

# TRANSPORTATION RESILIENCY PLANNING

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## Update on resiliency planning at TPB

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TPB Board Meeting  
May 17, 2023



# TPB Resiliency Planning - Overview

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- Transportation Resiliency – basics
- Federal funding opportunities
- TPB and Transportation Resilience
- Transportation Resilience Improvement Plan Schedule



# Vulnerability and Resilience defined

- **Vulnerability** is the degree to which a system **is susceptible to, or unable to cope with adverse effects** of natural hazards
- **Resilience** is the ability **to anticipate, prepare for, and adapt** to changing conditions and **withstand, respond to, and recover** rapidly from disruptions from natural hazards



Figure 1. Damage to Hunter Mill Road in Fairfax County from Tropical Storm Lee (2011). Source: [Flicker/VDOT](#)



# Natural Hazards to Transportation

- **Extreme heat:**

- Train rails expand, risking derailments
- Concrete roads crack and asphalt buckles
- Bridge joints expand

- **Extreme winter conditions:**

- Road surfaces crack and potholes form
- Systems operations power loss
- Roads close due to obstructions

- **Extreme precipitation and flooding:**

- Erosion can cause catastrophic collapse of any transportation infrastructure
- Roads close due to flood or obstructions

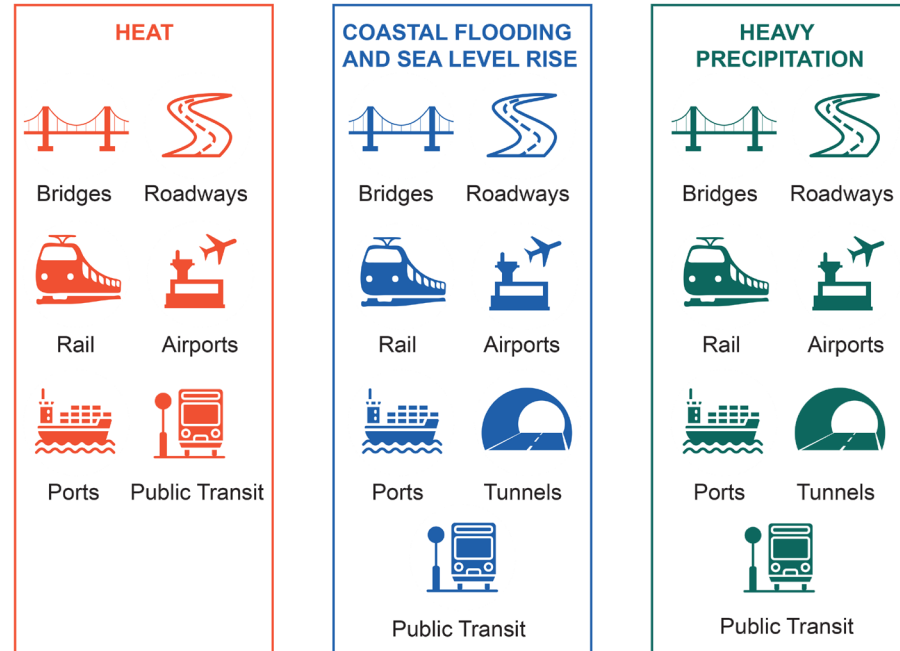


Figure: Fourth National Climate Assessment, Transportation Chapter



# Bipartisan Infrastructure Law (BIL/IIJA) PROTECT Program

- Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)
  - \$8.7 billion over five years
    - \$7.3 billion for State DOTs
    - \$1.4 billion across four competitive grant programs:

Planning grants

Resilience  
improvements

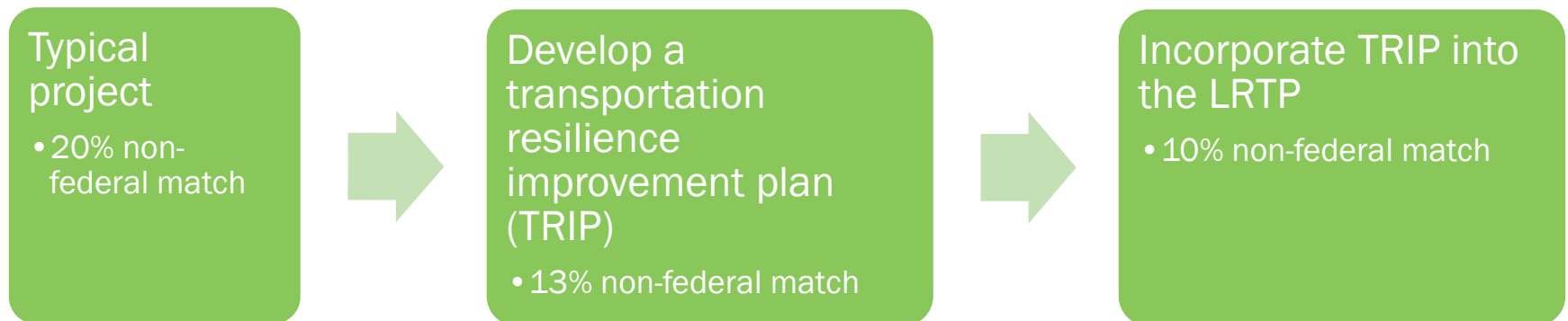
Community  
resilience and  
evacuation routes

