ITEM 9 – Action
January 22, 2025

Annual TRIP Project List Approval and
Amending Visualize 2045 to Include the TRIP with the Updated List

Action: Adopt Resolution R7-2025 to approve the TRIP's list of prioritized projects and to amend Visualize 2045 to include the TRIP, including the updated project list.

Background: Staff will brief the board on the TPB's Transportation Resilience Improvement Plan (TRIP) prioritized project list and the annual update process. The Board will be asked to approve the updated list and to amend Visualize 2045 to incorporate both.

TPB R7-2025
January 22, 2025

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION TO APPROVE UPDATED NATIONAL CAPITAL REGION TRANSPORTATION RESILIENCE IMPROVEMENT PLAN (TRIP) PROJECT LIST AND AMEND VISUALIZE 2045 TO ADD THE TPB TRANSPORTATION RESILIENCE IMPROVEMENT PLAN AS AN APPENDIX

WHEREAS, the National Capital Region Transportation Planning Board (TPB), as the federally designated metropolitan planning organization (MPO) for the Washington region, has the responsibility under the provisions of the Fixing America's Surface Transportation (FAST) Act, reauthorized November 15, 2021 when the Infrastructure Investment and Jobs Act (IIJA) was signed into law, for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the metropolitan area; and

WHEREAS, the FAST Act began requiring transportation agencies to consider resilience in their transportation planning process – specifically to "improve transportation system resiliency and reliability and reduce (or mitigate) the stormwater impacts of surface transportation"; and

WHEREAS, several federal planning factors (23 CFR 450.306(b)) also reference the consideration of resilience: "protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns," and "improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation"; and

WHEREAS, 23 U.S.C. 176 (Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation, PROTECT program) allows for the development of a Resilience Improvement Plan (RIP) by a State or MPO, but does not require it; and,

WHEREAS, if developed, the RIP shall identify the immediate and long-range planning activities and investments with respect to the resilience of the surface transportation system within the MPO's metropolitan planning area; and,

WHEREAS, the RIP shall also demonstrate a systemic approach to surface transportation system resilience and be consistent with and complementary of State and local mitigation plans; and,

WHEREAS, the RIP shall further include a risk-based assessment of the vulnerabilities of transportation assets and systems to current and future weather events and natural disasters, such as severe storms, flooding, and extreme temperatures; and,

WHEREAS, the RIP may describe resilience improvement policies and strategies that will inform the transportation investment decisions of the MPO and its members, including a list of priority projects; and,

WHEREAS, the TPB followed national best practices in developing a RIP including a two-phased, risk-based assessment where the Phase 1 System-Level analysis assessed the sensitivity of the transportation system to climate hazards, and the Phase 2 Asset-Level analysis identified and mapped specific transportation assets and locations where the system is most vulnerable to the impacts of climate change and natural hazards; and

WHEREAS, in 2020 the TPB Board adopted the goal of becoming a Climate Ready Region and making significant progress to be a Climate Resilient Region by 2030; and

WHEREAS, the FY 2025 Unified Planning Work Program for Transportation Planning for the Washington Metropolitan Region was approved by the TPB on March 21, 2024, and established Task 1.6 Resiliency Planning; and,

WHEREAS, the National Capital Region Transportation Resilience Improvement Plan (TRIP), approved by the TPB Board on June 20, 2024, calls for continued coordination among TPB member agencies on the issue of regional transportation resilience planning; and

WHEREAS, the TPB completed the NCR TRIP to meet the requirements of 23 U.S.C. 176 (PROTECT), as outlined in the letter dated July 23, 2024 signed by FHWA District of Columbia Division Administrator; and

WHEREAS, the NCR TRIP Priority Project List will be updated annually based on the PROTECT funding schedule, and the next deadline is February 24, 2025, and the TPB engaged in a process to update the Priority Project List; and

WHEREAS, the projects in the NCR TRIP will be eligible for increased federal match funding if the TRIP is included in the TPB's federally approved metropolitan long range transportation plan, called Visualize 2045; and

WHEREAS, the TPB engaged stakeholders and the public throughout the development of the TRIP and updated Priority Project List via presentations at multiple TPB Technical Committee meetings, TPB Board meetings, Regional Transportation Resilience Subcommittee meeting, and postings on the TPB website.

NOW, THEREFORE BE IT RESOLVED that the National Capital Region Transportation Planning Board approves the following:

1) The addition of 5 projects and one modified project to the approved Prioritized Project List included in the National Capital Region Transportation Resilience Improvement Plan (TRIP), as identified in the attached materials; and
2) The amendment of Visualize 2045 to formally include the TPB's TRIP as an appendix to Visualize 2045.

