Collaborative Climate Action Planning for Institutions

May 3, 2023



Boston Green Ribbon Commission Cultural Institutions Working Group

Agenda

- O1 Welcome & Introduction (Amy Longsworth)
- O2 Leadership Perspective (Gwill York)
- O3 Explanation of Program (Dallase Scott)
- O4 Participants Sharing Their Stories (Panelists)
- Theory of Change (Dallase Scott)
- Moderated Discussion / Audience Q&A

The Boston Green Ribbon Commission Cultural Institutions Working Group comprises a wide variety of arts, sports, nature-based, historic, and entertainment organizations in and near Boston, as they build awareness and drive action on climate issues on behalf of their own organizations, the cultural sector, the City, and audiences.

Moderators & Speakers



Amy Longsworth
Executive Director,
Green Ribbon
Commission



Gwill York
President, Board
of Trustees,
Isabella Stewart
Gardner Museum



Founder and Principal, Trust (Moderator)

Program Participants Panel



Benjamin Haavik
Team Leader,
Property Care,
Historic New
England



Jennifer Lamy
Associate Director,
Sustainability,
Emerson College



Joshua Meyer
Curator of
Horticulture and
Sustainability,
Zoo New England



Paul Ippolito
VP, Facilities and
Building
Operations,
Museum of Science

Leadership Perspective

Explanation of Program



If you are trying to encourage climate action at your organization and do not know where to start, the GRC will be your guide to take climate action."

Collaborative CAP Participants:





























Strategies for fighting climate change in coordination with the City's Climate Action Plan.



MITIGATION

Reduce community-wide carbon emissions by

50% 100% 60% 100% in 2050

Reduce municipal emissions by



ADAPTATION

Prepare for sea level rise, hotter summers, and more rainfall during storms



MOBILITY

Empower Bostonians to access all parts of the city safely and reliably by transit, on foot or on a bike



WASTE REDUCTION

Become a zero waste community and increase the recycling rate from 25% to



CONNECTED COMMUNITIES

Enhance community connectivity so that all families may thrive in a carbon-neutral, climate-ready Boston

Designing for Equity

"That sounds great...how?"

CLIMATE ACTION PLANNING COHORT

BY THE NUMBERS

Commitment to a <u>9-month</u> collaborative planning process

Each organization will appoint at least <u>1-staff</u> member to act as climate action lead

Appointed staff member(s) will attend <u>8-cohort work</u> sessions + lead weekly/bi-weekly meeting at their respective organization

Organizational leadership, as well as appointed staff, attend **3**planning checkpoints:

Kick-off, Summit, and Green

Ribbon Cutting celebration

Participating Members:

- Your Time
- Money
- Staff's Time*

This could look like:

- Operations
- Finance
- Human Resources
- Programing
- Legal
- Community Members
- Membership & Development



- Project management
- Consult w/ Technical Expertise
- Guidebook
- Facilitated Cohort
 Learning/Sharing Sessions
- Publicity



Climate Action Planning
Cohort

PLAN DEVELOPMENT

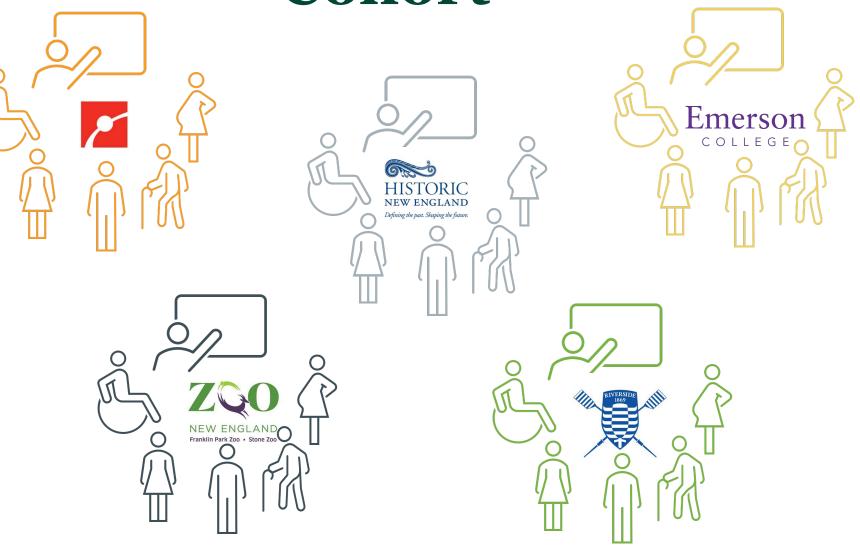
Carbon Mitigation Climate Resilience Climate Justice



