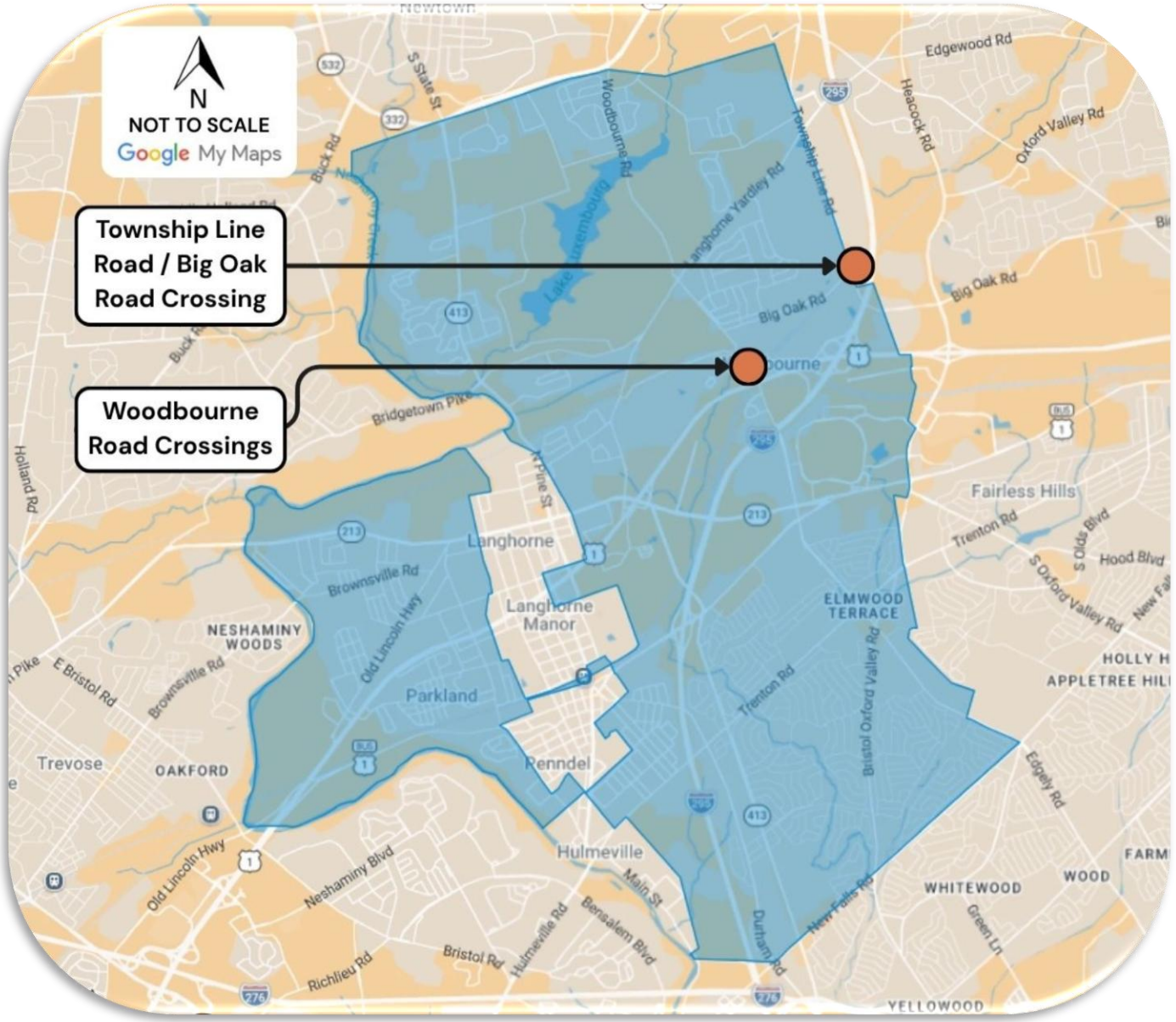
Woodbourne Road

Township Line Road / Big Oak Road

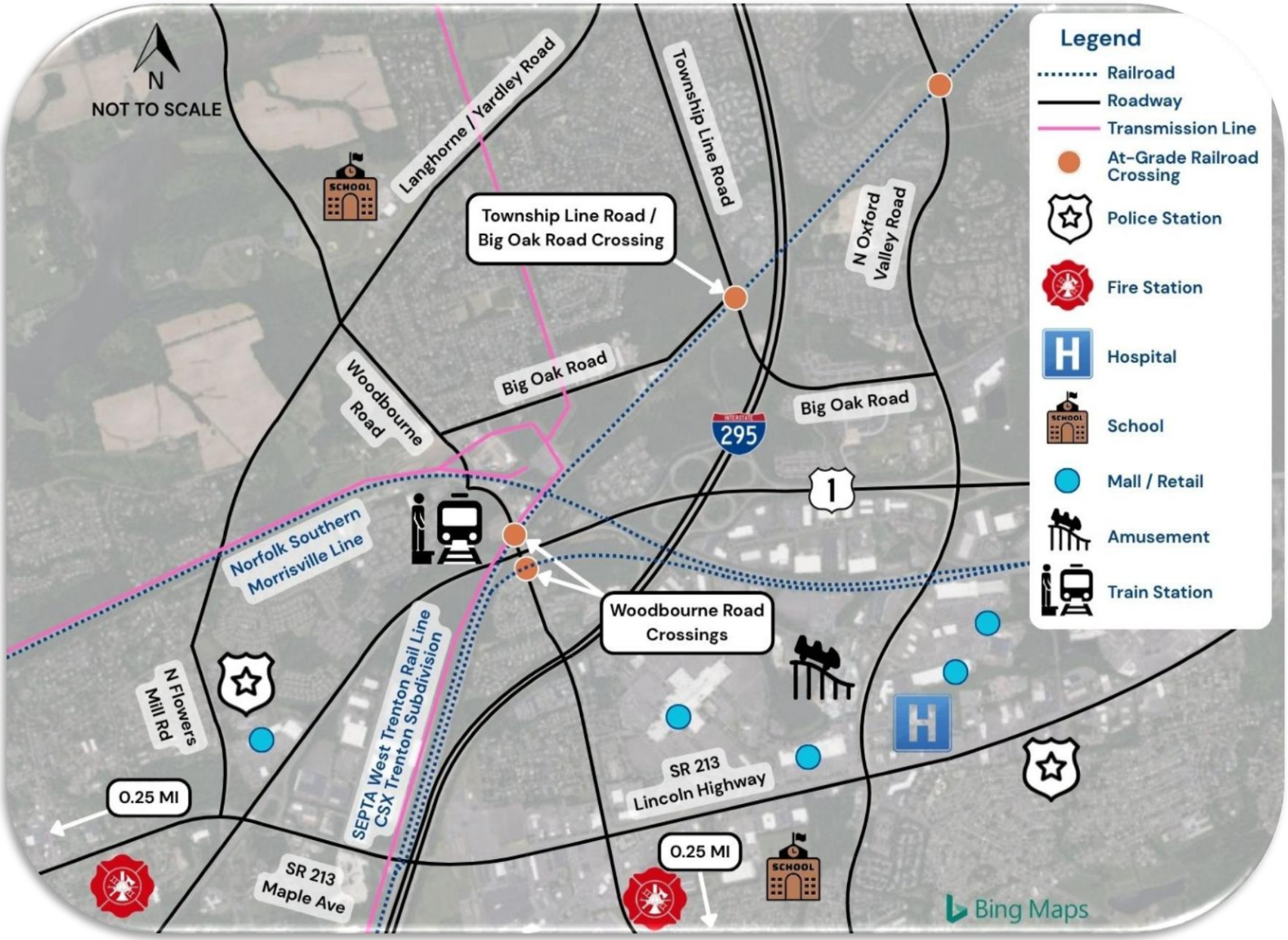
Meetinghouse Road (Delaware County)



OVERVIEW – MIDDLETOWN TOWNSHIP



LOCAL OVERVIEW



STUDY OVERVIEW – BACKGROUND CONDITIONS

- AI-Powered Camera Analysis has Confirmed…
  - Consistent Roadway Congestion
  - Frequent and Extended Crossing Activations
  - Perceived Gate Malfunctions



