MBTA Climate Assessment

Annual Update

Fall 2025

Over the past year, the MBTA has advanced climate planning and resilience efforts, while responding to and recovering from ongoing climate threats across our system. From inundation of the Mattapan Line in Milton in February to flash flooding on the Red Line at Braintree Station in July and storm-related downed trees along our Commuter Rail network throughout the year, the need to transform our transit network and make it more resilient and sustainable is ever present and increasingly critical. This annual update highlights our activities and achievements in implementing the MBTA Climate Assessment and illustrates our long-term commitment to embedding sustainability and resilience across all facets of the organization.

Executive Summary

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Executive Summary

The MBTA published its Climate Assessment in September 2024, showcasing our sustainability and resilience efforts to date and providing a framework for future action. This one-year report provides a detailed update on what we have accomplished over the last year, what work is in progress and ongoing, and what projects are on the horizon. The Office of Climate Policy and Planning will continue to release regular updates to share our collective achievements and forthcoming activities.

Over the past year, the MBTA embarked on several foundational planning-related efforts to advance resilience across our system and highlight key investment needs for critical assets. This included developing a systemwide resilience plan (to be released in Winter 2025/2026) that identifies and prioritizes strategies for the MBTA to address climate risks as well as a power master plan (completed in February 2025) that recommends a programmatic approach to investing in MBTA's power assets. Furthermore, the Authority has undertaken a comprehensive strategy to more fully integrate sustainability and resilience into a variety of funding, design, and project development programs and processes.

The MBTA has made considerable strides towards meeting our climate goals in the last 12 months with leadership from several departments and divisions across the agency. Across these efforts, the MBTA has strengthened internal and external partnerships. As the MBTA continues to navigate funding uncertainty, we remain committed to resilience and decarbonization initiatives by working across silos to build them into our reliability and state of good repair objectives.

Year-One Recap

Built out a cross-functional, interdepartmental approach to resilience, energy, and decarbonization.

Drafted the MBTA Resilience Roadmap to synthesize climate hazards and their impacts and identify strategies to build resilience.

Completed power master plan focused on near-term investment recommendations to continue to bring the agency's power assets into a state of good repair.

Started incorporating sustainability and resilience into MBTA's updated Design Standards and Guidelines.

Began to assess solar and energy storage opportunities and determine feasibility of upgrading generation and transmission/distribution systems.

Regularly coordinated with key state agencies on climate initiatives and participating in new state-level working groups.

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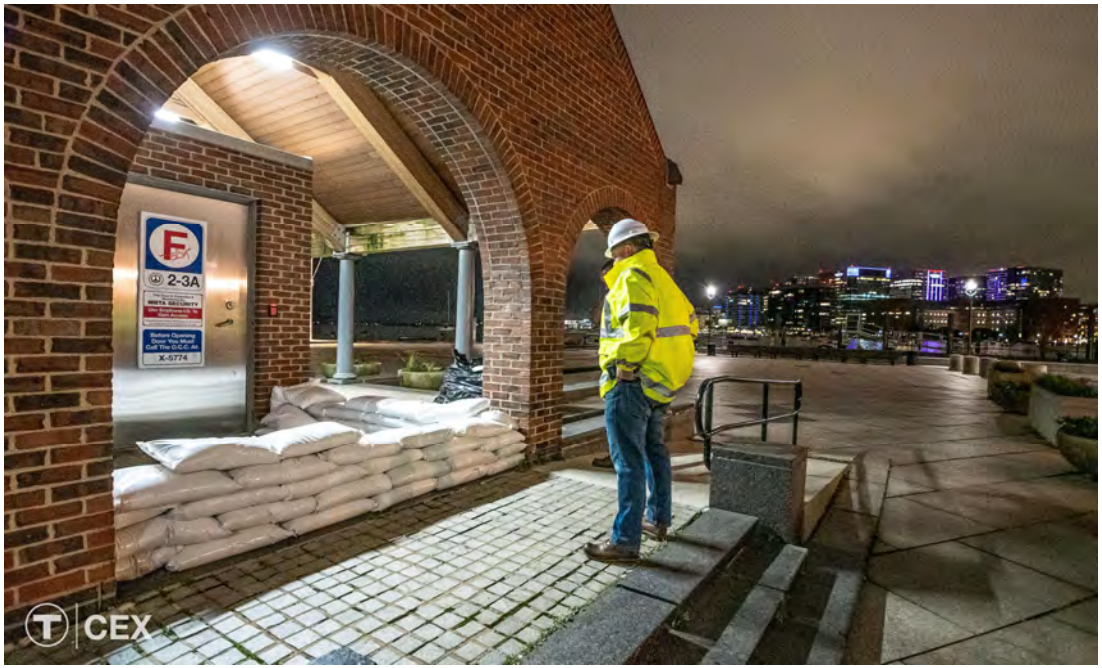

Introduction

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Introduction

Background

In September of 2024, we released the MBTA Climate Assessment. We developed the Assessment to outline our path forward to achieve agency-wide goals to increase sustainability and enhance resilience of the transit system. The Climate Assessment:

- Laid out the framework for decarbonization and resilience initiatives at the Authority.
- Took stock of our climate mandate and achievements to date.
- Articulated a vision for climate resilience and sustainability.
- Identified actions to develop and implement decarbonization, resilience, and power plans.
- Provided steps to ensure our workforce is ready to deliver and operate a transit system adapted to a future climate.
- Built on and reflected the Healey-Driscoll Administration's climate priorities laid out in the 180-day Climate Chief report, the Clean Energy and Climate Plan for 2025 and 2030, Beyond Mobility, and the MBTA's own Strategic Plan.

