



# ACEC/PA 2024 Infrastructure Conference



## Pennsylvania Safety Transportation and Research Track

## Background on PennSTART



- 2014 PA Transportation Advisory Committee TIM Study

## Background on PennSTART



- 2014 PA Transportation Advisory Committee TIM Study
- 2016 PA TIM Summit



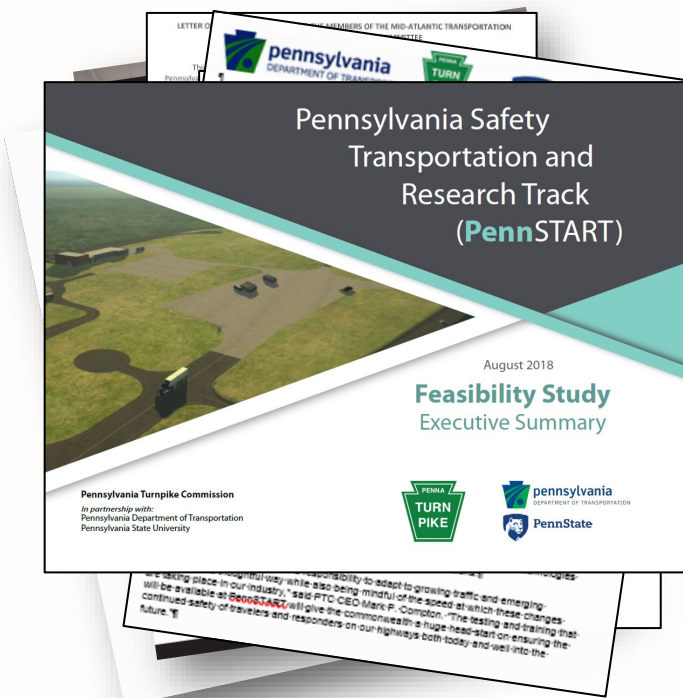


## Background on PennSTART



- 2016 PA TIM Summit
- April 2018 – Partnership with PennDOT, PTC and PSU
- April 10, 2018 Press Release

## Background on PennSTART



- April 2018 Partnership with PennDOT, PTC and PSU
- April 10, 2018 Press Release
- August 2018 Completed Feasibility Study

## Background on PennSTART



- August 2018 Completed Feasibility Study
- February 2019 Completed Concept of Operations

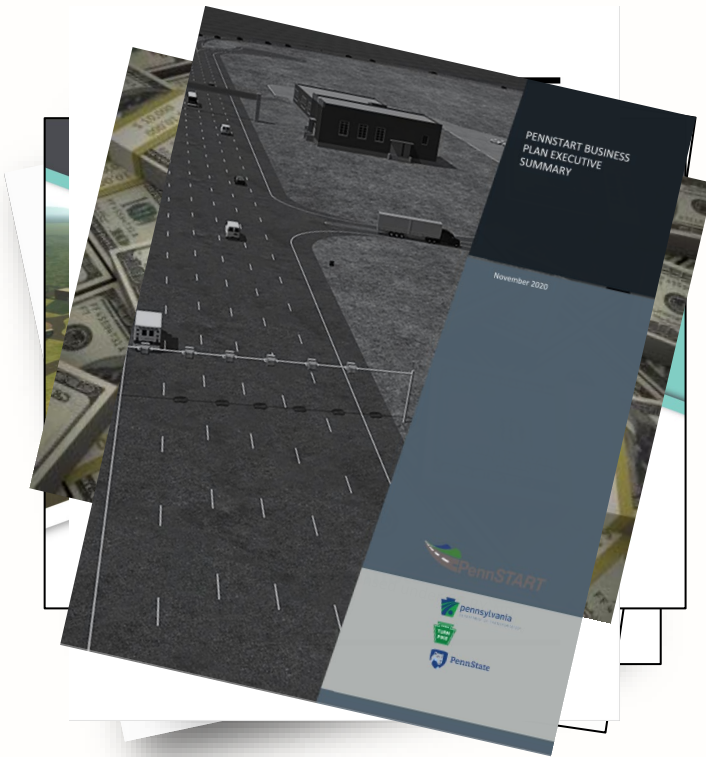
## Background on PennSTART



- February 2019  
Completed Concept of Operations
- October 2019  
Commission committed \$8M and PennDOT committed \$14M

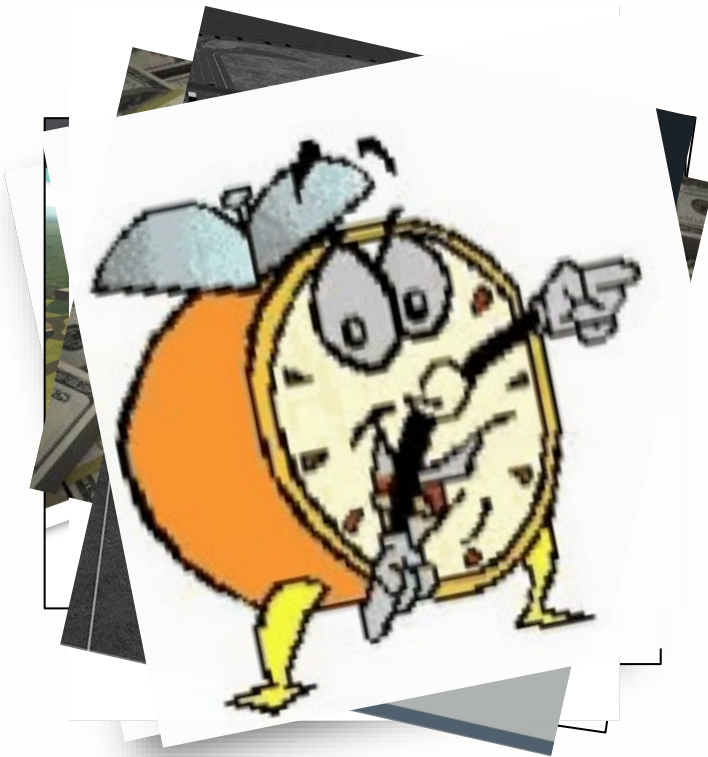


## Background on PennSTART



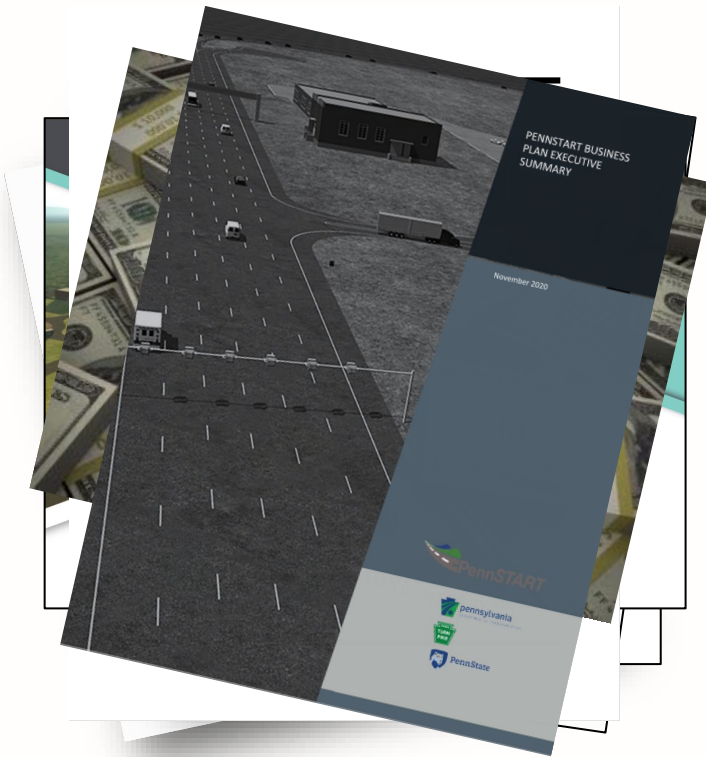
- October 2019  
Commission committed \$8M and PennDOT committed \$14M
- May 2020 Completed Market Analysis
- November 2020 Completed System Requirements
- November 2020 Completed Business Plan

## Background on PennSTART



- October 2019  
Commission committed \$8M and PennDOT committed \$14M
- May 2020 Completed Market Analysis
- November 2020 Completed System Requirements
- November 2020 Completed Business Plan

## Background on PennSTART



- December 2021 Ended partnership with PSU
- February 7, 2022 Partnership with PennDOT, PTC and RIDC (Regional Industrial Development Corporation)
- August 11, 2022 Media Event at RIDC Westmoreland Innovation Center.

