

TPB Resiliency Planning

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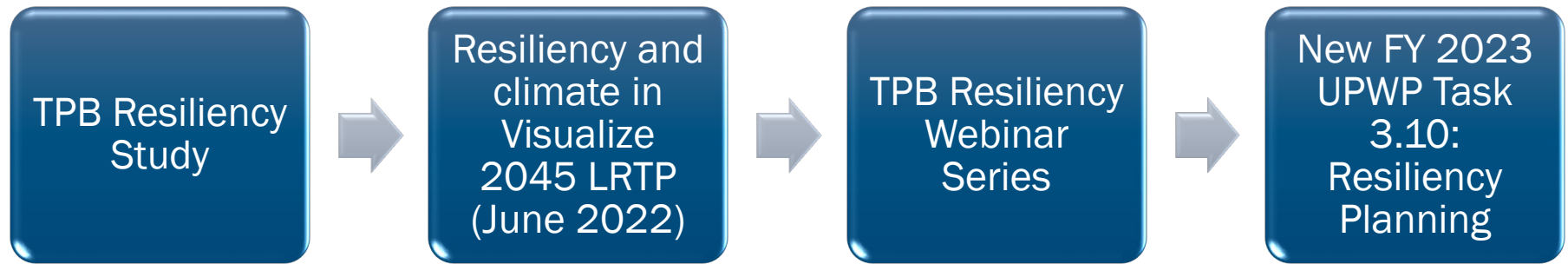
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visualize
2045 A long-range
transportation plan
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Capital Region



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TPB Resiliency Planning: Recent and Upcoming Activities



Resiliency and Climate Change Studies*

Recent Studies:

- TPB Climate Change Mitigation Study (2021)
- TPB Resiliency Study (2020-2021)

COG and TPB: Board Actions

- COG 2030 Climate and Energy Action Plan
- TPB resolution support climate and emissions goals (2020) and 2022 on-road transportation sector specific climate goals and strategies

Past Studies:

- TPB What Would it Take Study
- Multi-sector Working Group Analysis (MWAQC, CEEPC, TPB)

*This list is not comprehensive of all COG and TPB activities, visit www.MWCOG.org for more information

TPB Resiliency Study Purpose:

- Research and document agency adaptation planning activities to:
 - respond to one of the federal Planning Factors, and
 - advance important planning work and regional coordination on the topic of resiliency, and identify MPO roles and opportunities



For this study:

What is Transportation Resilience?

“The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.”

FAST Act Requirements

- **2016: FAST ACT Transportation Planning Rule added:**
 - Metropolitan Transportation Plan must assess capital investment and other strategies that reduce the vulnerability of existing transportation infrastructure to natural disasters (23 CFR450.324(f)(7)).
 - MPOs recommended to consult with agencies and officials responsible for natural disaster risk reduction when developing Plan and TIP (23 CFR 450.316(b)).
 - New planning factor (23 CFR 450.206(a) and 23 CFR450.306(b)): *Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.*
- **2021: Recent Federal Actions:**
 - New Executive Orders, USDOT planning priorities and IIJA (BIL) focus on climate mitigation and resiliency

Study Activities

- Activities:
 - Document resiliency planning considerations for transportation (building on COG CEAP and CRVA)
 - Conduct inventory of resiliency planning activities by TPB Develop research framework /template
- Products*:
 - Completed inventory templates in coordination with TPB member agencies (counties, states, and WMATA)
 - Summary memorandum of inventory findings and TPB Resiliency white paper

**The information gathering for this study was completed in spring of 2021, based on publicly-available information, therefore the documentation will not reflect new publications nor activities conducted by agencies since then.*

Overview: Research Areas

The research framework includes a series of questions on a range of topics:



Inventory Findings Summary*

Terms

- **Priority infrastructure:** As the TPB’s role in metropolitan Washington is to focus on regional priorities, this study did not look at all types of infrastructure. Instead, this study attempts to focus on infrastructure that facilitates regional transportation, which is “priority” infrastructure from a regional perspective.
- **Vulnerable infrastructure:** For the purposes of this study, the term “vulnerable infrastructure” refers to infrastructure that has been identified by an agency as having been exposed to natural hazards and potential climate risks.

How TPB Member Agencies Describe Resilience: Examples

Agency (Document)	Definition
Arlington County (Community Energy Plan)	The ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions caused by deliberate attacks, accidents, climate change, or weather-related threats or incidents.
Charles County (Climate Resilience Action Strategy)	The ability to prepare for, recover from, and adapt to climate change impacts.
Government of D.C. (Resilient DC)	Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and thrive no matter what kinds of chronic stresses and acute shocks they experience.
MDOT (2020 Annual Attainment Report)	Provide a resilient multimodal system by anticipating and planning for changing conditions and hazards whether natural or man-made.
Montgomery County (Climate Action Plan)	Ability to withstand and recover from a climate hazard.
NVRC (Resilient Critical Infrastructure: A Roadmap for Northern Virginia)	Resilient systems work to “ensure that functionality is retained and/or can be re-instated despite some failures or operational disturbances.”

^[1] NVRC is not a TPB member but was added to this study due to the leadership role it has played in planning for resilience in Northern Virginia.

