

Climate at the MBTA:

Toward Sustainable & Resilient Transit

October 1, 2024



# Sustainability is a core value and increasing sustainability and climate resilience is a strategic goal of the MBTA.

**Our Sustainability Value Statement:**  
*We invest resources wisely in solutions for our team, our communities and our environment.*

Empower and support staff to develop a culture which prioritizes and promotes safety

Modernize assets and improve connectivity, while ensuring MBTA property is maintained to a state of good repair

Ensure the experiences and perspectives of our staff and riders are accounted for through transparent decision making

Retain, attract, and invest in a diverse and qualified workforce that represents our ridership

Support the economic vitality of the region by providing riders with dependable, frequent, and accessible service

Increase the environmental sustainability and resilience of our transit system

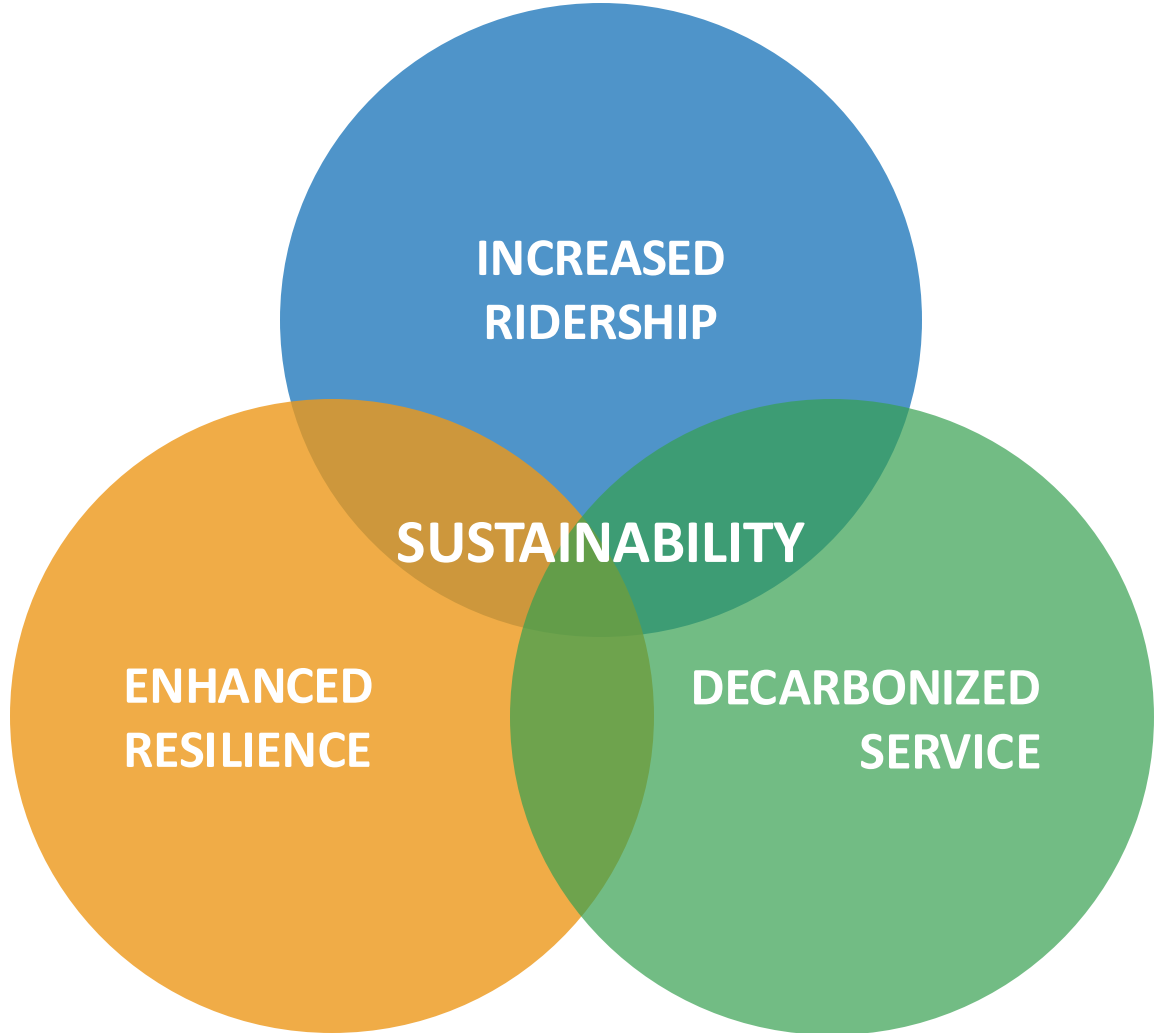
Attract new riders, retain existing riders, and increase the percentage of transit-trips in the region

Communicate openly about our costs and the revenue needed to support our ongoing service and the growth of our system

**GOALS**



# The MBTA is acting to deepen the climate benefits of our transit system.



Home // Local Coverage

## MBTA announces new climate office to reduce its environmental footprint

September 28, 2023 By [Andrea Perdomo-Hernandez](#)



A bus bound for Wakefield at the MBTA Ashmont Station in Boston. (Jesse Costa/WBUR)





# Transit is a climate solution.



Integrating climate priorities into long-range plans and processes



Articulating a transit vision to achieve state climate and mobility goals



Investing in a state of good repair to improve reliability of our services



Partnering to implement climate investments, strengthen services and grow ridership

The MBTA has released a Climate Assessment to lay out next steps to increase sustainability and resilience of the transit system.

