TAC COMMITTEE MEETING

Digital Delivery Program Update

OCTOBER 22, 2025

Pennsylvania
Department of Transportation

Vision Statement:

By 2025, construction projects will have the ability to be bid using 3D technology and will no longer be in a traditional construction plan format.

Digital Delivery Program Roadmap

Pennsylvania Department of Transportation

2020-2024

Initial Pilots

- Existing Ground Confidence Level (EGCL)
- Bridge
- Drainage and Utilities

2025-2027

Advanced Pilots

- Model as the Legal Deliverable (MALD)
- Advanced Digital Construction Management System (ADCMS) IFC Bridges

2027-2030

Digital Delivery Projects Advertised

- In 2027 – 2 projects per District
- In 2028 – 3 projects per District
- In 2029 – 4 projects per District
- In 2030 – 5 projects per District

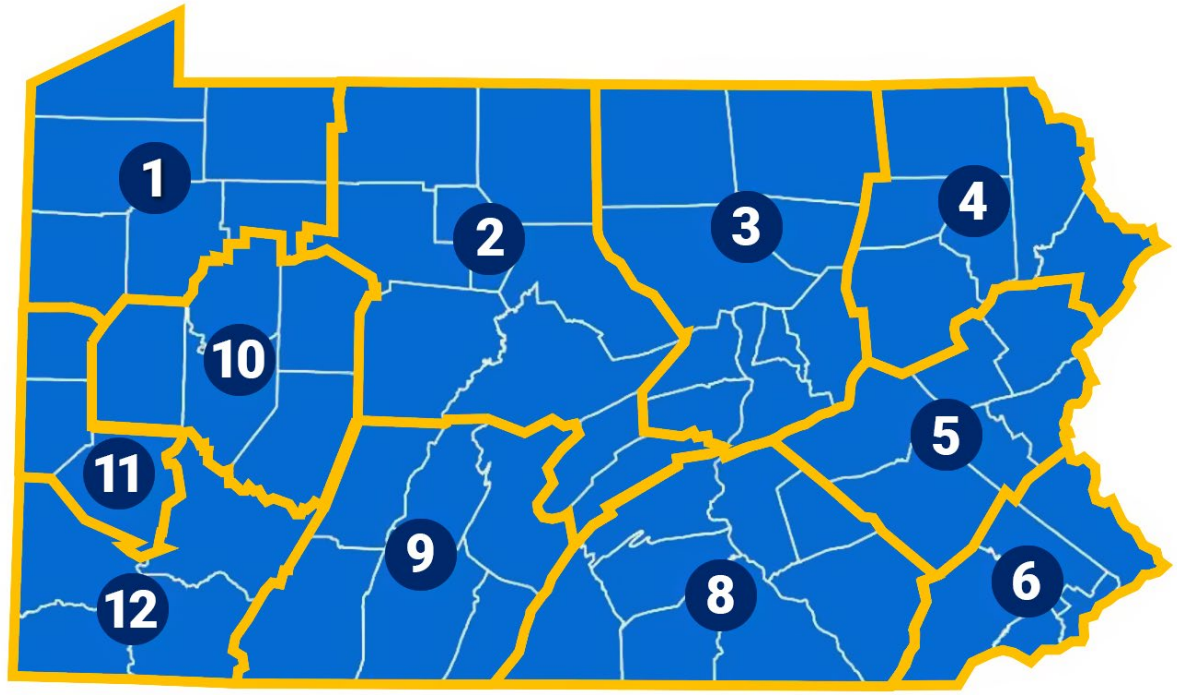
2029-2030

Projects Starting Preliminary Design (MALD)

- In 2029, all integral abutment bridges < 90’ in length
- In 2030, all new construction or reconstruction

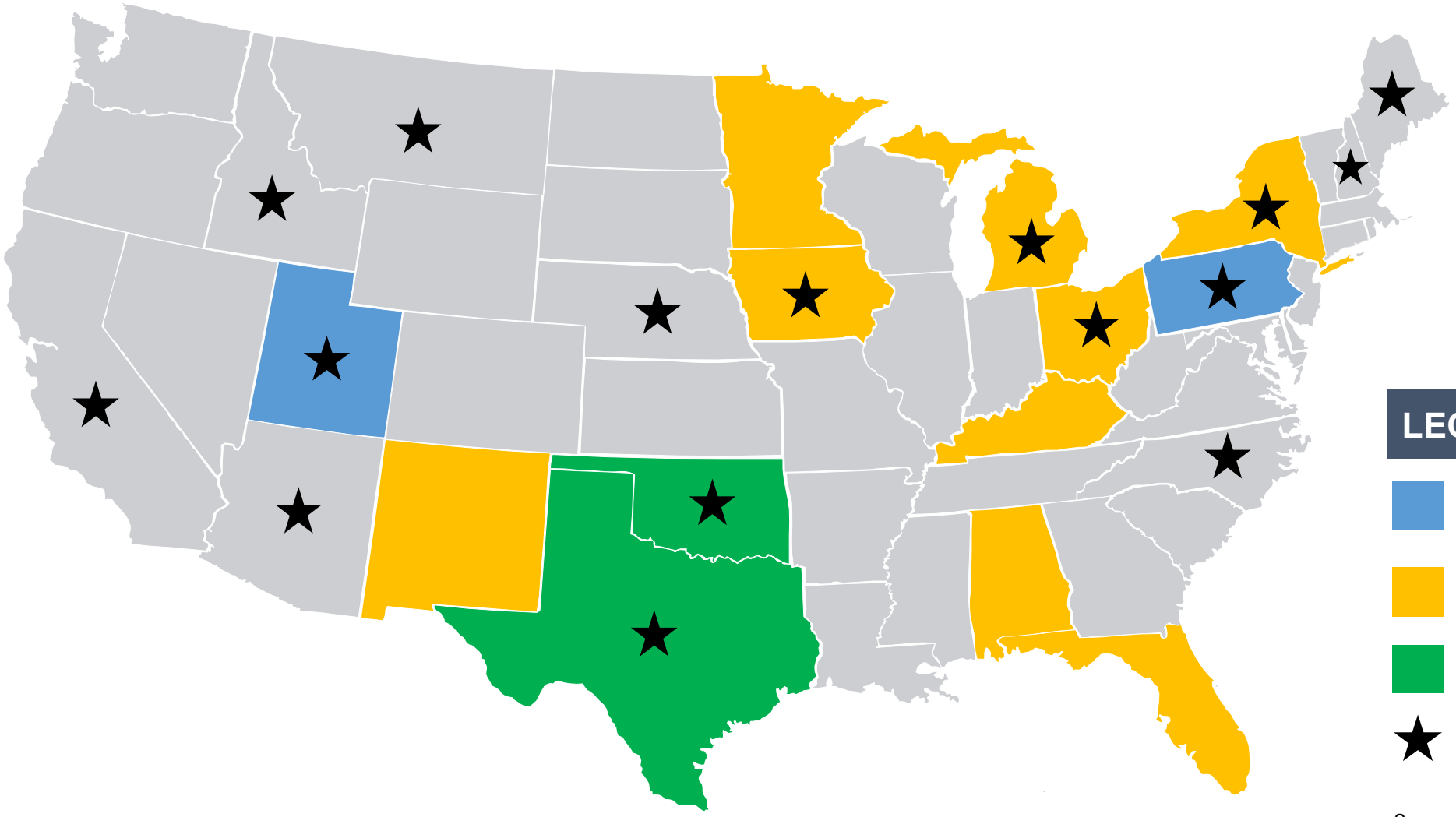
IMPORTANCE OF A PILOT PROGRAM

- Develop and test design modeling workflows and technology
- Phased approach with redundancy to identify what works
- Train stakeholders across the state
- Identifying champions and empowering them to lead through education and training



PennDOT has published a Digital Delivery Implementation Policy to institutional workflows and methods on future design and construction projects.

PILOTING DIGITAL DELIVERY ACROSS THE US



LEGEND

- Level 4 – Contractual Model Deliverables
- Level 3 – Contractual Models and Plans
- Level 2 – Model based design for Plans
- ★ Digital Delivery Strategically Planning

Source : HDR – May 2025

CREATING DIGITAL DELIVERY GUIDANCE

The guidance documents provide standardized processes for stakeholders to use to produce consistent deliverables.

Digital Delivery documents:

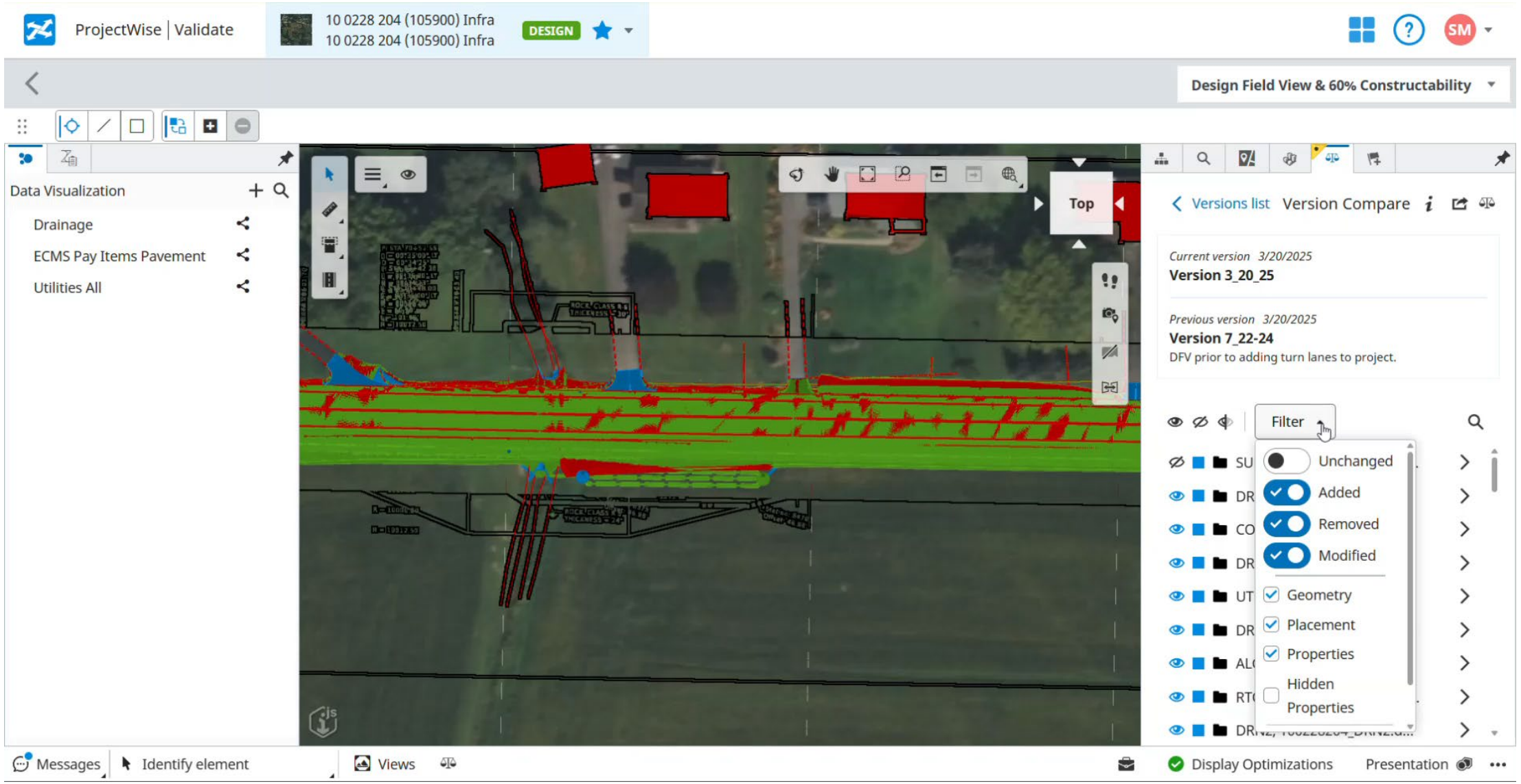
- Digital Delivery Interim Guidelines
- Modeling Standards Manual
- Model Element Breakdown Structure

QUALITY MANAGEMENT

Quality Management processes to review 3D models & types of model-based reviews:

- Model Integrity Review
- Modeling Standards Review
- Survey Review
- Design Compliance / Discipline
- Spatial Coordination

DESIGN VERSIONING



COLLABORATING WITH CONSTRUCTION

New Special Provisions

- Digital Delivery Procedures
- Access to Synchro Viewer Software
- Mandatory Pre-bid Conference
- Partnering
- Survey Grade GNNS Inspection Unit
- Piloting Bridge IFC Files
- Utility As-Builts
- Alternate Bridge Structure – Digital Delivery

CONSTRUCTED PILOTS

Roadway – Existing Ground Confidence Level Pilots

Deliverables

- Earthwork exports
- .DGN files for Roadway design
- No cross sections
- Traditional plans for Also Plan sets

Lessons Learned

- Identified the need for Partnering meetings to discuss design intent
- Identified the need for additional existing survey at tie in points

D1 – Mercer County - PA 173 Intersection

D3 – Tioga County - SR 6 Intersection

CONSTRUCTED PILOTS

Bridge Pilot Projects

Deliverables

- Structure model and rebar
- Approach Roadway models
- No Cross Sections

Lessons Learned

- Addendum process and communication
- Licensing for model viewers
- No 2D sheets that aren't derived from the model