^[2] NVRC and COG. 2018. Resilient Critical Infrastructure: A Roadmap for Northern Virginia. <https://www.novaregion.org/DocumentCenter/View/11933/Resilient-Roadmap-Final-PDF>

Types of Reasons for Addressing Resilience

Reasons

Responding to past disaster or recurring incidents

Responding to legislative mandate

Responding to financial/economic concerns

Addressing safety and security concerns

Seeking to protect transportation assets

Inform managed retreat decision

Types of Analyses by Jurisdictions

Analysis

Document references analyses or studies that the agency has undertaken regarding transportation infrastructure resiliency

Agency's vulnerability assessment or study covers roads

Agency's vulnerability assessment or study covers bridges

Agency's vulnerability assessment or study covers drainage and culverts

Agency's vulnerability assessment or study covers transit stations (rail or bus stops)

Agency's vulnerability assessment or study covers tunnels

Priority Infrastructure Referenced in Analyses and Studies

Priority Infrastructure

Roads and highways

Bridges

Drainage and culverts

Transit infrastructure

Evacuation routes

Hazards Referenced in Analyses and Studies

Type of Hazards

Stormwater impacts, including extreme precipitation and flooding

Coastal inundation, including sea level rise and storm surge

Landslides and other weather-related erosion of earth/materials supporting transportation structures

Impacts from extreme temperatures, including heat and cold

Other

Vulnerable Infrastructure

- The research team sought to identify whether the region's transportation agencies had identified
 - (a) priority infrastructure,
 - (b) potential hazards, and
 - (c) whether the priority infrastructure was exposed to the potential hazards (“vulnerable infrastructure”).
- Most documents analyzed infrastructure categorically, and only a few resources named specific individual assets. Infrastructure commonly noted included:
 - Roads
 - Bridges
 - Drainage and culverts
 - Transit infrastructure
 - Tunnels

Types of Resilience Strategies Documented

Type of Strategies

Development of plans and lists of potential strategies to pursue

Research and studies, including enhanced data efforts

Coordination

Establishment of new staff or departments to address

Legislative and regulatory changes

Funding and incentive strategies

System management and operations

Asset management program strategies

Adapt existing infrastructure

Project Development Strategies

Project Development Strategies

Screening of projects

Project selection criteria

Project funding criteria

Project design guidelines

Environmental review

Challenges

Challenges

Financial/funding

Time

Identifying integration points

Data gaps

Training

Coordination amongst varying agencies and business units

Prioritizing in the face of such a large and complex problem

Findings Summary

- Resilience planning is occurring at TPB member agencies, but, with different approaches, levels of detail, and implementation levels
- Most analytical activity at state DOT level
- Inventory did not generate an extensive list of specific facilities or projects that TPB can map at this time to provide a regional view of resiliency vulnerabilities for the transportation system
- Agencies are eager to coordinate regionally and advance this planning area
- There are numerous challenges in planning for a resilient transportation system, and agencies also recognize the need for multi-sectoral planning for this topic

Overlap with COG Climate/Energy Action Plan

The TPB Resiliency Study supports the implementation of several of the COG 2030 Climate and Energy Action Plan action items shown in Figure 9, including: PL-2, PL-3, PL-4, and inform RI-4 and RI-5.

Climate Action Area	Action ID	Priority Collaborative Action
Planning	PL - 2	Support Capacity Building for Climate Resilience Planning
	PL - 3	Develop Integrated Approach to Climate Resilience Planning
	PL - 4	Update Local and Regional Plans to Address Climate Risks
Equity	EQ - 3	Support Engagement of the Public on Climate Risks, with a Particular Emphasis on Potentially Vulnerable Populations
	EQ - 4	Support Equitable Secure Energy Access
Resilient Infrastructure	RI - 1	Support Establishment of Resilience Hubs
	RI - 2	Improve the Resilience of Critical Infrastructure
	RI - 3	Implement Measures to Equitably Address Urban Heat Island
	RI - 4	Enhance Green Infrastructure Networks
	RI - 5	Implement Measures to Reduce Flood Risk

Resiliency/Climate in Visualize 2045 Update (approved June 2022)

- In Chapter 6 “Strategies for a Brighter Future” that describes planning considerations and TPB planning activities: new sections on climate change mitigation and resiliency
 - Pages 129-136: <https://visualize2045.org/wp-content/uploads/2022/06/Viz2045-rp-Final-Report-Approved-20220615.pdf>
- Resiliency and Climate Change Mitigation studies included as Appendix L and M of the Visualize 2045 update



2022 TPB Resiliency Webinar Series

- The webinar series bolsters regional planning capacity for resiliency:
 - how resilience is approached in the region
 - planning for and technical application of climate integration into vulnerability assessments, resilience planning, and project development and design
- TPB invited planners, engineers, transportation, environmental services, community development, and policy professionals to participate

Link to Transportation Resiliency page: [Transportation Resilience - Air Quality & Environment | Metropolitan Washington Council of Governments \(mwcog.org\)](#)

2022 TPB Resiliency Webinar Series:

A focus on Capacity Building

- **Webinar 1: Transportation Resilience in the Region: What Next?**
Provides an overview of transportation resilience to set the stage for the rest of the series.
[Recording available.](#)
- **Webinar 2: Get Started: Climate Vulnerability Assessments**
Increases understanding of approaches to conducting a vulnerability assessment and why these assessments are valuable to decision makers. [Recording available.](#)
- **Webinar 3: Break Down Barriers: Integrating Climate Resilience into Transportation Project Development & Design**
Illustrates the value of and process for integrating resilience into project development and design [Recording available.](#)
- **Webinar 4. Break Down Barriers: Integrating Climate Resilience into Transportation Planning & Programming**
Illustrates the value of and process for integrating resilience into planning and programming.
Recording available soon.

FY23 Unified Planning Work Program: TPB Resiliency Planning

- This task includes:
 - Developing a regional resiliency interactive map
 - Conducting a Transportation Resiliency Study (Phase II), to expand upon the Phase I study
 - Convening a temporary working group to guide current resiliency planning activities, to identify and engage stakeholders and member agency participants in this new regional planning task
 - Conducting regional resiliency planning or training, outreach, or professional development forum(s) to strengthen regional awareness

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