National Capital Region Transportation Resilience Improvement Plan

Updated January 2025

National Capital Region
Transportation Planning Board

CHAPTER 5

Priority Project List

Updated January 2025

The following tables, grouped by asset type, summarize the projects identified by member agencies as highest priority projects to implement in the short term given known and projected asset vulnerabilities. This investment plan is not financially constrained. While some of the projects have identified funding, many of them will be seeking grant funds (e.g., PROTECT) to advance to implementation. This list of priority resilience projects will be updated on an annual basis as agencies are able to further refine and advance their resilience priorities. The project submission form will be sent to all relevant stakeholders each calendar year prior to the following PROTECT grant application due date. In addition, TPB will continually produce updated resilience plans and studies to better understand regional vulnerabilities and to support resilience efforts.

Table 1: Climate Hazard Icon Definitions

Climate Hazards	
	Extreme heat
	Temporary flooding (coastal and riverine)
	Permanent flooding (sea level rise)
	Extreme winter conditions
	Extreme wind[1]
	Rockfalls[2]

[1] Includes extreme storms with high winds, such as hurricanes and tropical storms
[2] Although rockfalls were not included in the 2024 Vulnerability Assessment, they are a regional hazard that can be addressed through resilience projects.

Bridges

Table 2: Bridge Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Charles County Government (supported by the Resilience Authority of Charles County)	Cobb Island (MD-254) - Bridge Approach	MD-254 (Cobb Island Road) between MD-257 and the Cobb Island Bridge.	While the Cobb Island Bridge was recently replaced in 2020, the bridge approach and surrounding roadways still experience tidal flooding and inundation from sea level rise. There is ongoing planning for this project, and possible options include a range of nature-based and innovative interventions to address flood vulnerability from multiple hazards.		2024

Public Transit Infrastructure

Table 3: Public Transit Resilient Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Virginia Passenger Rail Authority	RF&P Track Infrastructure Heat Impacts and Mitigation Study	The Richmond, Fredericksburg and Potomac railroad line from Quantico, Prince William County, VA to Control Point VA in Washington, DC; Intercity (Amtrak) and Commuter (VRE) rail routes on the corridor.	When the region has high temperatures, host railroads (CSX and Norfolk Southern) issue slow orders as a safety precaution to limit/prevent derailments. As temperatures continue to rise and temperatures remain elevated for longer periods of time, railroads will issue more heat orders, slowing rail traffic in the region. The heat impacts study would identify existing conditions, assess adverse conditions based on historical data, recommend specific mitigation strategies, and translate these strategies into capital or operational improvements to limit slow orders during heat events and increase the reliability of the transportation system.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Virginia Railway Express	VRE Stations Heat Vulnerability and Mitigation Strategies Analysis	Station assets located on VRE's Manassas and Fredericksburg Lines, as well as on the joint line between Alexandria and Union Station.	Increasing temperatures have the potential to cause significant passenger discomfort to VRE riders. This project will identify the appropriate mitigation strategies to address the adverse effects of heat in five VRE station facilities. The project will detail potential effects on passengers and facilities, and will propose, at a planning level, conceptual projects that could mitigate or eliminate the adverse condition(s) through the horizon planning year.		2024
Virginia Railway Express	VRE Manassas Line Track Heat Vulnerability and Mitigation Strategies Analysis	Track infrastructure on VRE's Manassas Line between the Broad Run station and "AF Interlocking".	Temperatures that continue to rise and temperatures that remain elevated for longer periods of time threaten the structural integrity of rail tracks. This project will identify the appropriate mitigation strategies to address the adverse effects of heat on track and ancillary facilities identified as high risk in the TPB vulnerability assessment. This study would detail potential effects of heat events on the track infrastructure and will propose, at a planning level, conceptual projects that could mitigate or eliminate the adverse condition(s) through the horizon planning year.		2024
Virginia Railway Express	VRE Maintenance and Storage Facilities Heat Vulnerability and Mitigation Strategies Analysis	VRE-controlled property at the Broad Run and Crossroads Maintenance and Storage Facilities.	The TPB vulnerability assessment has identified these locations as highly vulnerable to extreme heat. The study aims to detail how exposure to extreme heat can affect VRE maintenance and storage facilities. The project will propose conceptual mitigation projects and review projected impacts on VRE service and yard personnel.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Virginia Railway Express	VRE Assets Flooding Vulnerability and Mitigation Strategies Analysis	L'Enfant and Quantico stations; Broad Run Maintenance and Storage Facility (excluding the passenger station platform, including the parking facilities).	The TPB vulnerability assessment has identified this area as having high vulnerability to inland flood. The study will analyze the proposed effects to this infrastructure from adverse future inland flooding events, and will propose, at a planning level, conceptual projects that could mitigate or eliminate the adverse condition(s) through the horizon planning year.		2024
WMATA	Systemwide Flood Resiliency Infrastructure Upgrades Implementation	Cleveland Park, Federal Triangle, Smithsonian, Archives/Navy Memorial, Rhode Island Ave/Brentwood, Capitol South, and Waterfront Stations (DC); Greenbelt Rail Yard (Greenbelt, MD).	All stations included in this project are either within the FEMA 100 year flood zone or are regularly impacted by interior flooding. The proposed upgrades address flood vulnerability in the MetroRail system and include measures such as new grading at station entrances, temporary flood barriers, raising vent shaft openings, and improving drainage capacity around stations. Improvements will lower the risk of adverse impacts to passenger service and system operations.		2024
WMATA	Drainage Pump Stations Rehabilitation Program	A05 Cleveland Park & A06 Van Ness, A08 Friendship Heights & A09 Bethesda, A10-2 Grosvenor &	Pumping stations remove water from WMATA's tunnels when aboveground rainfall or flood fills the tunnels. This equipment has exceeded its life cycle and needs replacement. The project would replace and improve the 59 drainage pumping stations located at low points in MetroRail tunnels to facilitate the removal of excess water from MetroRail tunnels and stations. The project would		2024 *Updated locations 2025