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**Publicly available at  
[mbta.com/sustainability](https://mbta.com/sustainability)**

Implementation will be led by the MBTA's new Climate Policy and Planning team:



**Kat Eshel**  
*Senior Director*



**Caroline Bean**  
*Director of Climate  
and Sustainability  
Planning*

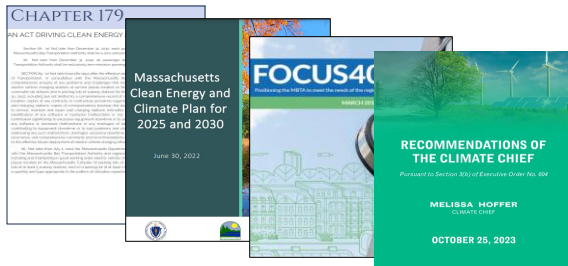


**Alex Oster**  
*Director of Climate  
Policy*

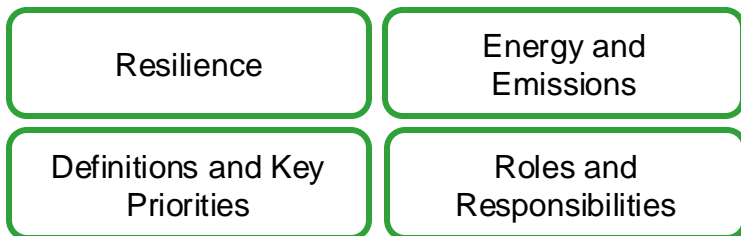


# The MBTA Climate Assessment took stock of past and current work and identified next steps in five key areas.

**150+** relevant documents/plans, and **40+** state and federal regulations, policies, and programs reviewed



Engaged **50+ staff from 20+ departments** through 1-on-1 interviews and 3 topic-specific workshops



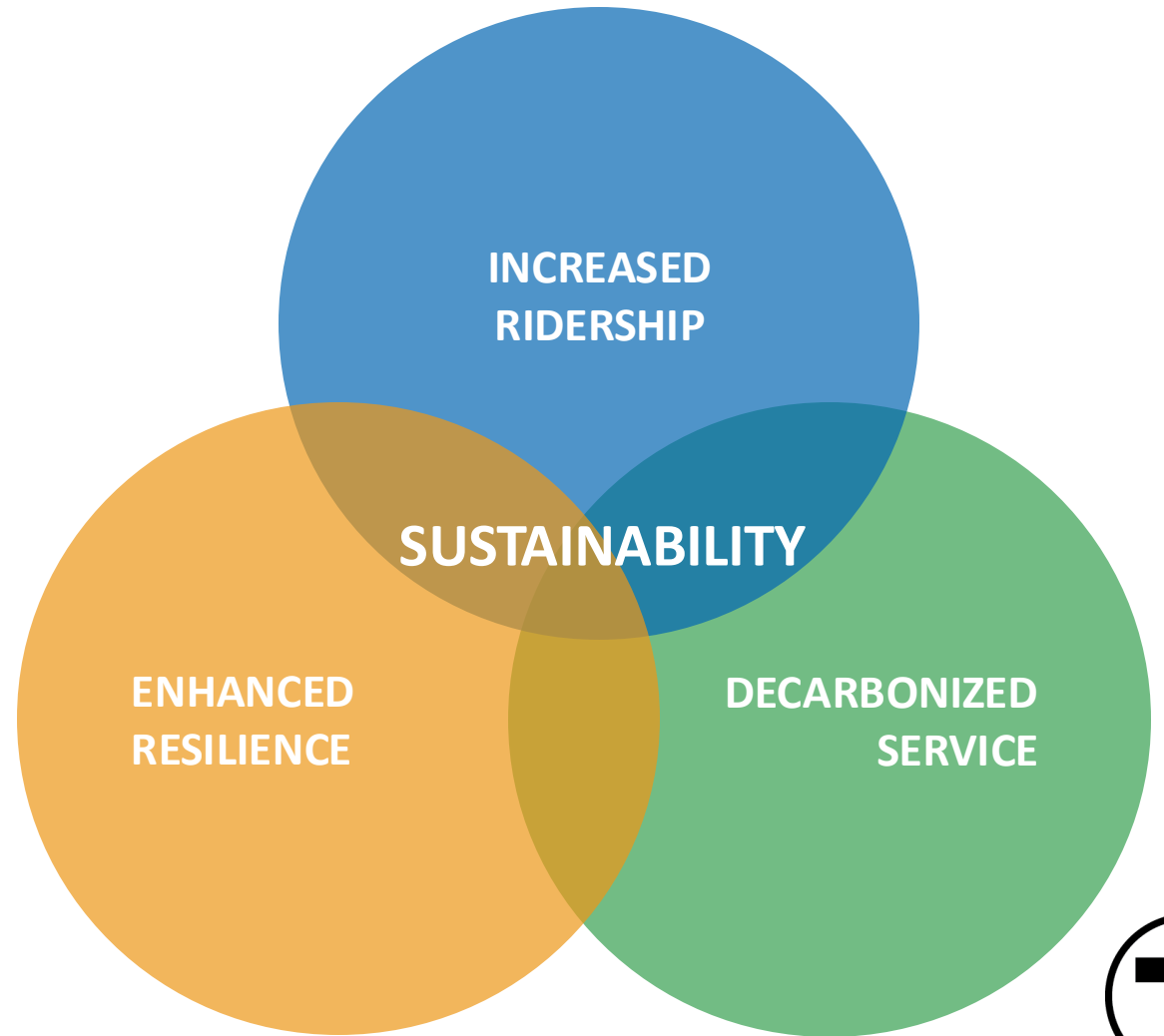
- Legal, policy and planning framework for climate initiatives
- Review of accomplishments to date and initiatives underway
- Vision for a sustainable and resilient MBTA
- Next steps across five focus areas:



# The Climate Assessment lays out the MBTA's vision for sustainability and resilience.

A sustainable and resilient MBTA is a climate solution twice over:

- providing reliable, accessible and safe transportation solutions for the greater Boston region and
- making those services themselves ready for a changing climate and environmentally sustainable.

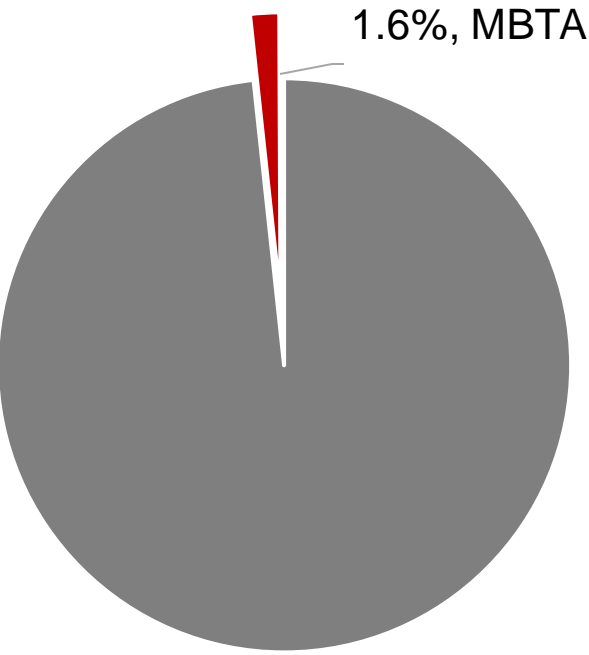


# The Commonwealth's climate goals cannot be met without a robust & resilient MBTA.

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MBTA's emissions represent **less than ~2% of the sector's emissions**, while accounting for **~10%** of commuter trips in the Boston metro area.