D1 – Crawford County – SR 1032

D3 – Lackawanna County - SR 3006

CURRENT PILOTS IN CONSTRUCTION

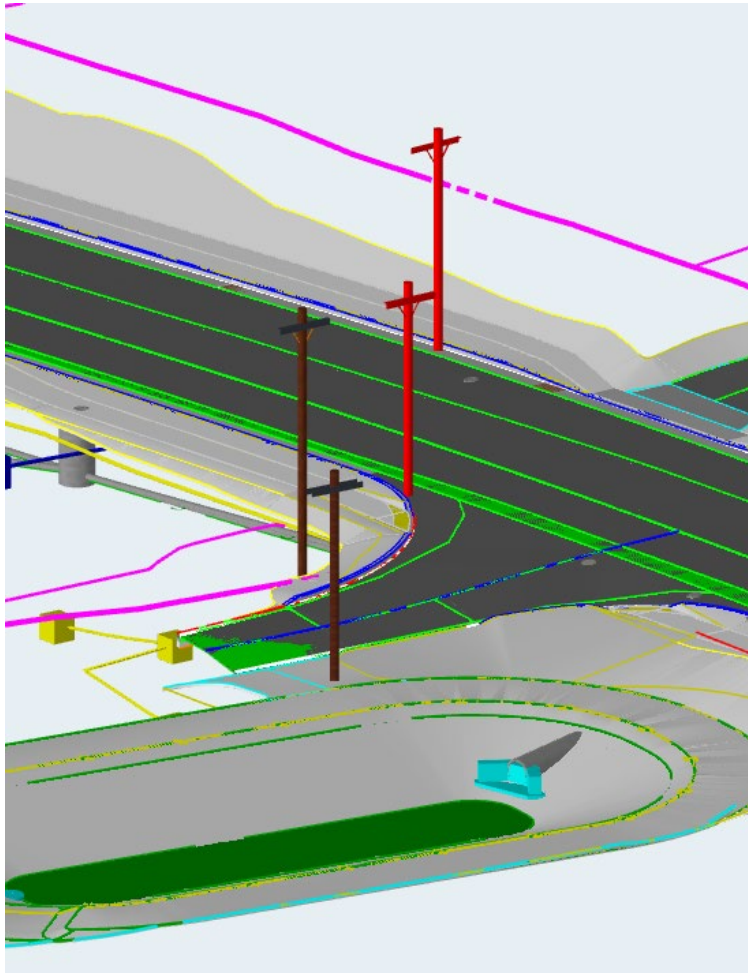
District 10 – MALD Pilot

Deliverables

- Federated model files
- 2D model views
- No plan sets

Lessons Learned

- Utility field meetings and data collection
- Model viewer enhancements
- Contractor coordination



D10 – Clarion County – PA 68 Dolby Street

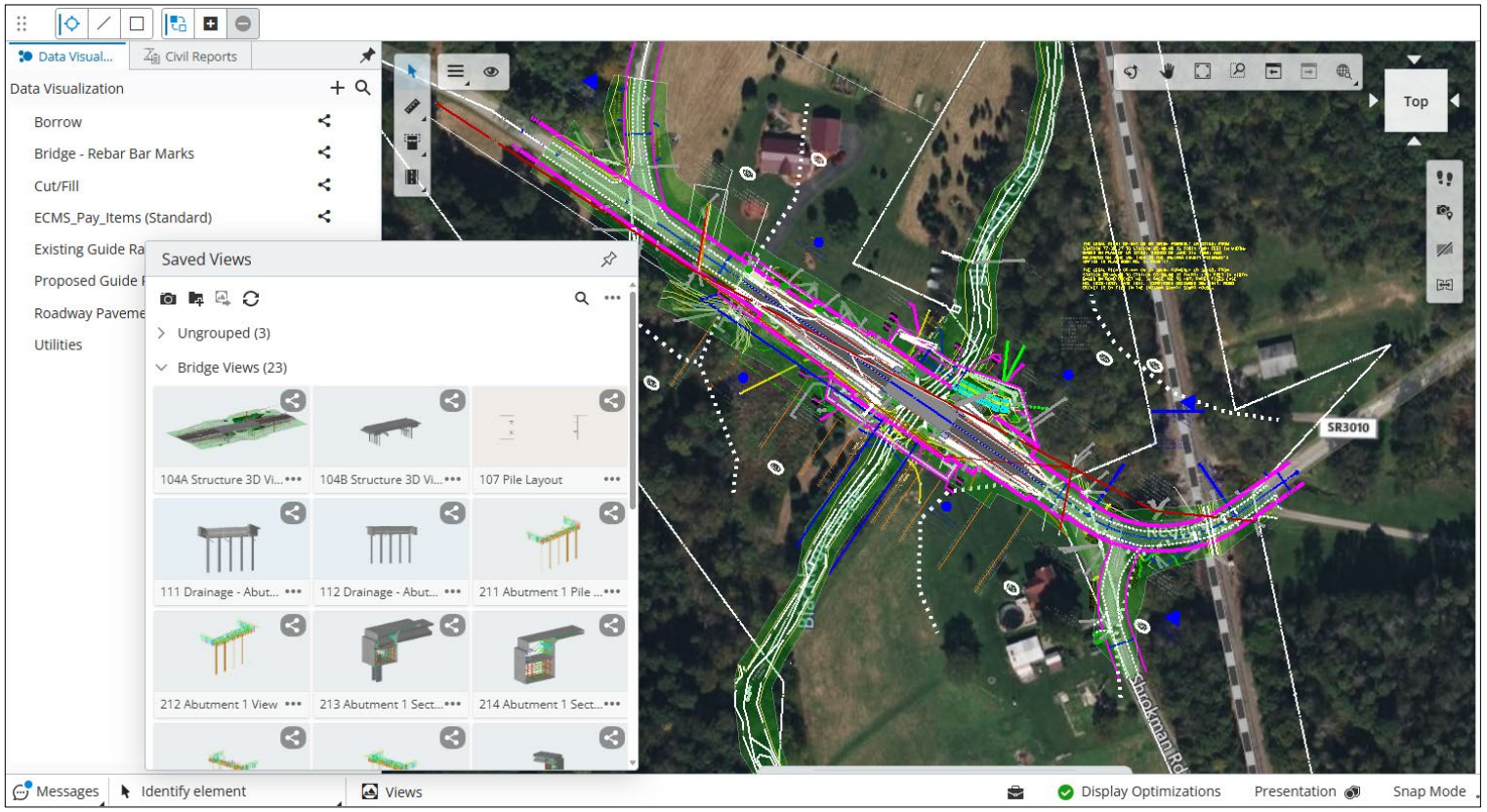
ADCMS BRIDGE PILOTS

Advanced Digital Construction Management Systems Grant

Two Bridge projects using IFC

Deliverables

- IFC Bridge files signed and sealed
- Certification Memo
- Model Element Breakdown Structure
- Digital File Index
- Model Download instructions
- Data visualizations



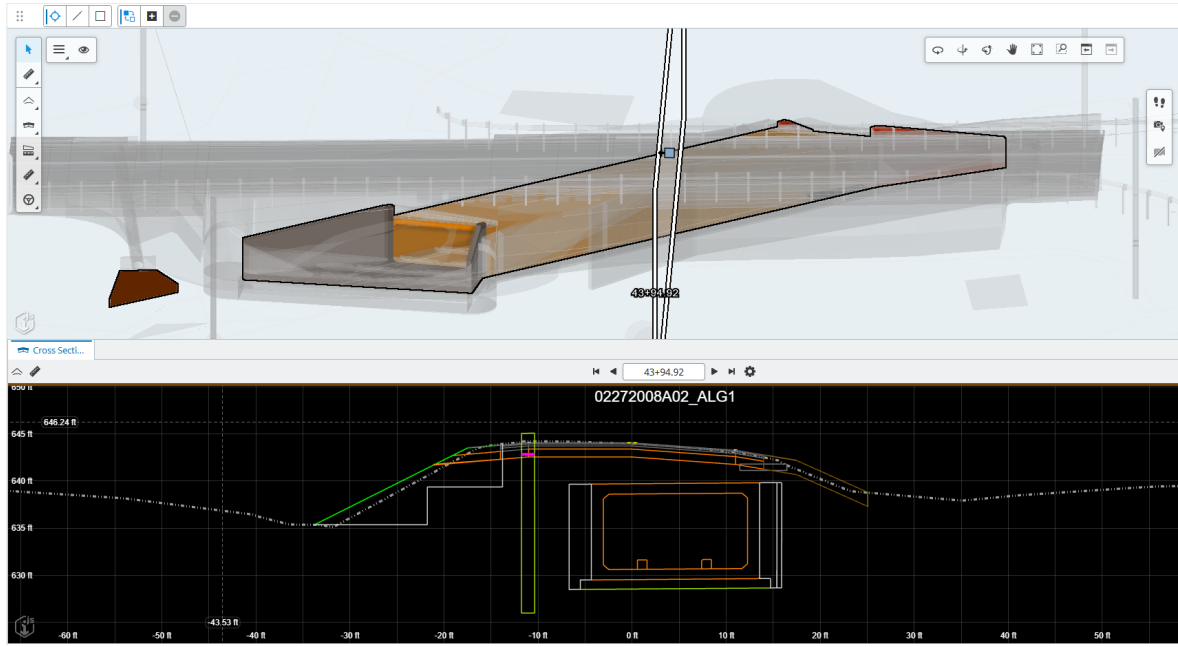
D1 – Crawford County – Steel Bridge

D10 – Indiana County – Integral Abutment

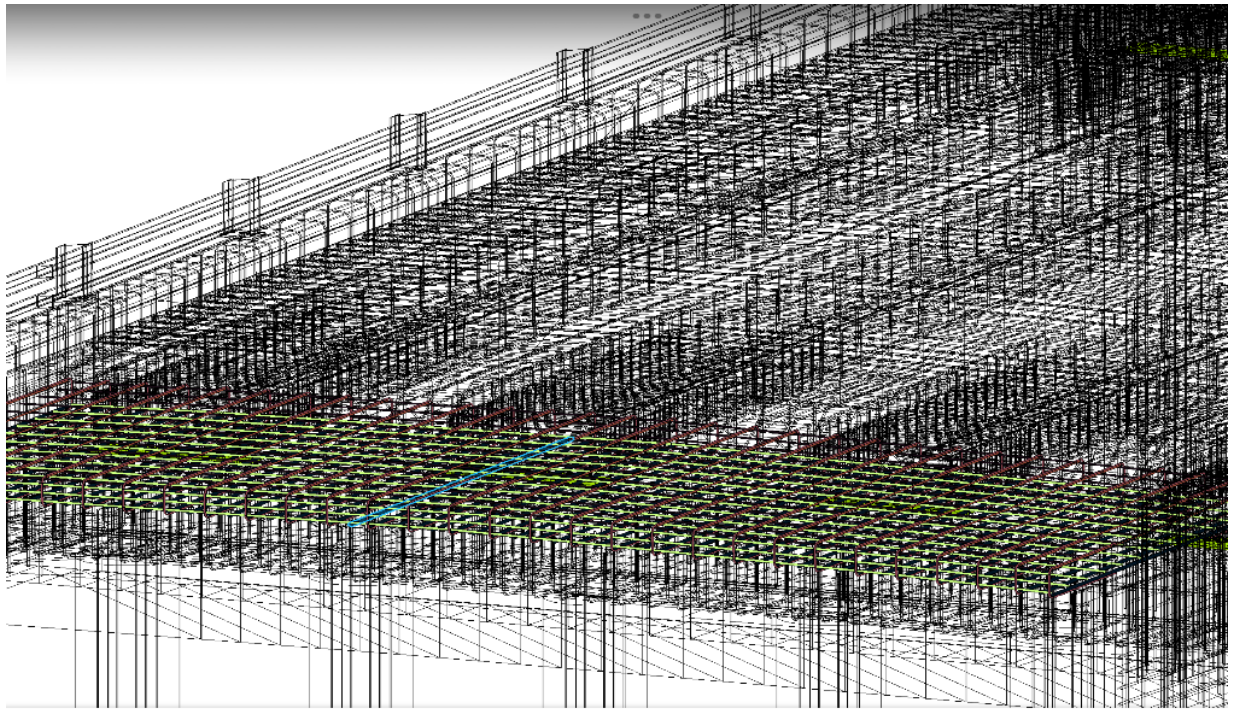
UPCOMING ADVERTISEMENTS

- Drainage Pilot – D10 Butler County
  - Ekastown West 3R – January 2026
- MALD Pilot – D2 Mifflin County
  - SR 2008 over Jacks Creek – December 2025
- MALD Pilot – D3 Bradford County
  - SR 4024 Slide Repair – January 2026
- MALD Pilot – D8 Dauphin County
  - Nyes Road over Beaver Creek – January 2026
- MALD Pilot – D9 Somerset County
  - Breastwork Run Bridge – January 2026

- **Contract Management training with Infrastructure Cloud**
- **Inspector hands-on in person training with iPad Pros**



FROM MODEL TO MATERIAL



DIGITAL DELIVERY IMPLEMENTATION POLICY

Purpose: Institutionalize digital delivery methods for PennDOT design and construction projects.

Each district is required to have a minimum number of fully designed and modeled projects **let** each year

- Most project types will be considered
- Projects can be either internally, or consultant designed

Calendar Year	Minimum # of Projects/ District	Project Phase Completion	Submit for Approval no later than
2027	2	Advertisement	October 15, 2025
2028	3	Advertisement	March 1, 2026
2029	4	Advertisement	March 1, 2027
2030	5	Advertisement	March 1, 2028

DIGITAL DELIVERY IMPLEMENTATION POLICY

Beginning in Calendar Year 2029, all projects starting preliminary design of identified types will be required to be digital delivery projects

Calendar Year	Project Types	Project Phase
2029	Integral abutment bridge projects <90' in length	Starting Preliminary Design
2030	New construction / reconstruction	
2031	TBD	

Design teams will be required:

- Design within PennDOT ProjectWise environment
- Bentley's Infrastructure Cloud will be used for all milestone reviews
- Reviews include 3D models, 2D detail models, and PDF plans

Central Office Digital Delivery Section will provide support, guidance, and onboarding for project teams.