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
		Medical Portal, B02 Judiciary Sq. & B03 Union Station, B08 Silver Spring & B09 Forest Glen, E05 Georgia Ave & E06 Fort Totten, F01 Gallery Place, G01 Benning Road	also replace and improve pumping equipment and tunnel piping systems that have exceeded their lifecycle throughout the MetroRail system. This program prioritizes the highest risk locations based on flooding and equipment need.		
WMATA	Comprehensive Stormwater System Program (Planning)	Systemwide.	WMATA systems experience flooding due to storms and other rainfall events. Current stormwater planning is piecemeal and based on the facility. A comprehensive stormwater system program would allow WMATA to evaluate existing assets and risks and would provide a basis for Metro's future decisions about how to design, construct, and rehabilitate stormwater infrastructure.		2024
WMATA	Stormwater System Rehabilitation	Carmen Turner Center; Branch Ave, Glenmont, and Greenbelt, New Carrollton and Shady Grove Rail Yards; Landover, Montgomery, and Southern Ave Bus Division (all in Maryland).	WMATA has identified many of these facilities as highly vulnerable to inland, sea-level, and riverine flooding. Flooding here and to nearby operational facilities can create significant time delays. The project will use green infrastructure to install or retrofit stormwater management systems.		2024
WMATA	Rehabilitation	Dupont Circle,	In severe storms and flood events, rainwater can		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
	of Station Vault Pre-Cast Supports	Woodley Park, Cleveland Park, Van Ness, Tenleytown, Friendship Heights Stations in DC. Bethesda and Medical Center Stations in MD.	percolate through the ground, leak into MetroRail stations, and, on the Red Line, flow into the vaulted ceilings. The connecting supports for the vaulted ceilings at several stations have begun to deteriorate. The project will conduct a detailed inspection and condition report to determine the extent and location of where repairs will be needed, and rehabilitation of the identified issues.		
WMATA	Tunnel Chilled Water Piping Assessment	Systemwide.	Increasing temperatures have the potential to cause significant passenger discomfort to MetroRail riders. Chilled water is used to cool stations and all designs are outdated due to increasing population, increased density, and more high heat days. The study would conduct a systemwide assessment of chilled water piping in tunnels to identify the need to improve this piping.		2024
WMATA	MetroBus Shelter Replacement	Systemwide.	As high heat and intense rain events occur, passengers will increasingly require shade and shelter at bus stops. The project would replace aging shelters, provide shade, and decrease unnecessary wait times at outdoor bus shelters by improving communication with customers.		2024
WMATA	Traction Power/Rectifier Replacement	33 traction power substations though DC, VA, and MD.	High heat has the potential to impact traction power substations and result in slow or interrupted MetroRail services. The project would answer this concern and decrease heat buildup in traction substations critical to the MetroRail train system and enhance power stability. Improvements would replace rectifiers in multiple traction substations across the service area to improve electrical		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
			efficiency. This not only increases resilience but also stabilizes the rail system and reduces electricity consumption.		
WMATA	Shaft Damper and Attenuator Replacement Program	221 shafts throughout the MetroRail system in DC, MD, and VA.	High heat weather will require better circulation of MetroRail tunnels and stations for comfort and operability. The project would address heat strain on fans, dampers, and attenuators that circulate air through shafts in the Metro system. These improvements would maintain customer comfort and equipment functionality as temperatures rise.		2024
WMATA	Non-Revenue Facility HVAC Replacement	L'Enfant, Wheaton, Federal Triangle, Metro Center, and Glenmont Stations (DC); Noyes Road (Silver Springs, MD), Medical Center (Bethesda, MD).	Multiple Metro non-revenue facilities were not built for projected future weather conditions and do not account for increased average temperatures or for the increase in heat-producing electric controls. These facilities often heats to an uncomfortable level. The project would replace aging and inefficient heating at these facilities and implement a Building Energy Management Control System that would allow for greater operational and maintenance efficiency. Facilities included in this project are crucial for the operation of the Metro system.		2024
WMATA	Faregate and Mezzanine Exposure to Water Intrusion at NoMa-Galludet Metrorail Station	No-Ma Galludet Metrorail Station (DC)	Currently the mezzanine at the 2nd Street entrance to the NoMA-Galludet U station is exposing riders and rail infrastructure to water. Due to climate change, there will be more frequent and intense rainstorms, making the problem worse. There is a gap between DDOT's Metropolitan Branch Trail and the upper station deck. While a temporary barrier has been installed, a more permanent, secure solution needs to be installed. This will benefit customer's comfort and expand the longevity of the rail infrastructure.		2025