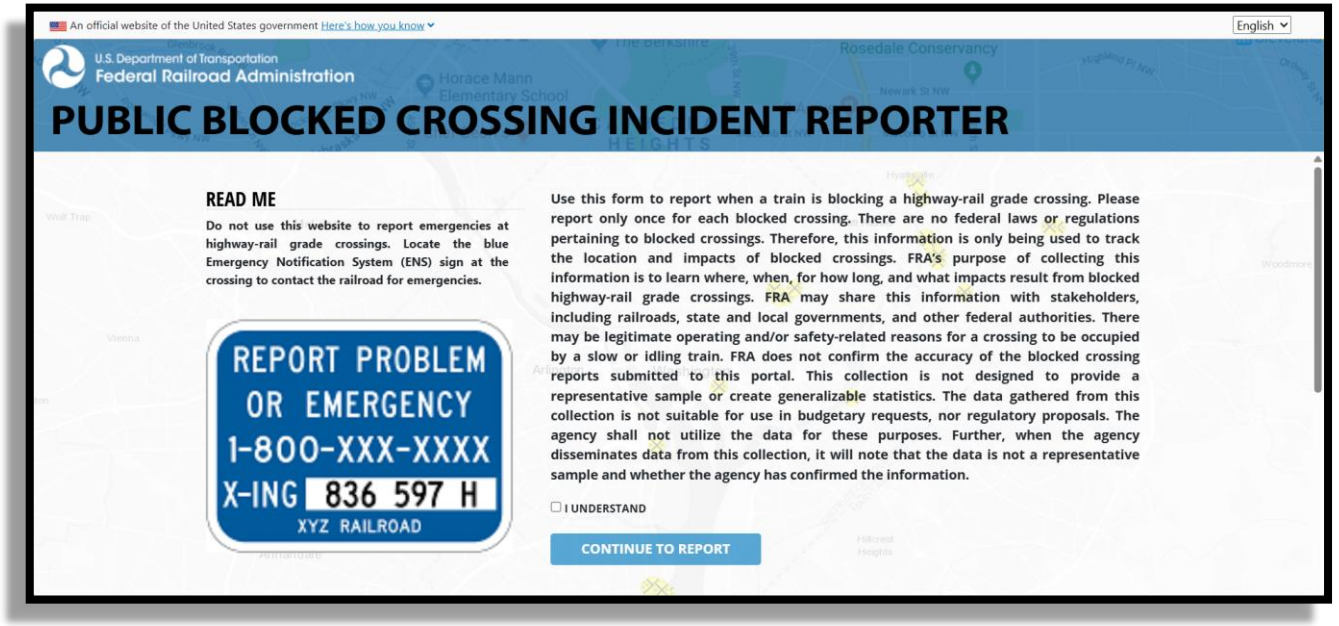
- Railroads have priority at crossings, there are no federal laws or regulations pertaining to blocked crossings.
- Overall, the delays impact residents, local businesses, and first responders.





FRA PUBLIC BLOCKED CROSSING INCIDENT REPORTER

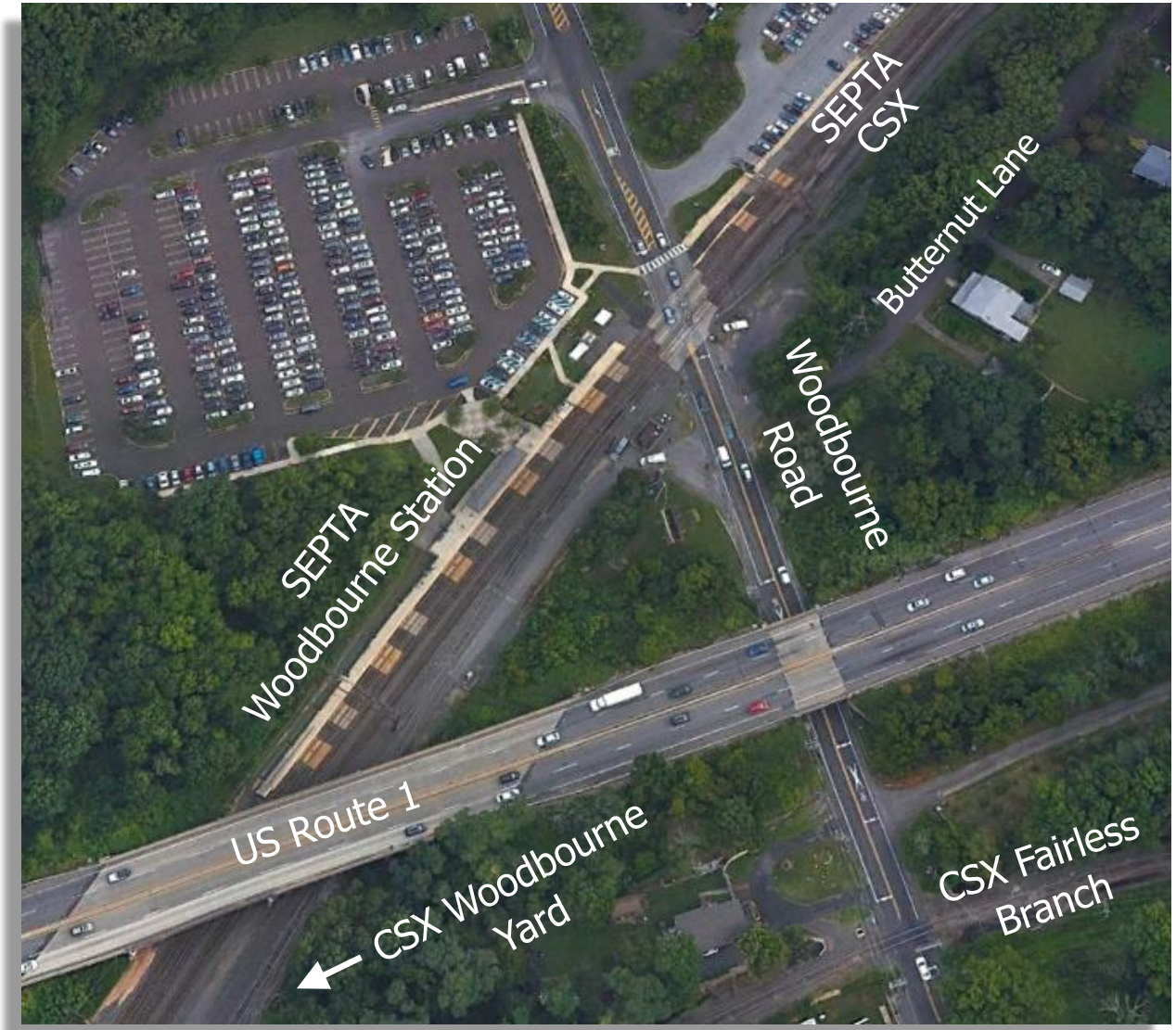
- Since late 2019, the Federal Railroad Administration (FRA) has collected public reports of blocked crossings
  - https://www.fra.dot.gov/blockedcrossings/
- Woodbourne Road has been reported to the FRA 136 times*, significantly more than any other crossing in Pennsylvania
- Woodbourne Road is the 129th most reported crossing nationwide out of 242,821 crossings tracked (99.95th percentile)



* Data as of September 24, 2026

STUDY OVERVIEW – WOODBOURNE ROAD

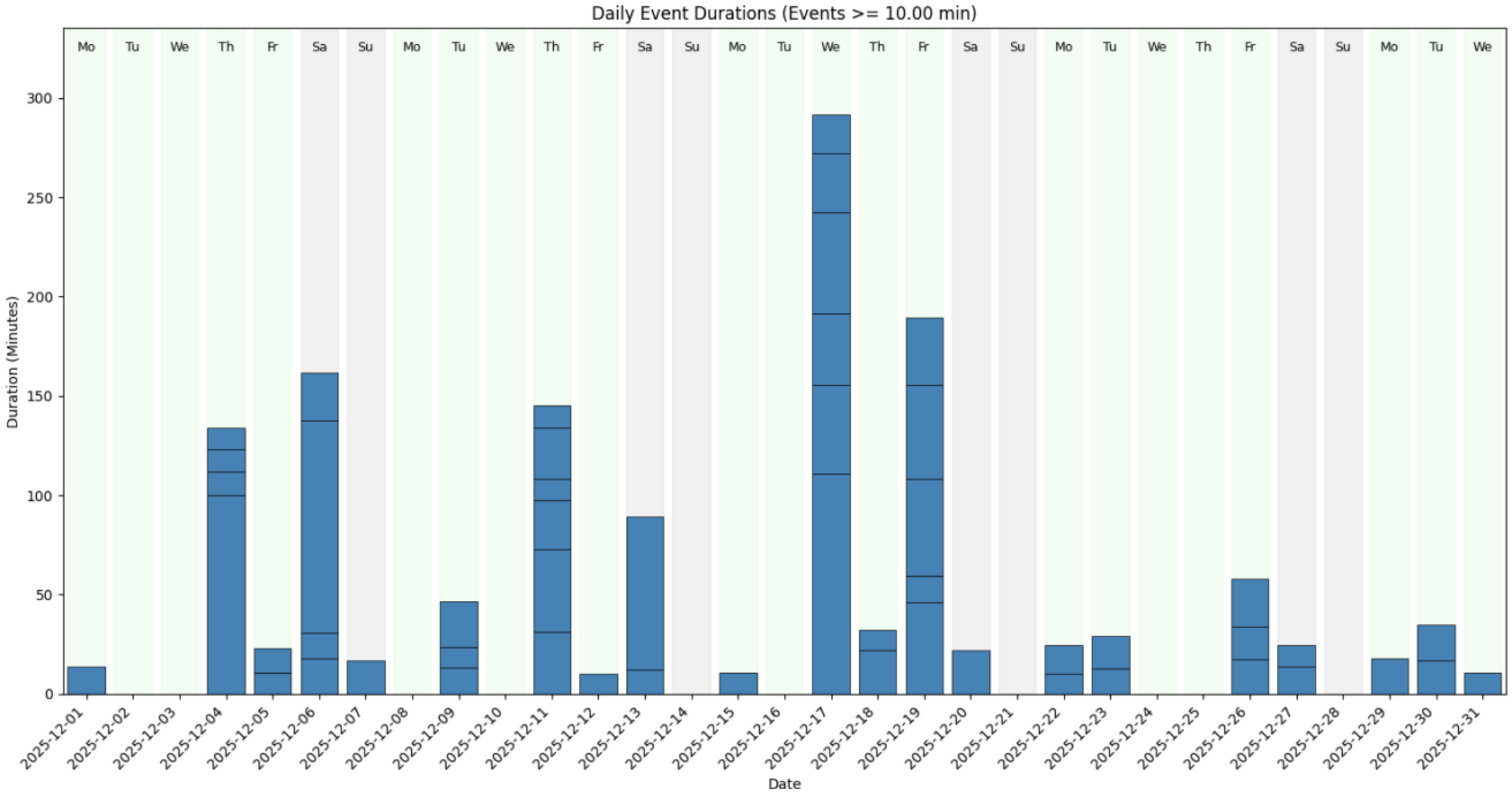
- Woodbourne Road (SR 2033)
  - Middletown Township
  - Crossing DOT #589964G
- Three (3) Track Crossing
  - 2 Tracks SEPTA West Trenton Line
  - 1 Track CSX Trenton Subdivision
- CSX Fairless Branch Crossing ~500’ South
- Known Reasons For Crossing Blockages:
  - Passenger Train Operations
  - SEPTA’s Woodbourne Station
  - Freight Rail Operations
  - CSX Woodbourne Yard 0.15 Mile Southwest
  - CSX Fairless Branch Connector Crossing