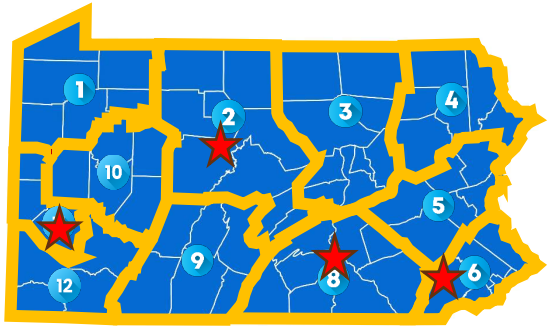
CONTRACTOR SUMMITS

Summits provided education and training to industry partners regarding the Digital Delivery Directive

- Provided understanding of terminology
- Hands on training with Synchro Control
- Information about pilot project workflows

Locations

- January 21, 2025 – Pittsburgh
- January 22, 2025 – Clearfield
- January 23, 2025 – Harrisburg
- January 24, 2025 – King of Prussia



CONTINUAL OUTREACH

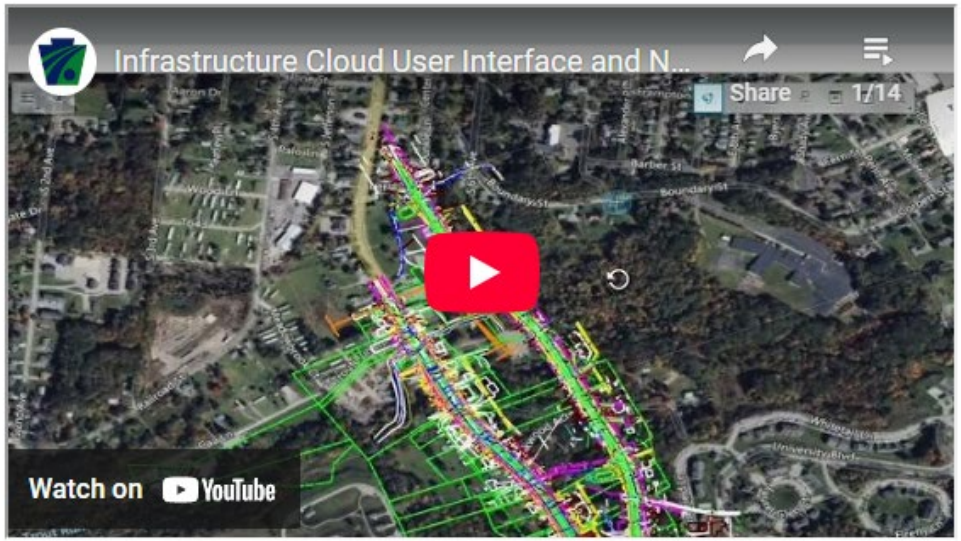
Quarterly Session Demonstrations & Updates

Informational Videos

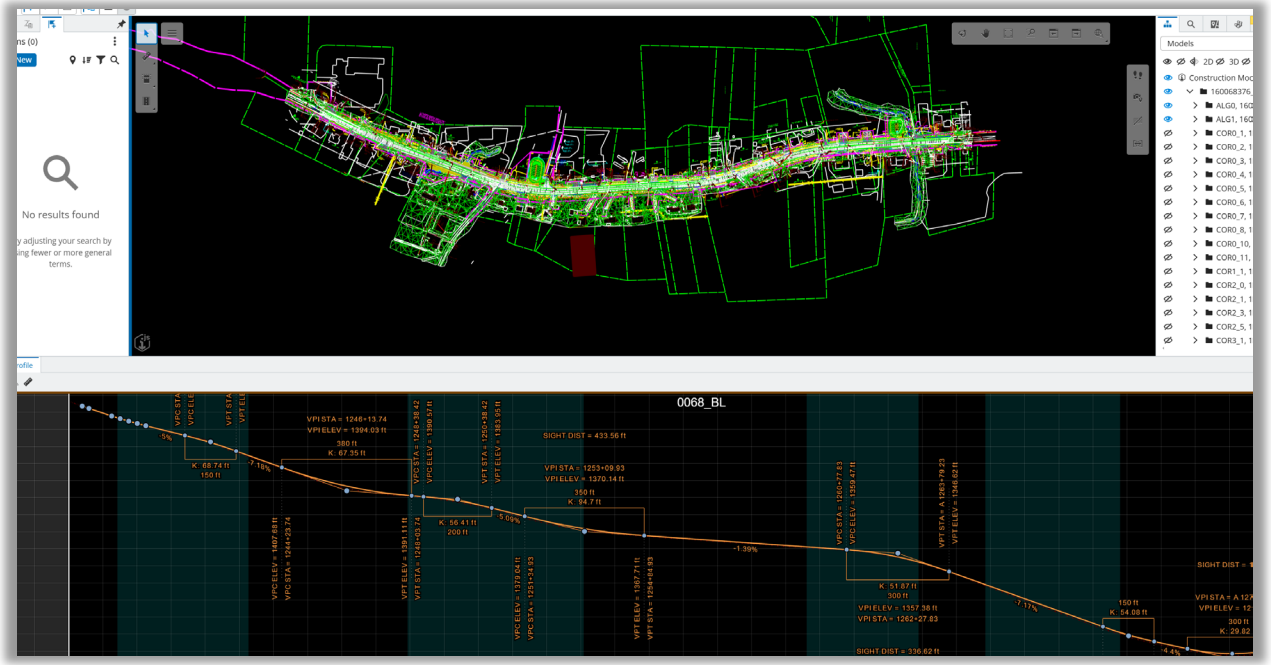
Infrastructure Cloud and Synchro

Infrastructure Cloud Review Manual → Synchro User Guide

Infrastructure Cloud Sandbox – Anyone can be invited into the sandbox environment to test out how the model viewing tools and construction information can be utilized by different stakeholders.



Click the playlist icon in the upper right corner of the video to view the playlist.



HIGHER EDUCATION INITIATIVE

Vision – Digital 3-D workflows are promoted in curriculum development across the Commonwealth.

Mission – Our mission is to provide a platform for educators to advance digital delivery with students and industry professionals through educational and professional development activities.

1. **Curriculum Development Support** – Develop the process and information for the Digital Delivery Directive that supports educators in curriculum development.
2. **Project Database** – Consolidate a database of example projects to be used in student projects and professional development.
3. **Professional Development** – Develop, organize, and promote lunch-and-learn activities, webinars, and guest lectures.

AWARDS

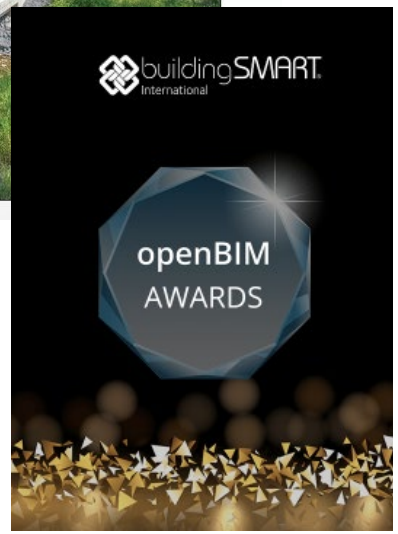
ACEC/PA Diamond Award

- 2025 Small Project Category
- Designer - Pennoni
- Owner - PennDOT

2025 America's Transportation NASTO Award

- Best Use of Technology & Innovation
- First Digital Delivered Bridge

- buildingSMART International OpenBIM Award
  - Finalist in Professional Research Category
  - In collaboration with HDR



QUESTIONS

Digital Delivery

PennDOT Digital Delivery Website

Digital Delivery Email:
RA-PDDigitalDelivery@pa.gov

Allen Melley
Chief of Digital Delivery

PENNSYLVANIA
2025 STATE RAIL PLAN

pennsylvania
DEPARTMENT OF TRANSPORTATION

MODES COVERED BY A RAIL PLAN

Freight Rail

By Nyttend - Own work, Public Domain, https://commons.wikimedia.org/w/index.php?curid=41201836

Commuter Rail

Intercity Passenger Rail

THE STATE RAIL PLAN STRUCTURE

WHERE ARE WE?

1 Role of Rail

Articulates state transportation goals and how rail fits in, and how the state is organized to support rail.

2 State's Existing Rail System

- Summarizes freight and passenger rail use, infrastructure, and services.
- Assesses the performance of rail lines.
- Identifies trends that will impact the future.

WHERE ARE WE GOING?

3&4 Initiatives & Investments

- Identifies top issues and opportunities.
- Identifies initiatives and strategies to address the issues and opportunities.

HOW DO WE GET THERE?

5 Service & Investment Program

- Articulates vision, goals, and objectives.
- Provides project portfolio.
- Provides a funding plan.

6 Coordination & Review

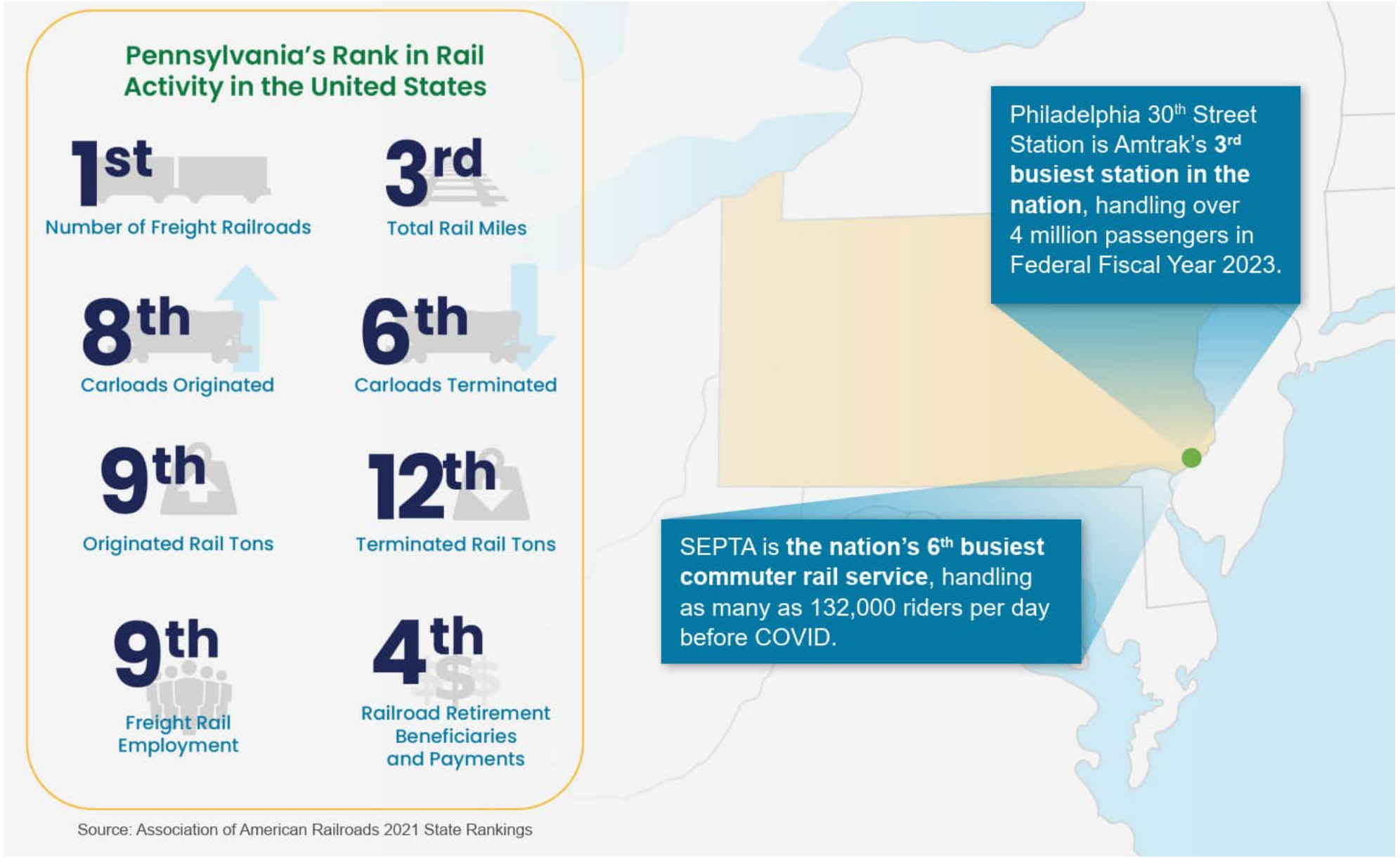
- Summarizes stakeholder involvement.

IMPORTANCE OF PA RAIL SYSTEM

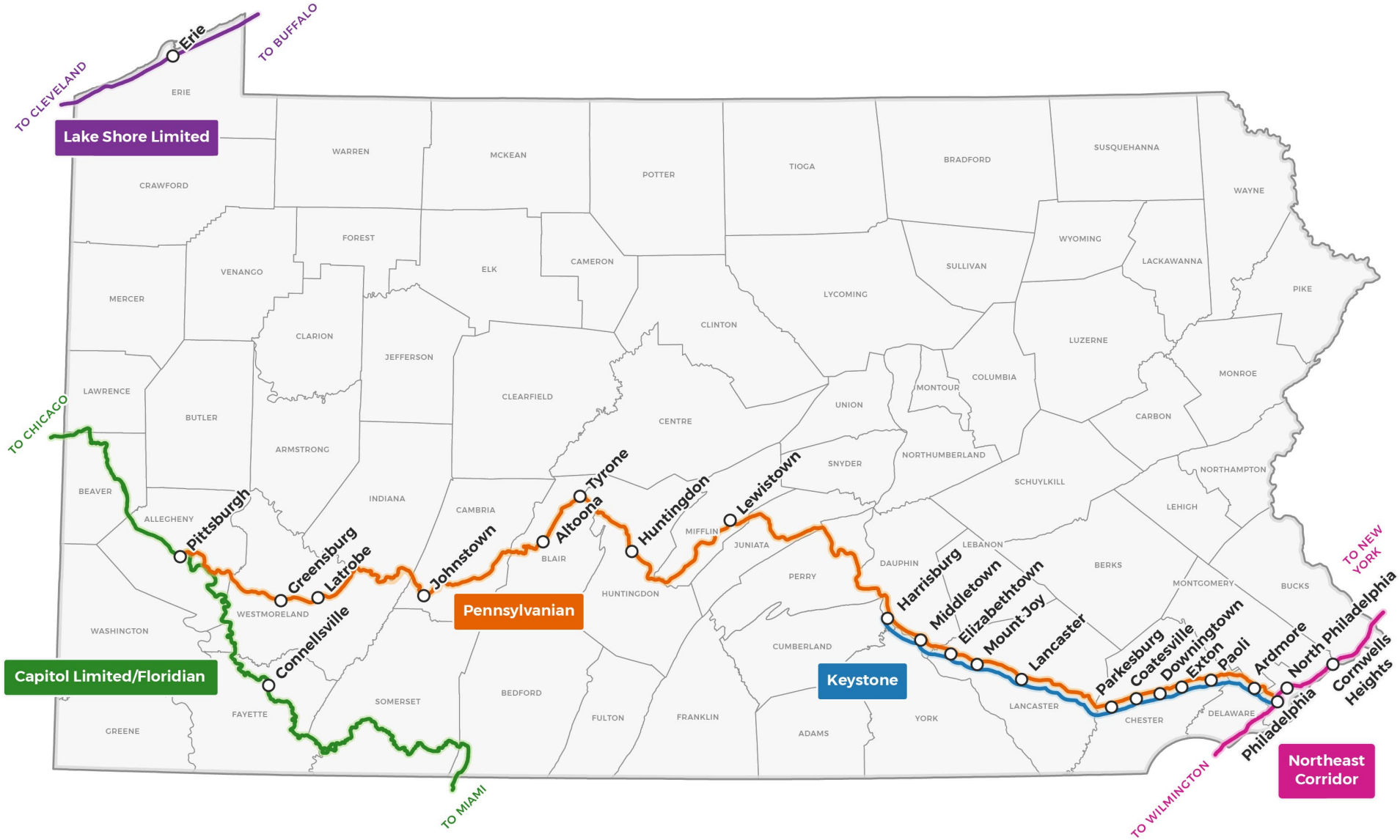
Pennsylvania's Rank in Rail Activity in the United States