## Background on PennSTART



- August 11, 2022  
Media Event at RIDC  
Westmoreland  
Innovation Center
- March 9, 2023  
RIDC, PennDOT, and PTC  
executed the agreement  
for design, construction,  
operation & maintenance  
of PennSTART



### RIDC Westmoreland

- 1001 Technology Dr, Mt Pleasant, PA 15666
- About 4 miles south of New Stanton. Just off of SR 119
- Former VW/Sony plant redeveloped into an advanced manufacturing center with electronic manufacturers, workforce developer, and the site of the PennSTART track
- 45 minutes from downtown Pittsburgh



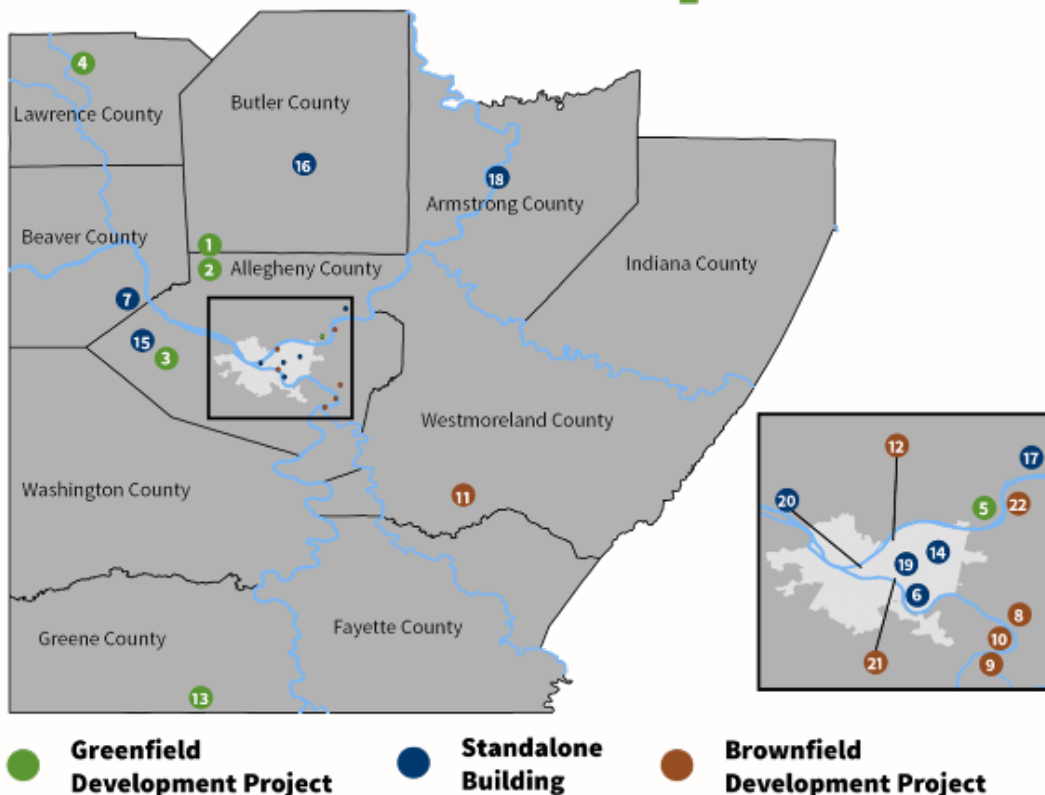
## RIDC Mission & History

### *Creating spaces and places for economic growth*

*RIDC is a nonprofit developer founded by and for the Pittsburgh region. We catalyze and support economic growth through high quality job creation, real estate development, and financing of projects that advance the public interest – developing real estate to capture emerging and existing growth opportunities across diverse industry sectors.*

- *Incorporated in 1955 through the Allegheny Conference*
- *Area of operation covers 11 counties in Southwestern Pennsylvania*
- *RIDC is now self-sustaining and relies on no outside funding for its operations*

## RIDC Developments



### CURRENT PROJECTS

1. Thorn Hill Industrial Park
2. Innovation Ridge
3. RIDC Park West
4. Neshannock Business Park
5. O'Hara RIDC Industrial Park
6. Mill 19 at Hazelwood Green
7. Beaver Manor
8. Keystone Commons
9. Industrial Park of McKeesport
10. City Center of Duquesne
11. RIDC Westmoreland
12. Lawrenceville Technology Park

### PAST PROJECTS

13. Meadow Ridge Business Park
14. Nabisco Bakery
15. Air Cargo Building III
16. Pullman Plaza
17. Harman Manor
18. West Hill Commons
19. Oakland-University Area
20. Penn Garrison Cultural District Properties
21. Pittsburgh Technology Center
22. Edgewater Steel





**Packaging:** RIDC brings together funding from a variety of private and public sources as well as its own capital to finance catalytic projects

**Partnerships:** RIDC partners with private, public and civic sectors on projects and regional strategies to promote economic growth. Partners include municipalities, universities, hospitals, private developers and foundations.

**Patience:** RIDC is financially poised to pursue projects with longer-term return horizons whose public returns are greater than private returns.

**15**  
Parks

**7.5M+**  
Square feet  
owned

**106**  
Companies in  
our facilities

**\$40M**  
Capital Investment  
in 2019

**\$3.4M+**  
Annual real estate  
taxes paid

**17,000+**  
Jobs in RIDC parks




## Greater Pittsburgh Forefront Regional Autonomy Study Findings

Anchored by Pittsburgh, the SWPA region is a nationally recognized autonomy center positioned for growth

<b>2021 Sector Profile:</b>	<b>100+</b> Companies	<b>CMU 1st</b> Research & Talent
	<b>6,300</b> Direct Jobs	<b>\$2.9B</b> Economic Output
	<b>\$34.7M</b> State and Local Tax Revenues	<b>\$126.7M</b> Federal Tax Revenues

**FOREFRONT:**  
Securing Pittsburgh's Break-out Position  
in Autonomous Mobile Systems.



Performed for: Regional Industrial Development Corporation and the Greater Pittsburgh Chamber of Commerce, with funding support provided by the Richard King Mellon Foundation  
Prepared by: TECOMY Partners, LLC  
August 2021



<b>Estimated 5 Year Growth Potential:</b>	<b>11,300</b> Direct Jobs	<b>\$10B</b> Economic Output
---	------------------------------	---------------------------------



## RIDC & the Robotics, AI and Autonomy Sector

### RIDC Westmoreland

- Former Sony plant redeveloped into an advanced manufacturing center with electronic manufacturers, workforce developer, and the site of the upcoming PennSTART AV test track