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
WMATA	Water Leak Mitigation & Preservation - Rail Tunnels	Systemwide.	Climate change projections call for more intense rainfall which leads to more ground water intrusion. This project reduces the risk of water intrusion, protecting Metro infrastructure and equipment while increasing safety for customers and employees and minimizing revenue service disruption.		2025
WMATA	Water Leak Mitigation - Stations and Rooms Water Intrusion Remediation	Systemwide.	Climate change projections call for more intense rainfall which leads to more ground water intrusion. This project reduces the risk of water intrusion, protecting Metro infrastructure and equipment while increasing safety for customers and employees and minimizing revenue service disruption.		2025

Public Transit & Stormwater Infrastructure

Table 4: Public Transit and Stormwater Infrastructure Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Virginia Passenger Rail Authority	Flooding Mitigation Study for Quantico and Pohick Creek Rail Bridges	RF&P Rail Corridor, owned by CSX/Virginia Passenger Rail Authority. Quantico Creek Rail Bridge and Pohick Creek Rail Bridge (38.526743, -77.288966 to	The two rail bridges associated with the project lie within the 100-year floodplain. Should flooding be significant or damage occur to these bridges, passenger and freight rail traffic within the entire region could be halted to make emergency repairs. The flood mitigation study would identify existing conditions, assess expected adverse conditions, recommend specific mitigation strategies, and translate these strategies into capital improvements for future rounds of funding to ensure the rail infrastructure will with stand future flooding or storm inundation.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
		38.712765, -77.217392).			
WMATA	Comprehensive Stormwater Systems Construction and Rehabilitation Program	Systemwide.	This project represents Metro's comprehensive program to design, construct, and rehabilitate stormwater infrastructure to address increased intensity of rainfall and to maintain compliance with stormwater discharge permits and best management practices. The project will also procure new equipment or contract services. There is a prioritized list of 72 locations that need new or rehabilitated stormwater systems.		2025

Roads and Highways

Table 5: Road and Highway Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
DDOT in partnership with District DOEE	Nannie Helen Burroughs Avenue DC-295 Underpass ‡	Nannie Helen Burroughs Avenue NE underpass beneath DC-295 in	The Nannie Helen Burroughs Avenue experiences frequent flash flooding due to the impermeable surfaces in the nearby Watts Branch watershed. Flooding happens quickly, leaving disadvantaged		2024

‡ This project received PROTECT funding in 2024.