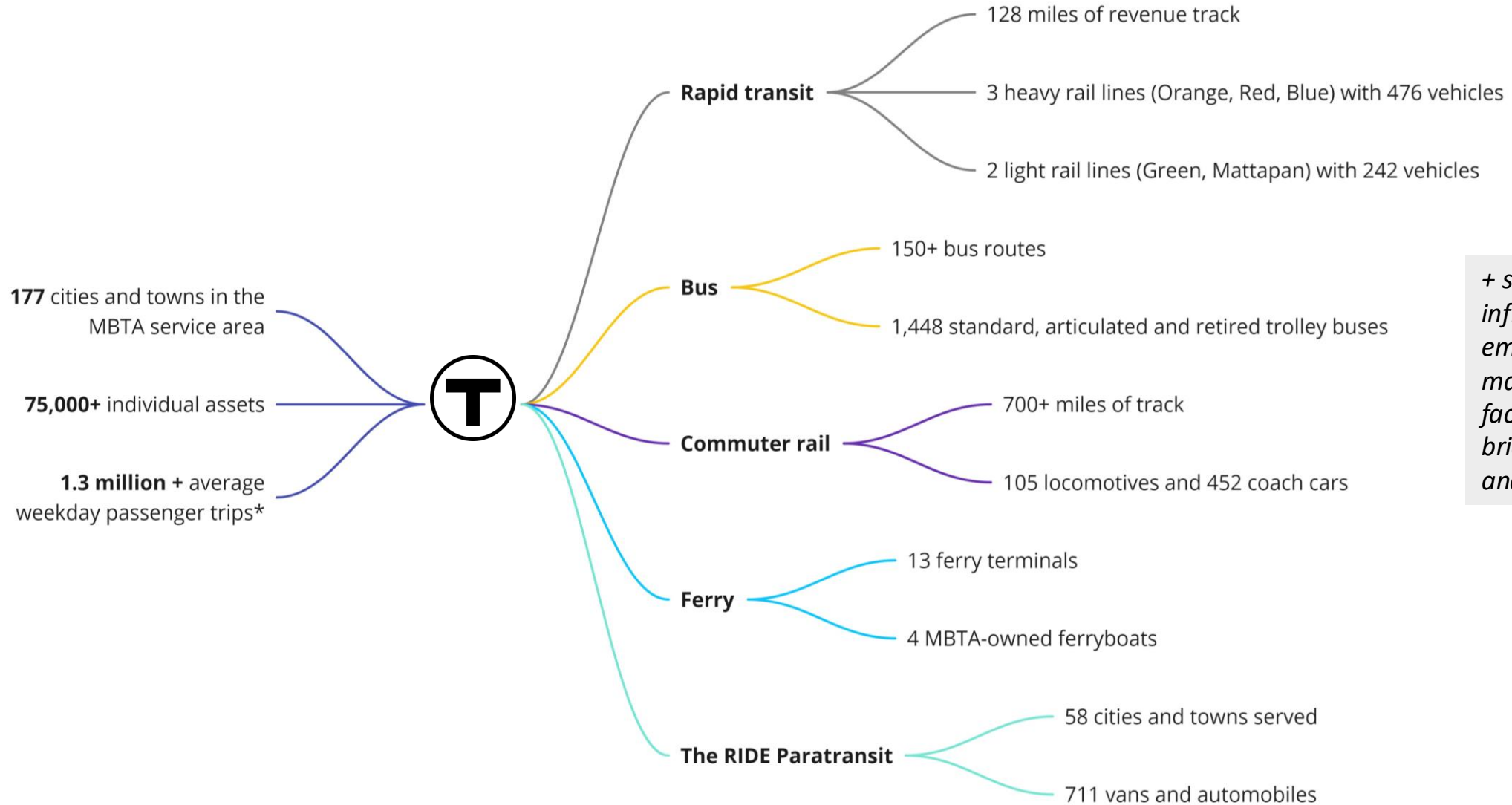
FY2020 Transportation Section Emissions



**10%** of commuter trips  
2% of transportation emissions



# Delivering transportation services relies on numerous, diverse assets.



*+ supporting infrastructure - employee and maintenance facilities, power, bridges, tunnels, and more...*



# Coastal flooding, extreme precipitation and temperatures, and heavy winds are the MBTA's primary climate risks.



**Coastal Flooding**



**Heavy Rain**



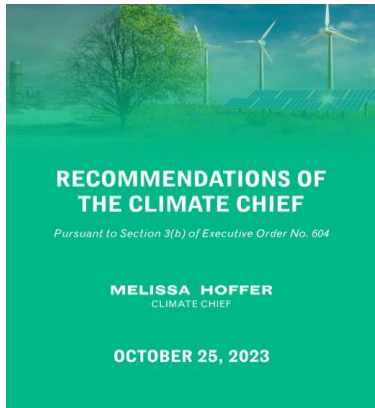
**Extreme Temperatures**



**Heavy Winds**



# State plans and policies recognize the importance of a sustainable and resilient MBTA.



- Economic analysis of required climate investment
- Facility decarbonization plan
- Development of Climate PMO
- Support for statewide public education campaigns



- Complete climate vulnerability assessments
- Update emergency response plans for storm response
- Implement tunnel flood mitigation program
- Incorporate climate resilience into MBTA design standards

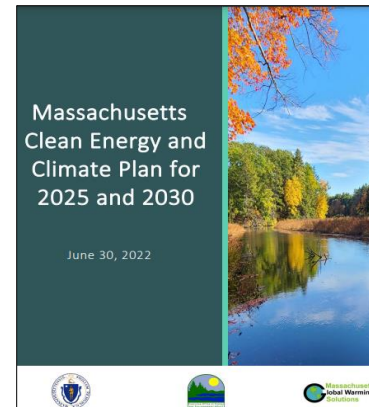
## Laws and Regulations

**Global Warming Solutions Act** sets transportation emissions targets and goal of net zero by 2050.

### **An Act Driving Clean Energy and Offshore Wind**

- Zero-emission passenger bus fleet
- EV charging station installation at subway, rail and ferry lots