WOODBOURNE ROAD – CROSSING OBSERVATIONS

Woodbourne Road Crossing Signal Activations: July 1 – December 31, 2025	
Days of Live Video Analyzed	184
Average Daily Vehicle Traffic	11,624
Total Signal Activations Observed	8,304
Total Motorist Signal Violations	2,738
Average Signal Activations Per Day	45
Average Signal Activations Per Weekday	50
Average Signal Activations Per Weekend Day	32
Monthly Activations > 10 Minutes	53

WOODBOURNE ROAD – DECEMBER 2025 ACTIVATIONS



STUDY OVERVIEW – TOWNSHIP LINE ROAD / BIG OAK ROAD

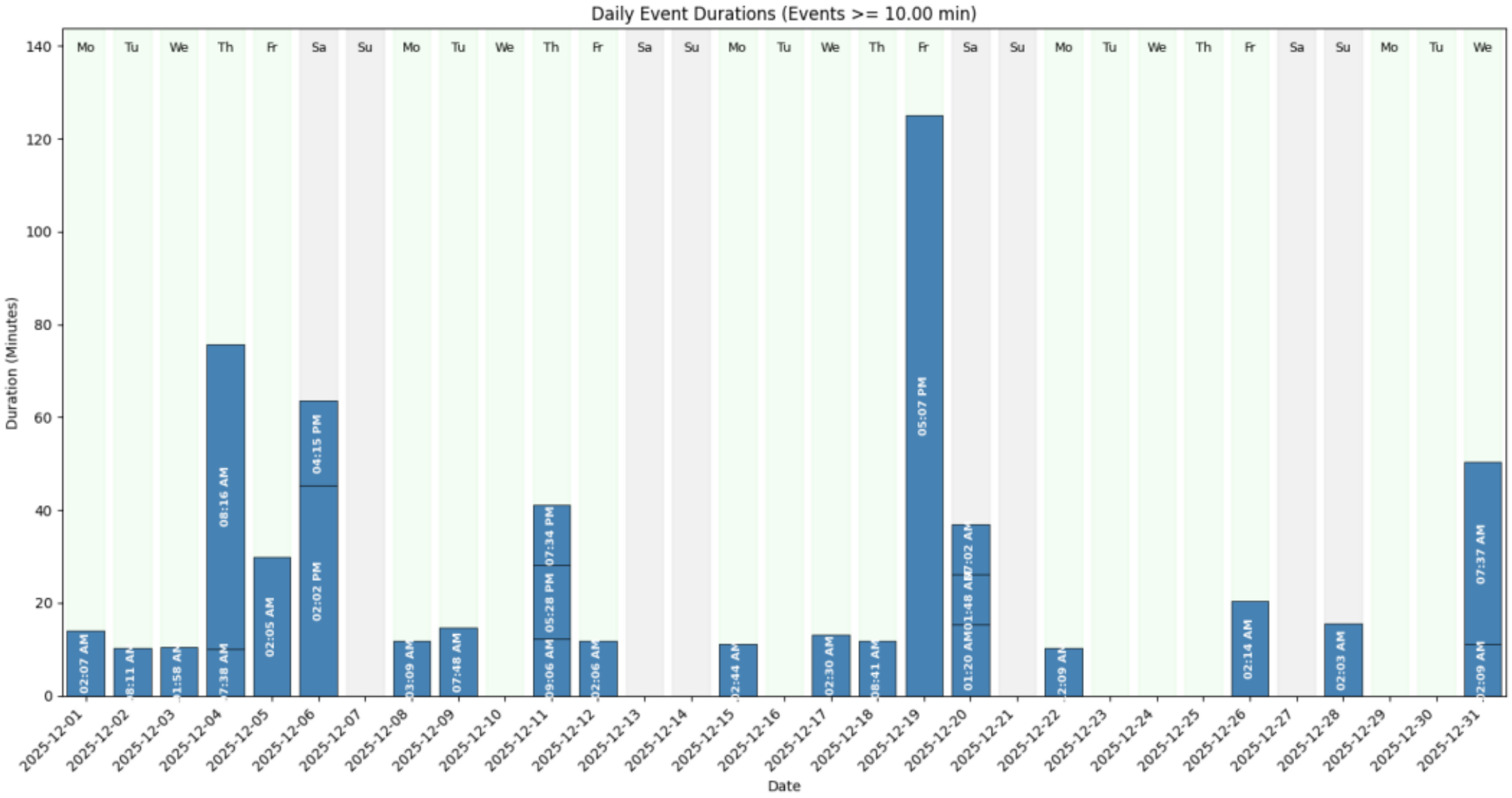
- Township Line Road / Big Oak Road
  - Middletown Township
  - Lower Makefield Township
  - Crossing DOT #589731K
- Three (3) Track Crossing
  - 2 Tracks SEPTA West Trenton Line
  - 1 Track CSX Trenton Subdivision
- Complicated Road Intersection
- Known Reasons For Crossing Blockages:
  - Passenger Train Operations
  - Freight Rail Operations
  - CSX Woodbourne Yard; 1.2 Miles Southwest



TOWNSHIP LINE ROAD / BIG OAK ROAD – CROSSING OBSERVATIONS

Township Line Road / Big Oak Road Crossing Signal Activations: July 1 – December 31, 2025	
Days of Live Video Analyzed	184
Average Daily Vehicle Traffic	11,854
Total Signal Activations Observed	8,073
Total Motorist Signal Violations	1,913
Average Signal Activations Per Day	44
Average Signal Activations Per Weekday	49
Average Signal Activations Per Weekend Day	31
Monthly Activations > 10 Minutes	21

TOWNSHIP LINE RD / BIG OAK RD – DECEMBER 2025 ACTIVATIONS



ALTERNATIVES ANALYSIS – OPPORTUNITIES

- Potential Improvements Analyzed in Multiple Time Horizons
  - Short-Term (Less than 2 Year Implementation)
  - Mid-Term (2-5 Year Implementation)
  - Long-Term (More than 5 Year Implementation)
- Total grade separation is the only way to fully eliminate the potential for blocked crossings