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
		DC.	neighborhoods with vulnerable populations between DC-295 and the Anacostia River isolated with very little warning. The proposed Engineering Feasibility Study would identify methods to improve the flood resilience of transportation infrastructure while creating additional greenspaces between the Anacostia River and Kenilworth Park and the Nannie Helen Burroughs Avenue Commercial Corridor.		
DDOT in partnership with District DOEE	Watts Branch Flood Resilience Strategy Implementation	Nannie Helen Burroughs Ave, between the I-295 underpass, and Division Ave.	Nannie Helen Burroughs Ave lies within the FEMA 100-year floodplain within the Watts Branch watershed and already experiences regular flooding during storm events. Flooding risk will increase with climate change. Options to address flooding risk will be established in the Watts Branch Flood Resilience Strategy (expected publication date April 2025). This project would implement the results of that study and create blue, green, and gray infrastructure along the corridor to reduce flooding and improve mobility for residents during storms.		2024
Prince William County Department of Transportation	Fuller Road Flooding Mitigation	Fuller Road (VA Route 619) from the I-95 exit ramp to Mason Drive.	Fuller Road, which provides the only direct access to the main operating area of Quantico Marine Corps Base, is vulnerable to inland flooding and flooding at the gate. Flooding here has significant implications on operational readiness. The project will mitigate flooding of Fuller Road by increasing the capacity of the storm water facility near the National Museum of the Marine Corps and by restoring the Little Creek watershed.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Prince William County Department of Transportation (supported by VDOT)	PWC Evacuation Operationalization Plan	Countywide.	Parts of Prince William County and its independent jurisdictions lack a countywide evacuation plan. The County seeks to fill these gaps and develop this plan. The completed plan would quantify the impact of catastrophic emergencies; describe how different hazards may call for different localized, neighborhood-level, town-level, or large-scale evacuations; and provide real-time data visualization tools to assist responding agencies in emergency scenarios. This plan will minimize disruptions and impacts on transportation infrastructure during emergencies.		2024
Prince William County Department of Transportation	Implement Shoreline Protection and Nature-Based Solutions	Countywide.	Numerous major transportation corridors located along coastal areas of the County are vulnerable to shoreline erosion caused by rising sea levels. The project will develop guidance for Prince William County to develop nature-based solutions for shoreline protection. The project will mitigate shoreline erosion to improve the resiliency of the transportation network to flooding.		2024
Prince William County Department of Transportation	Restore Streams to Reduce Flooding	High risk roadways in Prince William County as identified by existing vulnerability assessments from the TPB and the County.	County and TPB Vulnerability Assessments have identified several roadways as having a high risk of flooding. This project to develop and implement stream restoration would reduce flooding impacts on roadways within the County. Restoring natural flood resilience would protect the county's transportation infrastructure.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Prince William County Department of Transportation	Incorporating Green Infrastructure into a Multimodal Transportation Corridor	Richmond Highway / US-1 from West Russel Road (Southbound near the limit with Stafford County) to Annapolis Way (Northbound near Occoquan River Bridge and the limit with Fairfax County).Includes bridge Asset Number 6228 Northbound / 6229 Southbound.	Route 1 (Richmond Highway / US-1) is a busy thoroughfare that crosses Prince William County from southwest to northeast and lies in a flood prone area in proximity to important water bodies and environmental protected areas. The area has historically experienced flooding, road closures, and swift water reports. This project would identify and design green infrastructure to detain stormwater flows, improve transportation resiliency, and improve the natural ecosystem by reducing stormwater runoff that could carry harmful pollutants left on roadways into protected natural areas. The project would provide an evaluation of possible projects, report on the prioritized list of projects, and create a Multimodal Corridor Green Infrastructure preliminary design with the respective Evaluation Memorandum.		2024
DDOT	Canal Road Rock Slope Stabilization Project	Section of Canal Road NW near Clark Place in DC.	An approximately 1,500-foot length of Canal Road NW near Clark Place has experienced periodic rockslides, with the most significant occurring in 2011 temporarily closing the westbound travel lane. Likewise, in April 2021, there was a similar incident of slope failure on the second section to the west of Georgetown University entrance and this section was incorporated into the project in June 2024 with the same scope of work. DDOT, in cooperation with the National Park Service (NPS), propose the following improvements to stabilize the rock slope: installation of rock and soil anchors; installation of the wire mesh drape over the slope face, and installation of proposed drainage system improvements and catch-basins along east side of Canal Road NW.		2025

Roads and Highways & Bridges

Table 6: Road, Highway, and Bridge Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Prince William County Department of Transportation	Residency Road Flooding Mitigation	Residency Road (VA Route 782) from the current dead end of Residency Road across the rail tracks to Broad Run Station parking lot.	Residency Road has a history of flooding but stands to be a primary access point to the soon-to-be expanding Broad Run VRE Station and a subsidiary access point to the Manassas Regional Airport. The airport is also planned for expansion and all three current access points to the airport have moderate inland flooding risk. This project will design and construct a flood-resilient bridge to provide continuous access between Residency Road and the Station and airport.		2024