Key Focus Areas

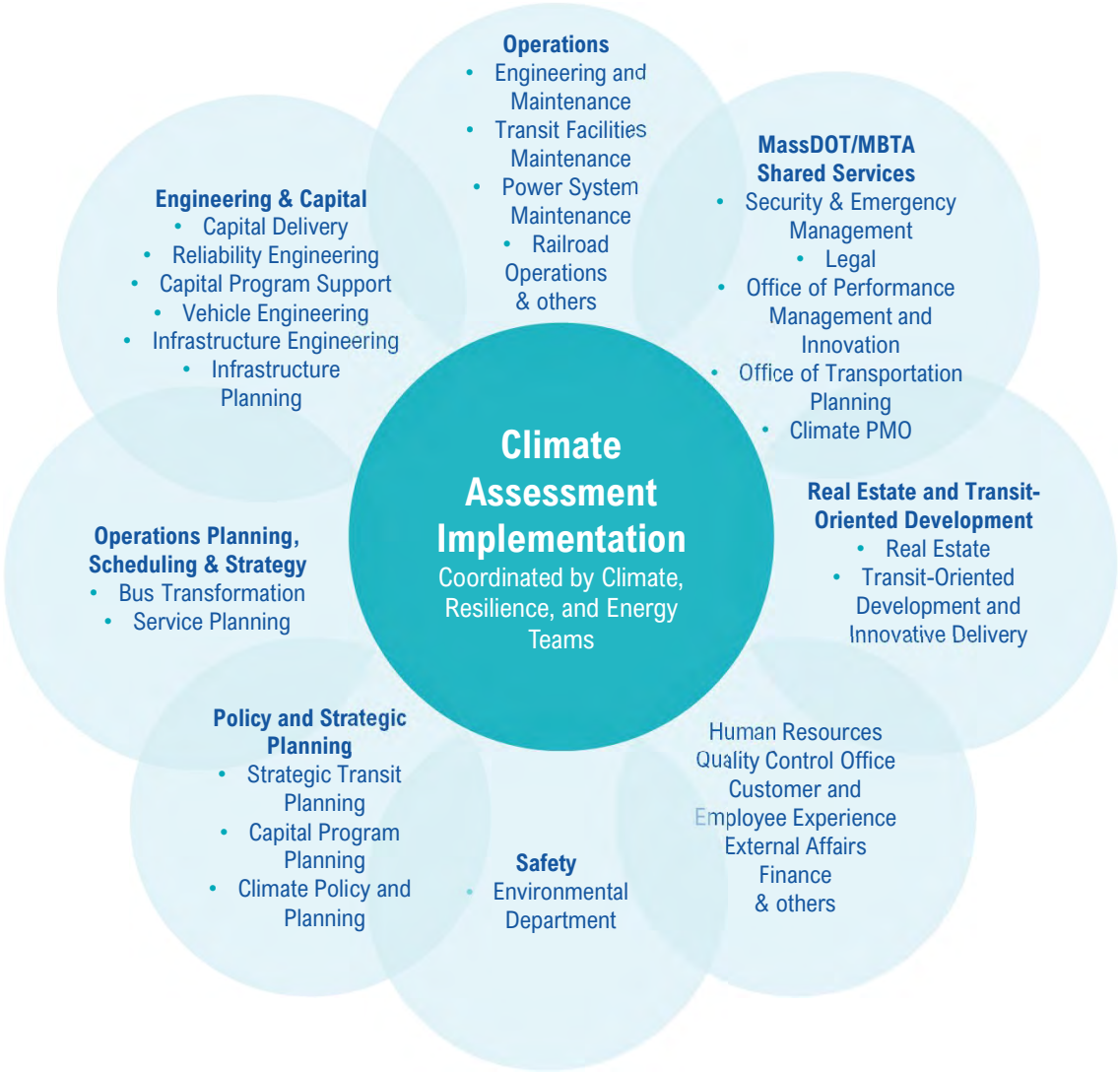
As part of the Assessment, we identified five focus areas to enable sustainability and resilience goals for the MBTA. These focus areas included specific ongoing, near-term, and medium-term actions. For the purposes of the Climate Assessment and this annual update, "ongoing" refers to a recurring activity or an action that is underway with completion anticipated within 3 years. Near-term covers actions projected to finish in 3 to 5 years and medium-term captures actions slated for completion in 6 to 10 years. This annual report provides updates on each action and showcases several key actions where the MBTA has made considerable progress over the last year. Many of these highlighted actions serve as essential building blocks and important milestones that will inform and influence forthcoming climate-related activities.

Cross-Agency Action

To coincide with the publication of the Climate Assessment, the MBTA announced the creation of a new Climate Policy and Planning Team within the Policy and Strategic Planning Division. This team manages MBTA's long-range, cross-agency strategy to develop and execute resilience and decarbonization policy, planning, and process change. More specifically this team's core functions are to:

- Oversee implementation of the MBTA Climate Assessment.
- Lead development of long-range climate plans and integrate climate priorities into related planning initiatives.
- Act as liaisons for key partners across state, municipal, and regional government staff, while advocating on climate-related issues for the MBTA.
- Represent MBTA in external policy processes and support internal process improvements to streamline and strengthen climate and environmental work.

The Climate Policy and Planning Team (Climate), in close collaboration with the Resilience and Energy Teams in the Environmental Department, coordinate with many departments and subject matter experts across the agency to make the MBTA's transit system more sustainable and resilient. As detailed in this report, in the year since the Assessment was released, much of what the MBTA has accomplished to support resilience and sustainability goals has relied upon cross-cutting implementation efforts. Staff representing over 20 departments and countless teams have spearheaded and contributed to ongoing and near-term actions to develop a systemwide resilience plan, establish stronger policy workflows, embed sustainability and resilience into design standards and guidelines, and more.



Snapshot of Major Accomplishments in Year One

Showcased below are a selection of the major accomplishments we achieved over the last year. For more detail, jump to the relevant focus area section or the referenced page.

Planning and Prioritization

- Drafted the Resilience Roadmap to synthesize climate hazards and their impacts to the MBTA system and identify strategies to build resiliency. Page 11
- Completed power master plan focused on near-term investment recommendations to continue to bring the agency's power assets into a state of good repair. Page 13

Organizational and Workforce Needs

- Built out a cross-functional, interdepartmental approach to resilience, energy, and decarbonization with assigned roles and responsibilities. Page 17
- Investigated existing procurement mechanisms for distributed generation, energy efficiency, and alternative delivery for power infrastructure. Page 19

Design Enablement and Integration

- Started incorporating sustainability and resilience into MBTA's updated Design Standards and Guidelines. Page 24
- Assessed CIP resilience and sustainability project evaluation criteria and process and identified opportunities for improvement. Page 25

Snapshot of Major Accomplishments in Year One (continued)

Analysis and Quantification

Began to assess solar and energy storage opportunities and determine feasibility of upgrading generation and transmission/distribution systems.

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Completed an electrification study for non-revenue vehicles, initiated one for paratransit, and investigated viability of ferry electrification.

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Communication of Risks, Priorities and Needs

Regularly coordinated with key agencies on specific resilience and decarbonization initiatives and participating in key state-level working groups.

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As part of the Resilience Roadmap, identified distinct strategies to advance collaborative resilience efforts.

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Focus Area 1

Planning and Prioritization

Overview

The MBTA has established a baseline of assessment and planning in the climate space. To drive action, the MBTA is in the process of creating a holistic climate planning framework that integrates completed plans and ongoing planning initiatives and informs future and related strategic planning activities.