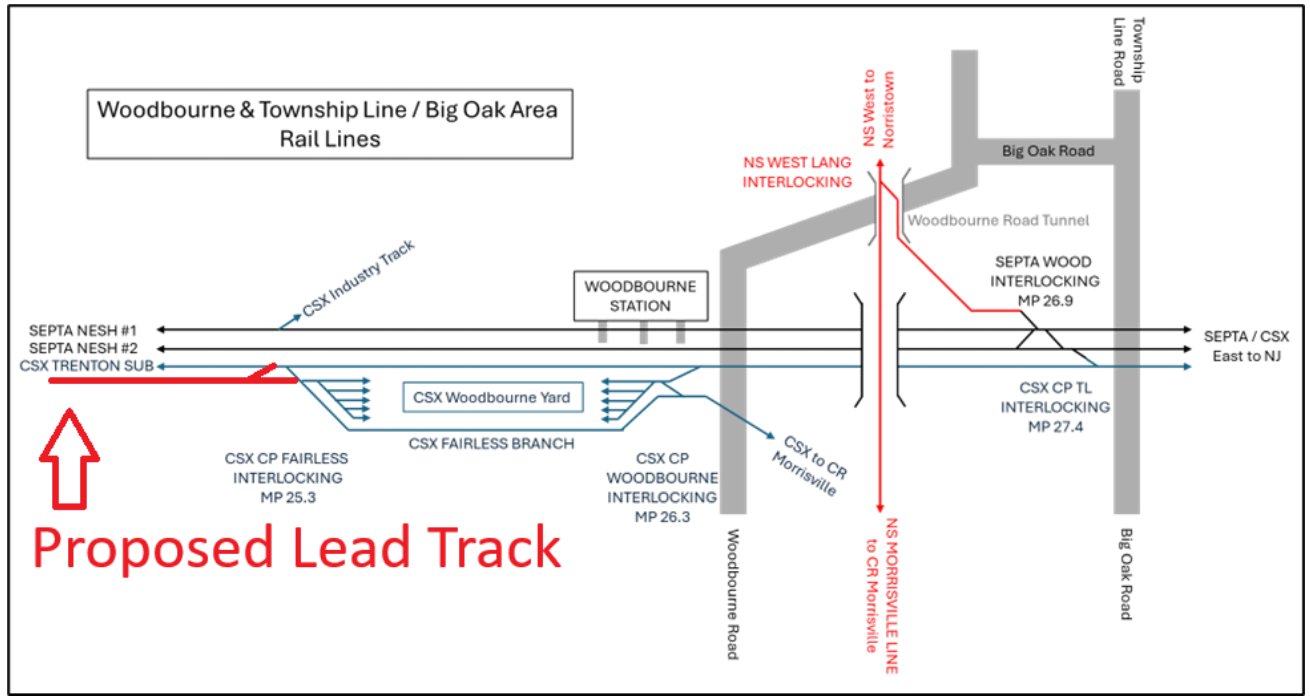
POTENTIAL IMPROVEMENTS – ACTIVATION INDICATORS

- Crossing Activation Indicators for Motorists
  - Shorter-Term Improvement
  - Provides relief by notifying motorists of blocked crossings
  - Relatively cost-effective and straightforward to install
    - Systems can be hard-wired, or AI camera-based.
    - Madison, AL initiated an AI camera-based pilot project in early 2026, which provides push notifications to residents when crossings are blocked
  - Only benefits drivers not yet in crossing queue
  - Unfamiliar drivers may not be familiar with detour routes
  - Alternative routes may not have the capacity to handle diverted traffic



POTENTIAL IMPROVEMENTS – LEAD TRACKS

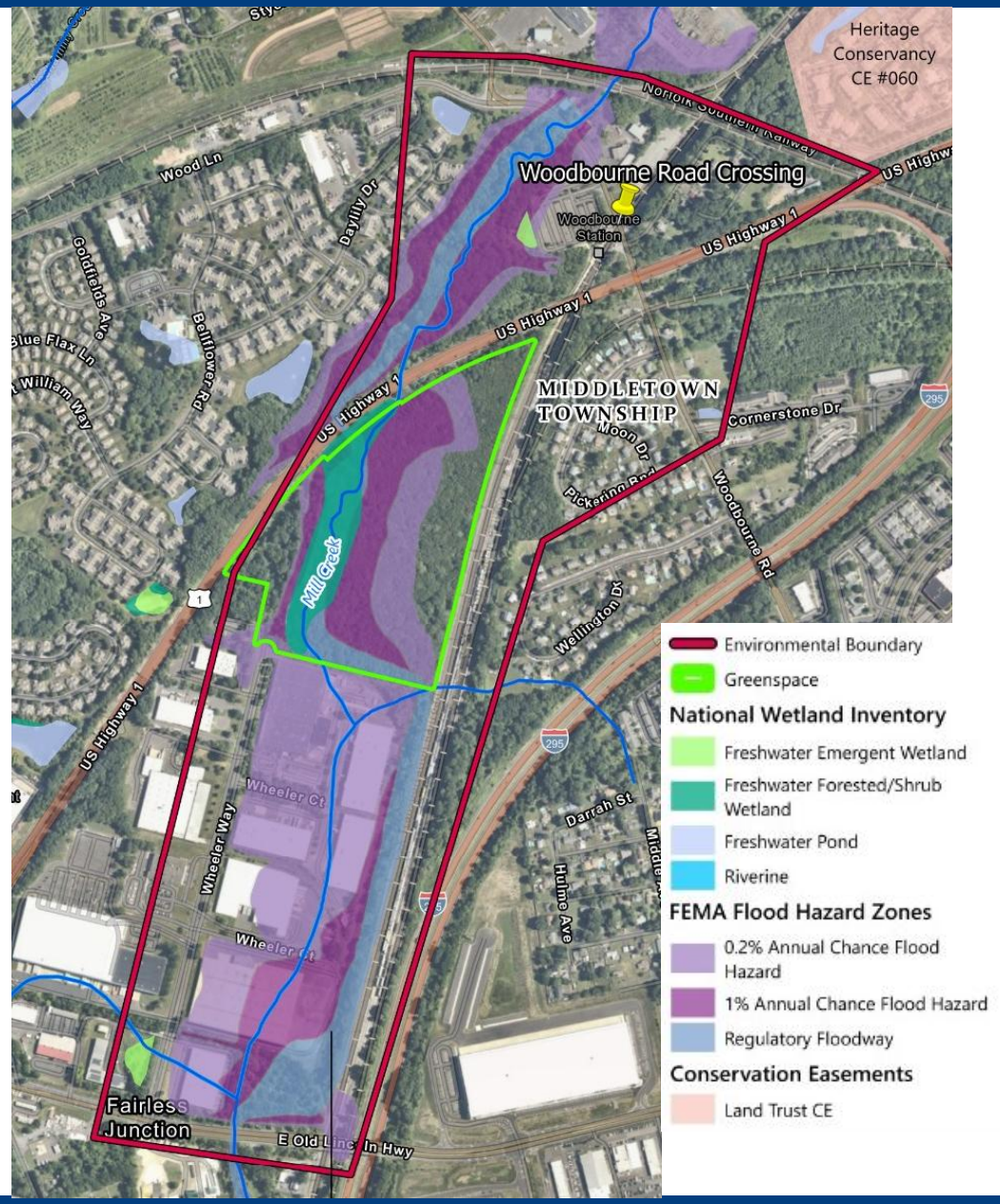
- West End Lead Track(s) at Woodbourne Yard
  - Mid-Term Improvement
  - Allows local freight trains to "switch" in Woodbourne Yard from the side opposite of Woodbourne Road Crossing
  - Needed for any highway grade separation scenarios that do not remove the Fairless Branch grade crossing
  - Reduces local train operations across Woodbourne Road, but not road trains



POTENTIAL IMPROVEMENTS – GRADE SEPARATION STUDY

- Full Grade Separation
- Long-Term Improvement
- Complicated and most expensive to implement
- If a grade separation project at Woodbourne Road does not separate the Fairless Branch crossing, West End Lead Track(s) at Woodbourne Yard will need to be constructed
- Over 20 alternatives were developed as part of this study, a focused set of the most practical alternatives are presented here for detailed consideration
  - 15+ alternatives were developed for Woodbourne Road
  - 5+ alternatives were developed for Township Line Road / Big Oak Road