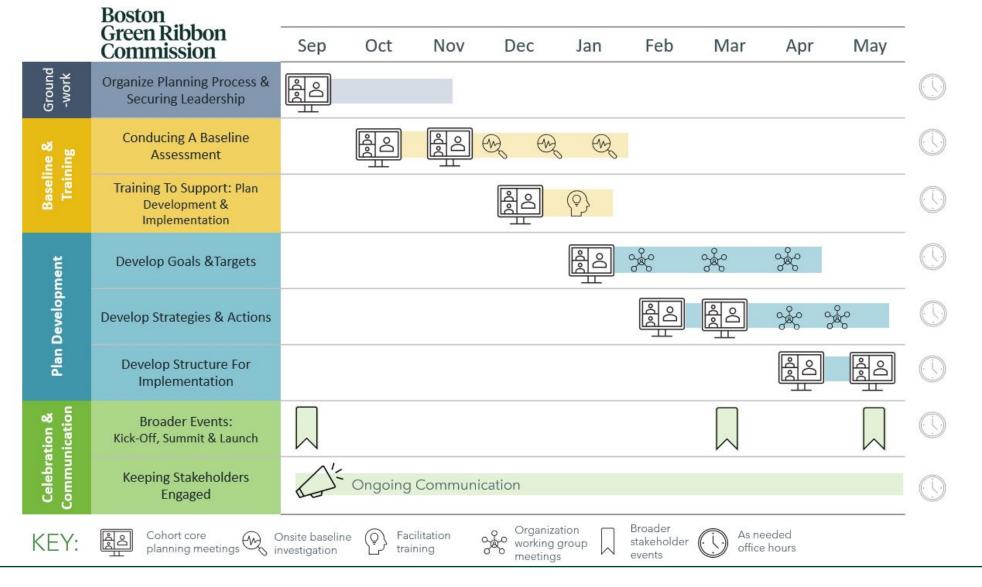
Climate Action Planning Cohort

PLAN DEVELOPMENT

Carbon Mitigation Climate Resilience Climate Justice

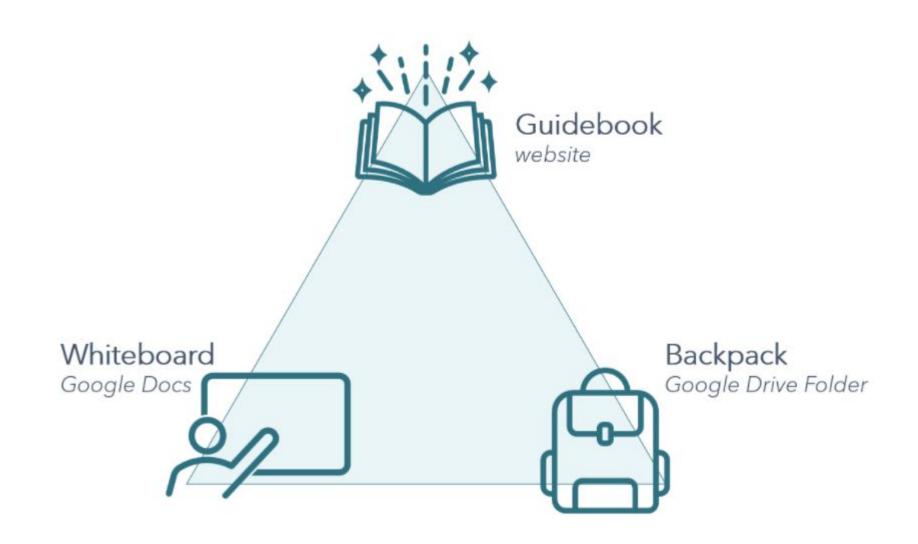


Timeline & Process









COLLABORATIVE CAP GUIDEBOOK

Welcome to your Collaborative Climate Action Guidebook. Your resource hub for everything you will need throughout the Collaborative Climate Action Planning Process.