FOCUS AREA 1

Planning and Prioritization

- 1.1 Develop a systemwide resilience plan
- 1.2 Identify geographic resilience needs and coordinate with external partners
- 1.3 Complete decarbonization planning across asset classes
- 1.4 Develop a power master plan
- 1.5 Update emergency response plans and strengthen organizational preparedness
- 1.6 Deepen integration of climate goals into capital planning

Achievements in Year One

- Drafted the Resilience Roadmap to synthesize climate hazards and their impacts to the MBTA system and identify strategies to build resiliency.
- Crafted strategies to better understand, plan for, and establish partnerships to address climate vulnerabilities.
- Completed power master plan focused on near-term investment recommendations to continue to bring the agency's power assets into a state of good repair.

Action Step Highlights

1.1 Develop a systemwide resilience plan

FOCUS AREA 1

DESCRIPTION

Building on completed vulnerability assessments (see Action 4.1) and master plans (see Actions 1.3 and 1.4), a systemwide resilience plan will prioritize initiatives across assets and operations based on operational and capital needs, cost-benefit, and environmental justice criteria.

DEPARTMENT(S)

Climate, Environmental, Engineering & Capital Division, Operations

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Winter 25/26

ACTIVITIES AND ACCOMPLISHMENTS

- Completed a draft of the systemwide resilience plan, also known as the MBTA Resilience Roadmap. As part of this work, MBTA staff:
  - Synthesized climate hazards and their impacts across asset classes drawing on information from 18 previously completed climate change vulnerability assessments.
  - Engaged over 100 internal stakeholders to identify capital and operational priorities given climate vulnerabilities.
  - Outlined strategies to address vulnerabilities at priority locations, as well as included relative cost and implementation leads where feasible.
  - Collaborated with master planning efforts to embed climate priorities in investment plans.

NEXT STEPS

- Finalize and publish the Resilience Roadmap in the winter of 2025/2026.

Action Step Highlights

1.2 Identify geographic resilience needs and coordinate with key municipalities and regional entities

FOCUS AREA 1

DESCRIPTION

Prioritizing actions in the resilience plan will allow the MBTA to engage with municipalities and regional entities and collaborate on shared priorities and funding opportunities, with an equity-informed engagement strategy.

DEPARTMENT(S)

Climate, Environmental, Strategic Transit Planning, Capital Planning

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Winter 25/26

ACTIVITIES & ACCOMPLISHMENTS

- Actively engaged in regional and statewide working groups.
- Outlined specific external engagement strategies in Resilience Roadmap, including:
  - Collaborating with partner agencies to explore neighborhood-scale stormwater and coastal surge mitigations that could reduce flooding impacts to maintenance facilities and yards.
  - Coordinating with external partners to refine heat data sources and better define heat vulnerable areas across our system.
  - Creating a comprehensive map of proposed and in progress flooding resiliency projects within service area.

NEXT STEPS

- Continue to coordinate with key municipalities and regional entities through active working groups.
- Publish map of proposed and in progress flooding resiliency projects within our service area.
- Develop strategic partnerships based on near-term strategies identified in the Resilience Roadmap.

Action Step Highlights

1.4 Develop a power master plan

FOCUS AREA 1

DESCRIPTION

Evaluate current capacity and future needs, assess potential risks and identify steps to achieve a state of good repair, improve resilience, identify opportunities for joint projects across modes, and modernize power assets.

DEPARTMENT(S)

Infrastructure Planning, Infrastructure Engineering, Power System Maintenance, Asset Management, Climate & others

STATUS

Complete

COMPLETION DATE

Feb. 2025

ACTIVITIES & ACCOMPLISHMENTS

- Completed the Power Master Plan (PMP) in February of 2025. The plan:
  - Focused specifically on the MBTA power system assets that move vehicles and power facilities: the South Boston Power Complex, the alternating current and direct current cable network, traction power and unit substations, overhead contact systems, and emergency generators.
  - Included investment recommendations to be funded and implemented over the next 5-10 years to address targeted state of good repair needs.
  - Presented modernization efforts that would support more efficient system operations in the nearer term and highlighted the programs working toward fulfilling strategic commitments and legal obligations for future fleet and facility decarbonization in the longer term.

NEXT STEPS

- Complete feasibility study for the South Boston Power Complex to understand needs and costs.
- Continue to improve asset and energy usage data collection.
- Assess future needs as part of updates to PMP and through broader decarbonization planning efforts.

Remaining Action Steps

	ACTION	DESCRIPTION	TIMELINE	UPDATE
1.3	Complete decarbonization planning across asset classes	Building on the Bus Electrification Plan and the Rail Modernization initiative, the MBTA will define decarbonization pathways for the remainder of MBTA facilities and fleets, leveraging analyses from Focus Area 4.	Medium-Term (not started)	• Developed internal process for prioritizing facilities for investment to address the state of good repair backlog. This approach integrates and addresses agency goals including climate adaptation and resiliency, decarbonization, and modernization. • Will further define decarbonization pathways once related actions from Focus Area 4 are complete.
1.5	Update emergency response plans and strengthen organizational preparedness	Revise existing plans to reflect latest climate science and develop response plans for any hazards not yet covered (e.g., heat). Support updates to Comprehensive Emergency Management Plan and rider guides. Strengthen internal engagement to ensure workforce readiness to execute plans.	Medium-Term (not started)	• Established recurring meetings between Climate, Security & Emergency Management, and Environmental. • Published 2025 Severe Weather Operations Plan that integrated new preparedness actions to address extreme heat events.
1.6	Deepen integration of climate goals into capital planning	Incorporate resilience, energy and emissions priorities and environmental justice considerations into short-term and long-term capital planning and grant strategies to ensure the MBTA can equitably fulfill state climate mandates and deliver on plans, including the Bus Electrification Plan, Rail Modernization, and plans developed in Actions 1.1, 1.3 and 1.4.	Near-Term (in progress)	• Submitted detailed information to the Executive Office for Administration and Finance on the MBTA's process for considering climate change in our capital planning processes. • Established recurring meetings between Climate, Environmental, and the Grants team to assess funding opportunities related to resilience, energy, and environmental protection, discuss project priorities, and create a process for applying for relevant grants.


Focus Area 2
Organizational and Workforce Needs
FOCUS AREA 3
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Overview

The MBTA is focused on establishing a strong governance framework and capacity to implement climate plans and policies across several key departments. The MBTA is also in the midst of transforming its workforce to ensure it can deliver sustainable and resilient capital projects and operate a decarbonized transit system under changing climate conditions.

Organizational and Workforce Needs

- 2.1 Establish clear governance with designated executive ownership and decision-making authority
- 2.2 Carry out workforce development initiatives to support technology adoption and to build capacity to identify resilience and sustainability challenges and solutions to meet climate goals
- 2.3 Review MBTA project management processes to further integrate sustainability and resilience in project planning and delivery
- 2.4 Review staffing levels needed to implement climate-related initiatives and ensure continuity of service during climate events
- 2.5 Review procurement strategies

Achievements in Year One

- Built out a cross-functional, interdepartmental approach to resilience, energy, and decarbonization with assigned roles and responsibilities.
- Established clear guidance on the purpose and scope of the MBTA's standard design phases and further integrated sustainability and resilience into the full project lifecycle.
- Investigated existing procurement mechanisms for distributed generation, energy efficiency, and alternative delivery for power infrastructure.