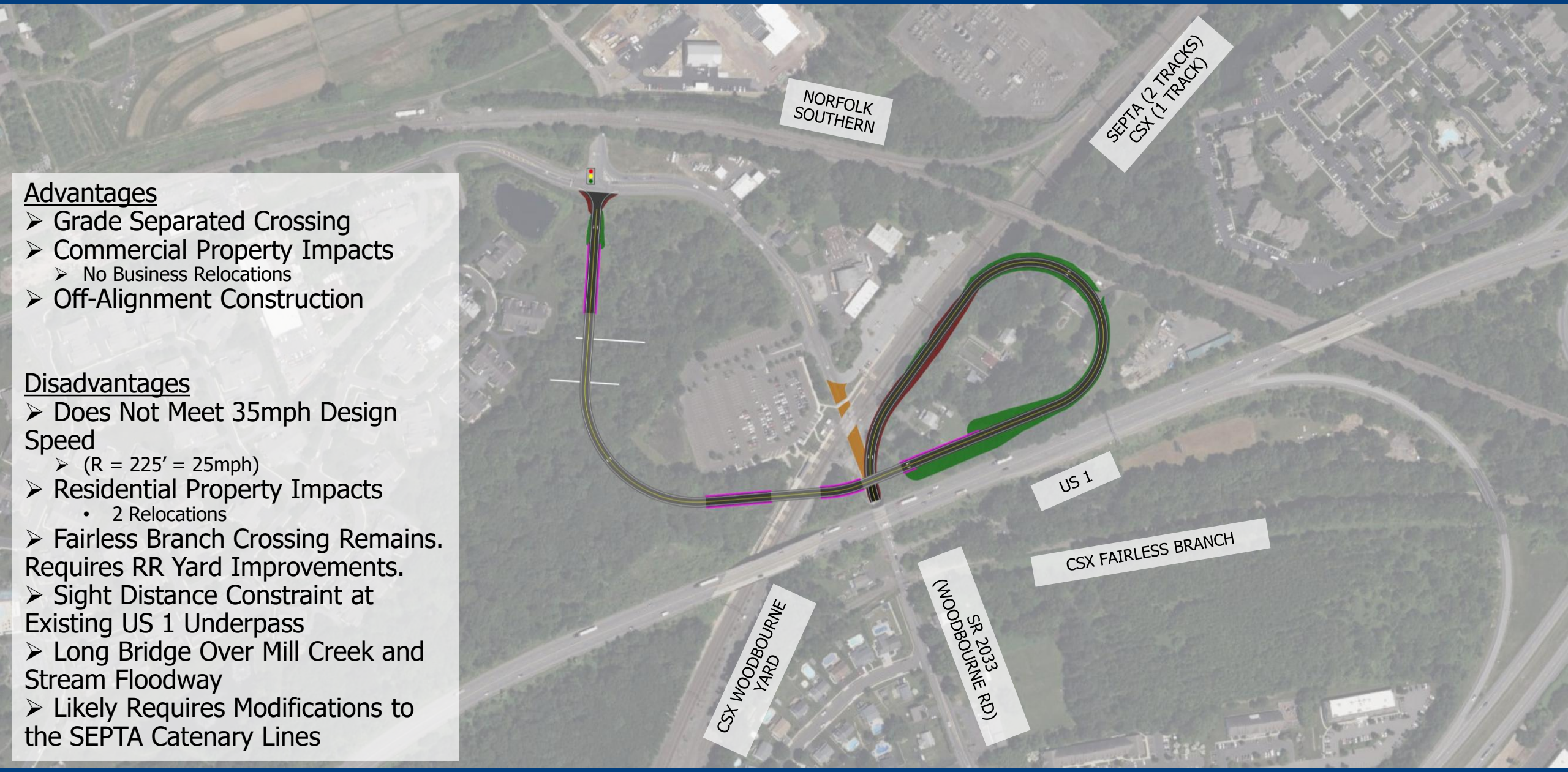
WOODBOURNE ROAD – ENVIRONMENTAL FEATURES



PRELIMINARY – For Study Purposes Only

Pennsylvania Department of Transportation

WOODBOURNE ROAD – STUDY ALTERNATIVE # 1



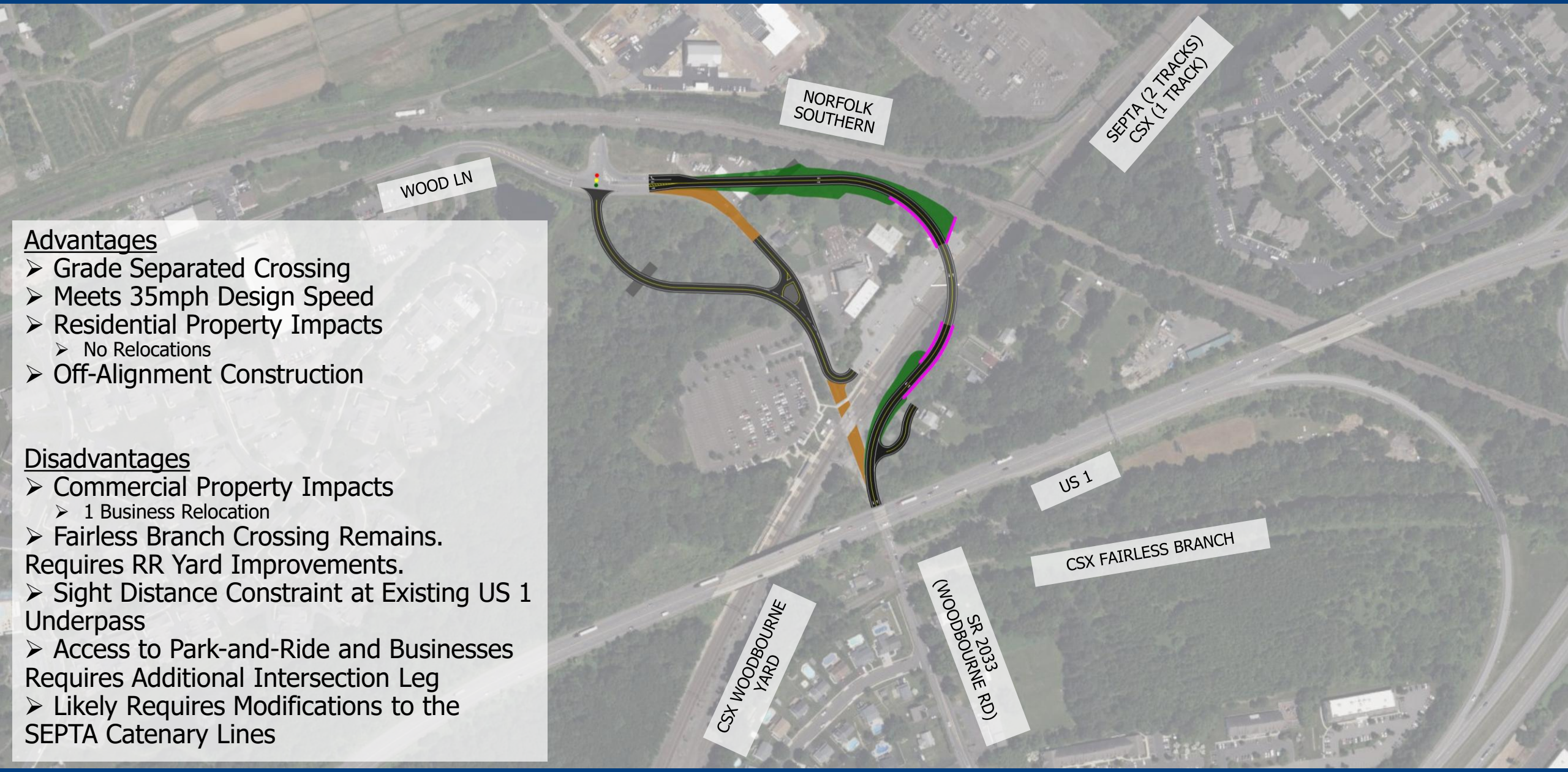
Advantages

- Grade Separated Crossing
- Commercial Property Impacts
  - No Business Relocations
- Off-Alignment Construction

Disadvantages

- Does Not Meet 35mph Design Speed
  - (R = 225' = 25mph)
- Residential Property Impacts
  - 2 Relocations
- Fairless Branch Crossing Remains. Requires RR Yard Improvements.
- Sight Distance Constraint at Existing US 1 Underpass
- Long Bridge Over Mill Creek and Stream Floodway
- Likely Requires Modifications to the SEPTA Catenary Lines

WOODBOURNE ROAD – STUDY ALTERNATIVE # 2



Advantages

- Grade Separated Crossing
- Meets 35mph Design Speed
- Residential Property Impacts
  - No Relocations
- Off-Alignment Construction

Disadvantages

- Commercial Property Impacts
  - 1 Business Relocation
- Fairless Branch Crossing Remains. Requires RR Yard Improvements.
- Sight Distance Constraint at Existing US 1 Underpass
- Access to Park-and-Ride and Businesses Requires Additional Intersection Leg
- Likely Requires Modifications to the SEPTA Catenary Lines