Participant Resources



Cohort meeting agendas, recordings, and assignments



Homework:

- Fill In Resource Map
- Check-list of completed tasks
- Consider consulting resources to use in developing the plan.
- Estimate a budget for the planning
- · Finish Planning Process

Cohort Meeting 2 | July 19, 2022

Organize the CAP Planning Process

MEETING GOALS

- Receive updates about institutions' leadership buy in for the development of the plan.
- Develop an organizational framework for the planning process
- Identify what work can be done internally and what needs external support
- Map out a potential budget/cost estimate for doing this work.
- Peer learning and feedback around the challenges and opportunities of this work

MEETING AGENDA

- Welcome
- · Check in + Intros
- Review Meeting Goals + Agenda
- · Hamework report out
- Work Sessions: Individual small group



SECTION OVERVIEW

An overview of potential deliverables, key sub-steps, online resources, and best practices



Potential Documents

- · Stakeholder map with an assignment of members to the planning team.
- · A written team charter.
- Assignment of key staff responsibilities.
- A budget for the planning effort.
- · A timeline for the planning effort.
- A list of consulting resources to use in developing the plan.
- Define the climate action plan deliverable.



Key Sub Steps

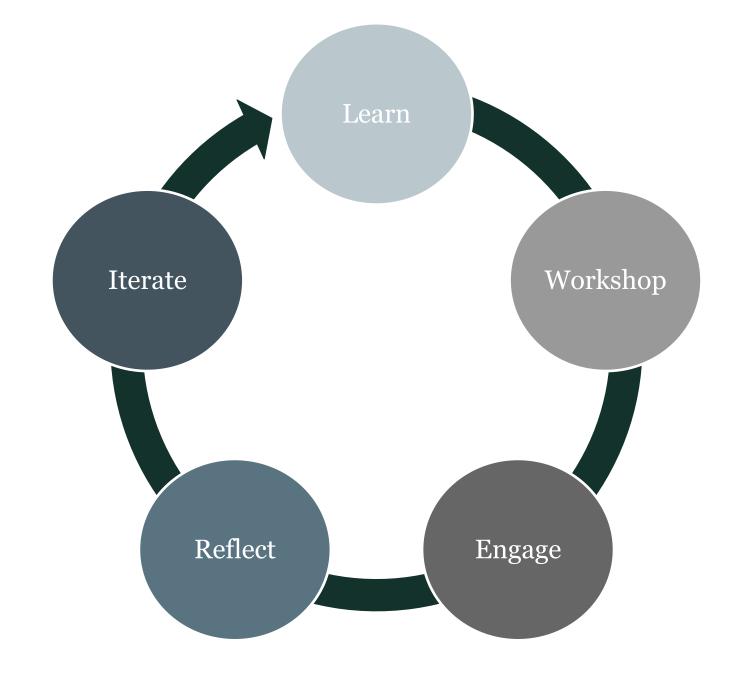
- · Create a cross-functional CAP team.
- . Define the team's mandate and develop a written team charter.
- Identify the budget and other support resources, including consultants.
- · Establish the schedule.
- Define CAP deliverables.