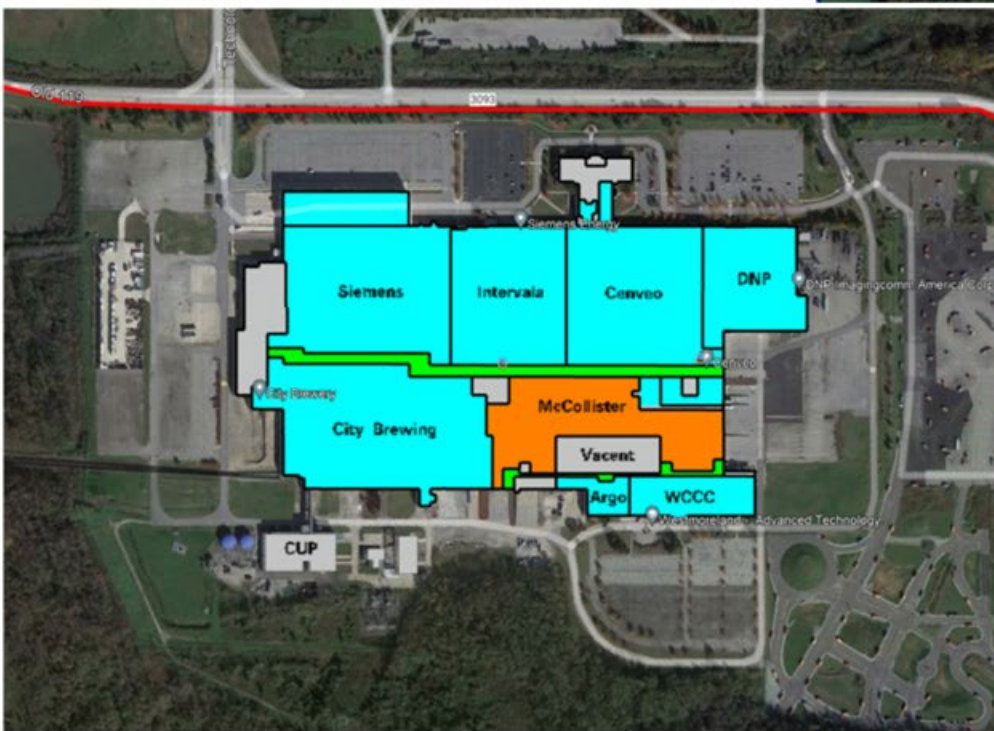
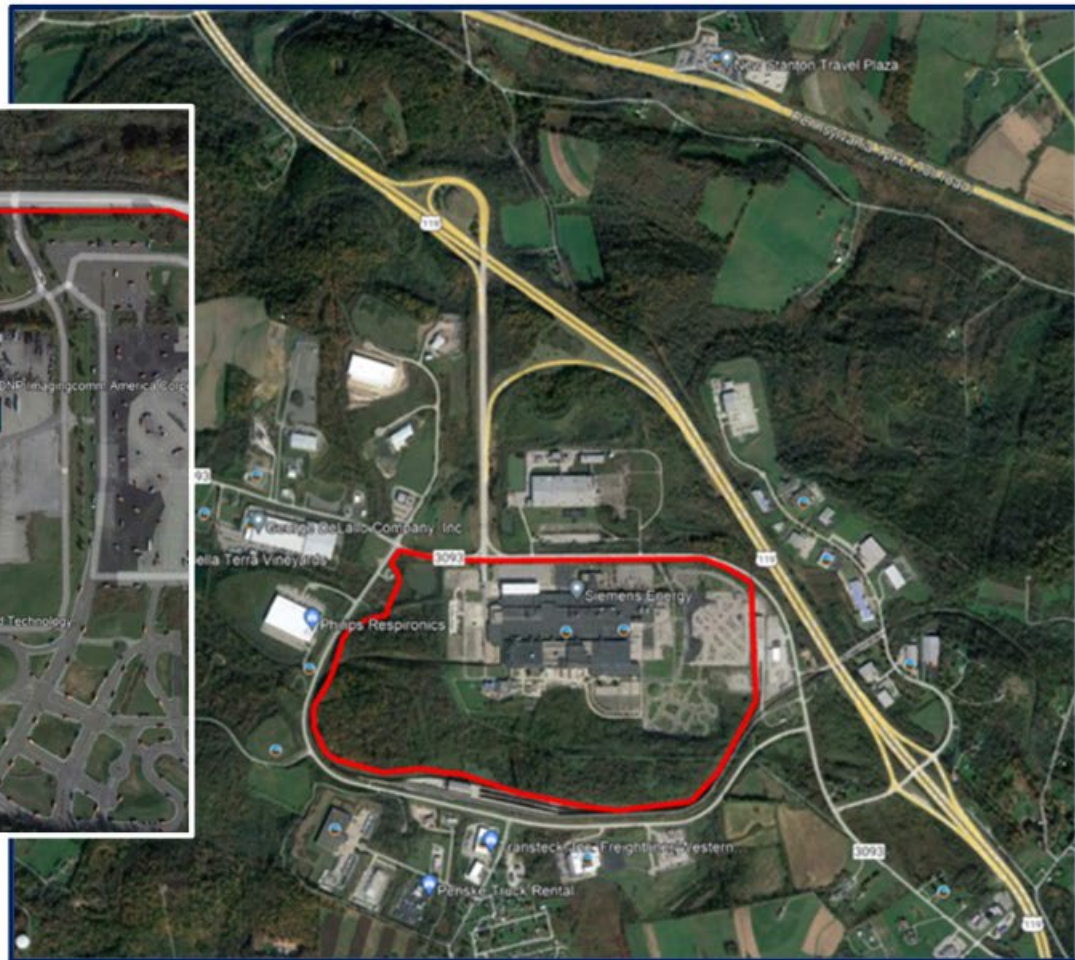
### RIDC Mill 19, Former J&L Steel Mill

- Sustainable manufacturing & robotics research complex with tenants including CMU's Advanced Robotics for Manufacturing (ARM) Institute, AV lab and Manufacturing Futures Initiative (MFI), Catalyst Connection, and Motional





## RIDC WESTMORELAND (350 AC +/-)



**2.5 + MILLION SF OF BUILDING**



## What?



Located 37 miles southwest of Pittsburgh



Connected & Automated Vehicles (CAV)  
Electric Vehicles (EV)  
Advanced Air Mobility (AAM)  
Field Robotics



Multimodal: Transit,  
Commercial Vehicles,  
Rail, Vulnerable Road  
Users



Training, Testing, and  
Research and Development



High-Speed Test Track,  
Urban and Suburban Course,  
Vehicle Dynamic Area, Off Road  
and More

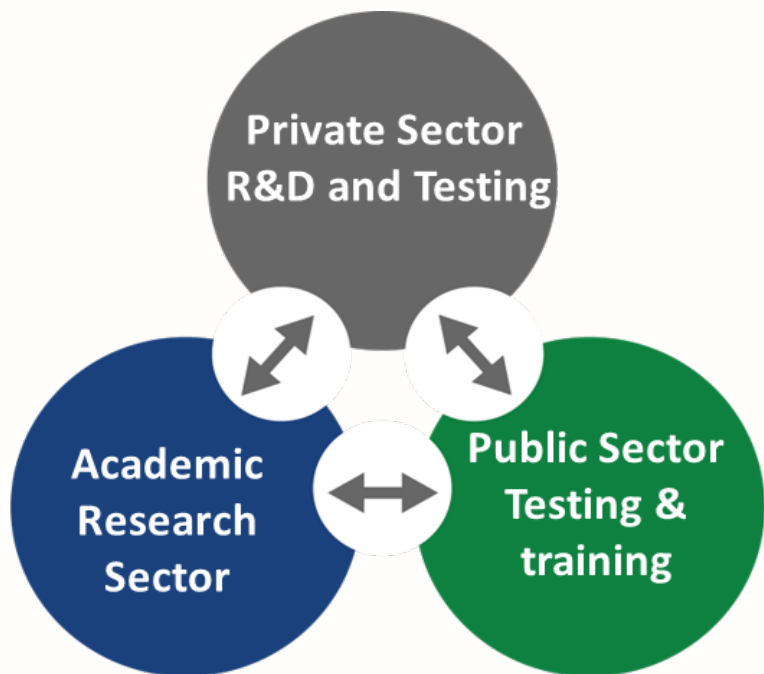


Digital Infrastructure and  
Connectivity





## Who?



USERS		
Public Sector	Private Sector	Academic Sector
Law Enforcement	Vendors	Colleges & Universities
EMS	Contractors	Research Institutions
Fire & Rescue	Manufacturers	
Towing Agencies	Suppliers	
Maintenance	Consultants	
Fwy Service Patrol	Developers	
Airports	Shippers and Carriers	
Other State DOTs	Startups	
Federal Agencies		
State/Local Government		