- **1st** Number of Freight Railroads
- **3rd** Total Rail Miles
- **8th** Carloads Originated
- **6th** Carloads Terminated
- **9th** Originated Rail Tons
- **12th** Terminated Rail Tons
- **9th** Freight Rail Employment
- **4th** Railroad Retirement Beneficiaries and Payments

Source: Association of American Railroads 2021 State Rankings

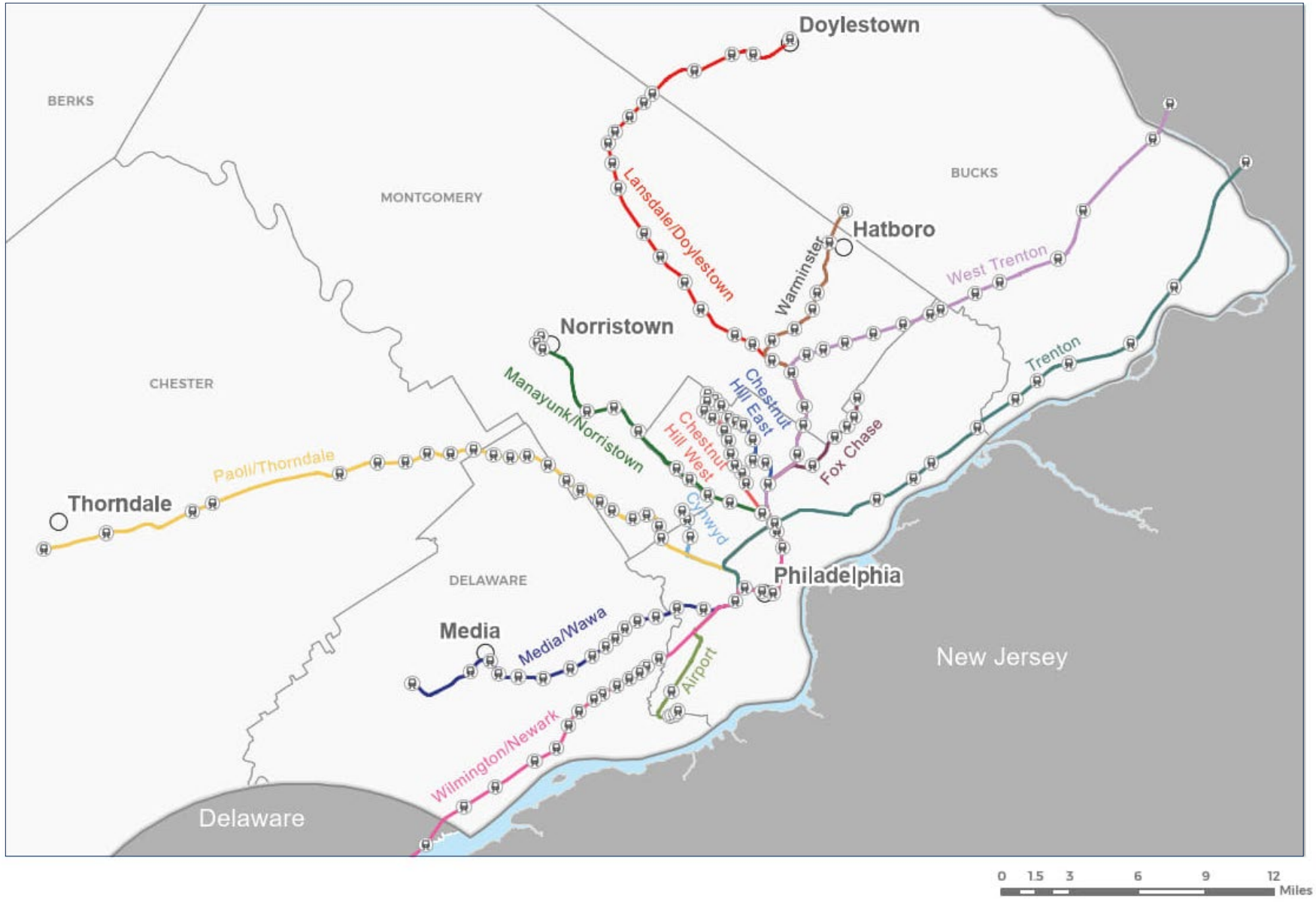


INTERCITY PASSENGER RAIL IN PA



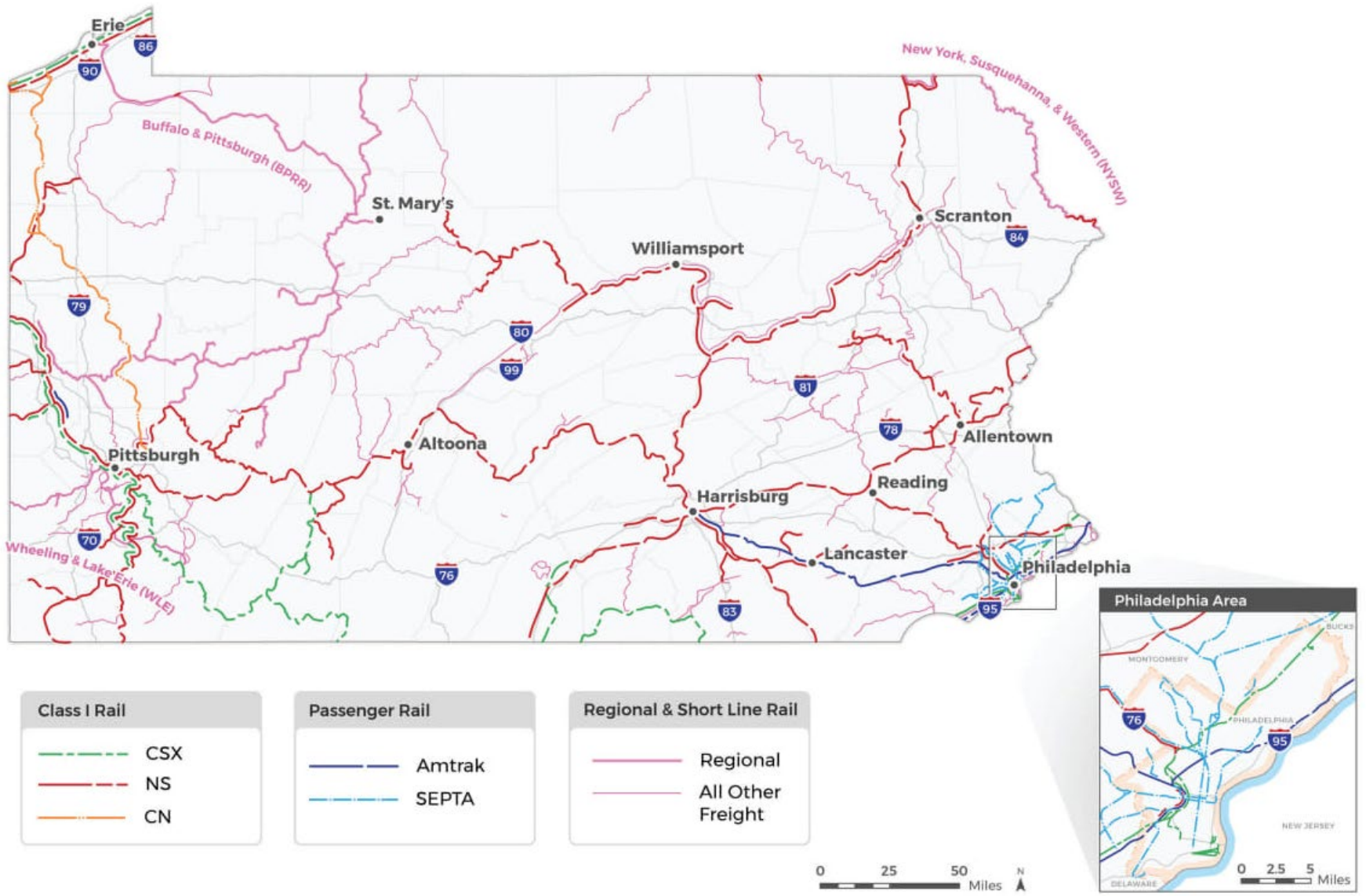
PENNSYLVANIA
State Rail Plan

REGIONAL RAIL IN SOUTHEAST PA



PENNSYLVANIA
State Rail Plan

FREIGHT RAIL NETWORK



CLASS I

Pennsylvania's **three Class I** railroads have revenues over **$1B and carry freight to other parts of North America.**

CLASS II

Pennsylvania's **three Class II**, or "regional," railroads have revenues between **$1B and $47M and carry freight within Pennsylvania or to and from nearby states**.

CLASS III

Pennsylvania's **53 Class III** railroads have revenues less than $47M and provide **"last mile" service to customers**.

PUBLIC OUTREACH ACTIVITIES TO DATE

In preparing the State Rail Plan, PennDOT engaged with numerous rail stakeholders and members of the public.

Public meeting:
161
ATTENDING

Online public survey:
884
RESPONSES

3 Stakeholder workshops

Collectively attended by **73**

12 MEETINGS
with economic development organizations, trade associations, and shippers

A number of themes became apparent through outreach and data analysis for the State Rail Plan.

- SAFETY AND SECURITY
- STATE OF GOOD REPAIR
- ENERGY EFFICIENCY, SUSTAINABILITY, RESILIENCY
- CONNECTIVITY
- QUALITY OF LIFE

2025 STATE RAIL PLAN GOALS

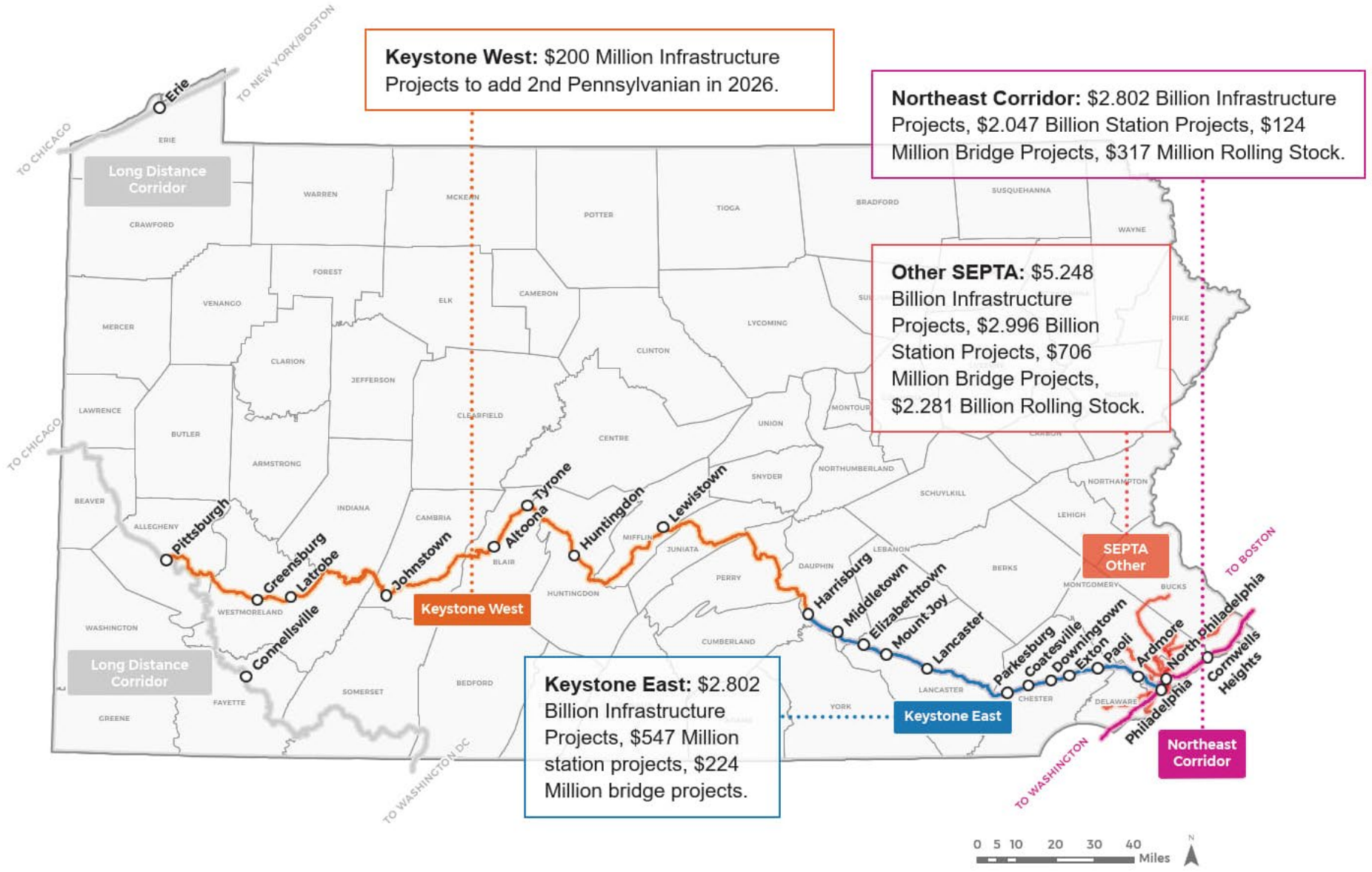
1. Enhance safety and security of Pennsylvania's rail system while minimizing risks to communities in which railroads operate
2. Bring the priority rail system to a state of good repair and ensure continued maintenance
3. Enhance the connectivity and coordination within the rail network and between rail and other modes of transportation
4. Enhance the quality of life in Pennsylvania
5. Support energy efficiency, environmental sustainability, and resiliency
6. Identify stable and predictable funding

Each goal has a series of objectives to accomplish that goal.

PASSENGER RAIL

pennsylvania
DEPARTMENT OF TRANSPORTATION

PASSENGER RAIL NEEDS



PENNSYLVANIA State Rail Plan

NEW PASSENGER RAIL CORRIDORS

Chicago, Fort Wayne, Columbus and Pittsburgh

Sponsored by the City of Fort Wayne, IN, the project would reinstate service on an existing rail alignment, providing connection from Chicago, IL, to Pittsburgh, PA, through Fort Wayne, IN, and Columbus, OH.

