



**Massachusetts Bay
Transportation Authority**

MBTA Climate Resiliency Program

Fiscal and Management Control Board

December 7, 2020

Andrew Brennan

OVERVIEW

- Developing a Climate Resiliency Strategy
- Climate Assessments
 - Status of Assessments
- Organizational Process for Implementing Projects
- Community Partners



Develop a Robust MBTA Climate Change Resiliency Strategy

- 1. Conduct** climate change vulnerability assessments
- 2. Embed** findings and recommendations into capital projects, policies and programs to institutionalize climate resiliency
- 3. Coordinate** with internal and external stakeholders to share data & knowledge, develop policies, and work on regional protection projects that provide benefits to the MBTA's system

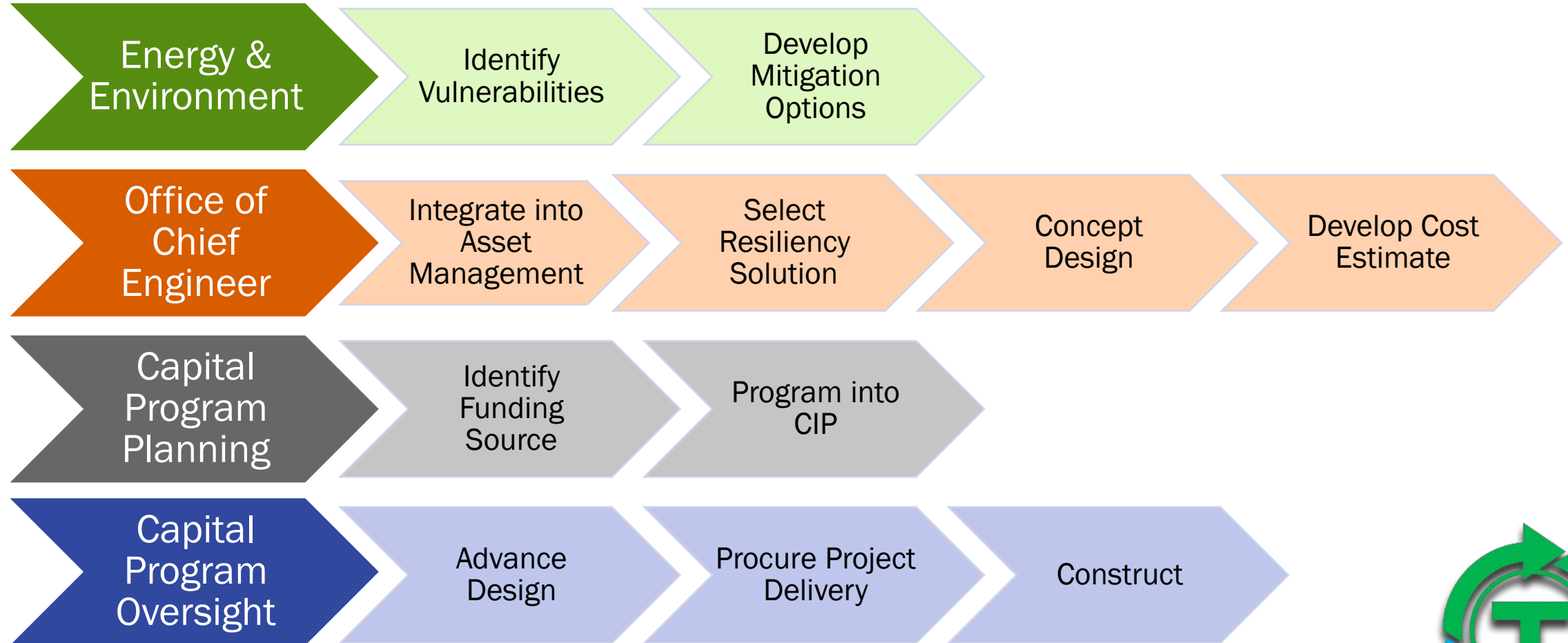


Conduct Climate Change Assessments

- Completed the *MBTA Vulnerability Assessment Report* – a high-level assessment looking at the system and its functions as a whole
- Established an approach for developing future vulnerability assessments with a focus on:
 - **Exposure** – whether an asset will experience any impact from a climate event, based on location and duration of the event
 - Utilize the Mass Coastal Flood Risk and best available science on anticipated sea level rise for the area
 - **Sensitivity** – whether that asset, *if exposed to a stressor*, will be impacted in some significant way
 - **Adaptive Capacity** – the ability of a sensitive asset to react to or recover from exposure or the criticality of the asset to help the system recover



Climate Resiliency Project Development Process



Status of Vulnerability Assessments

COMPLETED

System-Wide:

- Climate Resilience & Vulnerability Assessment Tool (CRaVAT):
- Bus Maintenance Facility Vulnerability Screening Report
- Pumping System Inventory and Vulnerability Assessment

Corridor Assessments:

- Blue Line
- Green Line Extension

UNDERWAY

Corridor Assessments

- Red Line – Anticipated Completion Date – **June 2021**
- Orange Line – Anticipated Completion Date – **June 2021**

