An Update on Climate Change and Resiliency Efforts at MDOT

September 20, 2021

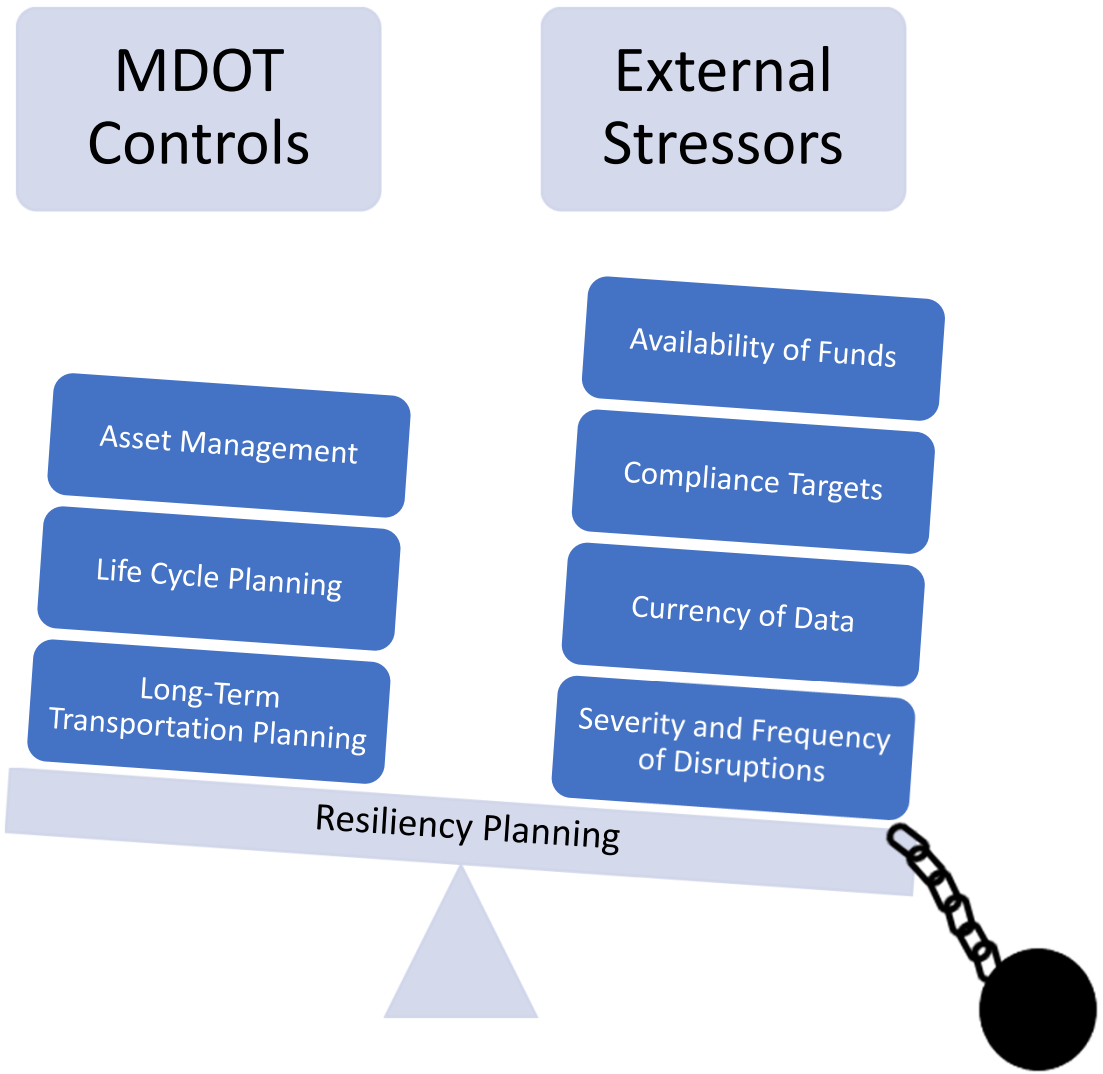
Coast Smart Council Meeting

Transportation, Climate Change, and Resiliency

- Climate Change is not NEW
- Designing for Resiliency is not NEW
- Life-Cycle Planning is not NEW
- Asset Management is not NEW
- Long-Term Transportation Planning is not NEW

Current State ----- Design for Future ----- Factor in Budget/Goal/Policies

So… What's NEW?


MDOT Controls
External Stressors
Asset Management
Life Cycle Planning
Long-Term Transportation Planning
Availability of Funds
Compliance Targets
Currency of Data
Severity and Frequency of Disruptions
Resiliency Planning

Long-Term Transportation Resiliency Planning

Requires recognizing that the external stressors that affect our system today will change over time. We need to be strategic in how we respond to meet the challenges of today without compromising the demands of the future.

Asset Management

- Do we know what we have?
- Are we measuring what we should to evaluate risk and vulnerabilities?
- Do we know what the most likely disruptions are now and, in the future, and how are we preparing for them?