Roads and Highways & Stormwater Infrastructure

Table 7: Road, Highway, and Stormwater Infrastructure Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Charles County Government (supported by the Resilience Authority of Charles County)	MD 6 Port Tobacco Road Resilience Improvements	Seven miles of Liverpool Point Rd from its intersection with Port Tobacco Rd to its intersection with Riverside Rd. This includes Bridge 8015 over Nanjemoy Creek.	Increasingly, severe precipitation events cause flooding at this location. The flood events have created the need for pavement reconstruction/ resurfacing, and reinforcement of roadway shoulders, and drainage improvements to handle both average and significant storm event flows. The project to mitigate these flood issues is in its planning phase and funding will support the implementation of the chosen project. This rural area of Charles County is highly dependent on this roadway and has an average income that is below 65% of the county average.		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
Charles County Government (supported by the Resilience Authority of Charles County)	Zekiah Watershed Roadway Improvements	Project 1: less than one mile of roadway improvements along Old Washington Rd upstream of Pembrooke Sq. Project 2: less than one mile of roadway near the intersection of Post Office Rd and Industrial Park Dr. Project 3: culvert at the low point in Poplar Hill road.	Several locations within the Zekiah Swamp Watershed experience nuisance and urban flooding and require swale updates and stormwater redirection. The proposed project incorporates green infrastructure solutions such as vegetative infiltration interventions to decrease roadway flooding and to minimize the environmental impact of stormwater runoff. Project locations 1 and 2 are identified as EEAs while Project 3 is adjacent to an EEA and resilience improvements here can improve resilience for neighboring disadvantaged communities.		2024
District Department of Transportation	Soapstone Culvert Reconstruction	Soapstone stream from 250 ft upstream of where the stream passes under Broad branch Rd to 100 ft downstream of this point.	The single barrel stone masonry semicircular arch culvert is undersized to accommodate the current and modeled future rates of flows. Culvert overtopping can cause road closures during storms and has started compromising the integrity of the head walls and streambed downstream. This project aims to replace the soap stone culvert and stabilize the stream upstream and downstream stream banks to make the structure and the roadway more resilient to flooding and subsequent damage.		2024

Stormwater Infrastructure

Table 8: Stormwater Infrastructure Resilience Investment Projects

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
City of Manassas	City of Manassas Flood Hazard Assessment	Citywide street network.	City of Manassas records show that various parts of the hydraulic conveyance system in the City regularly experience localized flooding. This study will identify areas of local flooding, evaluate potential remediation measures, and provide a list of recommendations to address this flooding. A Final Project Summary Report will include potential flood mitigation projects and their approximate construction cost estimates. This information provides the foundation for the City to carry out flood resilience projects.		2024
Prince William County Department of Transportation	Manage Stormwater Flooding Outside of the Floodplain	All roadways in Prince William County adopted in the State maintained roadway system that are not in delineated FEMA floodplains.	Prince William County's existing vulnerability assessment has identified lack of knowledge about flooding outside the FEMA floodplains as a limitation to the County's understanding of roadway vulnerability. This study seeks to use modeling and/or historic flood records to enhance the County's understanding of flooding. Based on this data analysis, the study will identify appropriate resilience measures for implementation and make the most use of funding the County has set aside for adaptation projects.		2024
Prince William County Government Department of Transportation (supported by	Flooded Roadway Mitigation Study	Valley View Drive (VA Route 611 sequences 50/60), structure no. 8: 000000000014300. Old Church Road (VA Route 649), structure no. 8:	These locations are prone to flooding and flash flooding that cause vehicular damage. The study will identify resilient improvements to the impacted streams and surface transportation assets to reduce the magnitude and duration of impacts of current and future weather events and natural disasters. The resilience measures can be deployed to reduce the		2024

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
VDOT)		000000000024232. Fleetwood Drive (VA Route 611 sequence 20), structure no. 8: 000000000014301.	risk to life and of vehicular damage.		
District Department of Transportation	Cleveland Park Stormwater and Drainage Improvement	Porter-Ordway Sewershed in DC's Northwest quadrant Ward 3.	The area around Cleveland metro station (e.g., Connecticut Ave. NW) has flooded multiple times due to insufficient drainage infrastructure that creates ponding on the street surface. This project would carry out infiltration, detention, and capacity improvements to drainage conveyance structures, flood mitigation detention reservoirs, roads, and sidewalks. These improvements will aim to manage a 15-Year return period storm without impacting the rate and erodibility at the outfall into Rock Creek.		2024
DDOT (supported by the DOEE)	SW & Buzzard Point Blue-Green Infrastructure (BGI) Network	2nd St SW (Anacostia River to P St SW). 1st St SW (Anacostia to T St SW). Canal St (P St SW to N St SW). Delaware Avenue (Canal St to G St SW). M St SW (Maine Avenue to South Capitol Street). I Street SW (5th St SW to Delaware Ave). G St SW (5th St SW to Delaware Ave).	Inland flooding threatens Southwest and Buzzard Point. Right-of-way segments in this project will convey and detain excess stormwater in parks and on right-of-way so that it does not impact the adjacent roadways and local residential areas. This project will complete the Blue-Green Infrastructure Network to safeguard Southwest and Buzzard Point.		2024