Scranton – New York City

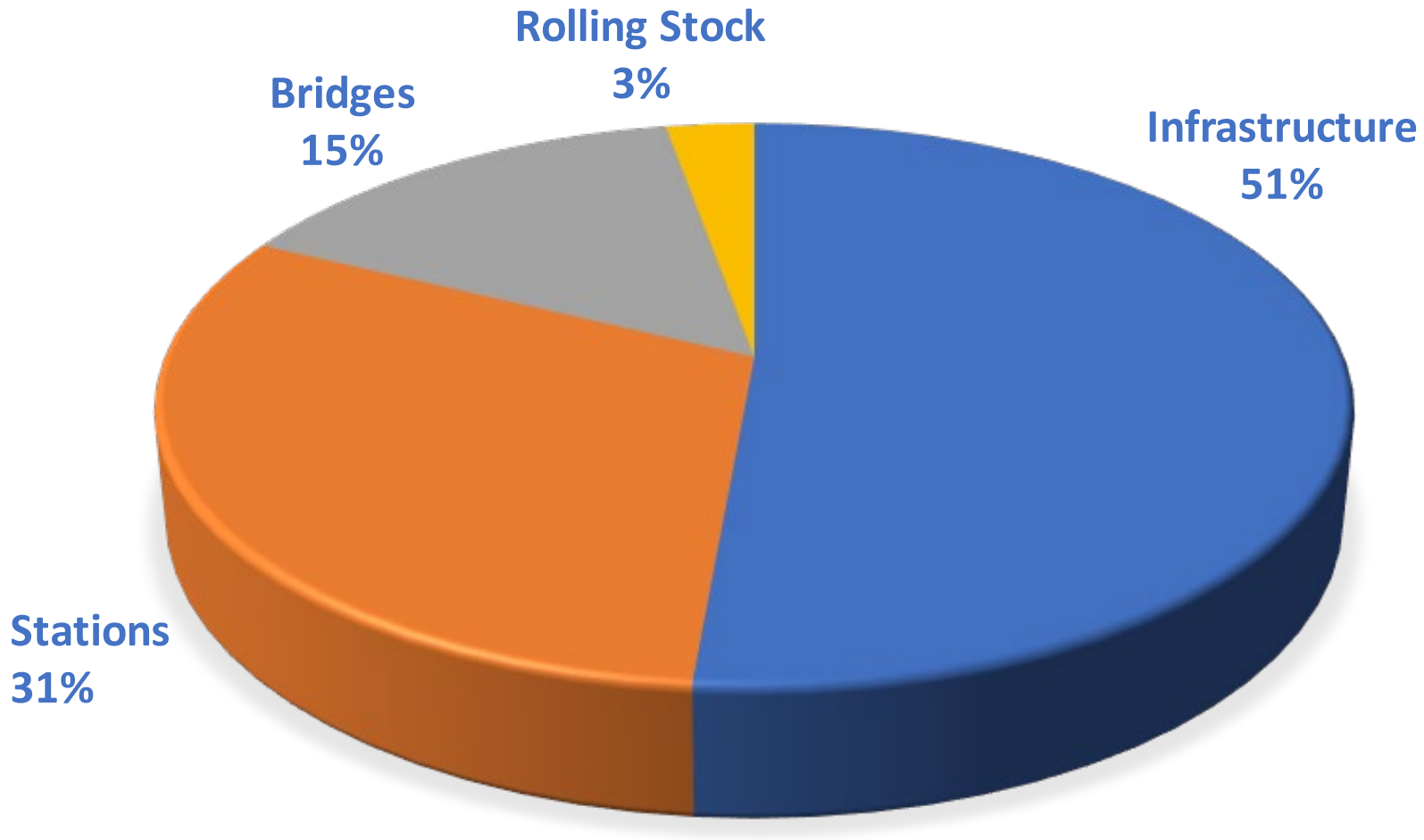
PennDOT and co-applicants Pennsylvania Northeast Regional Railroad Authority (PNRRA) and NJ TRANSIT propose restoring rail service between Scranton, PA, and New York, NY. The 140-mile corridor spans 60 miles across Pennsylvania, owned by the PNRRA and 80 miles in New Jersey, owned and operated by NJ TRANSIT. The remaining 20 miles of missing track is property of New Jersey Department of Transportation.

Reading to Philadelphia

Sponsored by the Schuylkill River Passenger Rail Authority (SRPRA), the project would restore passenger train service along the corridor, utilizing the existing rail alignment to provide connection from Reading to Philadelphia with new intermediate stops at Pottstown, Phoenixville, and potentially Norristown, PA.