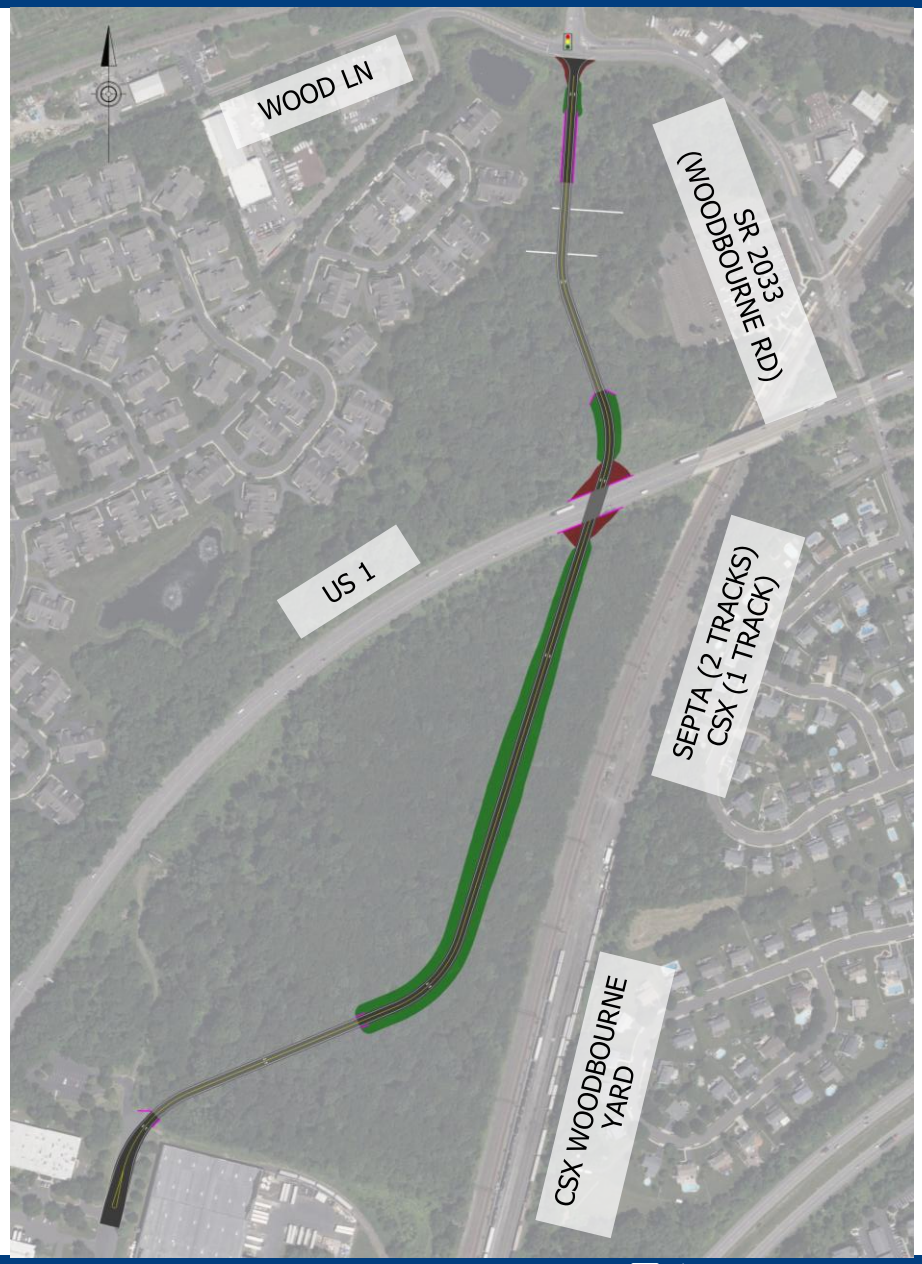
WOODBOURNE ROAD – STUDY ALTERNATIVE # 3

Advantages

- Eliminates Crossing of SEPTA/CSX and Fairless Branch Tracks
- Meets 35mph Design Speed
- Commercial Property Impacts
  - No Business Relocations
- Residential Property Impacts
  - No Relocations
- Off-Alignment Construction
- Does Not Require Modifications to the SEPTA Catenary Lines

Disadvantages

- Removes Forested Green Space
- Long Bridges Over Mill Creek and Stream Floodway / Significant Stream and Wetland Impacts
- Routes Woodbourne Road Traffic Through the Bucks County Business Park
- Additional Vehicles Along PA 213 Including Turn Lanes
- Likely Requires Longer Signal Phases Along PA 213
- New Bridge on US 1 (Woodbourne Rd Passes Beneath US 1)

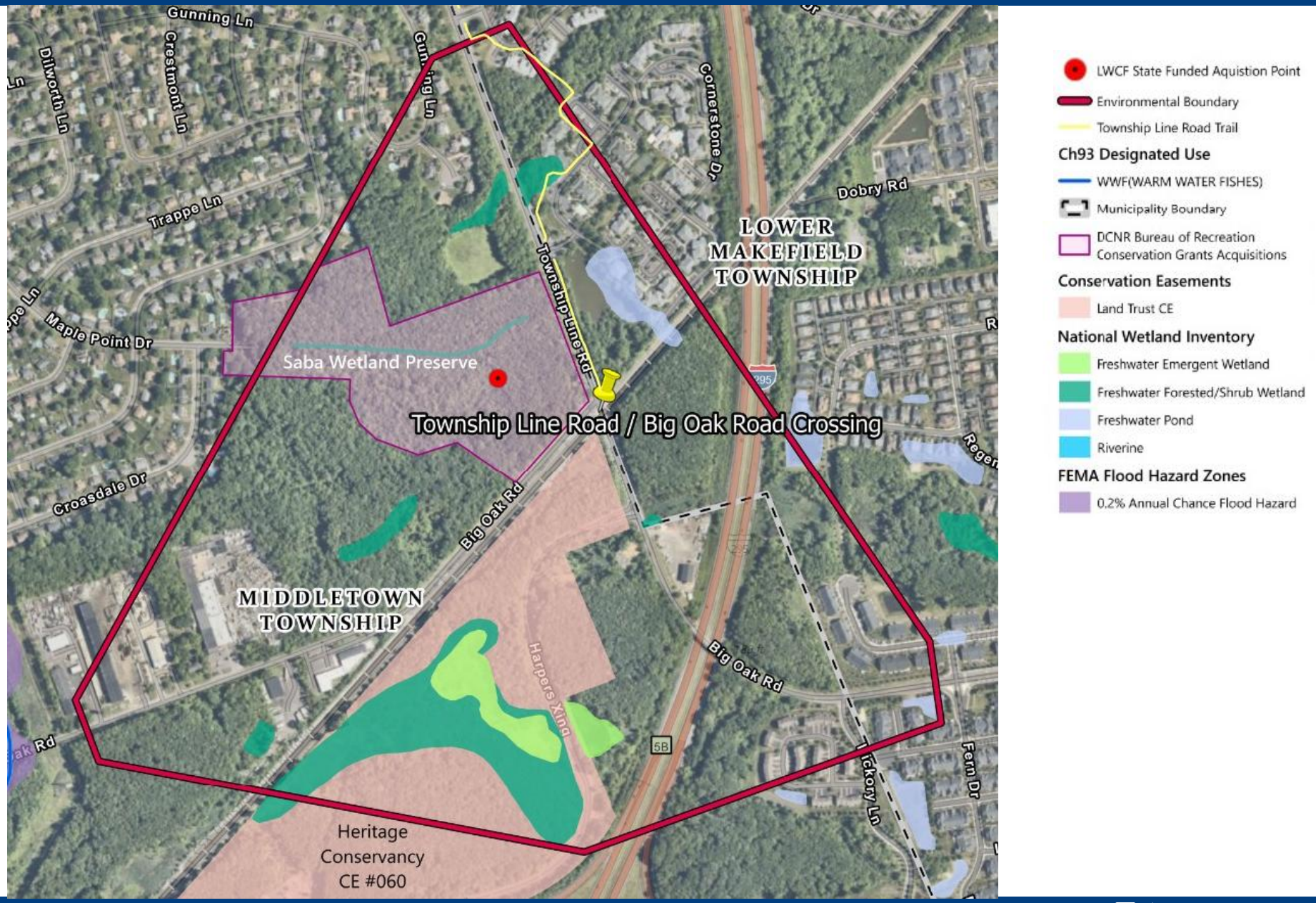


WOODBOURNE ROAD – ESTIMATED TOTAL PROJECT COST

Study Alternative	Estimated Total Project Cost
Woodbourne Road – Alternative 1	$115 - $120 M
Woodbourne Road – Alternative 2	$75 - $80 M
Woodbourne Road – Alternative 3	$60 - $65 M