At-risk coastal  
infrastructure



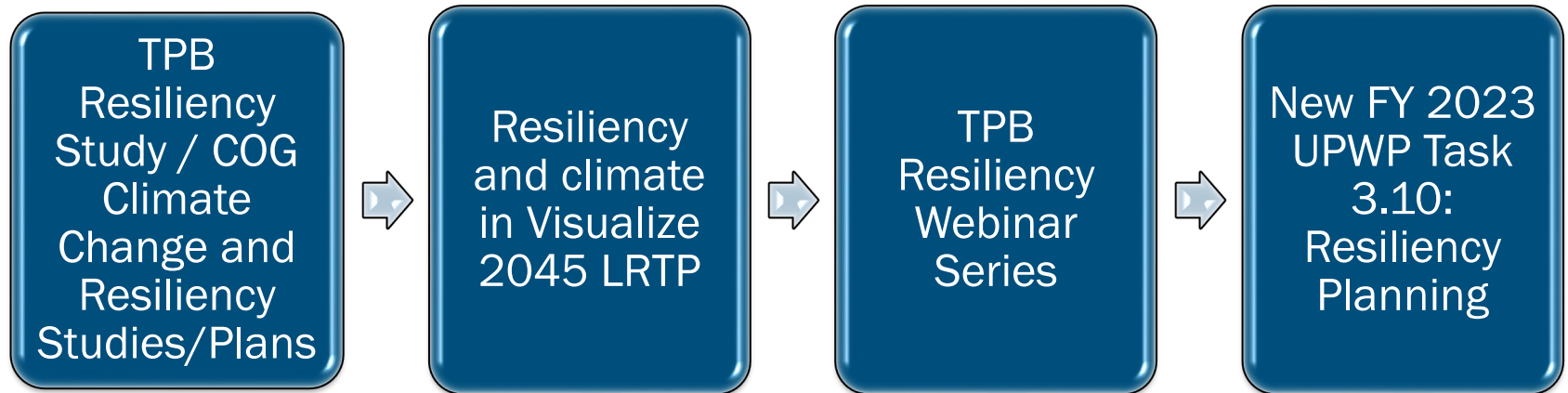
# Bipartisan Infrastructure Law (BIL/IIJA) PROTECT Program (cont.)

- Some TRIP requirements include:
  - Demonstrate a **systematic approach** to system resilience
  - Include a **risk-based vulnerability assessment**
  - Include an **investment plan** and list of **priority projects**
- Opportunities to lower local match requirements



# Recent TPB Activities

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# Phase II Resiliency Study

- Transportation Resilience Improvement Plan (TRIP)
- Regional Working Group, eventual subcommittee
- Resilience Forum
- Project list
- Interactive map of major regional resilience hazards





# Resilience Study Schedule



May 2023: Finalize Working Group members and schedule meetings



July 2023: Conduct Vulnerability Assessment (system and asset level analyses)

August 2023: Identify criteria to define resilience projects

September 2023: Host resiliency forum

November 2023: Request proposed projects and use criteria to establish Resilience Project List

March 2024: Draft the Transportation Resilience Improvement Plan (TRIP)

June 2024: Finalize TRIP and develop Transportation Resiliency Planning Interactive Map



# Upcoming work: May – July 2023

- **Working Group**
  - Invitations sent, members finalized, first quarterly meeting soon to be scheduled
- **Vulnerability Assessment**
  - Phase 1: system-level analysis
  - Phase 2: asset level analysis

*Exhibit 1. Example of System-Level Findings*

Asset Type	Sensitivity to Extreme Heat	Sensitivity to Precipitation and Flooding
Roadways / highways	<b>Medium</b> Thermal expansion of pavement Risk of heat stress for outdoor maintenance and construction workers	<b>High</b> Heavy precipitation on unpaved roads can cause washout Flooding can cause erosion of embankments



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