Action Step Highlights

2.1 Establish clear governance with designated executive ownership and decision-making authority

FOCUS AREA 2

DESCRIPTION

Establish a cross-functional team with clear executive and department-level leadership. Define roles and responsibilities by department for resilience, energy and decarbonization goals. Provide regular reports to the MBTA Board.

DEPARTMENT(S)

Climate, Environmental

STATUS	TIMELINE	TARGET COMPLETION DATE
 Partially Complete	Near-Term	 Fall 2025

ACTIVITIES & ACCOMPLISHMENTS

- Created a cross-functional team under Policy and Strategic Planning (PSP) to develop and implement foundational and intersectional plans and policies to reach the MBTA and state's climate goals.
- Worked to further clarify and communicate the distinction between teams and roles regarding resilience, energy, and decarbonization.
- Collaborated across PSP and Environmental to discuss and share team goals for FY26.
- Expanded the Resilience and Energy Teams within Environmental to carve out additional positions and responsibilities around coordination, resiliency data and analysis, project review, and EV charging.

NEXT STEPS

- Strengthen strategic integration across PSP and Environmental.
- Continue to articulate and highlight, both internally and externally, collective goals and priorities as well as the specific responsibilities of the MBTA's Climate, Energy, and Resilience teams.

Action Step Highlights

2.3 Review MBTA project management processes to further integrate sustainability and resilience in project planning and delivery

DESCRIPTION

Review Project Development Group (PDG) process and staffing practices to ensure an interdisciplinary approach to delivery that further integrates sustainability and resilience earlier in the project lifecycle and during value engineering (see Actions 3.1, 3.3, 3.5).

DEPARTMENT(S)

Capital Delivery, Infrastructure Planning, Infrastructure Engineering, Climate, Environmental

STATUS	TIMELINE	TARGET COMPLETION DATE
In Progress	Near-Term	Fall 2026

FOCUS AREA 2

ACTIVITIES & ACCOMPLISHMENTS

- Embedded sustainability and resilience considerations into recently published Capital Project Design Phase Guidelines, notably identifying opportunities to address extreme weather impacts in project pre-design and planning and earlier design phases.
  - These guidelines provide project managers, consultants, and other stakeholders with clear guidance on the purpose and scope of the MBTA's standard design phases, with the goal of promoting consistency and efficiency in the delivery of capital projects.
- In process of incorporating environmental, sustainability, and resilience objectives, requirements, and recommendations into MBTA's Design Standards and Guidelines (see Action 3.1).

NEXT STEPS

- Continue to integrate appropriate climate-related measures into future updates to engineering and capital manuals.
- Determine a process and approach to include relevant subject matter experts in PDG meetings for priority sustainability and resilience projects.
- Develop a tracking methodology to ensure projects address sustainability and resilience during appropriate design phases.

Action Step Highlights

2.5 Review procurement strategies

FOCUS AREA 2

DESCRIPTION

Identify appropriate circumstances for contracting strategies to achieve desired sustainability and resilience outcomes, e.g., for operation and maintenance of specialized energy infrastructure.

DEPARTMENT(S)

Procurement, Capital Planning, Environmental, Climate

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Fall 2026

ACTIVITIES & ACCOMPLISHMENTS

- Evaluated key drivers, constraints, and challenges with our existing solar and wind facilities, including management models and operations and maintenance strategies.
- Used the results to inform a request for information (RFI) to evaluate the feasibility of solar photovoltaic (PV) and energy storage development at MBTA parking lots, facility rooftops, and other properties. Responses are informing future procurement and contracting strategies.
- Explored opportunities to better leverage state procurement mechanisms for energy infrastructure, such as contracts for energy management services (e.g., Mass. General Laws Chapter 25A, Section 11C).
- Researched alternative delivery models to modernize power infrastructure.

NEXT STEPS

- Inform feasibility studies highlighted as part of Action 4.3.
- Establish and implement procurement procedures and templates for specialized energy infrastructure.

Remaining Action Steps

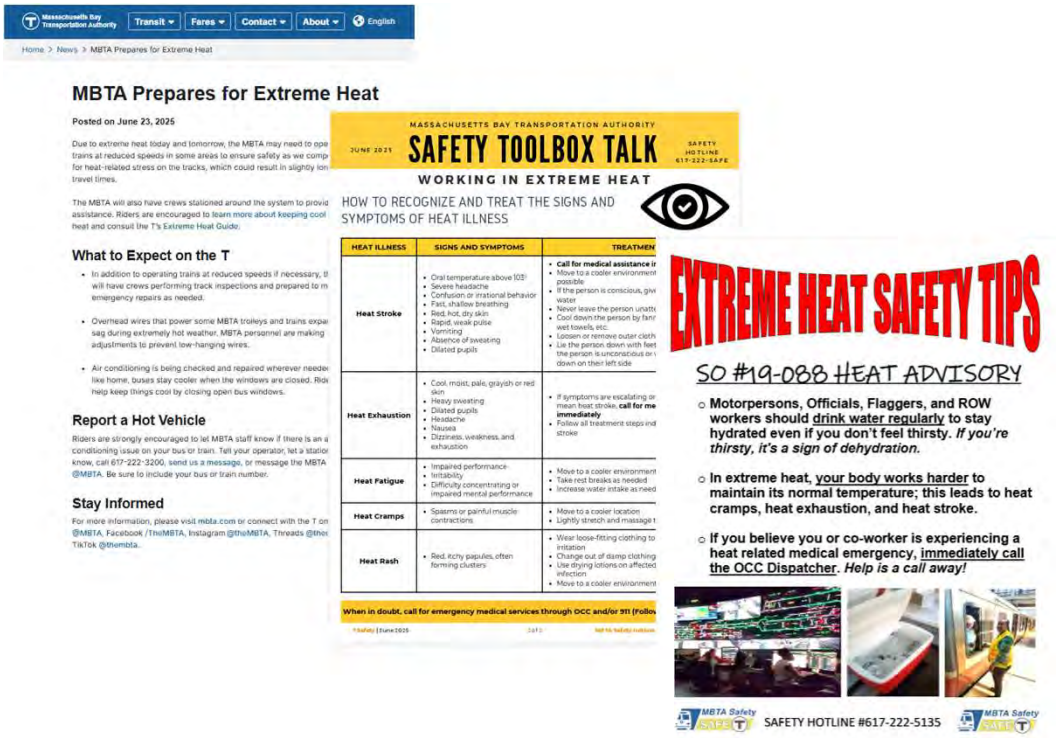
	ACTION	DESCRIPTION	TIMELINE	UPDATE
2.2	Carry out workforce development initiatives to support technology adoption and to build capacity to identify resilience and sustainability challenges and solutions to meet climate goals	Raise internal awareness of the MBTA's role as a climate solution, climate initiatives underway, and how departments are impacted by climate change or contribute to climate initiatives. Execute workforce development initiatives to build capacity in specific departments as needed or to build into operator contracts (e.g., extreme weather preparedness, maintenance for new technologies).	Medium-Term (in progress)	• Participated in internal webinars and training events to share information on MBTA's climate initiatives and educate staff on climate hazards. • Began heat safety initiative covering operational protocols, heat safety training for MBTA personnel, and strategic direction and logistical support for heat-specific personal protective equipment and water distribution to field employees.
2.4	Review staffing levels needed to implement climate-related initiatives and ensure continuity of service during climate events	Assess staffing needs to integrate climate priorities across capital planning and delivery and operations to achieve goals of Action 2.3, to implement plans underway or to be developed within Focus Area 1, and to ensure worker safety during climate events (e.g., adjusted staff levels during heat events to limit heat stress).	Medium-Term (not started)	• Dependent on completion of related ongoing and near-term action steps, e.g., Action 2.3.