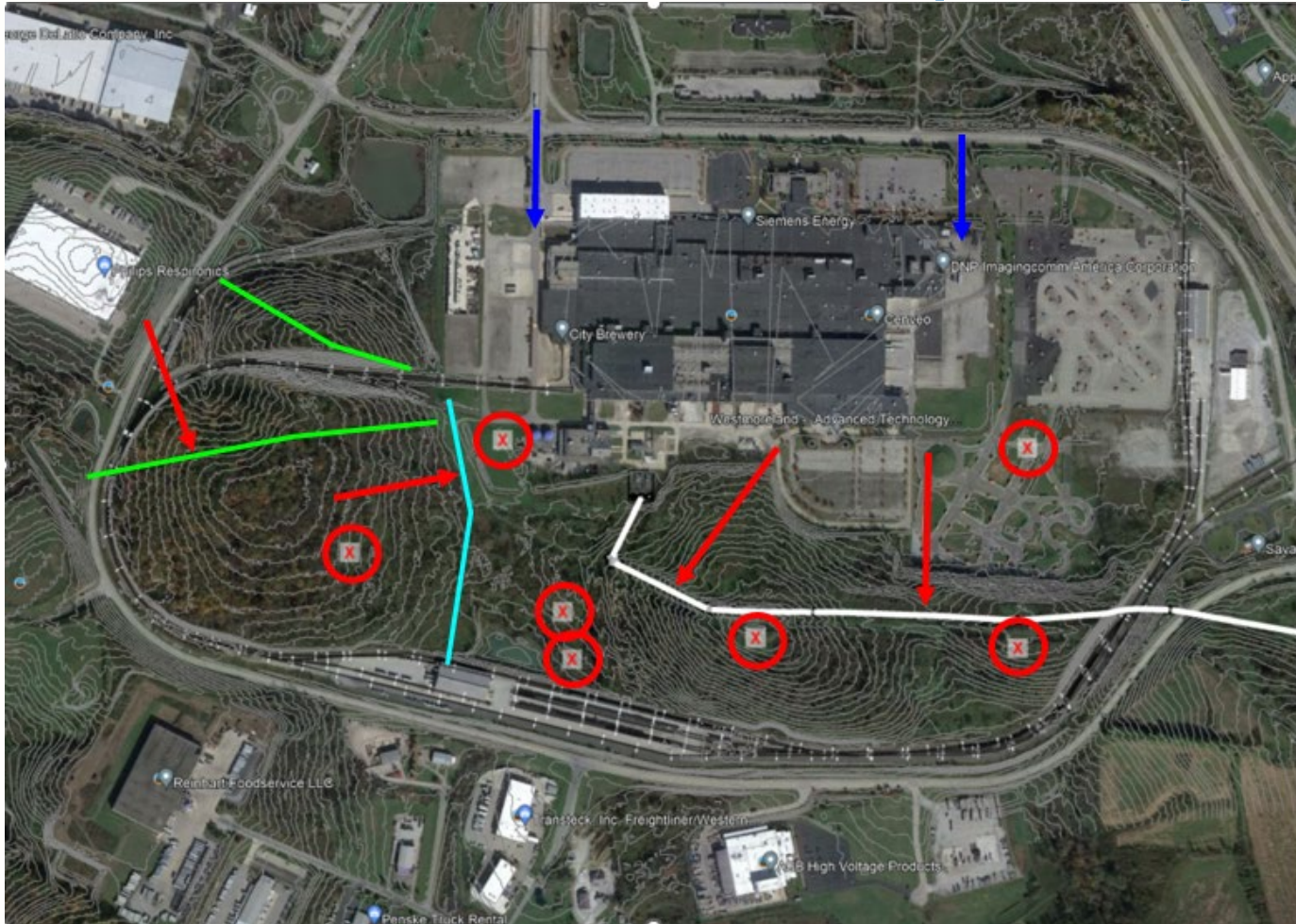


## PENNSTART PRELIMINARY SCHEDULE

	SUMMER 2023	FALL 2023	WINTER 2023/2024	SPRING 2024	SUMMER 2024	FALL 2024	WINTER 2024/2025	SPRING 2025	SUMMER 2025	FALL 2025	WINTER 2025/2026
SEND OUT RFQ FOR DESIGN PROGRAM MANAGER	█	█									
RESPONSES/REVIEW/SELECT DESIGN PROGRAM MANAGER		█									
DEVELOP TRACK CONCEPTS		█	█								
DESIGN WORKSHOP #1			█								
DESIGN WORKSHOP #2				█							
DESIGN WORKSHOP #3				█	█	█					
MASTER PLAN DEVELOPMENT				█	█	█					
PERMITTING							█	█	█	█	
PHASE 1 FINAL DESIGN						█	█	█	█	█	
PHASE 2 FINAL DESIGN										█	█
PHASE 3+ FINAL DESIGN										█	█
CONSTRUCTION - INITIAL TREE CLEARING				█							
CONSTRUCTION - MAIN AREA TREE CLEARING						█	█				
CONSTRUCTION - PHASE 1 GRADING & UTILITIES								█	█	█	█
CONSTRUCTION - PHASE 2 GRADING & UTILITIES											█
CONSTRUCTION - PHASE 2 FEATURES											█

2024.07.30

## Site Inventory & Analysis





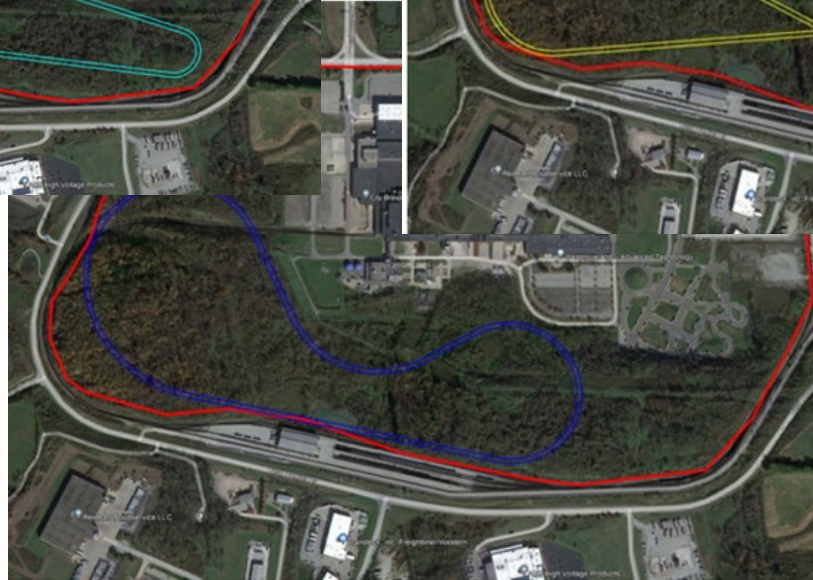
### PENNSTART PRELIMINARY SCHEDULE

	SUMMER 2023	FALL 2023	WINTER 2023/2024	SPRING 2024	SUMMER 2024	FALL 2024	WINTER 2024/2025	SPRING 2025	SUMMER 2025	FALL 2025	WINTER 2025/2026
SEND OUT RFQ FOR DESIGN PROGRAM MANAGER	█										
RESPONSES/REVIEW/SELECT DESIGN PROGRAM MANAGER		█									
DEVELOP TRACK CONCEPTS		█	█								
DESIGN WORKSHOP #1			█								
DESIGN WORKSHOP #2				█							
DESIGN WORKSHOP #3				█	█	█					
MASTER PLAN DEVELOPMENT				█	█	█					
PERMITTING							█	█	█	█	
PHASE 1 FINAL DESIGN						█	█	█	█	█	
PHASE 2 FINAL DESIGN										█	█
PHASE 3+ FINAL DESIGN										█	█
CONSTRUCTION - INITIAL TREE CLEARING				█							
CONSTRUCTION - MAIN AREA TREE CLEARING						█	█				
CONSTRUCTION - PHASE 1 GRADING & UTILITIES								█	█	█	█
CONSTRUCTION - PHASE 2 GRADING & UTILITIES											█
CONSTRUCTION - PHASE 2 FEATURES											█