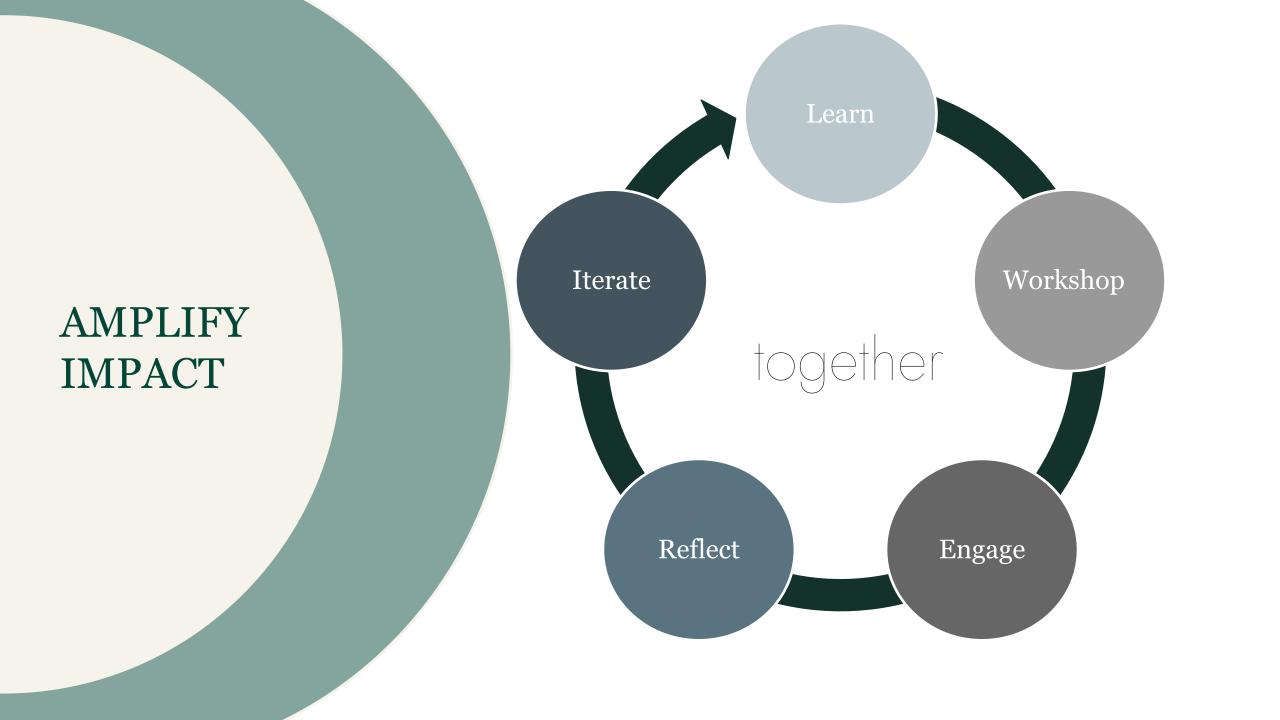


Online Resources

Examples of public-facing planning process overviews:

COHORT PLANNING PROCESS







The Collaborative Climate Action Planning Program will provide you with an opportunity to learn along with and from your peer institutions."



Historic New England



Cultural Institutions Working Group

Climate Action Planning

Historic New England



Historic New England

We save and share New England's past to engage and inform present and future generations.



Artifacts, Archives, and Stories

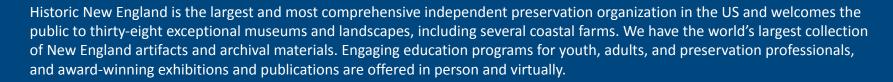


School and Youth Programs

Homes, Farms, and Landscapes Community Engagement and Leadership



Preservation Services





Historic New England

- 41 historic properties in 5 New England states including an eight-story collections storage facility
- 125,000 objects at the properties and in storage and 1.5 million items of archival material
- 120 easements held on private property protecting historic architectural and landscape features
- 167,657 visitors to the properties in 2022
 - includes guided tours, group tours, exhibitions, public programs, school programs, functions, community meetings, and landscapes visitors
- 31,550 students attend our programs from 168 communities
- More than 280 adult public programs attended by 56,706 participants
- 8,233 member households of which more than 90% live in New England















































The Historic Property Collection













































Cultural Resource Management











Mitigation Baseline

Scope of Buildings and Grounds

167 structures across the properties

- 700,000 sf of interior space
- 4,000 windows
- 72 heating plants
- 108 different utility accounts