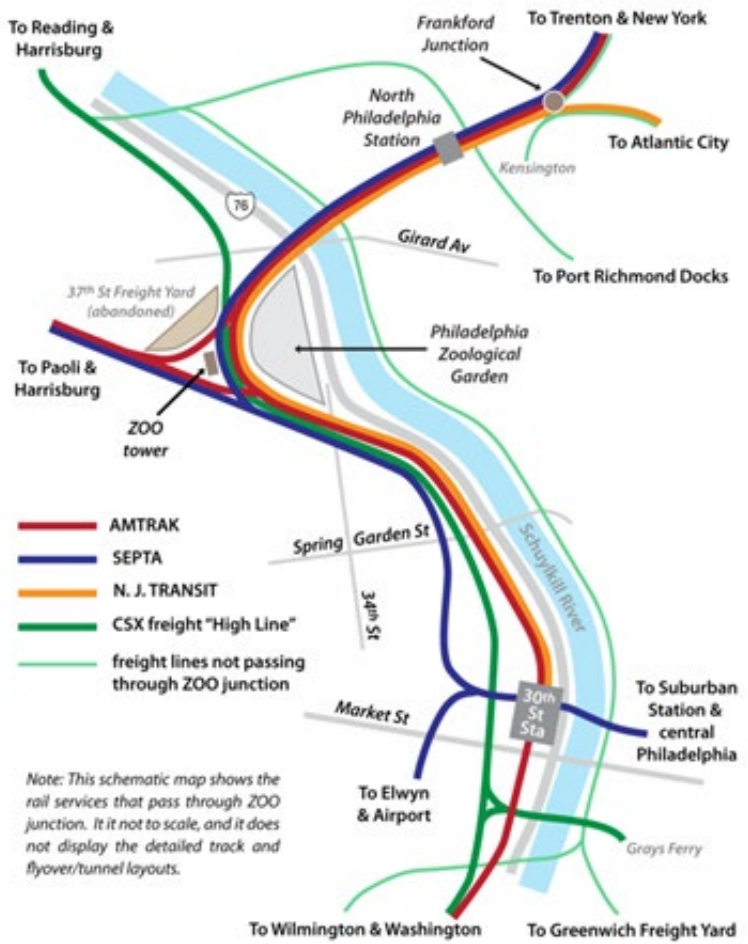
PROJECT PORTFOLIO – PASSENGER RAIL

Summary of Statewide Passenger Rail Investment Program by Project Count



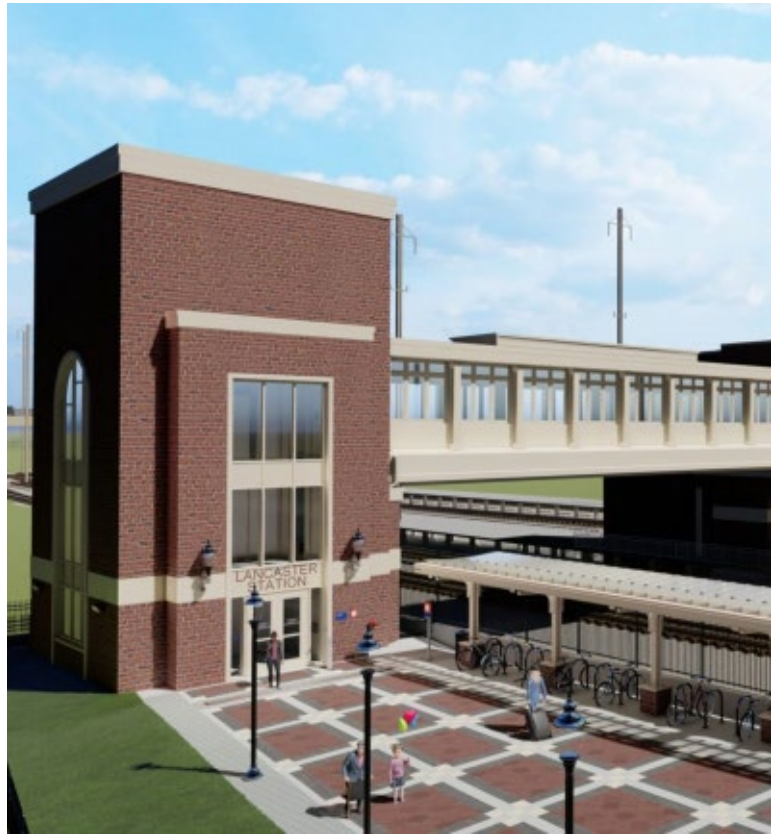
PENNSYLVANIA
State Rail Plan

KEY PROJECTS – KEYSTONE EAST



Zoo Interlocking Improvements

New Downington Passenger Rail Station

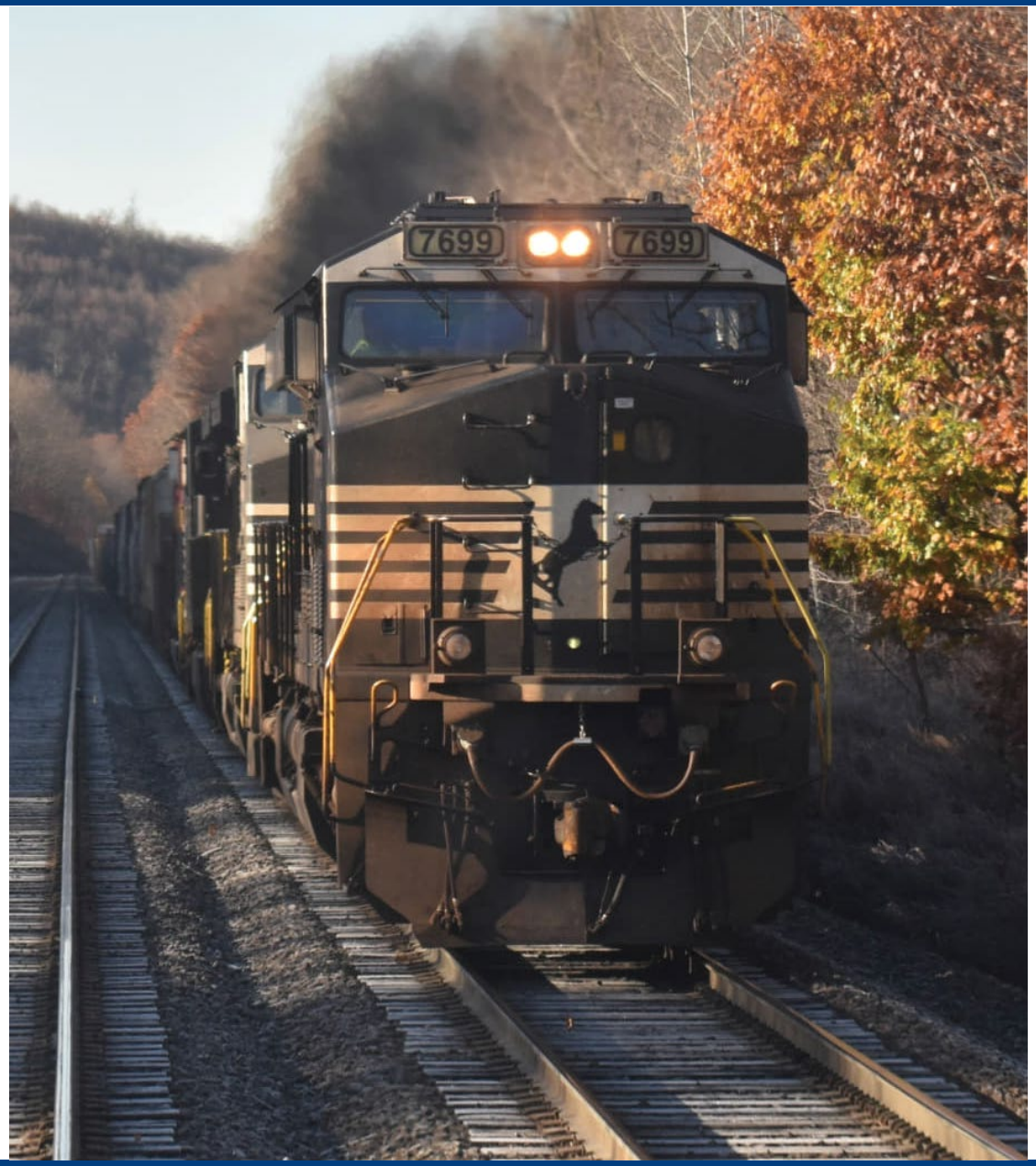


Lancaster Station Improvements

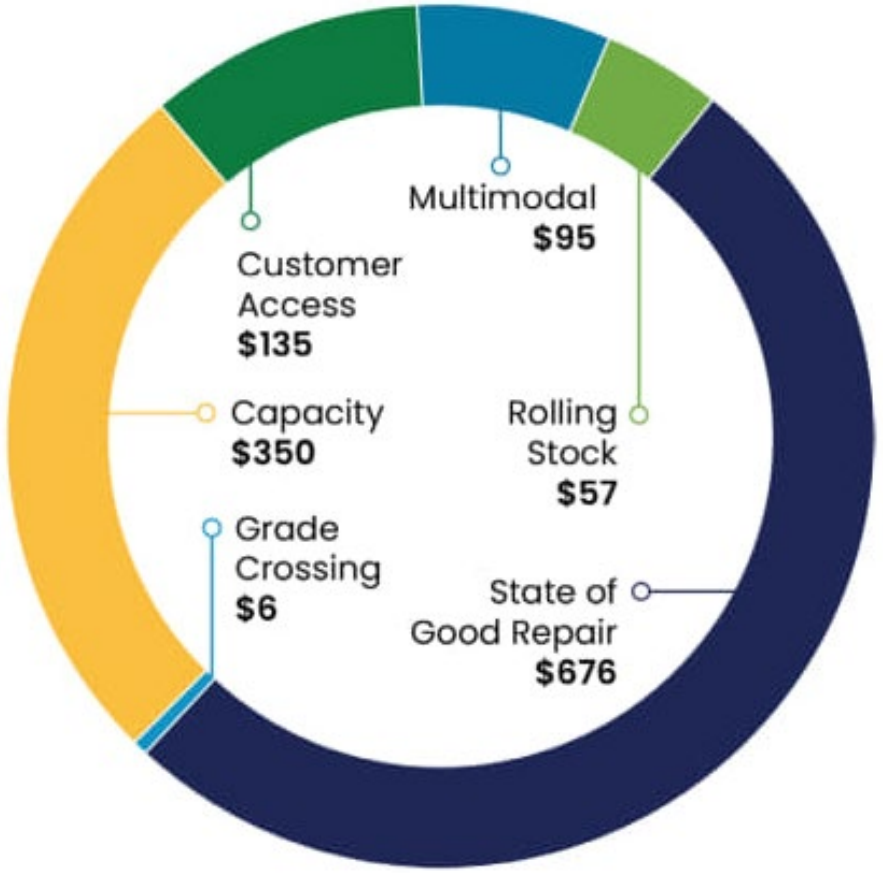
FREIGHT RAIL

pennsylvania
DEPARTMENT OF TRANSPORTATION

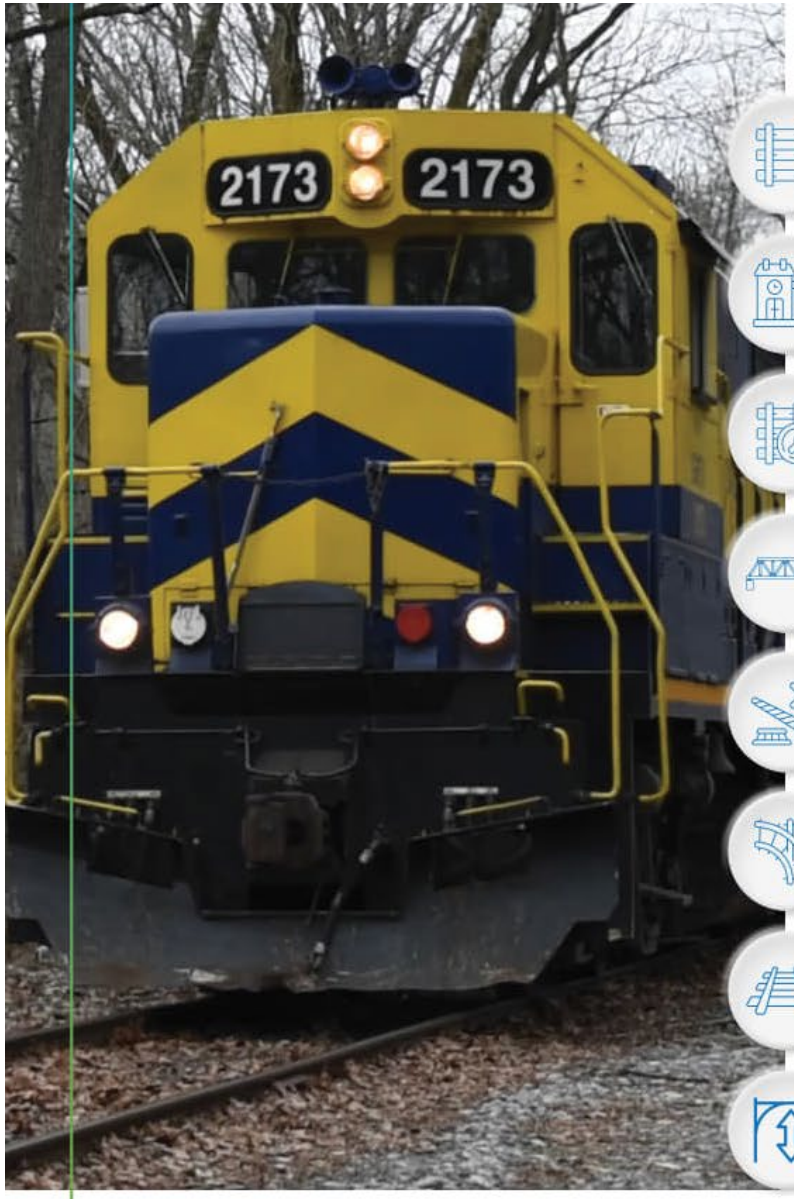
FREIGHT RAIL NEEDS



Potential Project Cost (Millions)



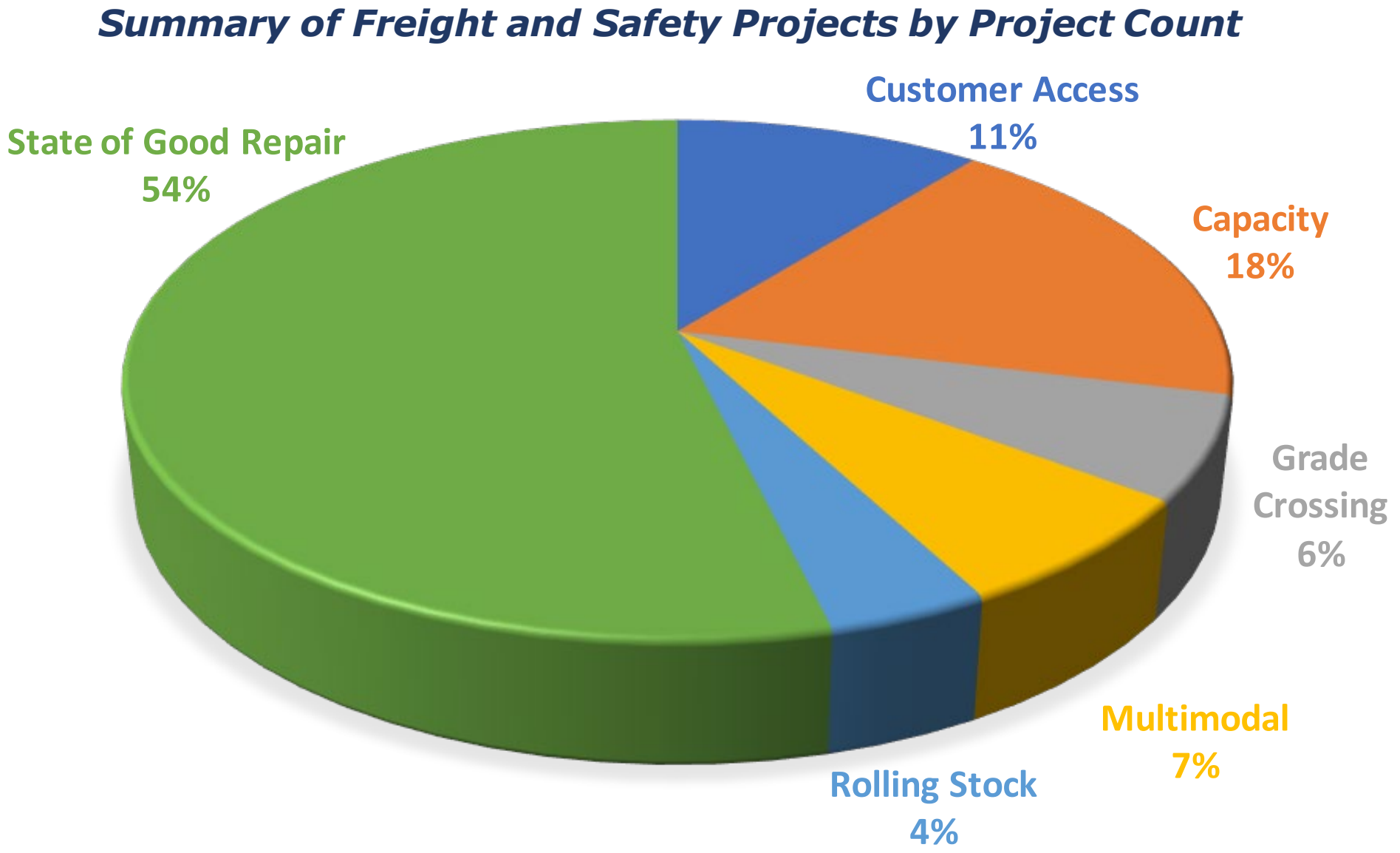
RFAP AND RTAP PROJECTS



Projects Selected for RFAP and RTAP (2019 – 2023)

- Rehabilitate over **300 miles of track** on short line and regional railroads
- Construct or improve at least **12 loading/unloading facilities**
- Construct over **5.5 miles** of new track, mostly to provide access to freight shippers
- Rehabilitate or replace at least **32 bridges**
- Rehabilitate at least **31 highway-rail grade crossings**
- Install at least **37 turnouts**
- Replace **76,765 ties**, including only those projects that focus specifically on tie replacement rather than rail line rehabilitation
- **Improved clearance** to allow more efficient intermodal container operations for Philadelphia and Pittsburgh.

PROJECT PORTFOLIO – FREIGHT



SUMMARY

In general, rail projects:
SUPPORT ECONOMIC DEVELOPMENT AND SAVE MONEY
Freight and passenger rail can be more affordable than alternative modes for users, attracting people and businesses to the state.
Freight rail hubs and passenger stations can provide concentrations of economic activity.
ENHANCE MOBILITY
Rail projects provide modal choices to users. This is particularly important to passengers unable to drive or shippers with products that would be uneconomical to ship over the road.
IMPROVE SAFETY
Freight rail experiences 1/8th the fatalities and 1/16th of the injuries as truck on a per ton-mile basis.
Riding a train is 17 times safer than driving a car.
REDUCE FUEL CONSUMPTION AND EMISSIONS
Freight rail is 4X more fuel efficient than trucking, and passenger rail in Pennsylvania is over 85% more fuel efficient than driving.
REDUCE ROADWAY CONGESTION, MAINTENANCE, AND CONSTRUCTION
A single freight train can haul the equivalent of 300 trucks, and the average Amtrak train carries about 290 people.
Transporting Freight
TRUCKS
107 ton-miles per gallon of fuel
VS
RAILROADS
494 ton-miles per gallon of fuel
4X FUEL EFFICIENT

Transportation Advisory Committee (TAC) Portal Overview

October 22, 2025

Via Microsoft Teams

State Transportation Commission

Pennsylvania Department of Transportation

Welcome

About the Portal

The Member Portal is exclusive to STC and TAC members, and logging in is necessary to access the portal. The portal is an extension of the TalkPATransportation website and gives you access to meeting information, study topic ideas, RSVPs, and more.