**Regulations for Reporting of GHG Emissions 310 CMR** requires ongoing reporting of emissions.



- Support bus modernization
- Encourage multifamily zoning near transit stops



# The MBTA must navigate challenges and opportunities in climate action.

## DRIVERS OF CLIMATE ACTION:



Climate-driven impacts and other hazards



Energy transition from fossil fuels to renewables



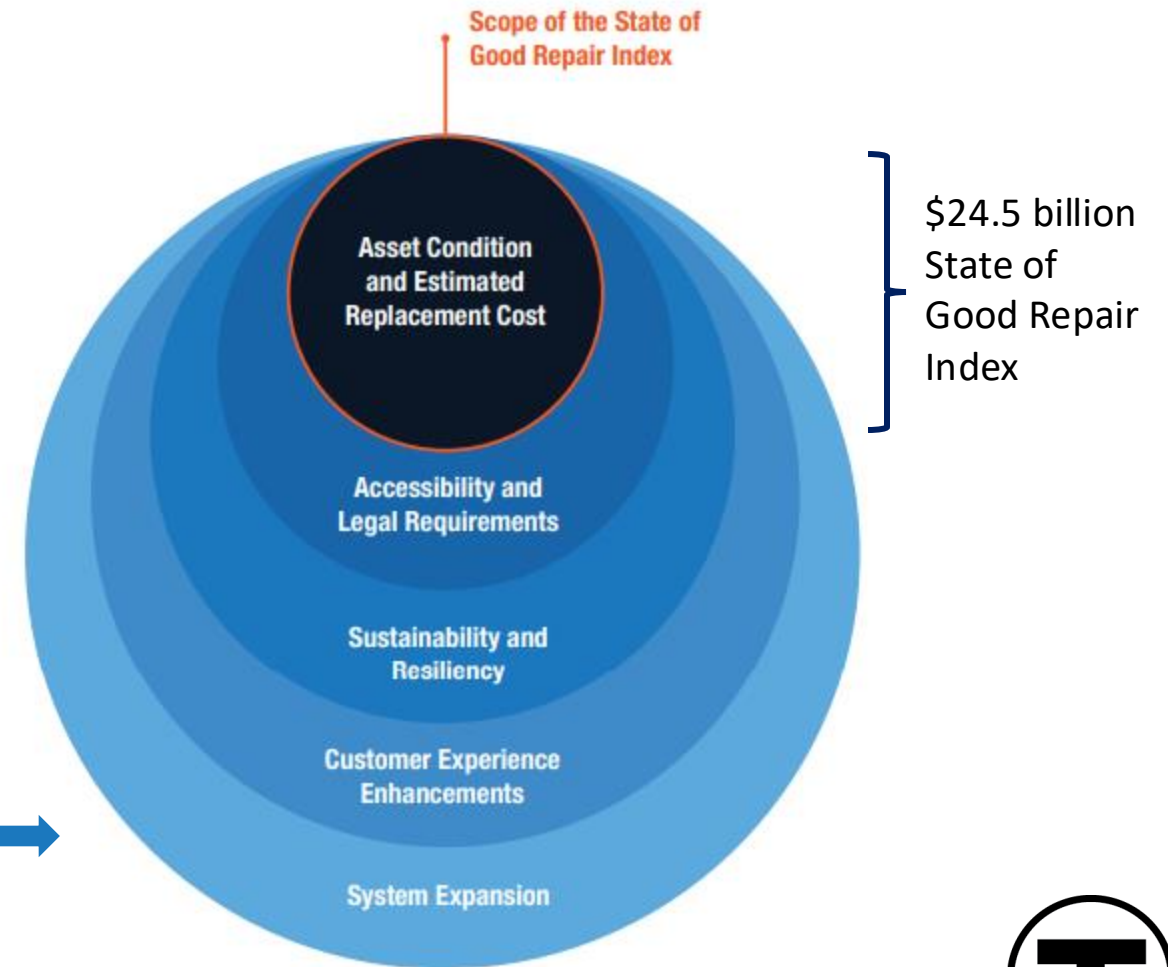
Building and transportation electrification increasing energy demand



Sociodemographic, economic, and political forces (e.g., population growth, migration)



Funding constraints and opportunities



Source: Capital Needs Assessment and Inventory (2023)



# The Office of Climate Policy and Planning builds on years of past work.

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44%

Reduction in GHG emissions since 2009



Conducted vulnerability assessments for future climate conditions across the system.

\$22M

Invested in 81 energy efficiency projects over 10 years



Launched bus and regional rail electrification initiatives with accompanying facility modernization required to support zero-emission transit fleets

\$17M

annual energy savings from energy efficiency projects



Evaluate capital projects based on climate resilience score



# There are numerous in-progress and on-going initiatives.

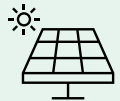
## Energy



Expansion of energy management systems to include traction power sub metering, building management systems, 5-minute interval data and demand management



Building upgrades for existing HVAC, Energy Recovery Systems, energy metering, windows, and insulation

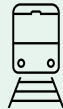


Exploration of additional renewable energy opportunities

## Decarbonization



Enhancement of sustainable design standards for new construction projects



Pilot of regional rail electrification



Upgrades of station lighting, including accessibility improvements



Electrification of non-revenue fleet



Implementation of bus facility electrification



Development of a facility master plan

## Resilience



Implementing systemwide tunnel flood mitigation program



Incorporating resilience into design reviews and risk management

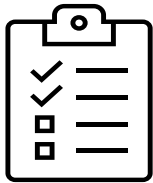


Prioritizing funding for climate resilience projects through the MBTA capital planning and pursuing federal resilience grants



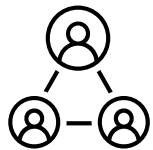
On-going regional collaboration on adaptation strategies for priority infrastructure, in collaboration with Boston, Cambridge, Somerville, and other municipalities





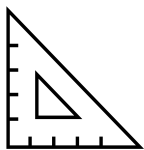
## Planning and Prioritization

- Development of a systemwide resilience plan
- Integration in capital planning and related master planning (e.g., power master planning)
- Updates to emergency response plans