1,320 acres of land

- 730 acres of managed landscape
- 590 acres of meadows and woodland



























COSTEP MA

Coordinated Statewide Emergency Preparedness

AN EMERGENCY MANAGEMENT PARTNER FOR CULTURAL RESOURCES













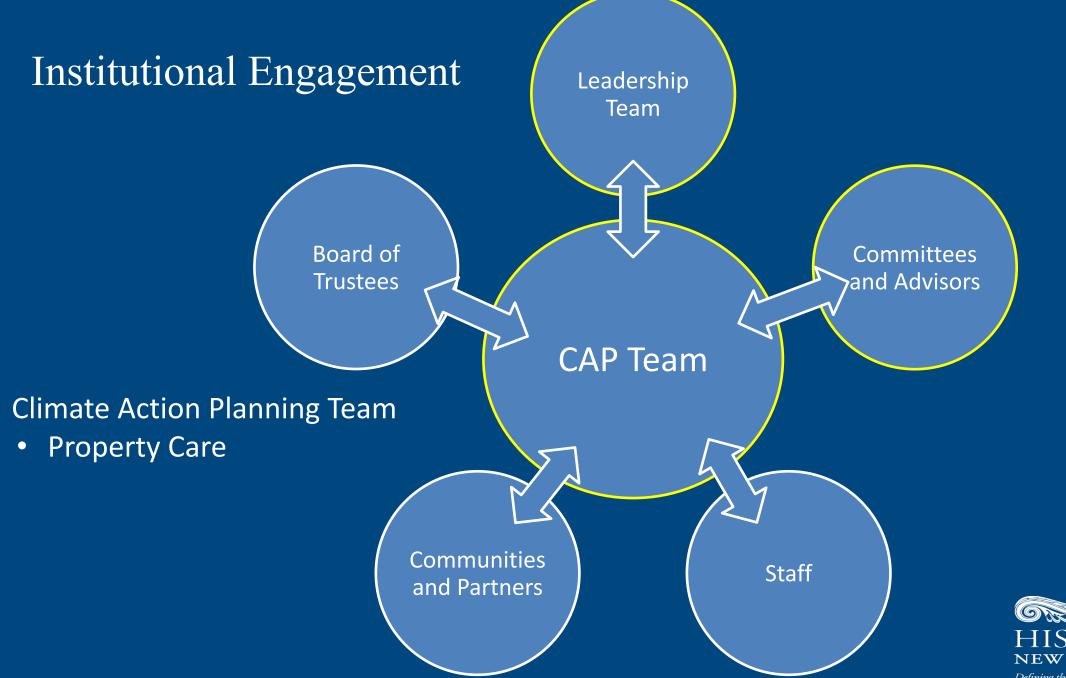


Facilitation



stakeholder











Funding Synergies











Emerson College

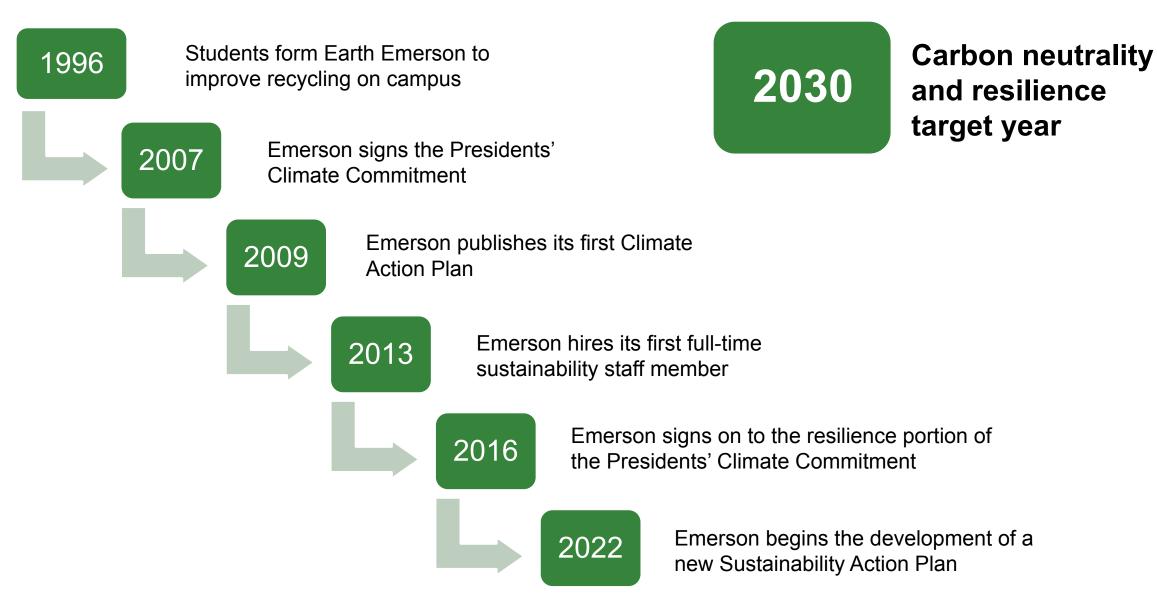


About Emerson

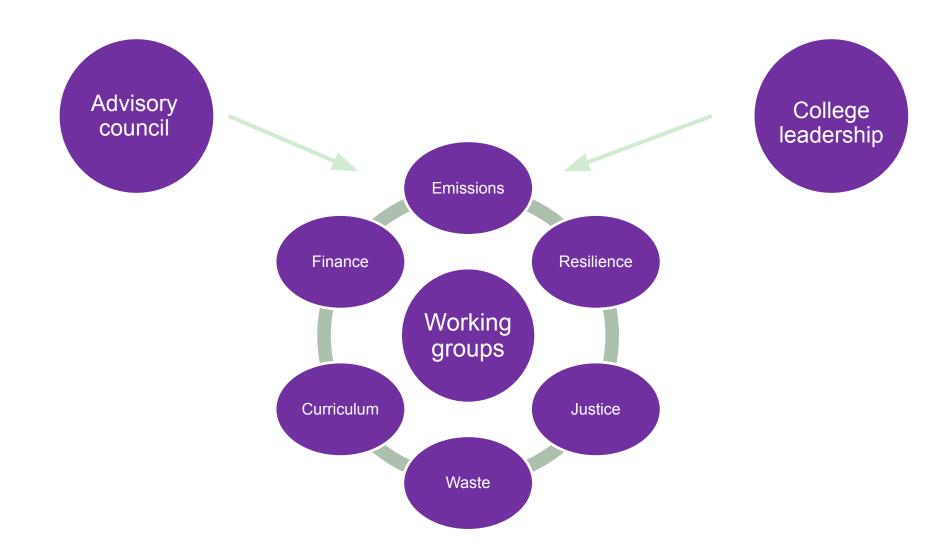
- Arts and communication focus, grounded in the liberal arts