Navigate To:
talkpatransportation.com/members/login

Key Features

Login

- Access your account
- Reset your password

Profile

- Update personal information

Meetings Page

- RSVP
- Submit an agendas topic
- Comment on an agenda topic

TAC Study Ideas

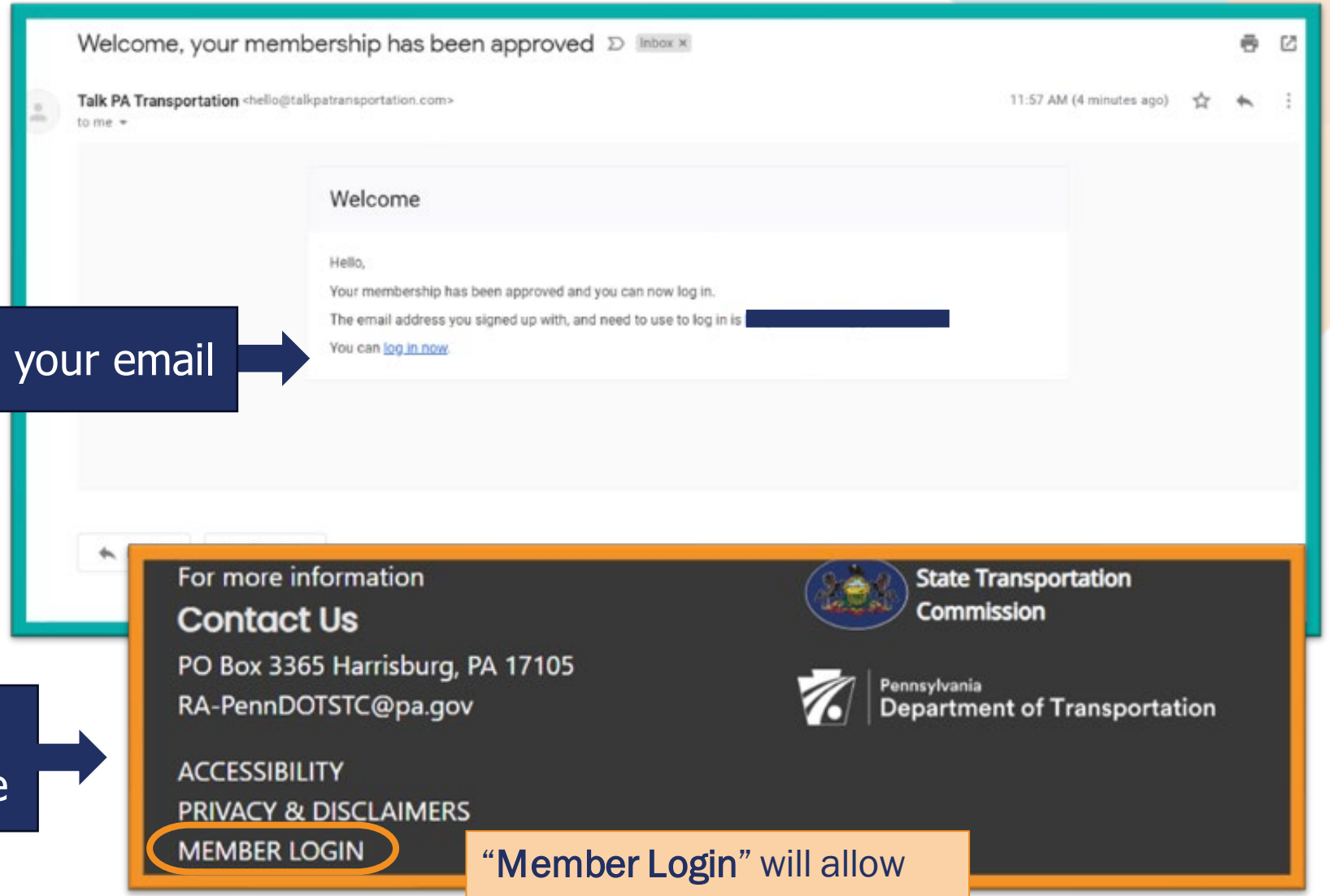
- Submit an idea
- Comment on an idea

Log Out

- Log out of the portal

Login

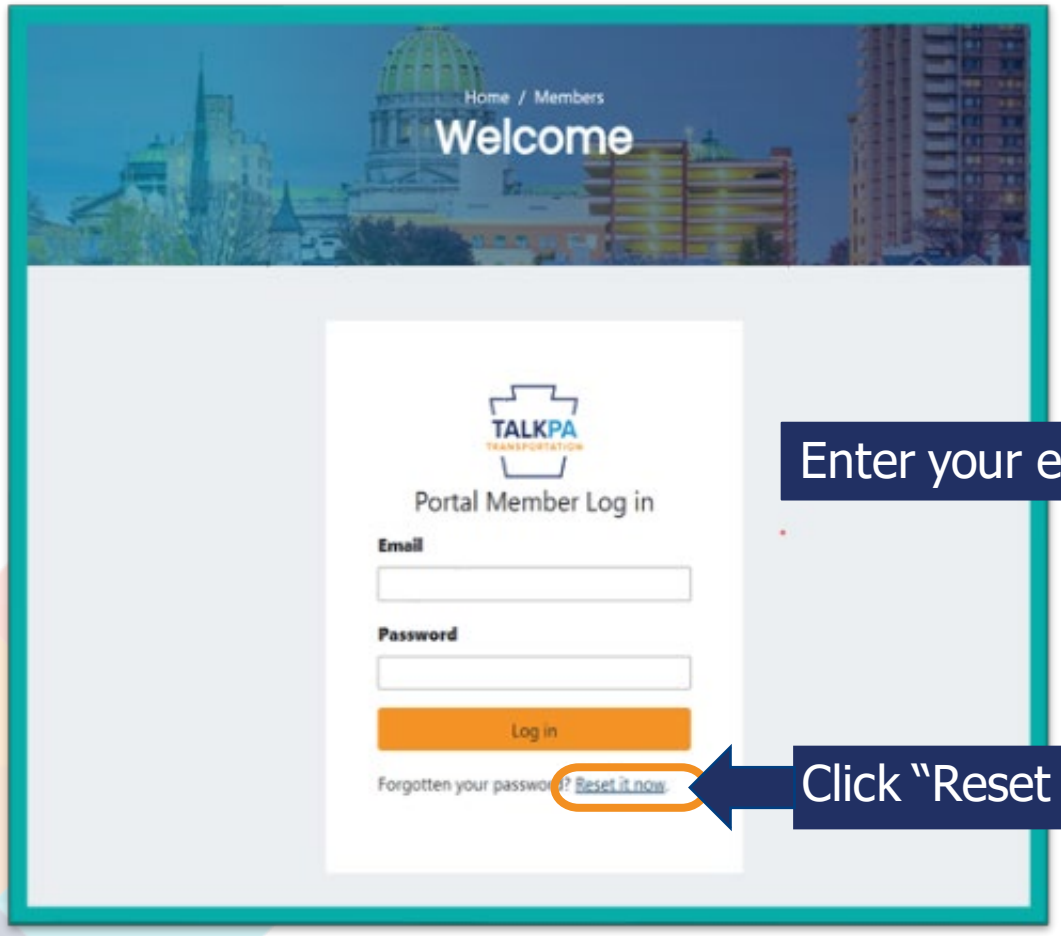
Log in through your email



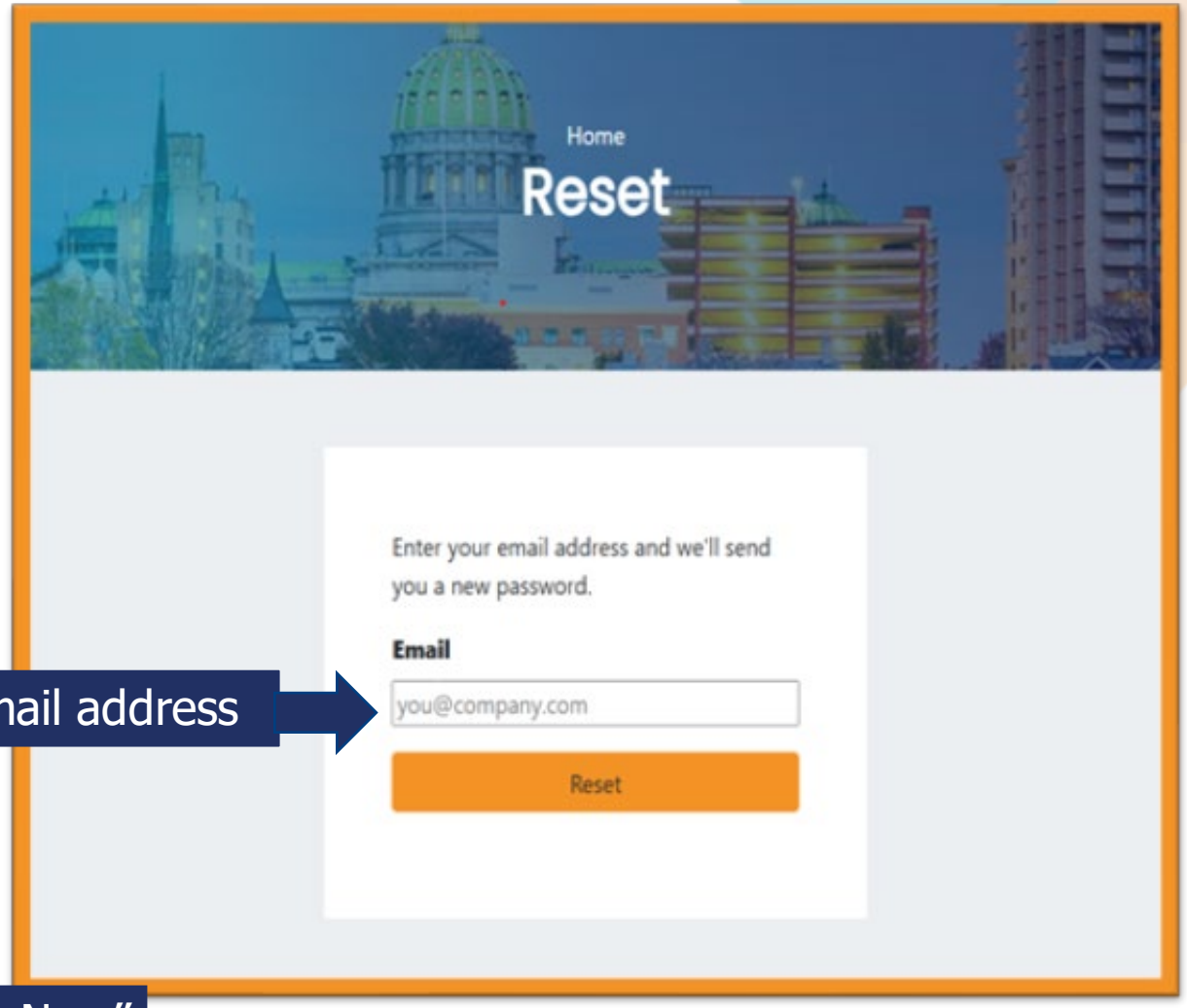
Log in through the TalkPATransportation website

"**Member Login**" will allow you to log in to your account

Login



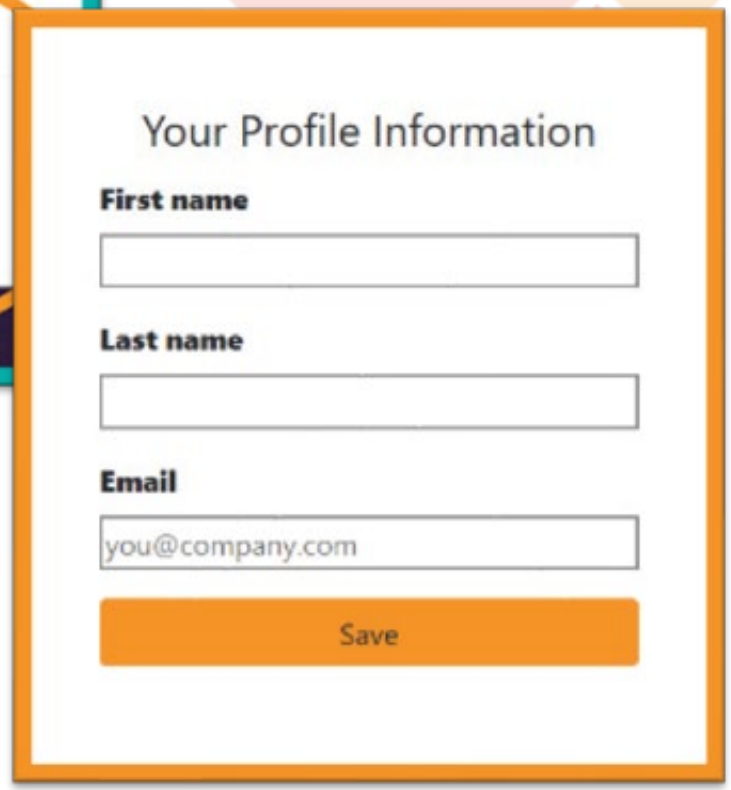
Click "Reset it Now"



Enter your email address

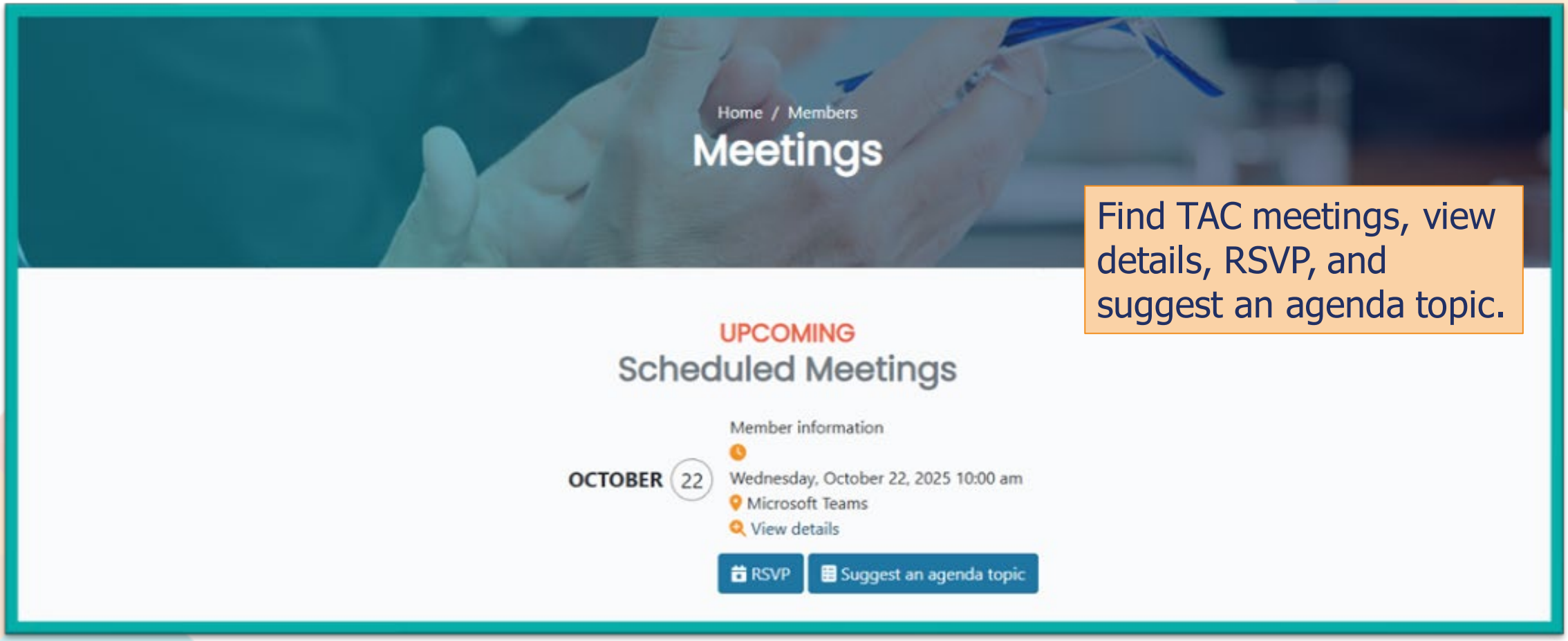
Profile

You can edit your profile information at any time.



To update your personal information, select the members tab and then click the "**profile**" option.

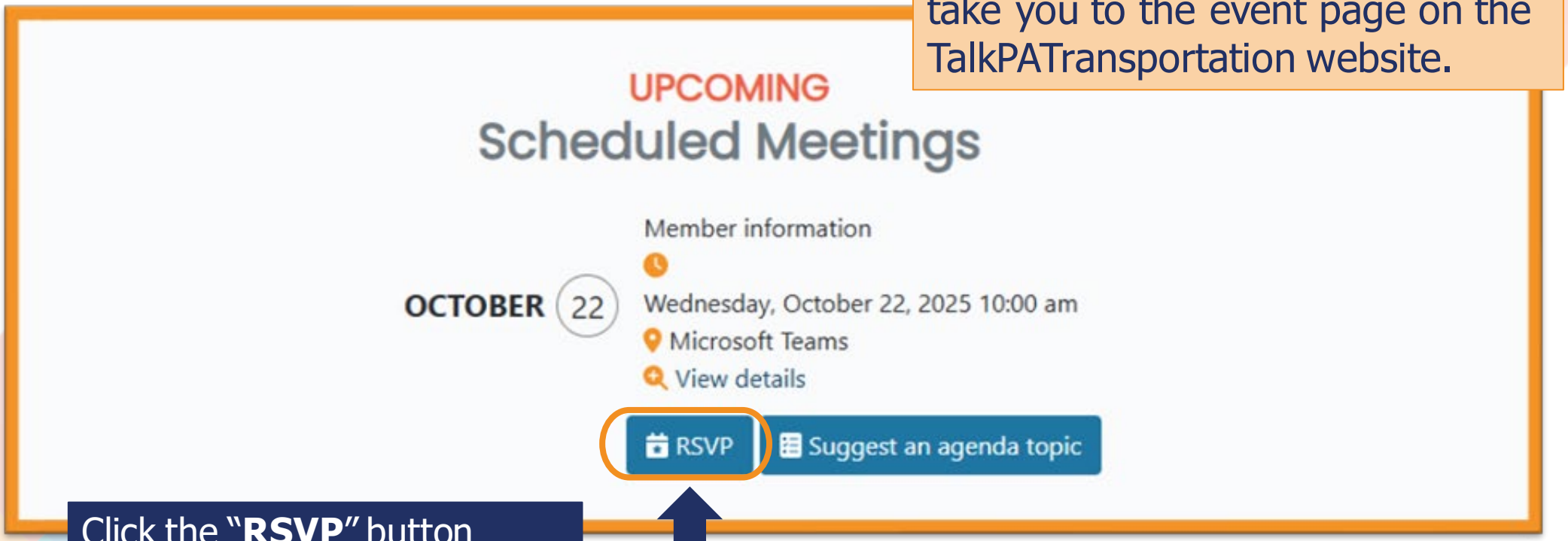
Meetings Page



Find TAC meetings, view details, RSVP, and suggest an agenda topic.