System-wide Assessments

- Power, Signals and Communication Systems – **March 2021**
- Pump Room Drainage Mapping – **August 2021**

UPCOMING

Corridor Assessments – October 2021

- Green Line Assessment – To be launched in January

System-wide Assessments – June 2021

- Vehicle Storage

Facility Assessments – May 2022

- Everett Campus – inclusive of Bus, Rail and Shop Facilities
- Charlestown Yard – assess in the post seawall condition
- Bus Facility – deeper dive of Lynn, Albany, Arborway, & Fellsway based on prior study

Commuter Rail System – December 2022

- Inclusive of Maintenance Facilities, Layovers, and Corridors



Timeline for Climate Vulnerability Assessments

| Mode | Scope of Assessment | Completed | 1Q of CY21 | 2Q of CY21 | 3Q of CY21 | 4Q of CY21 | 1Q of CY22 | 2Q of CY22 | 3Q of CY22 | 4Q of CY22 |
|----------------------|---------------------------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|
| System-wide | | ✕ | | | | | | | | |
| Blue Line | Corridor Wide | ✕ | | | | | | | | |
| | Orient Height | ✕ | | | | | | | | |
| | Aquarium & Maverick | ✕ | | | | | | | | |
| Red Line | Corridor Wide | | | ✕ | | | | | | |
| Orange Line | Corridor Wide | | | ✕ | | | | | | |
| Green Line | Corridor Wide | | | | | | ✕ | | | |
| | GLX | ✕ | | | | | | | | |
| Commuter Rail | System-wide | | | | | | | | | |
| Bus Facilities | Overview Assessment | ✕ | | | | | | | | |
| | Site Specific Assessments | | | | | | ✕ | | | |
| Systems | Power, Signals & Communications | | ✕ | | | | | | | |
| | Pump Assessment | ✕ | | | | | | | | |
| | Drainage Mapping | | | | | ✕ | | | | |
| Facility Assessments | Everett | | | | | | | | ✕ | |
| | Charlestown | | | | | | | | ✕ | |
| | Vehicle Storage | | | | | | ✕ | | | |

Not currently funded in CIP

✕ Completed

✕ Underway

✕ Not Yet Underway

Partnering with Communities for Climate Resiliency Grants

COMMUNITY PARTNERS

- MassDOT
- Executive Office of Energy & Environment
- City of Boston/Climate Ready Boston
- Mystic River Collaborative
- Other Municipalities and NGOs working on Resiliency Issues

Coordination with these stakeholders allows the MBTA to have access to best available climate data as well as information on other resiliency projects or plans occurring nearby.





PARTNERS PROJECTS

- Partnering with the City of Boston for a FEMA grant to make improvements to the Lewis Mall park in East Boston
- Partnering with the Mystic River Collaborative and The Nature Conservancy for a NOAA grant for Belle Isle Marsh










Climate Change on mbta.com

Standard One-Way Fares

| | | | |
|--|---|--|--|
|  Subway One-Way \$2.40 with CharlieCard, CharlieTicket, or Cash |  Local Bus One-Way \$1.70 with CharlieCard, CharlieTicket, or Cash |  Commuter Rail One-Way \$2.40 – \$13.25 with CharlieTicket or mTicket App Price based on distance traveled |  Ferry One-Way \$3.70 – \$9.75 with mTicket App or Paper Ferry Ticket Price based on route taken |
|--|---|--|--|

[See fares overview](#)

Important Links

| | | | |
|--|---|--|--|
| Accessibility  | Leadership (FMCB) | Performance  | Careers  |
| Civil Rights  | Climate Change  | Business  | Transit App  |

Climate Change and Sustainability at the MBTA



The MBTA plays an important role in helping to reduce emissions in Massachusetts—a transit system that meets the needs of the 21st century helps get people out of their cars and supports good land use in Greater Boston.

To meet the transportation needs of our region, the MBTA uses many forms of energy—including electricity, natural gas, diesel, steam and other carbon-based fuels. Our carbon footprint is substantial and we are committed to reducing greenhouse gas (GHG) emissions. As of 2021, the MBTA will be powered by 100% renewable electricity.

Our climate change strategies are designed to mitigate the impact of greenhouse gas emissions and adapt to the effects of a changing climate by building a resilient system.

Climate Change Resiliency



While we work to reduce our greenhouse gas emissions, climate change will continue to impact public transit in Greater Boston.

Extreme weather events—heavy rain, storm surge and sea level rise—can delay or disrupt service, threaten the health and safety of our customers and employees, and increase the cost of repair, maintenance, and operations. These events are expected to increase in both frequency and intensity in the next 50 years.

Our Plan to Address Climate Change

We are committed to mitigating the risks of climate change and investing in a more sustainable transit system.

Vulnerability Assessments

Building a Better T

As part of our \$8 billion, 5-year capital investment plan, we're renovating stations, modernizing fare collection systems, upgrading services for our buses, subways, and ferries, and improving the accessibility of the entire system.

[Learn more](#)

Sustainability Report



To learn more about our efforts to build a more sustainable future, read the 2017 Sustainability Report.

[Read the 2017 Sustainability Report](#)