Life Cycle Planning through the Lens of Climate Change Requires

- Access to current local, regional, and national data
- Updated modeling and review of design specifications
- Identification of data gaps and the ability to partner effectively to close the gaps
- Recognition of system vulnerabilities
- Transparency through data driven decisions
- Trying new things!!!

Extreme Weather Risks

Flooding

Precipitation (rain, snow, freezing rain)

Sea Level Change

Increased Sedimentation in Channels

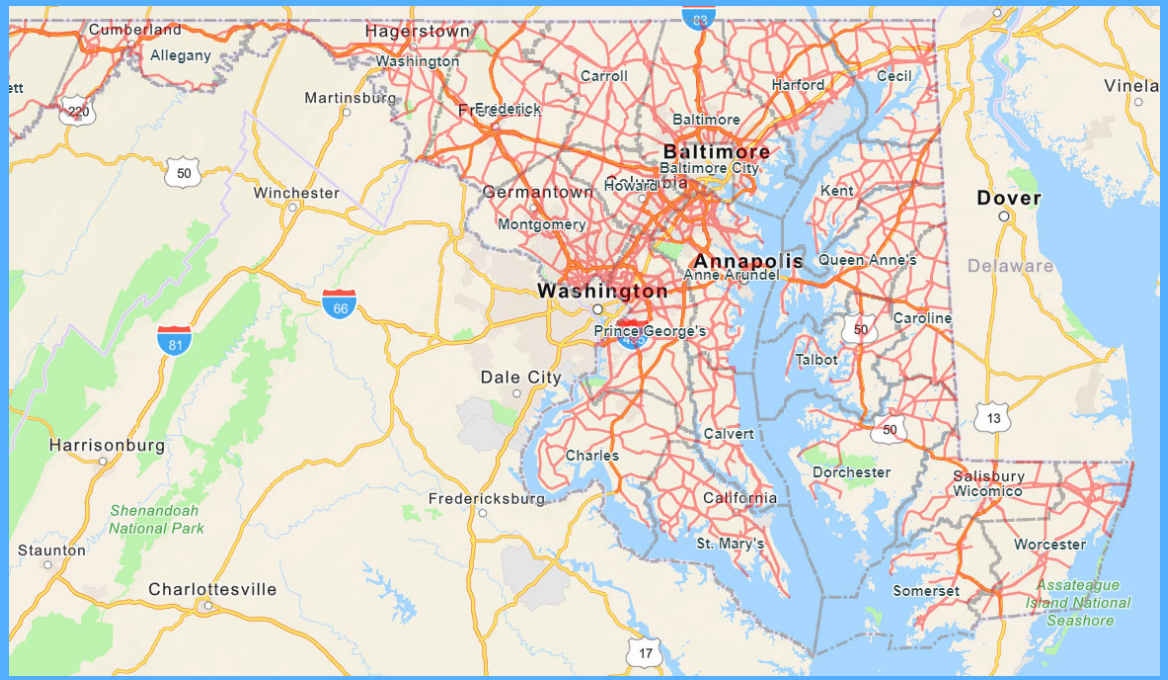
Fueling System Interruptions

Heat Restrictions on Rail Lines

Vulnerability Analysis Framework

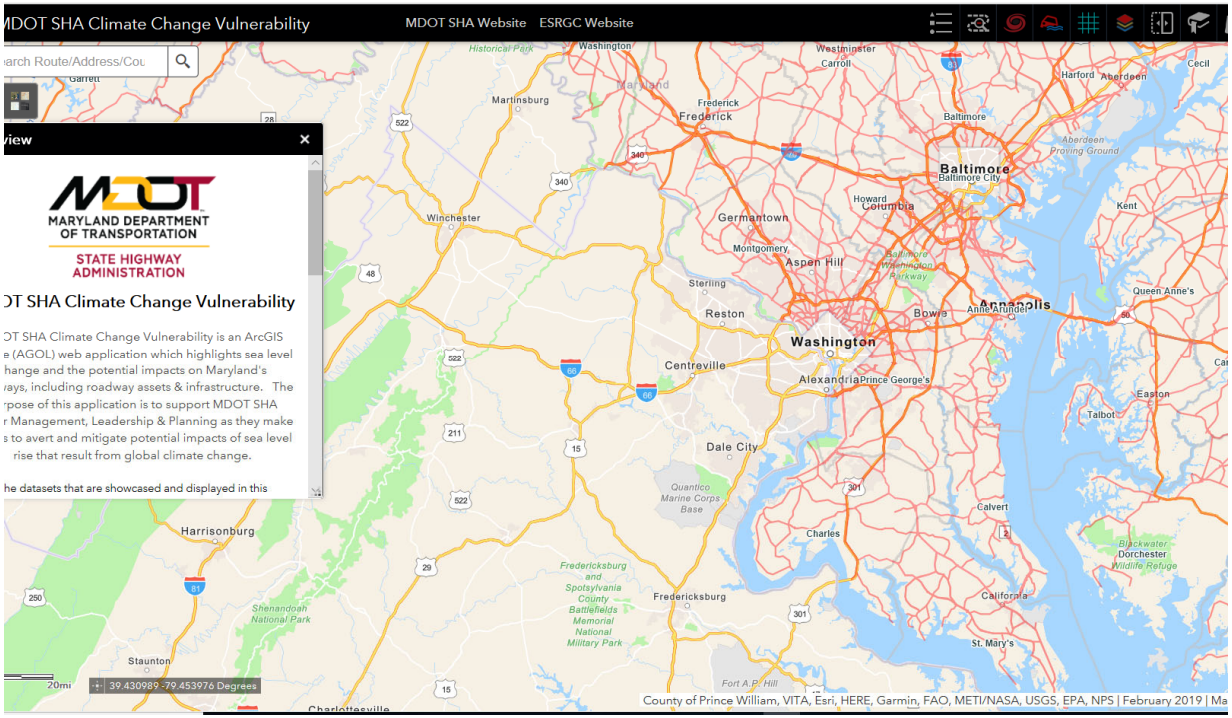
Compile	Develop	Evaluate
Compile Asset and Climate Information	Develop Predictive Models	Evaluate Primary Assets