FOCUS AREA 2

Spotlight on Combating Extreme Heat

In addition to progressing actions in the "Organizational and Workforce Needs" Focus Area of the Climate Assessment, the MBTA also launched several initiatives in 2025 to improve worker safety during extreme heat events. The summer of 2024 was the third hottest summer on record for Massachusetts with multiple heat waves causing operational issues and delays across the MBTA system and creating uncomfortable conditions in many of our stations, tunnels, and worksites. In anticipation of potential heat emergencies this past summer, representatives from across the agency worked collaboratively on a programmatic response to extreme heat which included:

- Updating operational protocols and heat safety training for MBTA personnel.
- Conducting internal heat safety awareness campaign including targeted training, heat safety tips, and other timely information.
- Expanding selection of heat-specific personal protective equipment for staff.
- Augmenting procedures and improving logistics to provide better water distribution to all field employees.
- Gathering station temperature readings during the summer of 2025.
- Providing proactive information to riders in advance of heat waves.



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MBTA Prepares for Extreme Heat

Posted on June 23, 2025

Due to extreme heat today and tomorrow, the MBTA may need to ope trains at reduced speeds in some areas to ensure safety as we comp for heat-related stress on the tracks, which could result in slightly lon travel times.

The MBTA will also have crews stationed around the system to provid assistance. Riders are encouraged to learn more about keeping cool heat and consult the T's Extreme Heat Guide.

What to Expect on the T

- In addition to operating trains at reduced speeds if necessary, t will have crews performing track inspections and prepared to m emergency repairs as needed.
- Overhead wires that power some MBTA trolleys and trains expa sag during extremely hot weather. MBTA personnel are making adjustments to prevent low-hanging wires.
- Air conditioning is being checked and repaired wherever needed like home, buses stay cooler when the windows are closed. Rid help keep things cool by closing open bus windows.

Report a Hot Vehicle

Riders are strongly encouraged to let MBTA staff know if there is an a conditioning issue on your bus or train. Tell your operator, let a statio know, call 617-222-3200, send us a message, or message the MBTA @MBTA. Be sure to include your bus or train number.

Stay Informed

For more information, please visit mbta.com or connect with the T on @MBTA, Facebook /TheMBTA, Instagram @theMBTA, Threads @the TikTok @thembta.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

JUNE 2021

SAFETY TOOLBOX TALK

SAFETY HOTLINE 617-222-SAFE

WORKING IN EXTREME HEAT

HOW TO RECOGNIZE AND TREAT THE SIGNS AND SYMPTOMS OF HEAT ILLNESS

HEAT ILLNESS	SIGNS AND SYMPTOMS	TREATMEN
Heat Stroke	• Oral temperature above 103 • Severe headache • Confusion or irrational behavior • Fast, shallow breathing • Red, hot, dry skin • Rapid, weak pulse • Vomiting • Absence of sweating • Dilated pupils	• Call for medical assistance i • Move to a cooler environment possible • If the person is conscious, giv water • Never leave the person unatt • Cool down the person by fan wet towels, etc. • Loosen or remove outer cloth • Lie the person down with feet the person is unconscious or down on their left side
Heat Exhaustion	• Cool, moist, pale, grayish or red skin • Heavy sweating • Dilated pupils • Headache • Nausea • Dizziness, weakness, and exhaustion	• If symptoms are escalating, or mean heat stroke, call for me immediately • Follow all treatment steps ind stroke
Heat Fatigue	• Impaired performance • Irritability • Difficulty concentrating or impaired mental performance	• Move to a cooler environment • Take rest breaks as needed • Increase water intake as need
Heat Cramps	• Spasms or painful muscle contractions	• Move to a cooler location • Lightly stretch and massage t
Heat Rash	• Red, itchy papules, often forming clusters	• Wear loose-fitting clothing to irritation • Change out of damp clothing • Use drying lotions on affected infection • Move to a cooler environment

When in doubt, call for emergency medical services through OCC and/or 911 (Follo

EXTREME HEAT SAFETY TIPS

SO #19-088 HEAT ADVISORY

- Motorpersons, Officials, Flaggers, and ROW workers should drink water regularly to stay hydrated even if you don't feel thirsty. *If you're thirsty, it's a sign of dehydration.*
- In extreme heat, your body works harder to maintain its normal temperature; this leads to heat cramps, heat exhaustion, and heat stroke.
- If you believe you or co-worker is experiencing a heat related medical emergency, immediately call the OCC Dispatcher. *Help is a call away!*

MBTA Safety SAFETY T SAFETY HOTLINE #617-222-5135 MBTA Safety SAFETY T

Focus Area 3

Design Enablement and Integration

Overview

To move beyond planning to implementation, the MBTA is driving further integration of sustainability and resilience priorities across the organization's process flows, particularly in capital delivery, procurement, asset management, and maintenance.

Design Enablement and Integration

- 3.1 Develop sustainability and resilience design standards for new capital projects
- 3.2 Create energy efficiency protocols for projects outside of the capital planning process
- 3.3 Further integrate climate risk and sustainability reviews across asset lifecycle management and capital project design
- 3.4 Strengthen alignment of the Capital Investment Plan (CIP) with the MBTA's sustainability and resilience goal
- 3.5 Assess opportunities to integrate Buy Clean purchasing principles into procurement

Achievements in Year One

Began incorporating sustainability and resilience into MBTA's updated Design Standards and Guidelines

★★☆ Assessed CIP resilience and sustainability project evaluation criteria and process and identified opportunities for improvement

Participated in statewide Embodied Carbon Intergovernmental Coordinating Council to explore the use of low embodied carbon building products and inform MBTA's procurement approach

FOCUS AREA 3

Action Step Highlights

3.1 Develop sustainability and resilience design standards for new capital projects

DESCRIPTION

Adopt design standards aligned to the sustainability and resilience objectives for use in the PDG process. Standards should outline minimum performance requirements for different types of projects, including efficiency and electrification targets. Specific standards will need to be developed for operations contracts (e.g., ferry, regional rail).