## Organizational and Workforce Needs

- Review project management processes to further integrate sustainability and resilience in project delivery
- Review staffing levels needed to implement and ensure continuity of service during climate events



## Analysis and Quantification

- Complete climate vulnerability assessments
- Conduct comprehensive economic analysis of necessary resilience and net-zero investments through 2050

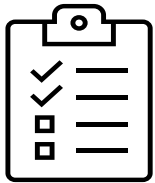


## Engagement and Communication

- Coordination with MassDOT, Office of the Climate Chief, EEA, and other state partners
- Strategic engagement with key municipalities and regional entities based on resilience and decarbonization priorities

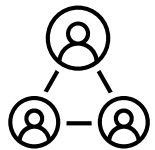


# The Assessment charts the path forward for climate work at the MBTA.



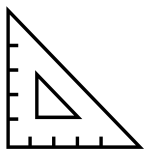
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# A resilience roadmap is *the* climate planning priority in FY25.

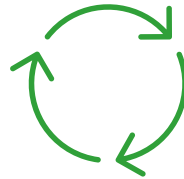
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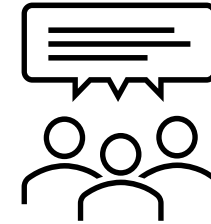
Crosswalk existing  
vulnerability  
assessments



Set clear goals and  
targets



Measure true life  
cycle costs of an  
investment



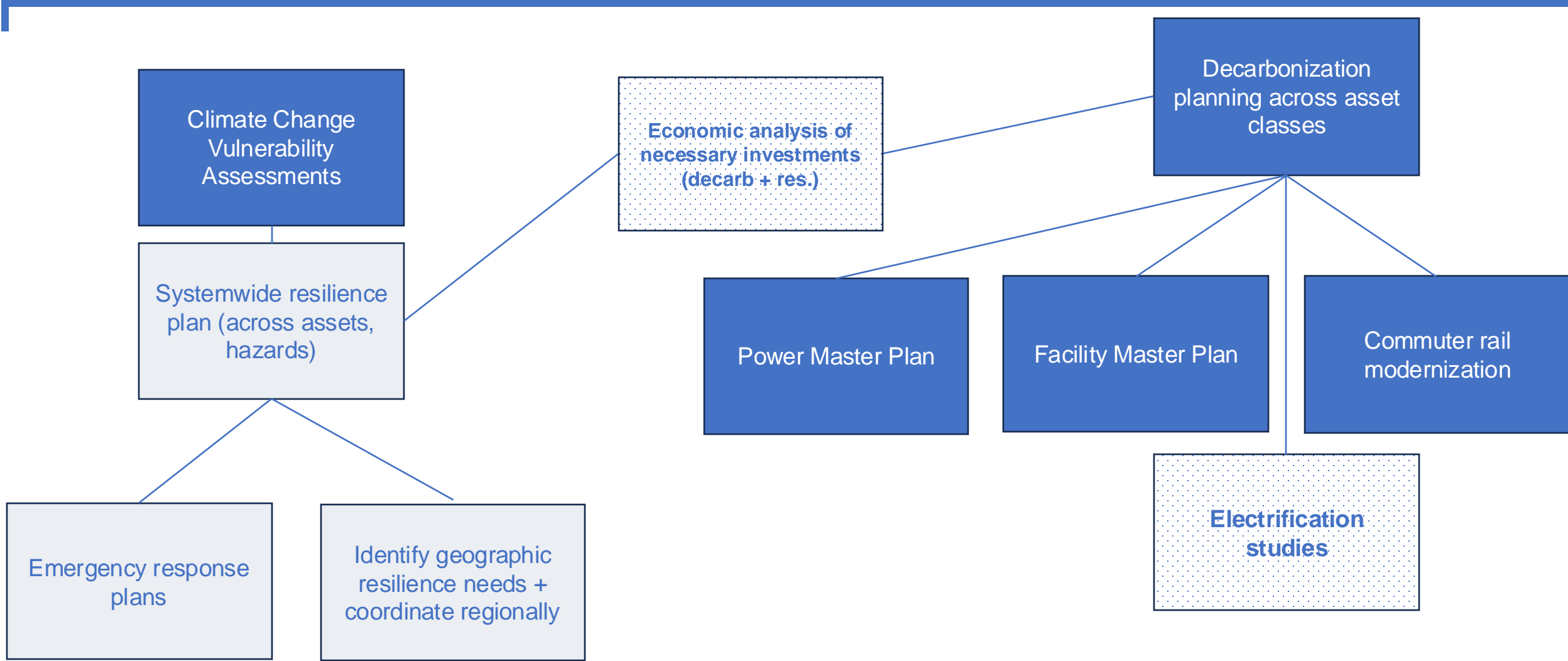
Work closely with  
external and internal  
partners