National Capital Region
Transportation Planning Board

MEMORANDUM

TO: Transportation Planning Board

FROM: Katherine Rainone, Transportation Resilience Planner

SUBJECT: Regional Transportation Resilience Improvement Plan: Request for Project List Approval and incorporation into Visualize 2045

DATE: January 16, 2025

The Transportation Planning Board (TPB) approved its Transportation Resilience Improvement Plan (TRIP) in June 2024. The TPB's TRIP was subsequently approved by FHWA in July 2024. The TRIP is now undergoing the annual project list update process. At its January 22, 2025 meeting, the TPB will be asked to approve Resolution R7-2025 which contains two actions: 1) Amend the TRIP project list with 5 new projects and one modified project in time for the upcoming PROTECT Discretionary Grant Program application deadline; and 2) Amend the region's current plan of record called Visualize 2045 to include the approved TRIP with the updated project list as an appendix.

The Steering Committee reviewed and took action to recommend that the TPB approve Resolution R7-2025 at its meeting on January 10. 2025.

After the Steering Committee reviewed the resolution and made the recommendation, one agency requested that a project from the original list be modified with additional information. WMATA will be submitting a PROTECT Discretionary Grant due February 24, 2025. Due to the timing, WMATA has requested that the updated project information also be included in this action. The proposed change modifies the project description and provides specific drain pump locations, which will enhance their application. Staff concurs and also recommends inclusion and approval.

BACKGROUND

In 2015, Congress enacted provisions in the Fixing America's Surface Transportation (FAST) Act requiring transportation agencies to consider resilience in their transportation planning process – specifically to "improve transportation system resiliency and reliability and reduce (or mitigate) the stormwater impacts of surface transportation." At the end of 2021, FHWA and FTA jointly issued updated Planning Emphasis Areas (PEAs), areas of planning that MPOs should emphasize when identifying and developing tasks for the Unified Planning Work Program. And most recently, the Bipartisan Infrastructure Law (BIL), enacted as the Infrastructure Investment and Jobs Act (IIJA), established the Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation program (PROTECT), which established formula and discretionary grant programs to plan for and strengthen surface transportation to be more resilient to natural hazards, including climate change, sea level rise, flooding, extreme weather events, and other natural disasters through both non-competitive and competitive grants.

This emphasis, paired with increasing importance of planning for improved resilience of regional transportation systems, has led to the creation of TPB's Transportation Resilience Planning Program. The first major products to come out of the program are the National Capital Region Transportation System Climate Vulnerability Assessment and the National Capital Region Transportation Resilience Improvement Plan (TRIP).

REGIONAL TRANSPORTATION RESILIENCE IMPROVEMENT PLAN (TRIP) AND UPDATED PRIORITIZED PROJECT LIST

One major element of the PROTECT program is the Transportation Resilience Improvement Plan (TRIP), a comprehensive plan for state or regional transportation resilience with at least the major components of: a systematic approach to transportation system resilience, a risk-based vulnerability assessment, an investment plan, and a list of transportation resilience projects. Developing a TRIP can lower the non-federal construction match for projects funded by the PROTECT program from 20% to 13% and integrating that TRIP into the LRTP can reduce the match to 10%.

Together with member jurisdictions and agencies, TPB developed a regional TRIP and a prioritized list of regional transportation resilience projects as part of the second phase of its transportation resiliency study, which the board reviewed and approved on June 20, 2024. The TRIP was subsequently formally approved by FHWA in July 2024.

As outlined in the final TRIP, an annual update of the prioritized project list is to occur, to have a comprehensive understanding of transportation resilience projects planned throughout the region and to ensure eligible projects access to a potential match reduction should they be funded via a PROTECT Discretionary Grant. TPB staff began the second round of project submission solicitation with announcements In November 2024 at TPB Technical Committee and Board meetings, and an email solicitation with a form to submit projects in December 2024, for project submissions due January 8, 2025. Review of the submitted projects was completed by TPB staff with consultant assistance, ensuring PROTECT and TRIP eligibility following the same methodology as the first round of project submissions.