TOWNSHIP LINE RD / BIG OAK RD – ENVIRONMENTAL FEATURES



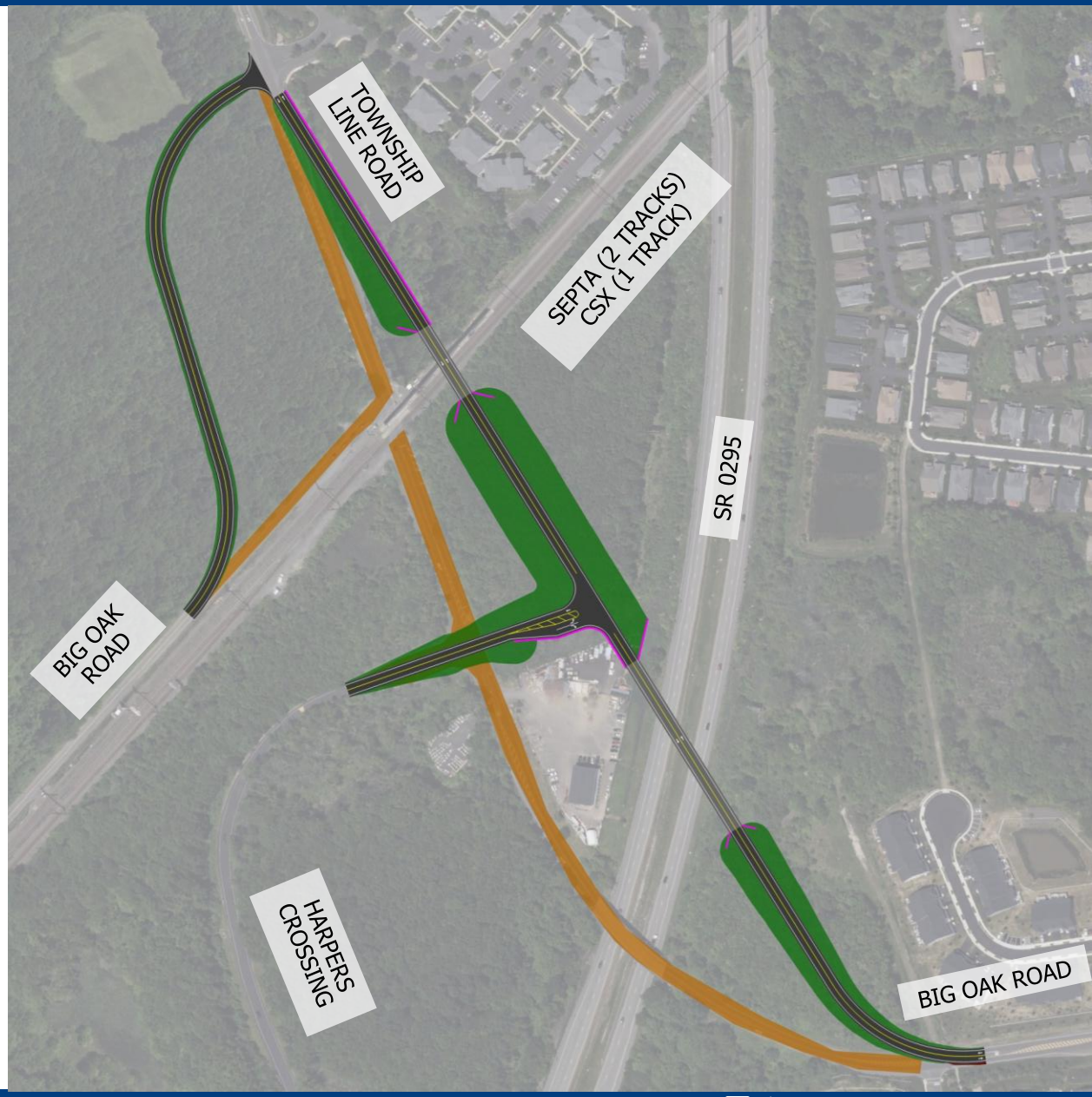
PRELIMINARY – For Study Purposes Only

Pennsylvania Department of Transportation

TOWNSHIP LINE RD / BIG OAK RD – STUDY ALTERNATIVE # 1

Advantages
- Grade Separated Crossing
- Meets 35mph Design Speed
- Utilizes Undeveloped Land
- Commercial Property Impacts
  - No Business Relocations
- Residential Property Impacts
  - No Relocations
- Off-Alignment Construction

Disadvantages
- Removes Forested Green Space
- New Bridge Over SR 0295
- Potential Impact to Privately Owned Pond / Stormwater Management Basin
- Stop Condition for Big Oak Road
- Likely Requires Modifications to the SEPTA Catenary Lines
- Requires Reconstruction of Harpers Crossing Near Intersection With Big Oak Road



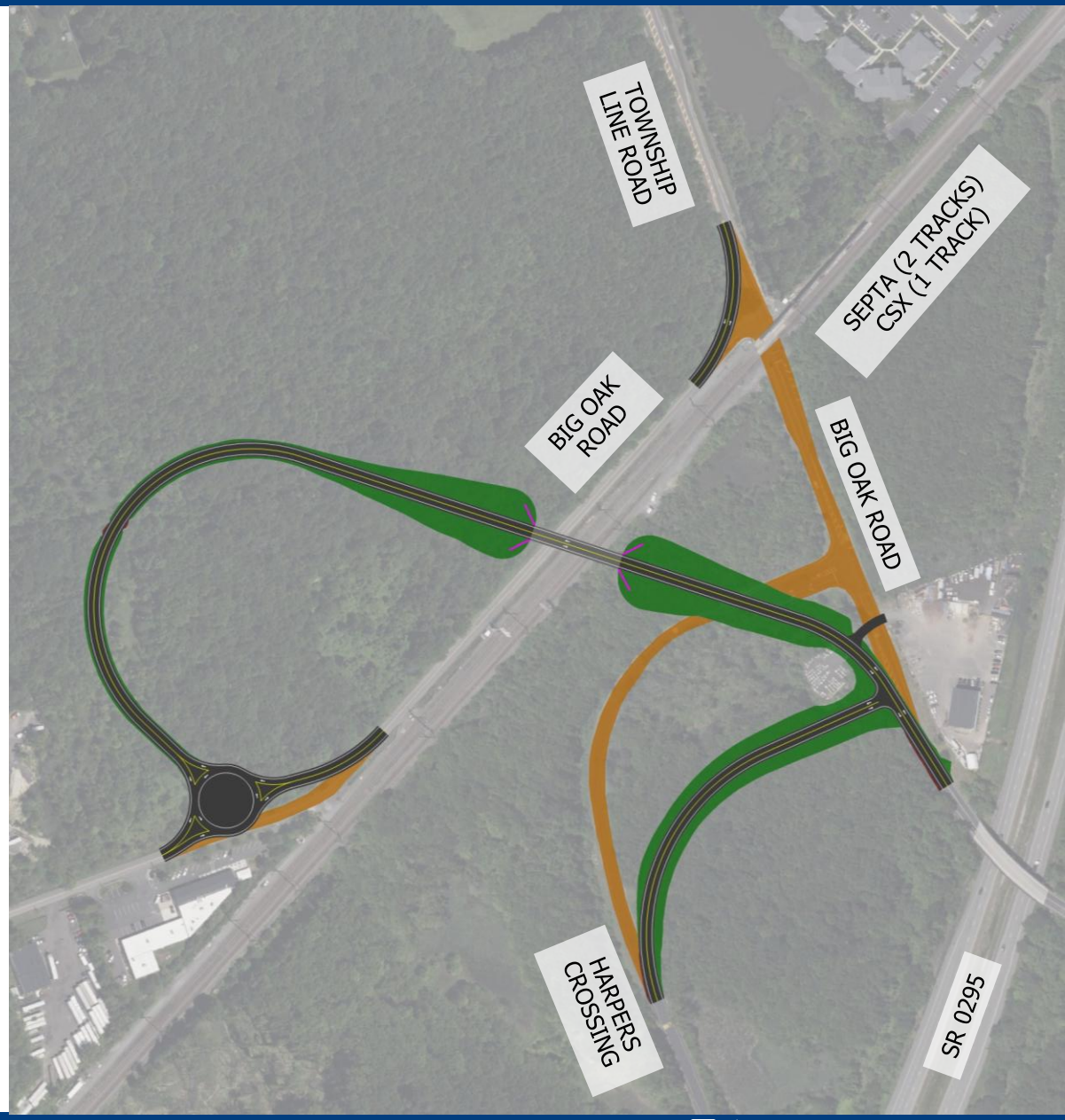
TOWNSHIP LINE RD / BIG OAK RD – STUDY ALTERNATIVE # 2

Advantages

- Grade Separated Crossing
- Meets 35mph Design Speed
- Utilizes Undeveloped Land
- Commercial Property Impacts
  - No Business Relocations
- Residential Property Impacts
  - No Relocations
- Ties Into Existing Bridge Over SR 0295
- Existing 90-Degree, Stop Controlled Alignment of Big Oak Road is Improved (Roundabout)
- Off-Alignment Construction

Disadvantages

- Removes Forested Green Space
- Likely Requires Modifications to the SEPTA Catenary Lines
- Requires Relocation of Harpers Crossing Intersection With Big Oak Road