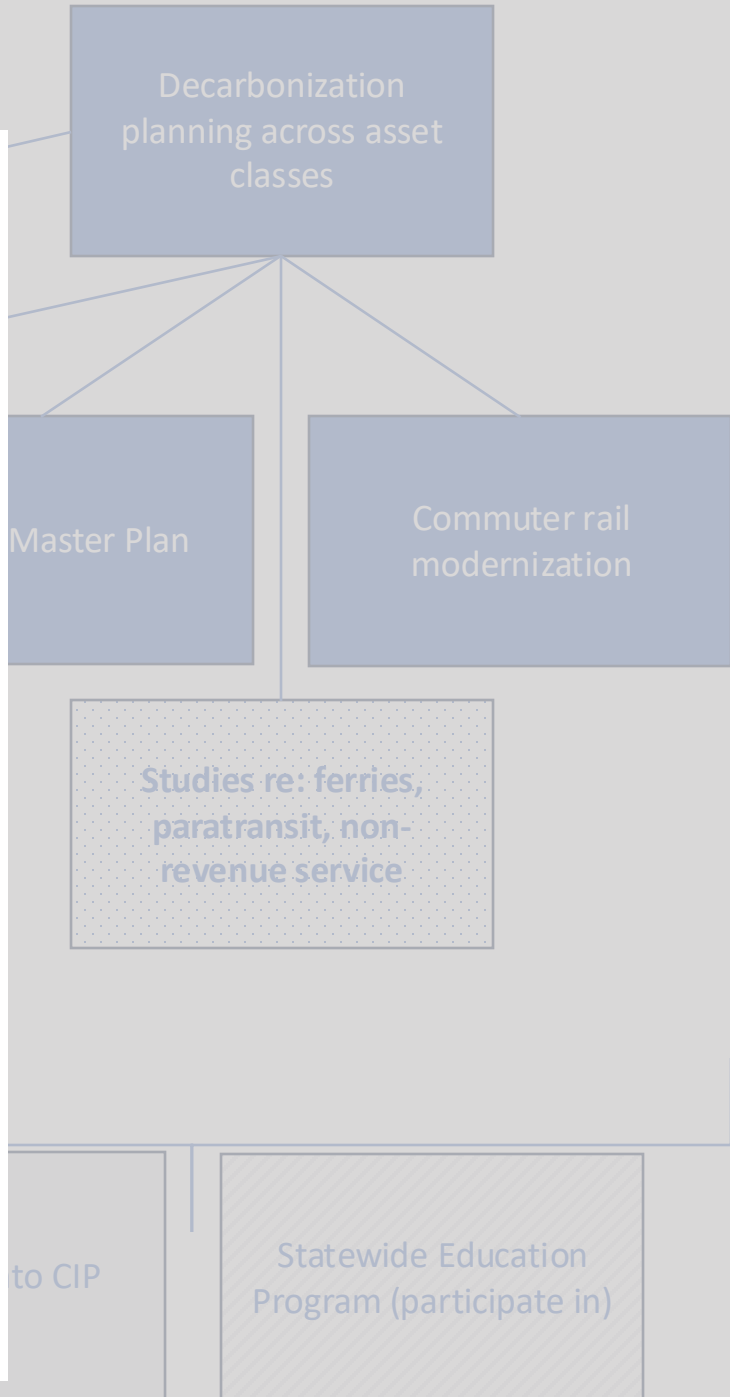
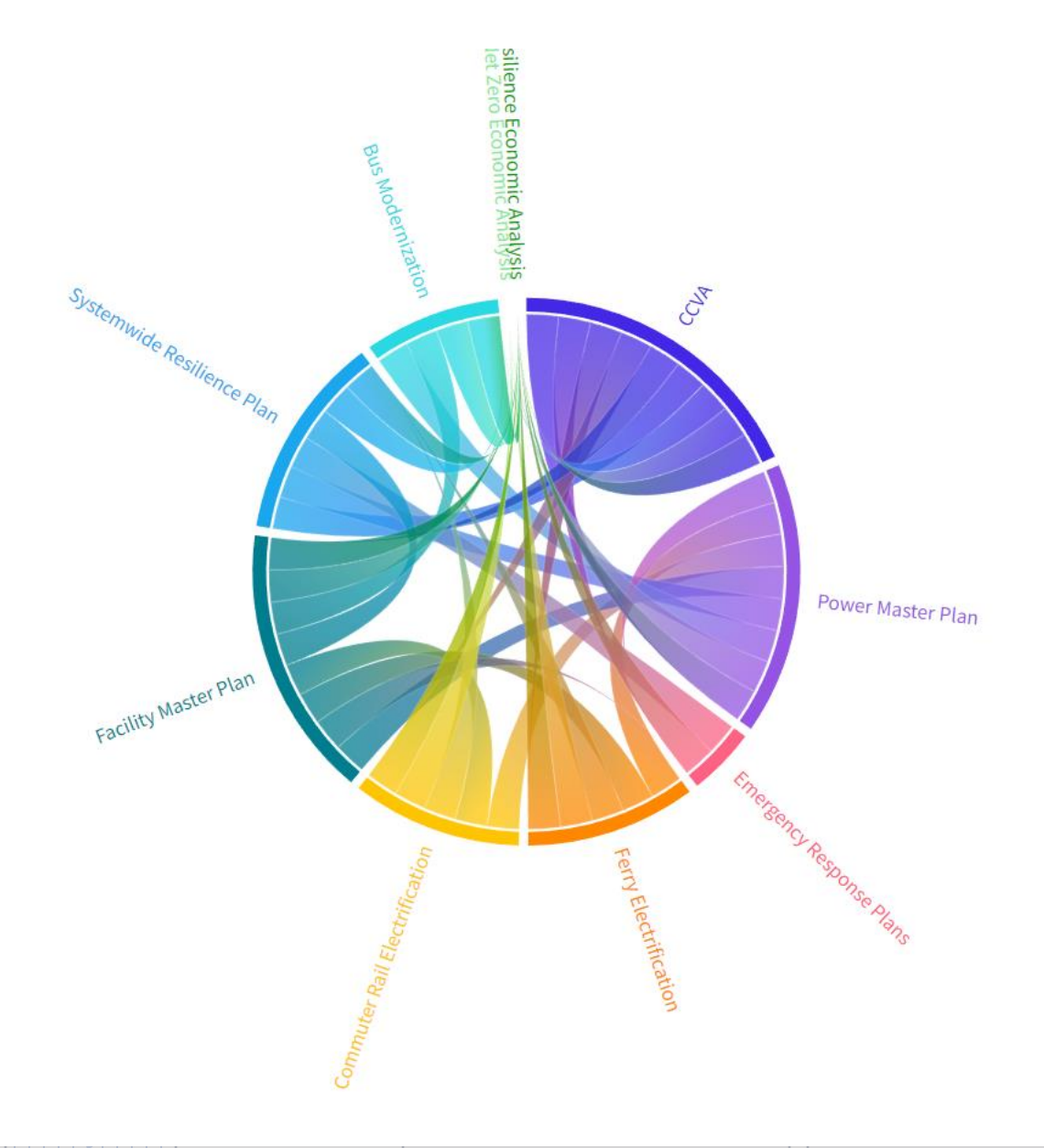
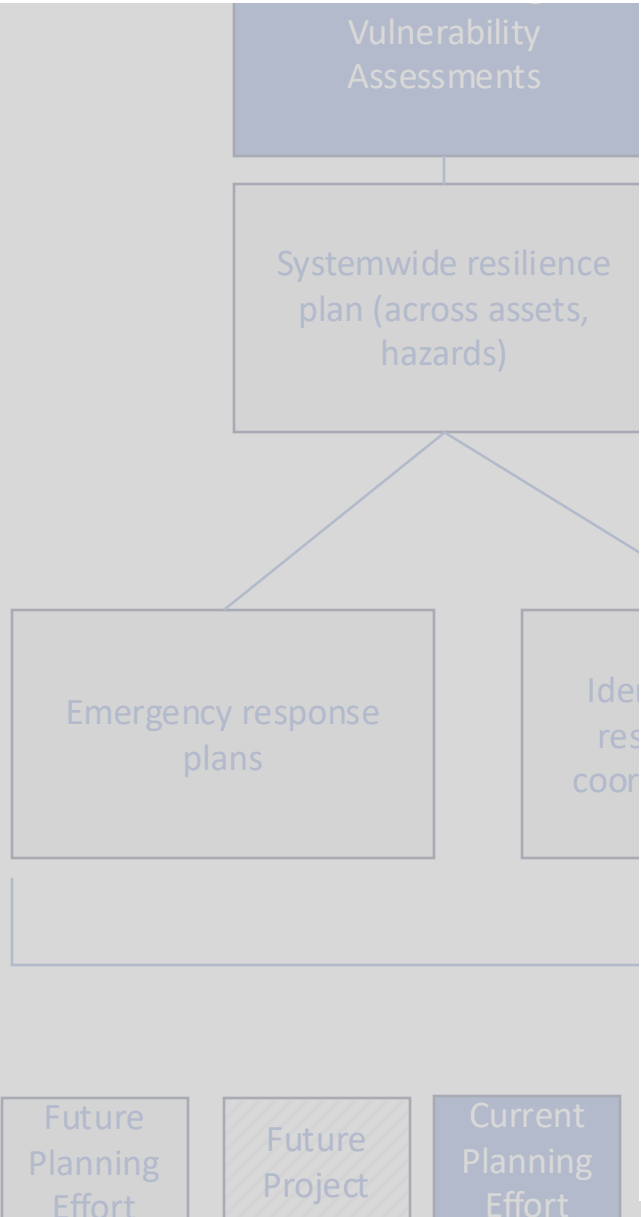
Iterate and  
implement holistically



# Integrating past and current work is key.



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## Implementing these recommendations requires strong partnerships to achieve our shared climate goals.

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Partnerships with utilities to prioritize MBTA power needs for fleet and facility electrification

Continued strong coordination with State, regional and municipal partners

Additional funding to achieve a resilient and carbon-neutral system

Collaboration with other transportation providers, State agencies, advocates, and the public to increase the percentage of transit trips in the region

Support in highlighting the important role of the MBTA in meeting and building a more sustainable and resilient Commonwealth





**Follow along the MBTA's  
climate and environmental  
initiatives at  
[mbta.com/sustainability](https://mbta.com/sustainability)**