Meetings Page - RSVP

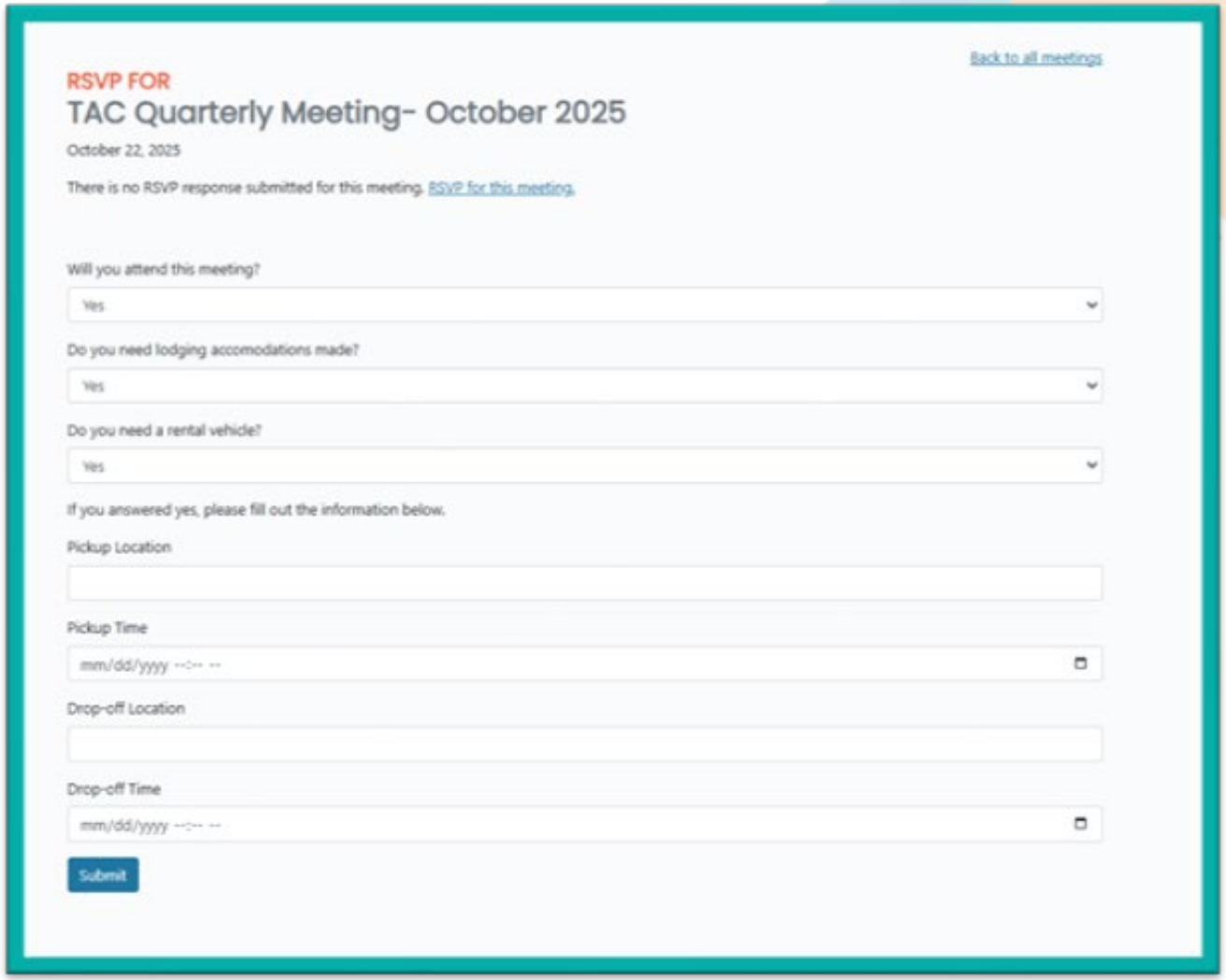
The "**view details**" button will take you to the event page on the TalkPATransportation website.



Click the "**RSVP**" button under a meeting to respond to that specific meeting.

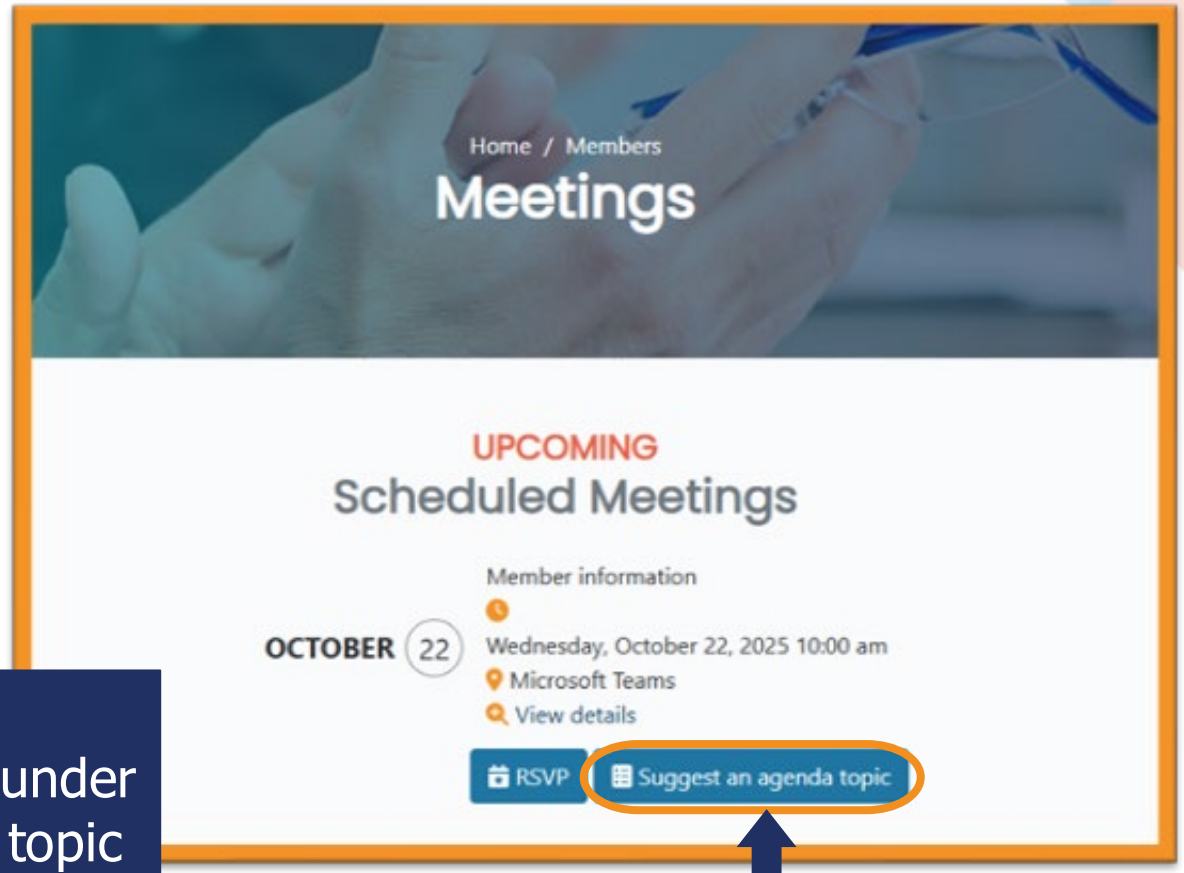
Meetings Page - RSVP

After clicking the **RSVP** button, a new page will appear where you can RSVP, submit a lodging request, and submit a car rental request.



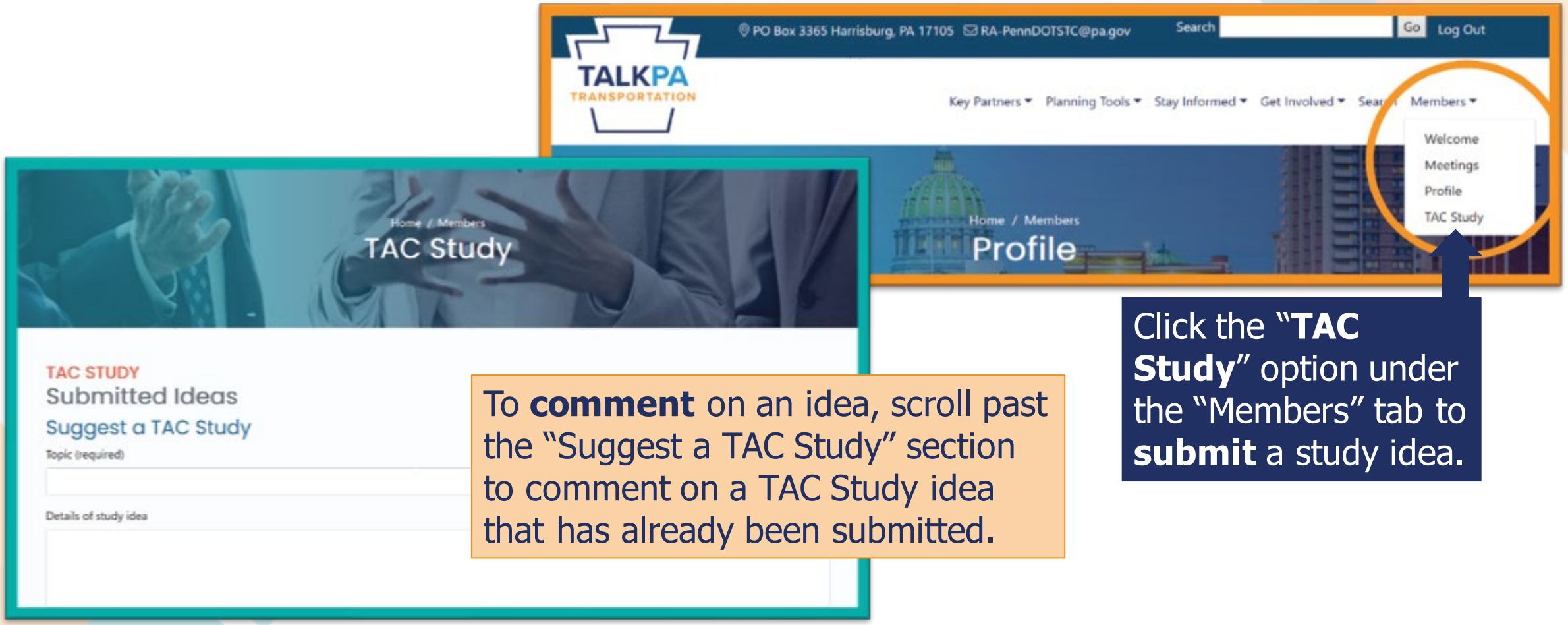
Meetings Page - Agenda Topics

Do you have a topic you'd like to bring before the Committee? Tell us what you'd like to discuss here.



Click the "**Suggest an agenda topic**" button under a meeting to **submit** a topic for that specific meeting.

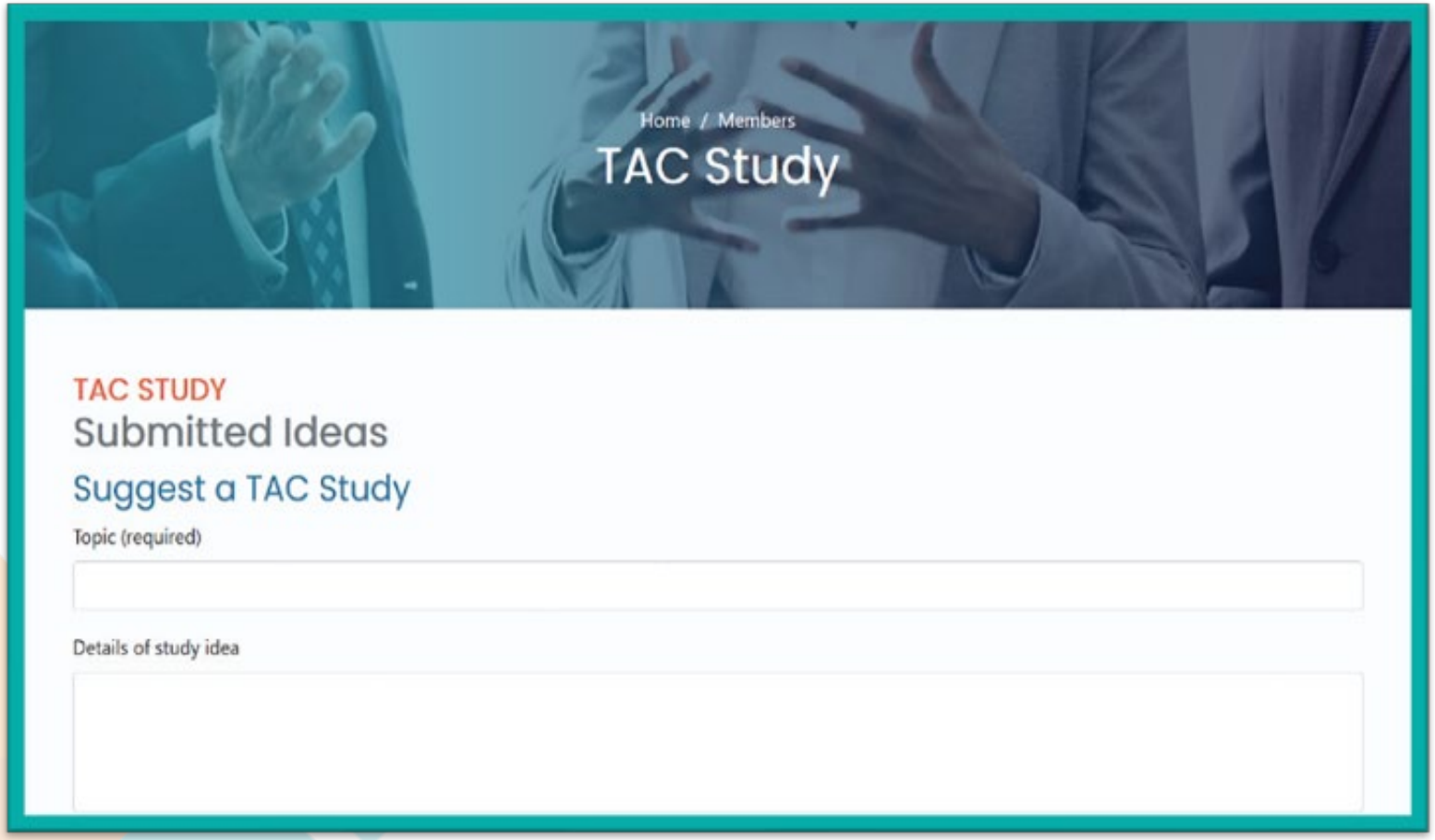
TAC Study Ideas



To **comment** on an idea, scroll past the "Suggest a TAC Study" section to comment on a TAC Study idea that has already been submitted.

Click the "**TAC Study**" option under the "Members" tab to **submit** a study idea.

TAC Study Ideas



- Significance
- Priority Related
- Leadership
- Unique
- Timing
- Resource Worthiness
- Multimodal
- Public and Stakeholders
- Supporting Data and Information

Log Out

Click on the "**log out**" tab to automatically log out of the portal.

Questions?

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