Two Level Analysis



- TIER 1
  - Map Sea Level Change
  - Develop Climate Change Impact Zone
  - Analyze Flood Depth Grids with Centerline elevation
  - Develop Risk Indicators
- TIER II
  - Utilize Tools
  - Vulnerability Assessment Scoring Tool (VAST)
  - Hazard Vulnerability Index (HVI) = (Evacuation Code*0.5+1) + (Flood Depth Code+0.01)/4 + (0.7/Functional Classification)

PROVIDE ACCESSIBLE RESULTS



Climate Change Vulnerability Viewer

Integrating Results into Practice: Planning

Climate Change Impact Areas

Is this Project within an area potentially affected by Sea Level Change? Yes — Project must consider sea level change.

☒ Mean Sea Level 2050 ☒ Mean Sea Level 2100 — See attached Sea Level Change Map, if applicable

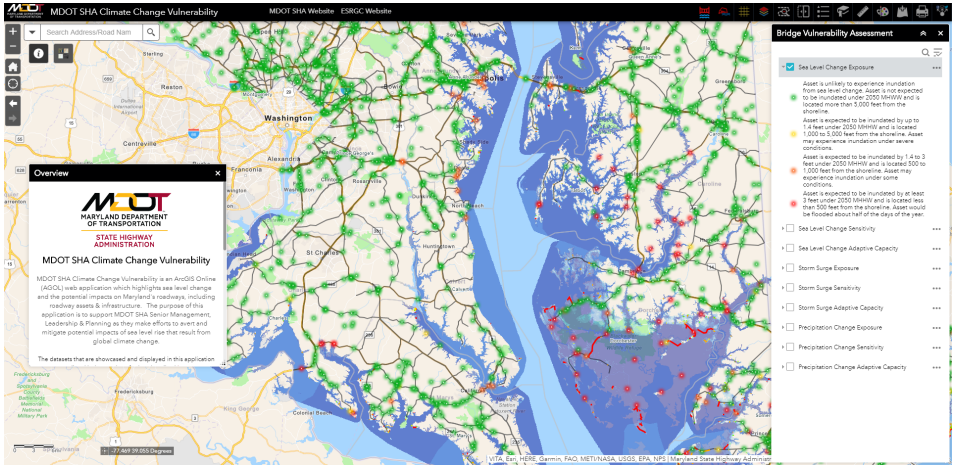
☒ Mean High High Water 2050 ☒ Mean High High Water 2100

Is this a non-state Project located on State lands? No

Is this project involving construction of a new road or bridge, or reconstructing an existing road or bridge due to a storm event? No

Is this project involving construction of a new building/facility or reconstructing an existing building/facility due to a storm event? No

Notes: The hydraulics analysis determined that up to 100-year storm flooding events would not overtop the bridge. The roadway approaches to the bridge are being raised between 1 to 2.5 feet. Additional roadway improvements may be needed to address future flooding.



Current MDOT Projects

- Baltimore Coastal Storm Risk Management Feasibility Study - $1,512,500
- BWI Hourly Garage Storm Water Pump Station Replacement, Asset Management - $2,304,000
- I-895 Baltimore Harbor Tunnel – I-895 Bridge Replacement - $16,719,000
- Drainage Improvements and Slope Repairs - $21,055,000
- Dundalk Marine Terminal Resiliency and Flood Mitigation Improvements Project - $36,700,000 (includes $10M in BUILD funds)
- Hart-Miller Island Related Projects - $15,364,000
- Cox Creek Dredge Material Containment Facility Expansion and Related Projects - $99,622,000
- Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island - $66,305,000
- Low Emission Vehicles Upgrade - $3,420,000
- Zero Emission Bus Pilots - $9,455,000
- Zero Emission Bus Infrastructure and Program Management - $49,991,000
- Statewide Drainage Improvement Projects - $22,981,000

Thank You!

MARYLAND DEPARTMENT OF TRANSPORTATION

Sandy Hertz
Director, Office of Climate Change Resilience and Adaptation
shertz@mdot.Maryland.gov
(410) 865-2780