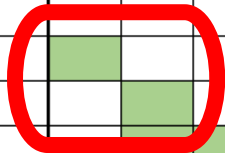
## Various Concepts





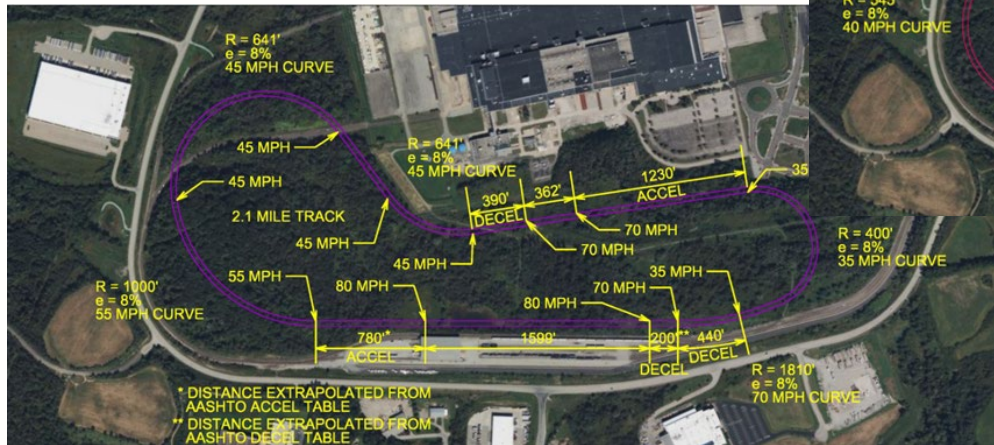
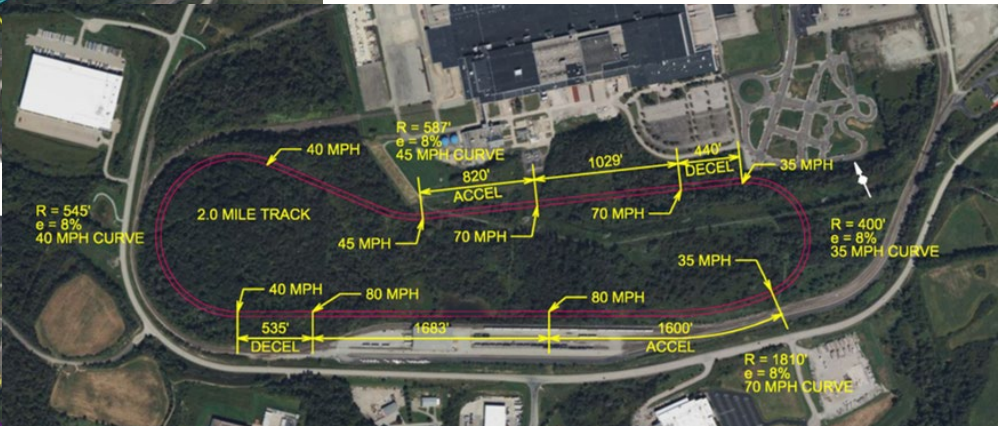
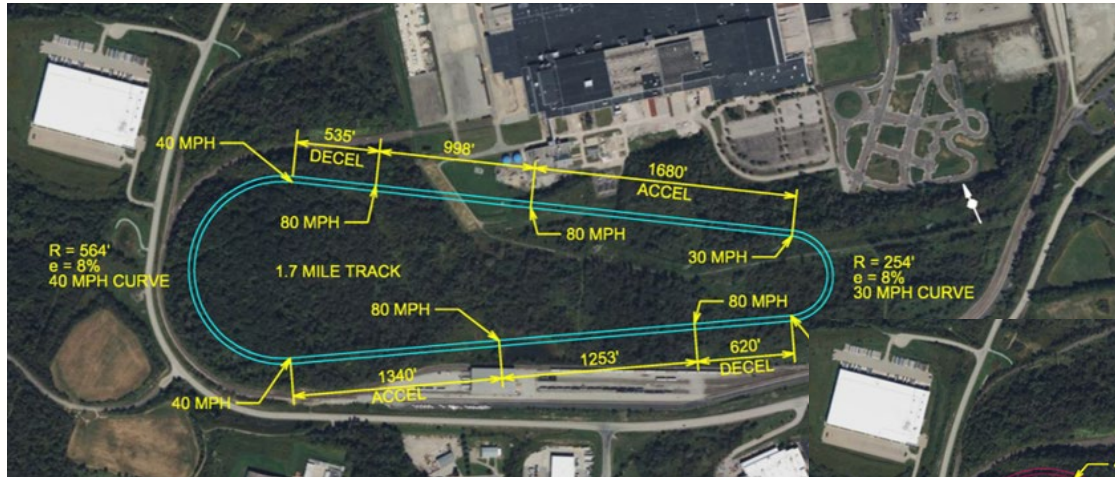
### PENNSTART PRELIMINARY SCHEDULE

	SUMMER 2023	FALL 2023	WINTER 2023/2024	SPRING 2024	SUMMER 2024	FALL 2024	WINTER 2024/2025	SPRING 2025	SUMMER 2025	FALL 2025	WINTER 2025/2026
SEND OUT RFQ FOR DESIGN PROGRAM MANAGER	█										
RESPONSES/REVIEW/SELECT DESIGN PROGRAM MANAGER		█									
DEVELOP TRACK CONCEPTS		█	█								
DESIGN WORKSHOP #1			█								
DESIGN WORKSHOP #2				█							
DESIGN WORKSHOP #3					█						
MASTER PLAN DEVELOPMENT				█	█	█					
PERMITTING							█	█	█	█	
PHASE 1 FINAL DESIGN						█	█	█	█	█	
PHASE 2 FINAL DESIGN										█	█
PHASE 3+ FINAL DESIGN										█	█
CONSTRUCTION - INITIAL TREE CLEARING				█							
CONSTRUCTION - MAIN AREA TREE CLEARING							█	█			
CONSTRUCTION - PHASE 1 GRADING & UTILITIES									█	█	█
CONSTRUCTION - PHASE 2 GRADING & UTILITIES											█
CONSTRUCTION - PHASE 2 FEATURES											█





## Revise & Develop Concepts



## Project Development Process

- Stakeholder Input and Outreach
- Master Plan
  - Components
  - Implementation Strategy
- Business Plan
- Market Analysis
- Systems Engineering
- Design







PENNSTART PRELIMINARY SCHEDULE											
	SUMMER 2023	FALL 2023	WINTER 2023/2024	SPRING 2024	SUMMER 2024	FALL 2024	WINTER 2024/2025	SPRING 2025	SUMMER 2025	FALL 2025	WINTER 2025/2026
SEND OUT RFQ FOR DESIGN PROGRAM MANAGER	█										
RESPONSES/REVIEW/SELECT DESIGN PROGRAM MANAGER		█									
DEVELOP TRACK CONCEPTS		█	█								
DESIGN WORKSHOP #1			█								
DESIGN WORKSHOP #2				█							
DESIGN WORKSHOP #3				█							
MASTER PLAN DEVELOPMENT				█	█	█					
PERMITTING							█	█	█	█	
PHASE 1 FINAL DESIGN						█	█	█	█	█	
PHASE 2 FINAL DESIGN										█	█
PHASE 3+ FINAL DESIGN										█	█
CONSTRUCTION - INITIAL TREE CLEARING				█							
CONSTRUCTION - MAIN AREA TREE CLEARING						█	█				
CONSTRUCTION - PHASE 1 GRADING & UTILITIES									█	█	█
CONSTRUCTION - PHASE 2 GRADING & UTILITIES											█
CONSTRUCTION - PHASE 2 FEATURES											█

2024.07.30

### High-Speed Proving Grounds Zone

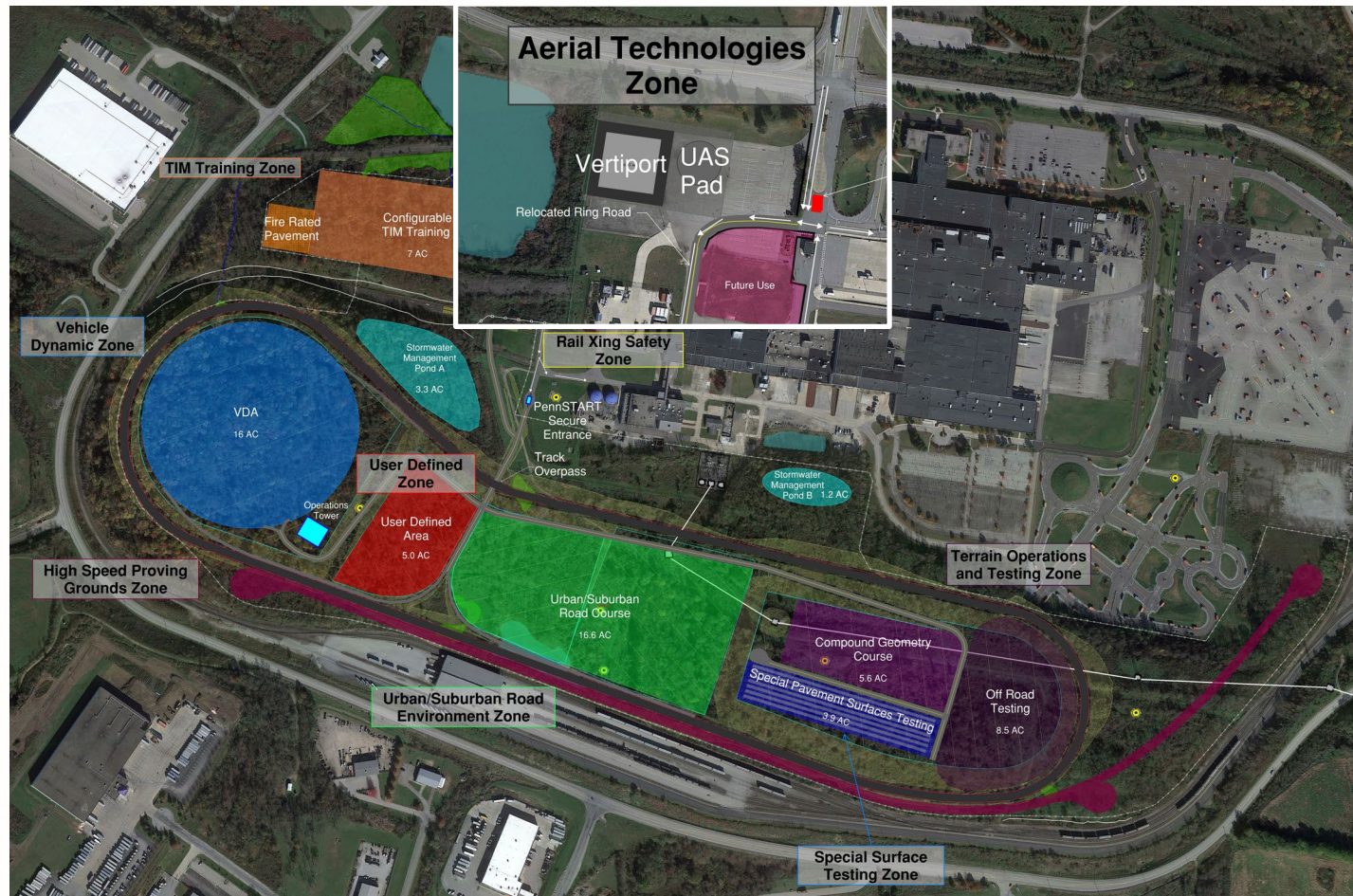
- *Three-Lane High Speed (75mph) Test Track (2.0 mi):*
  - *Simulated On and Off Ramps*
  - *Direct Access to VDA*
  - *Toll Gantry(ies)*
  - *Highway Signage*
  - *V2X Communication*
  - *Inductive Charging*
- *Three-Lane Straightline Track/ Rural Road Simulator with Turnarounds*