DEPARTMENT(S)

Infrastructure Engineering, Infrastructure Planning, Capital Delivery, Environmental, Rail Operations/ Modernization

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Ongoing	Spring 2026

ACTIVITIES & ACCOMPLISHMENTS

- Informing changes to the MBTA's updated Design Standards and Guidelines (DSG) to include additional environmental, sustainability, and resilience (ESR) best practices covering a range of topics from stormwater management and flood resilience design to material selection, and more.
- Creating a chapter within the DSG focused on ESR to further articulate statutory and regulatory requirements that must be addressed as part of project design as well as sustainability and resilience design considerations that can save time, money, resources, etc.
- Identifying and embedding tailored performance requirements for sustainability and resilience.

NEXT STEPS

- Complete contributions to key DSG sections by early 2026.
- Publish the ESR content in mid-2026.

FOCUS AREA 3

Action Step Highlights

3.4 Strengthen alignment of the Capital Investment Plan (CIP) with the MBTA's sustainability and resilience goal

DESCRIPTION

Refine the CIP resilience and sustainability project evaluation criteria and scoring and prioritization process to align with the Commonwealth's goals as noted in the Climate Chief report, including with an equity and environmental justice lens. Explore adoption of metrics and applying criteria to long-range capital planning.

DEPARTMENT(S)

Climate, Capital Planning, Environmental, Office of Performance Management and Innovation (OPMI), Strategic Transit Planning

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Continuous

ACTIVITIES & ACCOMPLISHMENTS

- Refined the CIP resilience and sustainability project evaluation criteria and deployed new scoring and prioritization approach for FY 2026-2030 CIP process.
- Discussed lessons learned from FY 2026-2030 CIP process with Climate, Environmental, and Capital Planning staff, to identify future process changes.
- Identified ideas for staff trainings and workshops and discussed ways to further engage project managers and technical staff on developing project charters and incorporating sustainability and resilience components.

NEXT STEPS

- Will draw upon takeaways from FY 2026-2030 CIP process to inform changes to future CIP cycles.
- Further assess ways to better identify and improve scoring for programmatic projects.

FOCUS AREA 3

Action Step Highlights

3.5 Assess opportunities to integrate Buy Clean purchasing principles into procurement

DESCRIPTION

Explore adoption of Buy Clean, a federal procurement policy to promote purchase of construction materials and products with lower lifecycle emissions. Assess applicability to vehicle, material and equipment purchases.

DEPARTMENT(S)

Procurement, Capital Delivery, Capital Planning, Infrastructure Planning, Environmental

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Medium-Term	TBD

ACTIVITIES & ACCOMPLISHMENTS

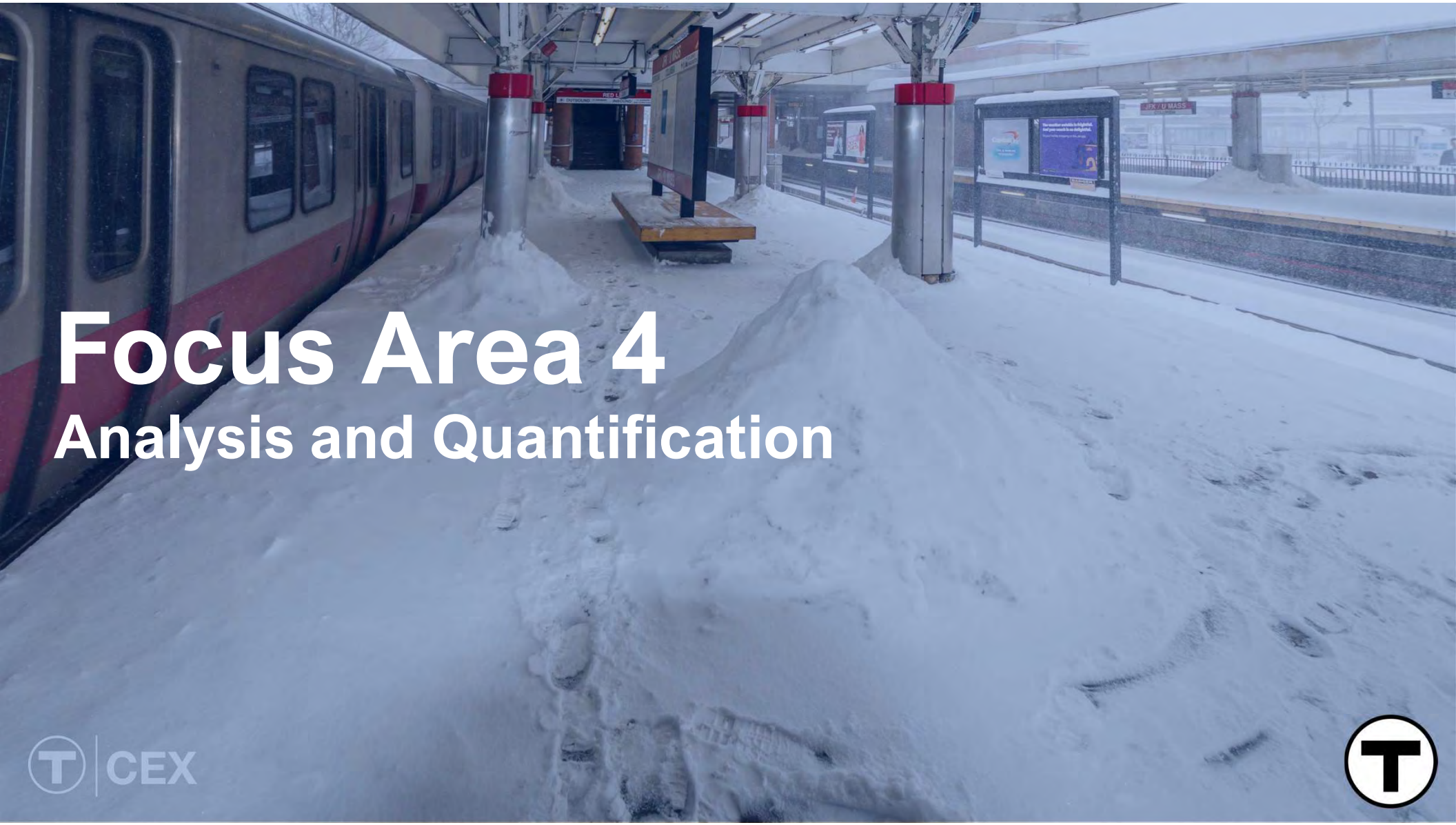
- With rescission of federal Buy Clean program, shifted focus to implementation of state-level approach to utilize low-embodied carbon technologies and materials in building and transportation construction.
- Participating in the Embodied Carbon Intergovernmental Coordinating Council (ECICC) to review research and provide feedback on upcoming embodied carbon state plan.
- Assessing opportunities through the update to MBTA's Design Standards and Guidelines to include performance requirements and recommendations related to Environmental Product Declarations and use of lower-carbon materials (see Action 3.1).