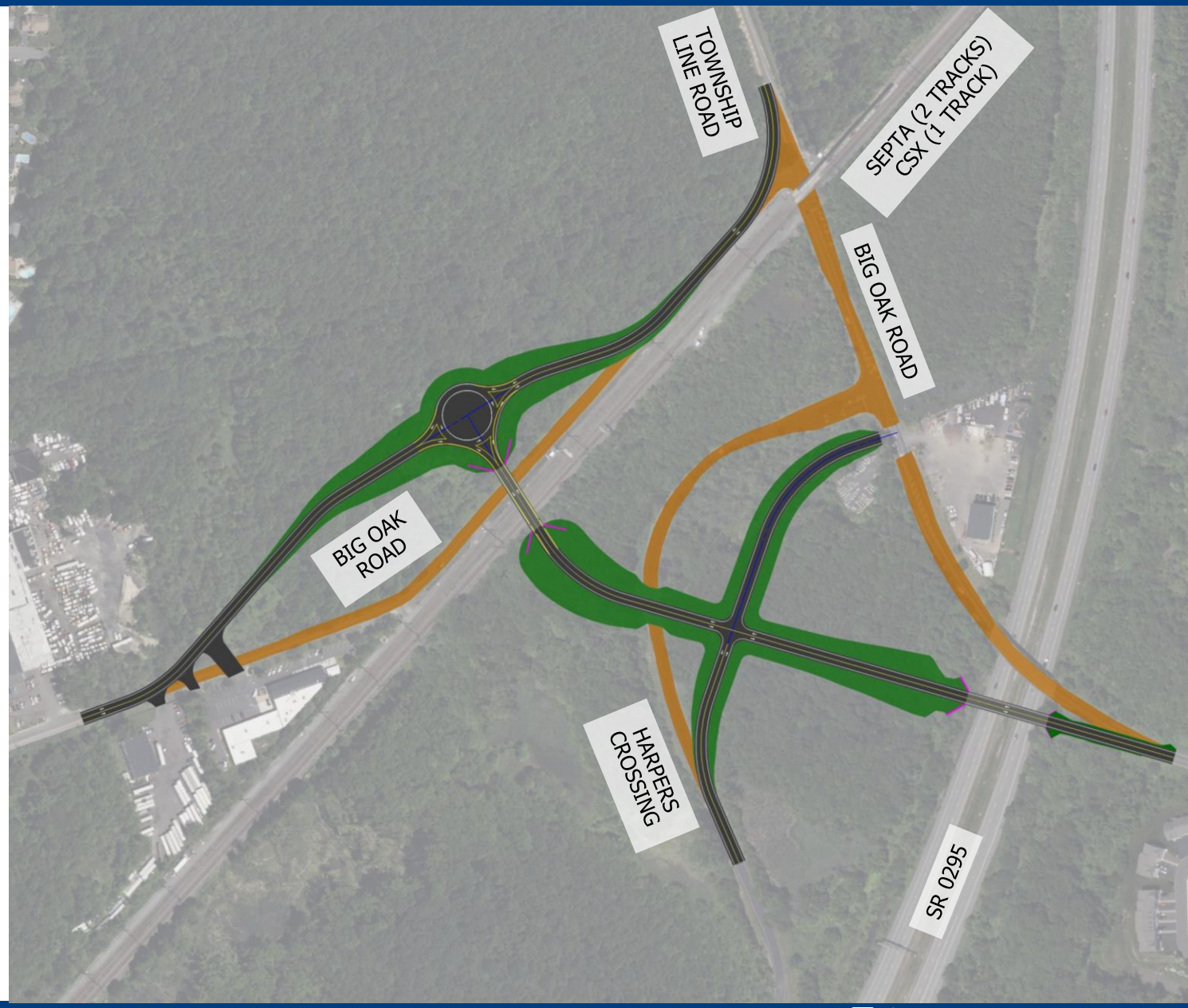
TOWNSHIP LINE RD / BIG OAK RD – STUDY ALTERNATIVE # 3

<u>Advantages</u>

- Grade Separated Crossing
- Meets 35mph Design Speed
- Utilizes Undeveloped Land
- Commercial Property Impacts
  - No Business Relocations
- Residential Property Impacts
  - No Relocations
- Less Impact on Environmental Features
- Existing 90-Degree, Stop Controlled Alignment of Big Oak Road is Improved (Roundabout)
- Off-Alignment Construction

<u>Disadvantages</u>

- Removes Forested Green Space
- New Bridge Over SR 0295
- Likely Requires Modifications to the SEPTA Catenary Lines
- Requires Relocation of Harpers Crossing Intersection With Big Oak Road



TOWNSHIP LINE RD / BIG OAK RD – ESTIMATED TOTAL PROJECT COST

Study Alternative	Estimated Total Project Cost
Big Oak Road – Alternative 1	$90 - $95 M
Big Oak Road – Alternative 2	$55 - $60 M
Big Oak Road – Alternative 3	$60 - $65 M



FRA GRANT FUNDING

- Crossing Safety Program / Railroad Crossing Elimination (RCE) Grant Program
  - Program provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods.
  - FY25-26 Funding Available: $1.1B
  - This planning study has been funded by a FY22 RCE grant. Subsequent project phases are eligible for future grant funding.
- Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program
  - Provides funding for projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail.
  - FY25-26 Funding Available: $2.3B
  - Specifically identifies highway-rail grade crossing improvement projects as eligible for funding, however projects are encouraged to concurrently apply for RCE funding.

STUDY TIMELINE

2025

Initiated study/FRA coordination

Held initial stakeholder coordination/consultation meetings

Collected data, including six-month deployment of state-of-the-art artificial intelligence (AI) camera technologies

2026

Analyzed data findings from highway and railroad sources and developed Existing Conditions Report (in FRA review)

Developed Alternatives Analysis Study, consulted with the public, townships, PennDOT District 6, and railroads on preliminary alternatives

2027

Finalize Alternatives Analysis Study Report, including conceptual engineering, capital cost analysis, and preliminary environmental analysis

Convene with major stakeholders to identify recommended alternative and next steps

CSX/SEPTA GRADE CROSSING STUDY
Public Meeting Presentation

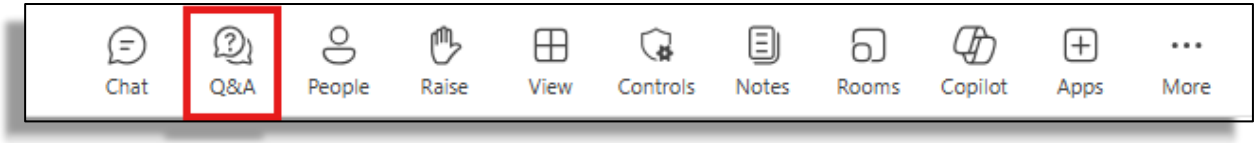
Questions & Answers



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QUESTIONS & ANSWERS

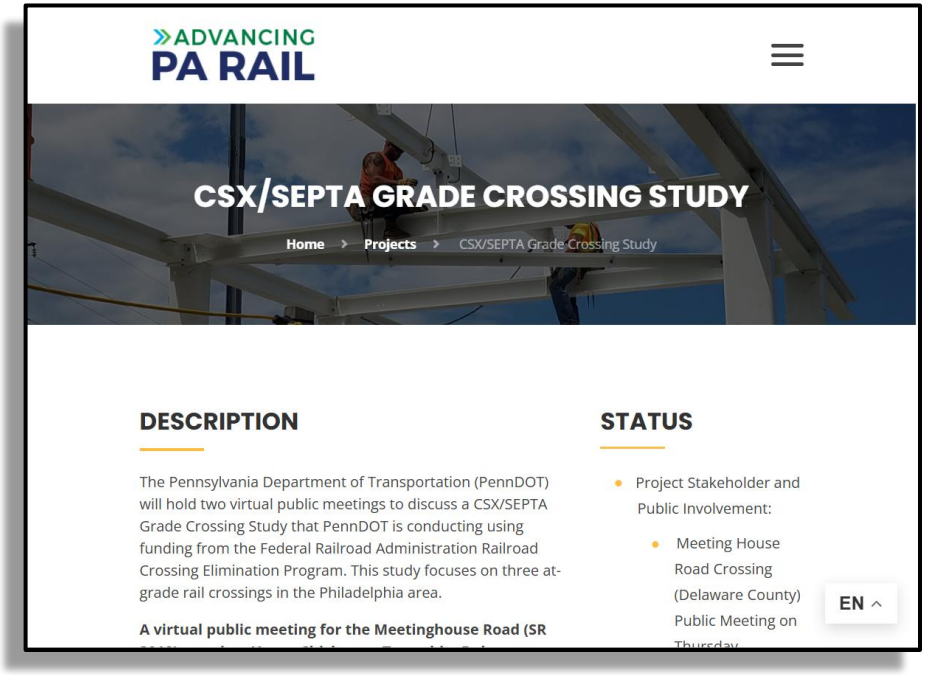
- Please Enter Questions in the Chat



- Team Will Answer as Many Questions as Possible Today

- Remaining Responses Will Be Posted on PennDOT's Project Webpage: https://advancingparail.com/projects/csx-septa-grade-crossing-study/

- Other Questions or Comments Can Be Provided by email to: RA-PDPASSENGERRAIL@pa.gov



Thank You!

We Appreciate Your Participation