### Aerial Technologies Zone

- Vertiport (EvTOL)
- EV Charging Infrastructure
- Drone Pad
- UAS Tethering System





## TIM Training Zone

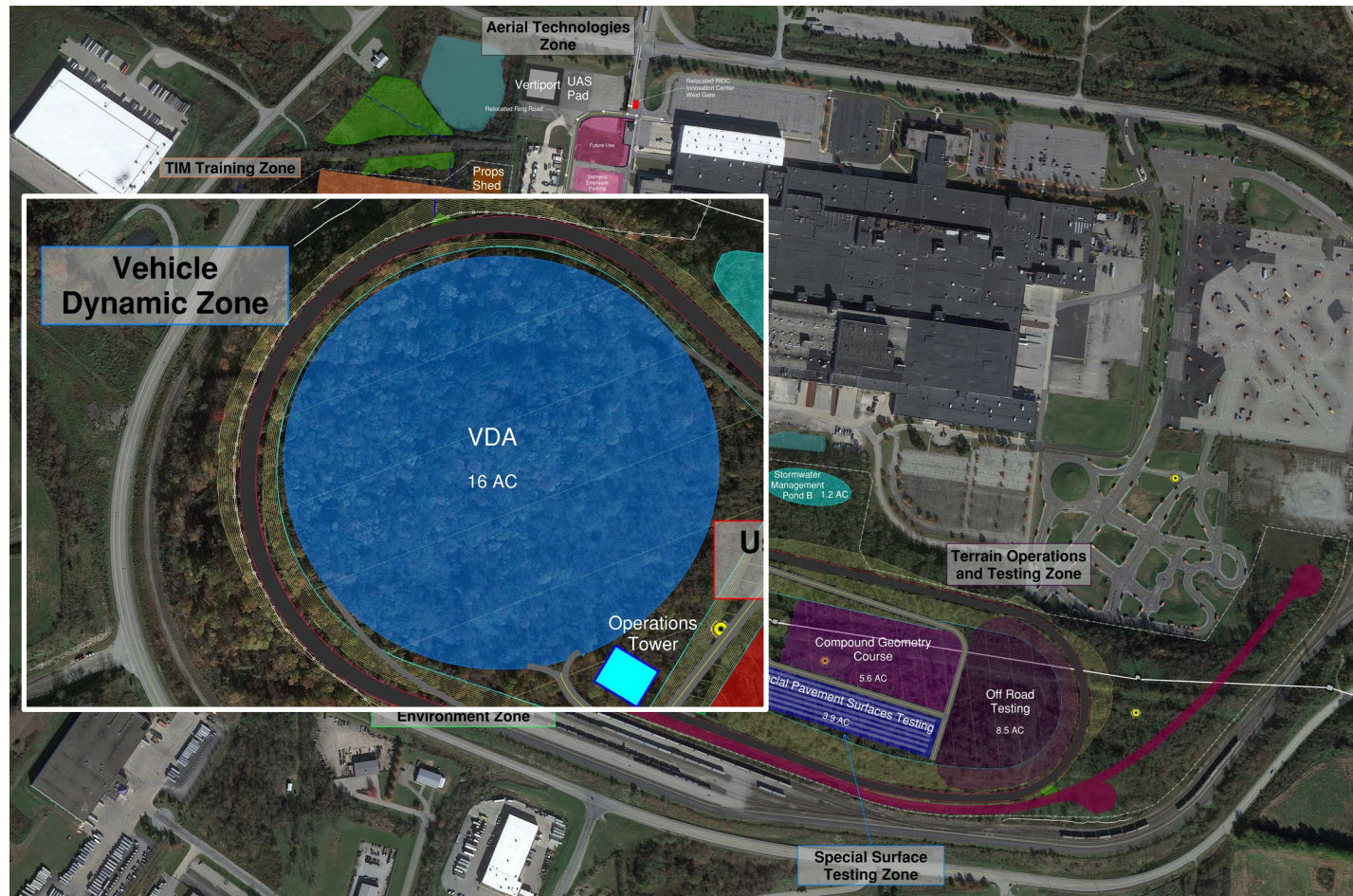
- Configurable Paved Area
- Fire Resistant Pavement Area
- Props Storage Facility





### Vehicle Dynamic Zone

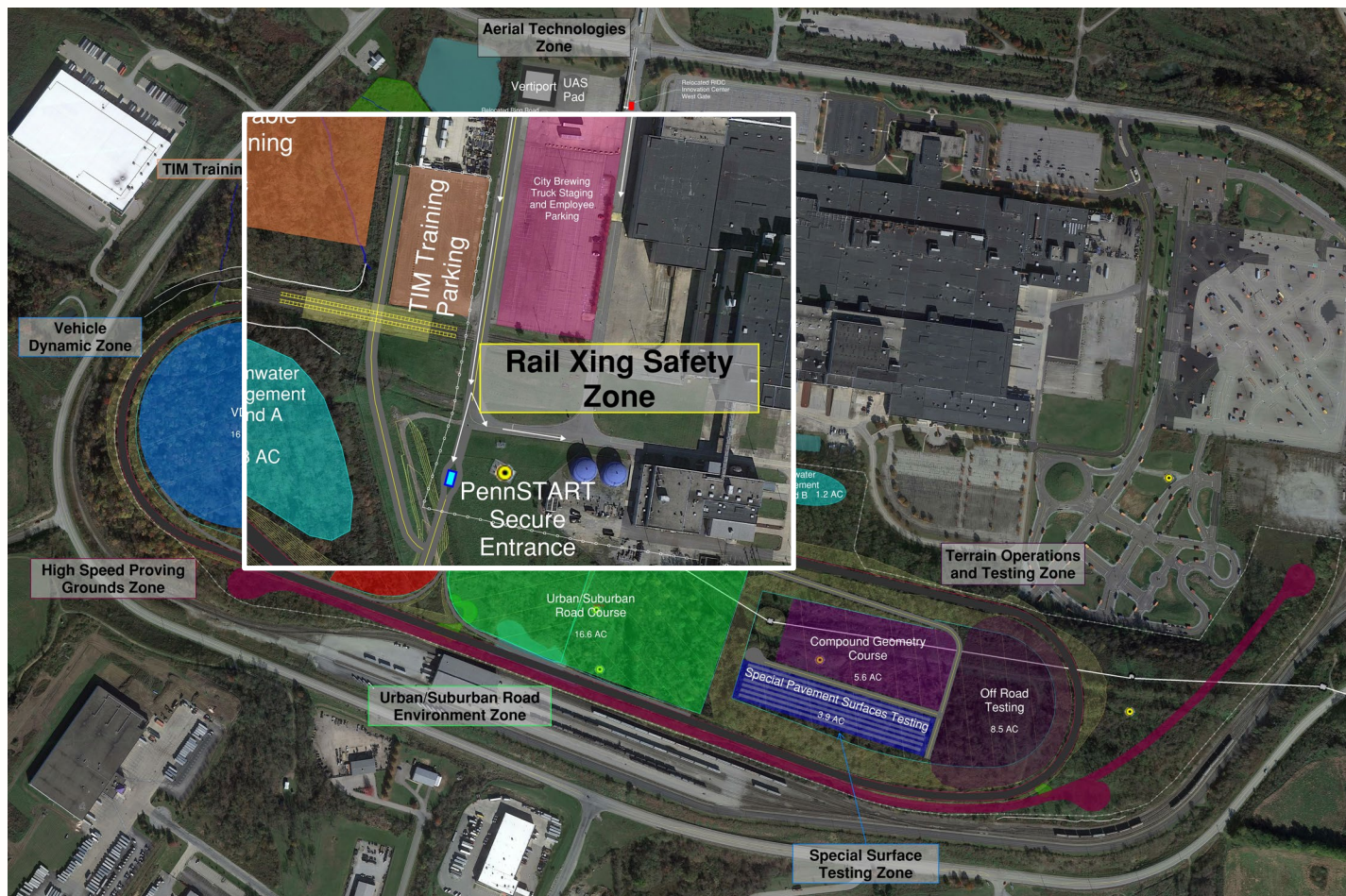
- *Single Plane Asphalt Surface*
- *Direct Access Lanes to/from Track*
- *Configurable Uses*