The approved TRIP is the current plan of record for regional transportation resilience planning at TPB. As a reminder, stakeholder engagement was a major component of the plan – work was guided by a regional working group who primarily provided input and feedback on key milestones during the development of the TRIP through a series of meetings, in addition to convening a Resiliency Forum, which included a broad swath of regional participants, aimed at building knowledge of climate risks among the jurisdictions and collaborating to develop resilience solutions. The TRIP provides an overview of climate and resilience planning in the National Capital Region, outlines TPB's approach to understanding transportation vulnerabilities across the region, includes a two-phased vulnerability assessment of risks posed by natural hazards on generalized transportation assets and regional-specific assets, and a list of priority resilience projects submitted by member agencies that addresses the vulnerabilities previously identified. The plan concludes with the Future Enhancements section, which includes a list of future work TPB staff plan to take on to continue informing transportation resilience planning and investments in the region. One additional component of the study is an interactive map of major regional resilience hazards which includes climate hazard layers, transportation asset layers, and Equity Emphasis Areas, included in the Vulnerability Assessment and provided to member agencies and jurisdictions as a resource.

UPDATED PRIORITIZED PROJECT LIST AND RESOLUTION TO AMEND VISUALIZE 2045 TO INCLUDE TRIP FOR BOARD APPROVAL

Attached to the resolution is a complete updated TRIP Project List (39 projects in total), highlighting the 5 additional projects and one modified project for 2025 for board members to review and approve. Below is a table which includes only the new additions. The entire TRIP with the updated project list will be amended into Visualize 2045. Please email any comments or questions on regional transportation resilience planning to Katherine Rainone, krainone@mwcog.org.

Lead Agency	Project Title	Location	Description	Hazards	Year Submitted
WMATA	Drainage Pump Stations Rehabilitation Program	A05 Cleveland Park & A06 Van Ness, A08 Friendship Heights & A09 Bethesda, A10-2 Grosvenor & Medical Portal, B02 Judiciary Sq. & B03 Union Station, B08 Silver Spring & B09 Forest Glen, E05 Georgia Ave & E06 Fort Totten, F01 Gallery Place, G01 Benning Road	Pumping stations remove water from WMATA's tunnels when aboveground rainfall or flood fills the tunnels. This equipment has exceeded its life cycle and needs replacement. The project would replace and improve the 59 drainage pumping stations located at low points in MetroRail tunnels to facilitate the removal of excess water from MetroRail tunnels and stations. The project would also replace and improve pumping equipment and tunnel piping systems that have exceeded their lifecycle throughout the MetroRail system. This program prioritizes the highest risk locations based on flooding and equipment need.		2024 *Updated locations 2025
WMATA	Faregate and Mezzanine Exposure to Water Intrusion at NoMa-Galludet Metrorail Station	No-Ma Galludet Metrorail Station (DC)	Currently the mezzanine at the 2nd Street entrance to the NoMA-Galludet U station is exposing riders and rail infrastructure to water. Due to climate change, there will be more frequent and intense rainstorms, making the problem worse. There is a gap between DDOT's Metropolitan Branch Trail and the upper station deck. While a temporary barrier has been installed, a more permanent, secure solution needs to be installed. This will benefit customer's comfort and expand the longevity of the rail infrastructure.		2025
WMATA	Water Leak Mitigation & Preservation - Rail Tunnels	Systemwide.	Climate change projections call for more intense rainfall which leads to more ground water intrusion. This project reduces the risk of water intrusion, protecting Metro infrastructure and equipment while increasing safety for customers and employees and minimizing revenue service disruption.		2025

WMATA	Comprehensive Stormwater Systems Construction and Rehabilitation Program	Systemwide.	This project represents Metro's comprehensive program to design, construct, and rehabilitate stormwater infrastructure to address increased intensity of rainfall and to maintain compliance with stormwater discharge permits and best management practices. The project will also procure new equipment or contract services. There is a prioritized list of 72 locations that need new or rehabilitated stormwater systems.		2025
WMATA	Water Leak Mitigation - Stations and Rooms Water Intrusion Remediation	Systemwide.	Climate change projections call for more intense rainfall which leads to more ground water intrusion. This project reduces the risk of water intrusion, protecting Metro infrastructure and equipment while increasing safety for customers and employees and minimizing revenue service disruption.		2025
DDOT	Canal Road Rock Slope Stabilization Project	Section of Canal Road NW near Clark Place in DC.	An approximately 1,500-foot length of Canal Road NW near Clark Place has experienced periodic rockslides, with the most significant occurring in 2011 temporarily closing the westbound travel lane. Likewise, in April 2021, there was a similar incident of slope failure on the second section to the west of Georgetown University entrance and this section was incorporated into the project in June 2024 with the same scope of work. DDOT, in cooperation with the National Park Service (NPS), propose the following improvements to stabilize the rock slope: installation of rock and soil anchors; installation of the wire mesh drape over the slope face, and installation of proposed drainage system improvements and catch-basins along east side of Canal Road NW.		2025