- Located downtown in Boston
- About 5,500 total students with about 3,000 undergraduates living on campus
- School of the Arts, School of Communication, Marlboro Institute for Liberal Arts & Interdisciplinary Studies, Office of the Arts
- New College President starting
 June 1, 2023



History of sustainability at Emerson



Six working groups



Planning process



EMISSIONS 1 GOAL RESILIENCE 1 GOAI EQUITY &
JUSTICE
1 GOAL

WASTE 2 GOALS

& RESEARCH 3 GOALS

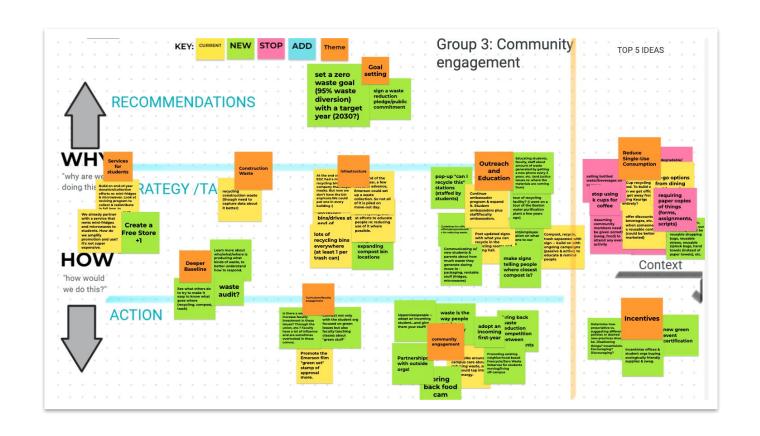
FINANCE 1 GOAL

OVERALL:

- 6 working groups
- 40 individuals
- 9 goals
- 24 unique strategies

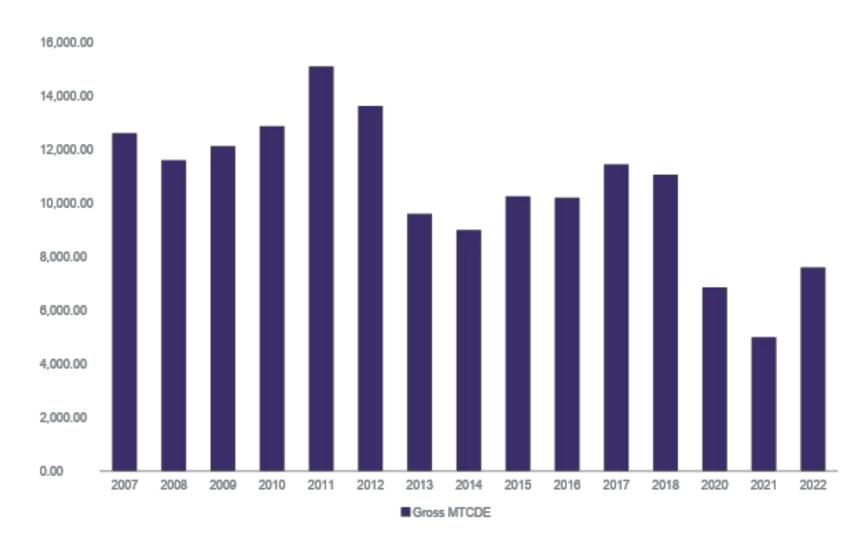
Benefits of cohort participation

- Concrete resources for building a strong community-based process to support college-wide buy-in
- Structured process with peers, coaches, and technical experts
- Materials for meeting agendas, action plans, and more
- Facilitation training



Next steps at Emerson

- Team drafting a cohesive plan
- Resource identification
- Leadership engagement
- Implementation!



Zoo New England



Cultural Institutions Working Group

Climate Action Planning at Zoo New England

Josh Meyer
Curator of Horticulture &
Sustainability
Zoo New England
Jmeyer@zoonewengland.org



Call to Action (why this plan, why now?)

- Living collections are greatly impacted by climate change.
- We have a lot of acreage and responsibility to our community.
- We reach over 1 million visitors a year / have a great opportunity to educate.
- ZNE is connected to many local government initiatives that prioritize climate action (Boston's climate goals, Franklin Park Action Plan, etc)
- Embarking on many new building / deferred maintenance projects.
- We need a plan to tackle sustainability initiatives efficiently and effectively.



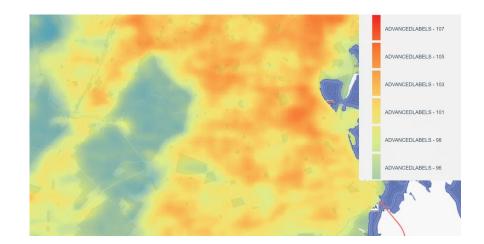






Who are the vulnerable communities that you serve or that are located in your neighborhood?

- Elderly
- Children
- Disability
- Medical illness
- People of color
- Limited English



What are the most important climate change impacts that will be suffered in your neighborhood?

- Daytime Air Temperature | Daytime Air Temperature
 (3PM) CRB Heat Resilience Study shows temps over 100 for the adjacent neighborhoods
- Heat Event Duration CRB Heat Resilience Study shows longest heat duration in adjacent neighborhoods





Sustainability: so far at ZNE

Past and Present

- Green team
- BERDO reporting
- Sustainability initiatives for American Zoological Association's (AZA) accreditation
- Past Initiatives include sustainable snacking, vermiculture, recycling program, and Smartflower Solar Panel Systems.
- Gold cart solar

Recent initiatives include:

- Solar project at Stone Zoo
- Electric bus / fleet
- First ever position dedicated to sustainability established 2022
- Geothermal feasibility
- CAP
- Net zero Pathway



Let's get Rolling: Use Boston's Bike Share Program to visit Franklin Park Zoo! Learn more



Pests, Plants and Staying Pesticide-free
Learn more



Recycling, Comingling & TerraCycling

Learn more >



Smartflower Solar Panel
Systems
Learn more



Stone Zoo Solar Project
Learn more >



Sustainable Snacking Learn more >

Climate Action Planning at Zoo New England

Josh Meyer
Curator of Horticulture &
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Zoo New England
Jmeyer@zoonewengland.org



Museum of Science



CLIMATE CHANGE

The Museum of Science strives to be a leader in using science to understand and consider the consequences of human actions on the Earth's ability to sustain and nurture life, and to use that understanding to guide our endeavors.