### Rail Crossing Safety Zone

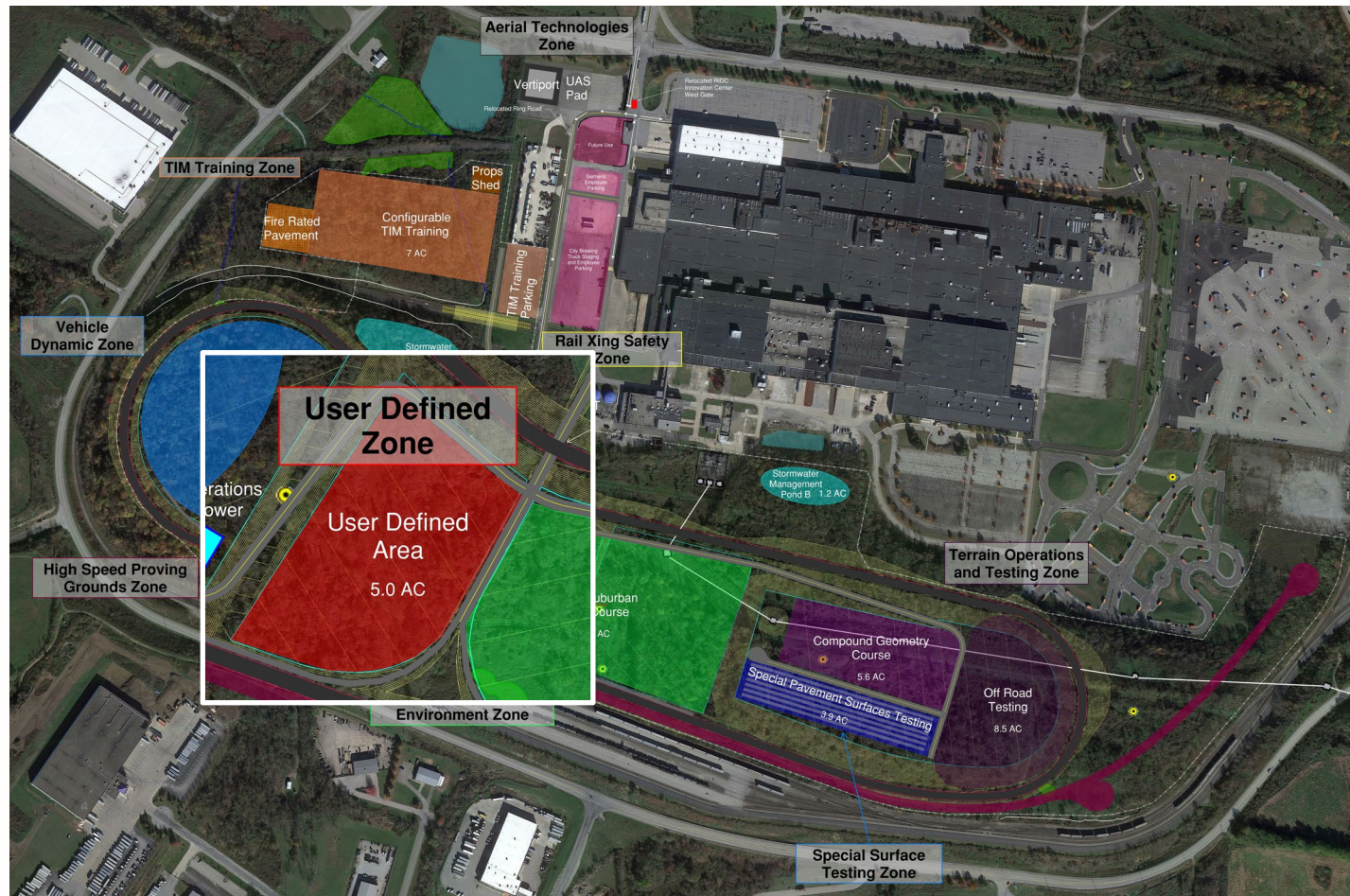
- Simulated Rural Road with Two Rail Crossings
- Crossing Gates
- V2X Technologies





### User Defined Zone

- Configurable Paved Area for Various Use and Test Cases





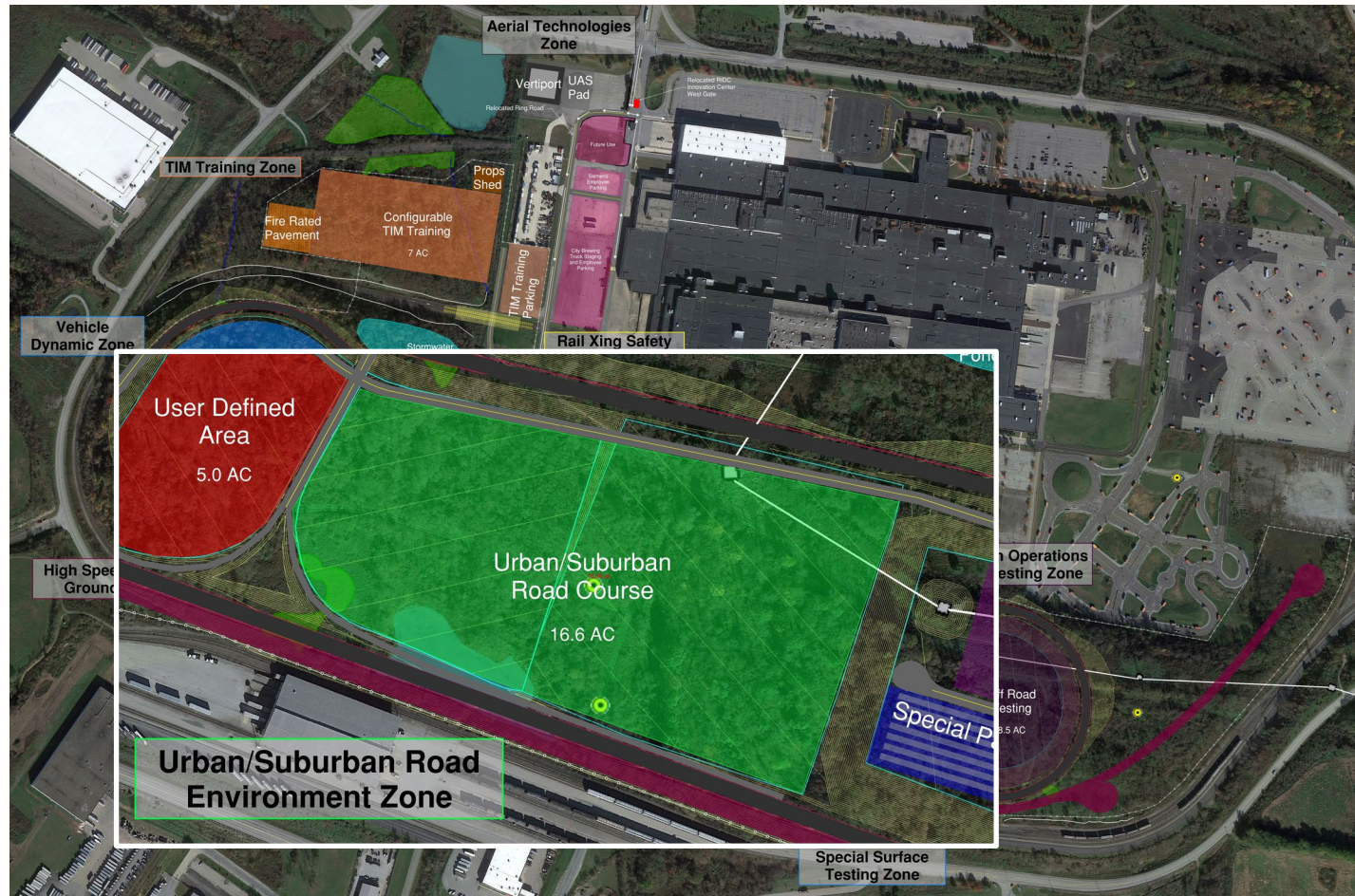
### Urban/Suburban Road Environment Zone