NEXT STEPS

- Continue participating in ECICC.
- Inform the development of the embodied carbon reduction state plan, which will be released in early 2026.
- Assess potential new requirements stemming from the embodied carbon reduction plan, evaluate applicability, and determine timeline for next steps.

Remaining Action Steps

	ACTION	DESCRIPTION	TIMELINE	UPDATE
3.2	Create energy efficiency protocols for projects outside of the capital planning process	Set protocols for repairs and maintenance projects or smaller projects. Establish energy use intensity (EUI) and electrification targets for equipment replacement and other minor renovations.	Medium-Term (not started)	• Established Utility Vendor Program to perform energy efficiency projects covering light-emitting diode (LED) lighting upgrades, lighting controls, insulation, and heat pump installation. • This included completing energy audits at 15 MBTA sites and initiating construction contracts for eight MBTA sites.
3.3	Further integrate climate risk and sustainability reviews across asset lifecycle management and capital project design	Strengthen integrated use of Trapeze EAM and design review tools such as E-Builder, the environmental checklist, and PDG reviews for all projects and across the project lifecycle by interdisciplinary project teams (see Action 2.3). Build internal capacity to consistently meet sustainability and resilience design standards, including during value engineering (see Action 3.1).	Near-Term (not started)	• Will move forward once Actions 2.3 and 3.1 are more fully implemented.



Focus Area 4

Analysis and Quantification

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Overview

To ensure that the MBTA invests resources wisely, detailed analysis is underway to estimate the scale of potential need and to ensure that we have necessary data to inform prioritization and decision-making in capital planning down to the project level. The MBTA is also continuously evaluating emerging technologies for their potential to accelerate decarbonization and resilience improvements.

Analysis and Quantification

- 4.1 Complete climate vulnerability assessments
- 4.2 Conduct comprehensive economic analysis of necessary resilience and net-zero investments through 2050 and identification of funding strategies
- 4.3 Evaluate opportunities for renewable energy generation, energy storage and transmission/distribution
- 4.4 Conduct electrification studies for ferry, paratransit and non-revenue service vehicles
- 4.5 Assess and pilot new technologies and reliability advancements

Achievements in Year One

- In process of initiating and conducting climate vulnerability assessments for several key modes, facilities, and asset classes
- Began to assess solar and energy storage opportunities and determine feasibility of upgrading generation and transmission/distribution systems.
- Completed an electrification study for non-revenue vehicles, initiated one for paratransit, and investigated viability of ferry electrification.

FOCUS AREA 4

Action Step Highlights

4.1 Complete climate vulnerability assessment

DESCRIPTION

Upcoming assessments include commuter rail assets, Cabot Yard, and additional bus facilities. Future studies should include assessment of heat-specific challenges (e.g., track buckling, power disruption, thermal discomfort). Integrate into enterprise asset management system and other centralized repositories to enable integrated planning across hazards and asset classes. Use findings to inform adaptation plan (see Action 1.1).

DEPARTMENT(S)

Environmental, Climate & others (Cross-Agency Initiative)

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Continuous

ACTIVITIES & ACCOMPLISHMENTS

- Incorporated findings from prior climate change vulnerability assessments (CCVAs) into MBTA Resilience Roadmap (see Action 1.1).
- In the process of:
  - Conducting a CCVA for Cabot Yard.
  - Initiating CCVAs for critical assets on the Commuter Rail (Commuter Rail Maintenance Facility, dispatch locations).
  - Scoping next CCVAs across subway, bus and Commuter Rail.

NEXT STEPS

- Further integrate data and information collected through CCVAs into centralized repositories.
- Using the Resilience Roadmap (Action 1.1), prioritize next set of vulnerability assessments and determine timeline for completion

Action Step Highlights

4.3 Evaluate opportunities for renewable energy generation, energy storage and transmission/distribution

DESCRIPTION

Review available and emerging renewable, energy storage and demand management technologies. Assess transmission and distribution needs and opportunities. Evaluate the costs, performance, scalability, and deployment potential, as well as ownership and contracting models.

DEPARTMENT(S)

Climate, Environmental, Power, Infrastructure Engineering, Infrastructure Planning, Operations, Maintenance, Legal

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Ongoing	Fall 2026

ACTIVITIES & ACCOMPLISHMENTS

- Released RFI to evaluate the feasibility of solar photovoltaic (PV) and energy storage development (see Action 2.5).
- Launched solar economic feasibility study to assess opportunities for renewable energy integration, battery storage, and revenue generation. Key areas of analysis include parking lot solar installations, renewable energy credit market evaluations, distribution and transmission constraints, co-location of battery energy storage, and electric vehicle charging.

NEXT STEPS

- Craft a development and procurement strategy for solar and energy storage based on information provided through the RFI and the solar economic feasibility study.
- Complete solar economic feasibility study by spring of 2026.

FOCUS AREA 4

Action Step Highlights

4.4 Conduct electrification studies for ferry, paratransit and non-revenue service vehicles

DESCRIPTION

Assess electrification pathways, feasibility, infrastructure needs and costs for non-revenue fleet (underway), the RIDE (initiated fall 2024) and ferry to inform facility and power plans (see Actions 1.3 and 1.4).

DEPARTMENT(S)

Operations, Climate, Environmental, Engineering & Capital Division

STATUS	TIMELINE	TARGET COMPLETION DATE
 In Progress	 Ongoing	 2027

ACTIVITIES & ACCOMPLISHMENTS

- Completed non-revenue fleet electrification study which involved an assessment of vehicle makeup and fleet usage and included recommendations on viability, timing, and phasing for replacement of different vehicle types.
- In collaboration with MassDOT, initiated a study to analyze and model the feasibility of electrifying the RIDE fleet.
- Investigated technologies, vendors, and trends related to reduced-emission and zero-emission water transportation vessels.