#### • Suburban Section:

- Two-Lane Roadways
- Multi-lane Road with Configurable Signal with V2X
- Roundabout

#### • Urban Section:

- Two-Lane Roadways with Tight Radii
- Simulated Parking (Parallel, Diagonal)
- Sidewalks & Bike Lanes
- Traffic Signal with Ped Xing and V2X
- Simulated Urban Canyons





### Special Surface Testing Zone

- *Special Pavement Surfaces*
  - *Seven Simulated Pavement Types*
  - *Noise and Vibration Testing*





### Terrain Operations and Testing Zone

- **Compound Geometry Course:**
  - Paved two-lane, bidirectional roadways
  - Challenging and undulating vertical and horizontal geometry
- **Off-Road Testing Area:**
  - Autonomous Off-Road Vehicles
  - Autonomous Earth-moving Equipment
  - UAS Tethering to Off-Road Vehicles





PENNSTART PRELIMINARY SCHEDULE											
	SUMMER 2023	FALL 2023	WINTER 2023/2024	SPRING 2024	SUMMER 2024	FALL 2024	WINTER 2024/2025	SPRING 2025	SUMMER 2025	FALL 2025	WINTER 2025/2026
SEND OUT RFQ FOR DESIGN PROGRAM MANAGER	█										
RESPONSES/REVIEW/SELECT DESIGN PROGRAM MANAGER		█									
DEVELOP TRACK CONCEPTS		█	█								
DESIGN WORKSHOP #1			█								
DESIGN WORKSHOP #2				█							
DESIGN WORKSHOP #3				█	█						
MASTER PLAN DEVELOPMENT				█	█	█	█	█	█	█	
PERMITTING						█	█	█	█	█	
PHASE 1 FINAL DESIGN						█	█	█	█	█	
PHASE 2 FINAL DESIGN										█	█
PHASE 3+ FINAL DESIGN											█
CONSTRUCTION - INITIAL TREE CLEARING				█							
CONSTRUCTION - MAIN AREA TREE CLEARING						█	█				
CONSTRUCTION - PHASE 1 GRADING & UTILITIES									█	█	█
CONSTRUCTION - PHASE 2 GRADING & UTILITIES											█
CONSTRUCTION - PHASE 2 FEATURES											█

2024.07.30



## WHY WINTER TREE REMOVAL?

### T&ES

- Northern Long Eared Bat
- Indiana Bat





## WINTER TREE REMOVAL:

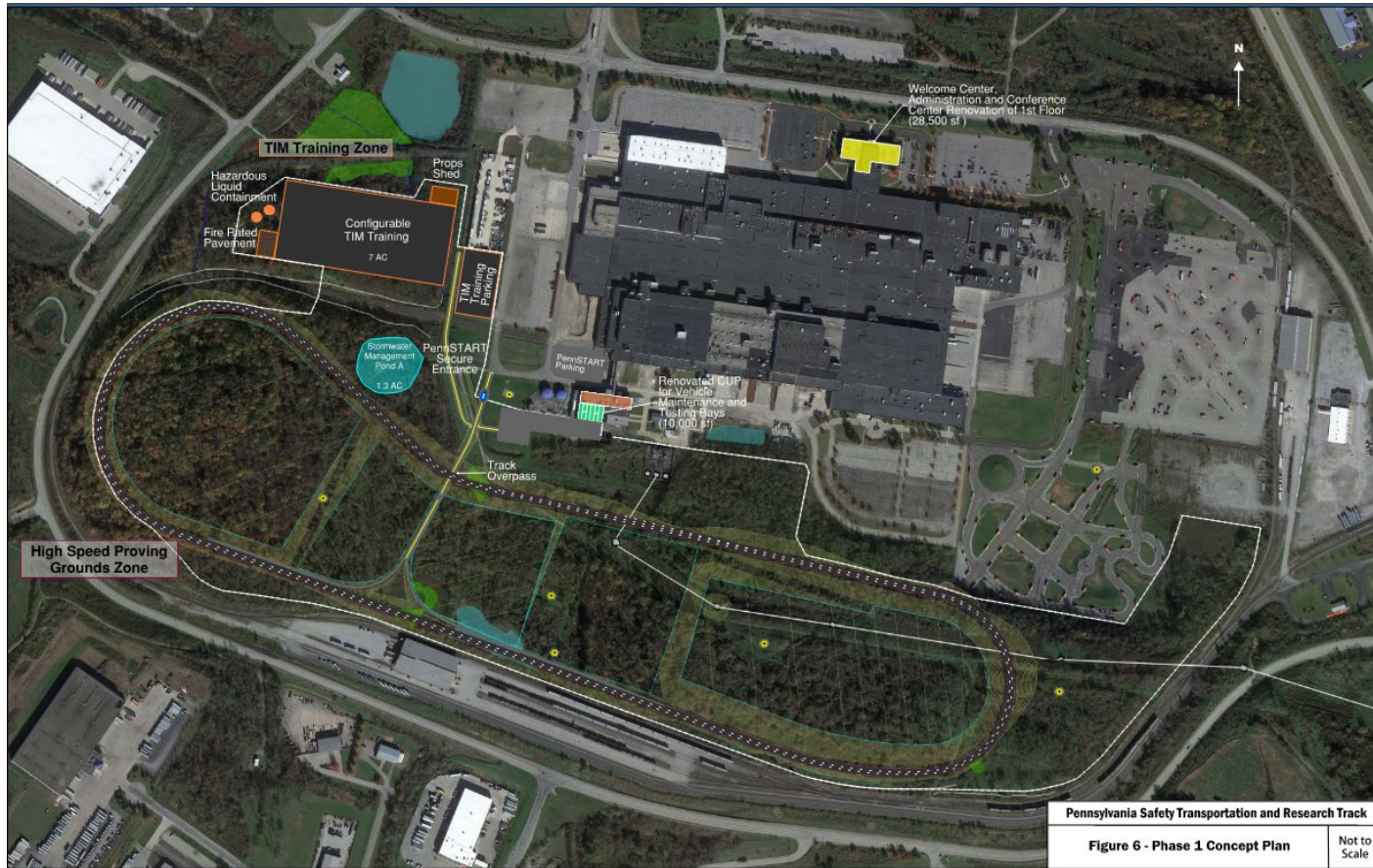
- November 15, 2024 – March 31, 2024





## Phase 1 Elements

- 2 mile high speed oval
  - 3 lanes
  - Simulated on and off ramps
  - Direct access to VDA
  - Tolling gantries
  - Highway signage
  - V2X communication
  - Inductive charging
- 
- VDA/TIM Area
  - Single Plane Asphalt Surface
  - Direct Access Lanes to/from Track
  - Configurable Uses
  - Configurable Paved Area
  - Fire Resistant Pavement Area
  - Props Storage Facility



Pennsylvania Safety Transportation and Research Track

Figure 6 - Phase 1 Concept Plan

Not to Scale



## Panel Q and A





## Presenters

### **Joe Sutor, PE**

*Planning & Design Services Manager  
Pennsylvania Turnpike Commission  
[jsutor@paturndpike.com](mailto:jsutor@paturndpike.com)*

### **Keith Miller, RLA**

*Director of Site Development  
RIDC  
[kmiller@ridc.org](mailto:kmiller@ridc.org)*