NEXT STEPS

- Develop and implement EV charging policies in advance of non-revenue EV charging installation and fleet deployment.
- Finalize the RIDE EV feasibility study.
- Undertake Water Transportation Study to reimagine water transportation in the region, which will identify potential improvements to existing ferry routes and infrastructure and explore new routes and terminal locations. Study will include data collection and analysis related to energy efficiency, electrical capacity and deficiencies, and other information that could inform future fleet planning and electrification efforts.

Remaining Action Steps

	ACTION	DESCRIPTION	TIMELINE	UPDATE
4.2	Conduct comprehensive economic analysis of necessary resilience and net-zero investments through 2050 and identification of funding strategies	Per recommendations from the Climate Chief and Beyond Mobility, in conjunction with A&F, Climate Office, EEA and MassDOT, estimate the costs of implementing energy efficiency, electrification and resilience measures. Compare with the economic benefits, avoided emissions, and other co-benefits to the extent that data is available, to communicate cost of failure to fund and implement sustainability and resilience plans.	Near-Term (in progress)	• Provided high-level cost estimates and related information to support development of the forthcoming Comprehensive Climate Action Plan, ResilientMass Finance Strategy and Investment Assessment of Key Resilience Measures.
4.5	Assess and pilot new technologies and reliability advancements	Create a framework to assess, test and document emerging technologies to further the Authority's sustainability goal. Utilize findings to adapt system sustainability and modernization plan as appropriate.	Near-Term (in progress)	• In process of evaluating current innovation-related policies. Aiming to revise policies later this fiscal year. • Evaluated prior MBTA pilots (e.g. regenerative braking energy storage) and engaged other peer agencies to gather lessons learned on innovative technologies and potential applications.

Focus Area 5

Communication of Risks, Priorities and Needs

Overview

To develop equitable plans and ensure successful implement, the MBTA is developing internal and external strategies to raise awareness of climate priorities and barriers and building strong partnerships with stakeholders to ensure implementation in alignment with external mandates.

Communication of Risks, Priorities and Needs

5.1 Develop an internal communications and education strategy

5.2 Participate in regular inter-agency climate coordination meetings

5.3 Create an external engagement framework for climate priorities

5.4 Develop external communications and public relations strategy around climate impacts and strategic goals

Achievements in Year One

Regularly coordinated with key agencies on specific resilience and decarbonization initiatives and participated in key state-level working groups.

As part of the Resilience Roadmap, identified distinct strategies to advance collaborative resilience efforts.

Action Step Highlights

5.2 Participate in regular inter-agency climate coordination meetings

DESCRIPTION

Build on existing coordination between state agencies and establish closer working relationships as needed for coordination on specific or timely climate resilience and/or decarbonization initiatives. Includes coordination with MassDOT Climate PMO, DCR, EEA, MEMA, and other key agencies, as well as participation in state working groups.

DEPARTMENT(S)

Climate, Environmental

STATUS	TIMELINE	TARGET COMPLETION DATE
 In Progress	 Ongoing	 Continuous

ACTIVITIES & ACCOMPLISHMENTS

- Regularly coordinated with leaders at the Governor's Office of Climate Innovation and Resilience and EEA on ongoing and upcoming resilience and decarbonization initiatives including climate funding strategies.
- Directly engaged with MassDOT Climate PMO, CZM, DCR, DOER, MEPA and other agencies on time-sensitive and targeted resilience and energy efforts.
- Continued to participate in the state-level Electric Vehicle Infrastructure Coordinating Council (EVICC) to provide data, information, and input on transit-specific EV charging infrastructure, including for the Second Assessment that evaluated the current state of charging and recommended strategic actions for developing a robust charging network.
- Began involvement in ECICC (see Action 3.5).

NEXT STEPS

- Continue ongoing coordination with state agencies around resilience and decarbonization.
- Continue to participate in state working groups and related committees.
- As part of the EVICC, assist in the development and implementation of the state EV charging infrastructure deployment plan as well as future assessments.

Action Step Highlights

5.3 Create an external engagement framework for climate priorities

DESCRIPTION

Strategy to engage representatives of key communities, regional working groups and organizations and others as appropriate pursuant to the MBTA's climate priorities (see Action 1.2) and to participate in regional working groups as appropriate (e.g., Resilient Mystic Collaborative). Establish relationship management and internal reporting framework and clear channels of communication for external partners seeking to engage the MBTA on climate-related initiatives.

DEPARTMENT(S)

Climate, Strategic Transit Planning, Environmental, External Affairs

STATUS	TIMELINE	TARGET COMPLETION DATE
		
In Progress	Near-Term	Spring 2026

ACTIVITIES & ACCOMPLISHMENTS

- Building off the climate priorities highlighted in the Resilience Roadmap (see Action 1.1) as well as the geographic-specific strategies laid out in that plan (see Action 1.2), began the process of developing a framework for external engagement. The framework will include criteria such as:
  - Potential flooding damage (flood depth projections, flooding exceedance probabilities, and asset values) in 2030, 2050, and 2070;
  - The order of magnitude cost of independent mitigation strategies vs. district-scale solutions; and
  - Capacity of local jurisdiction, external resources dedicated to the project, and state support.

NEXT STEPS

- Continue to participate in active regional working groups (e.g., Belle Isle Marsh Working Group, Mystic and Charles Regional Coastal Interventions Project).
- Continue to engage key communities and municipalities.
- Complete draft of external engagement framework by early 2026.

Remaining Action Steps

	ACTION	DESCRIPTION	TIMELINE	UPDATE
5.1	Develop an internal communications and education strategy	Strategy to include clear processes for disseminating information, communicating risks, accessing and sharing information, support internal and external reporting, and managing key contacts, in connection with Action 2.2.	Near-Term	• In the process of establishing and strengthening internal connections across the agency to help inform the creation of a communications and education strategy. • In creating the strategy, will draw upon feedback and experiences of implementing heat safety initiative (see Action 2.2) and other recent internal engagement on MBTA climate initiatives.
5.4	Develop external communications and public relations strategy around climate impacts and strategic goals	Communications plan that highlights the role of the MBTA as a climate solution by emphasizing the need for mode shift and its benefits such as air quality improvements, educates on MBTA priority climate-related projects, raises awareness of achievements across the agency, and communicates key barriers and needs to policy-makers, decision-makers and external partners (e.g., funding needed to implement legislative mandates, electrification procurement conflicts). Recommendation in alignment with the Climate Chief 180-day report.	Near-Term (not started)	• Will move forward once Actions 1.2 and 5.3 are more fully implemented. • Will build on and leverage connections established through action 5.2 to develop the strategy. • Have begun to engage policy-makers and decision-makers on resilience-related projects to discuss key barriers to implementation, particularly around rail and bus electrification and upgrades to our power system.


Track our sustainability and resilience work:
MBTA.com/Sustainability
FOCUS AREA 3
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CEX
ORIENT HEIGHTS
BLUE LINE - BOWDOIN