We recognize that climate change and environmental sustainability are among the greatest challenges facing humanity today.

MITIGATION

It is our mission to inspire a lifelong love of science in everyone, and our vision is a world where science belongs to each of us for the good of all of us.

It is in that spirit that we commit to developing a plan to achieve net-zero greenhouse gas emissions goal as outlined in our Climate Action Plan prior to 2050.

RESILIENCY

Climate change is upon us and the effects are prevalent in extreme weather and/or service interruptions.

We must develop resiliency measures in the face of these events to ensure uninterrupted operation.

By safe-guarding our facility & grounds we will reduce the demands otherwise placed on emergency services, allowing for those same services to better care for people in our community with limited or no means.

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home.

CLIMATE JUSTICE

We value diversity and inclusivity, and are considerate of our local and global communities.

We acknowledge that our operation's contribution to emissions has undue influence on underserved members of those communities.

Therefore, we are committed to pursuing a sustainable and just future through education, outreach and advocacy in service of these groups.

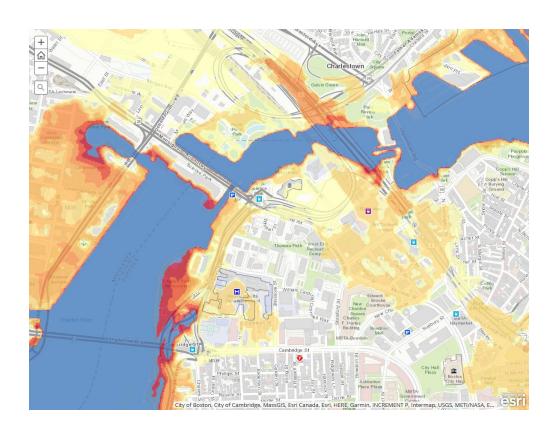
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Preparing the Museum for Climate Change



Effects

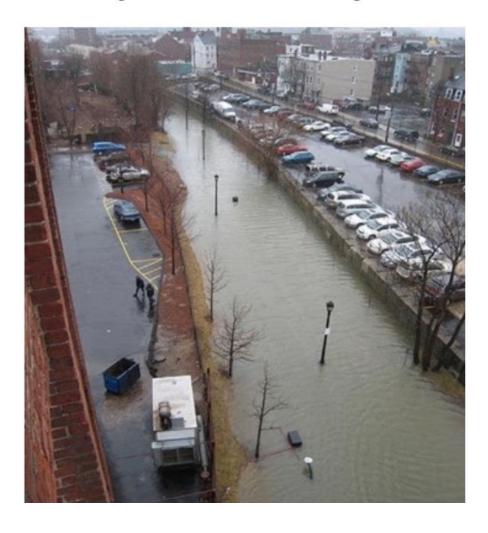
- Changes in temperatures
- Sea level rise
- Unpredictable weather patterns
- Increase in extreme weather events
- Land degradationLoss of wildlife and biodiversity

What are the social impacts of climate change?

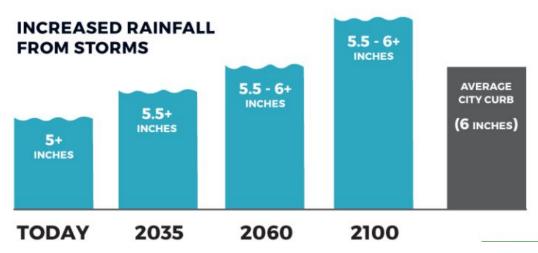
Avoiding further harm to those populations most vulnerable to and most at risk from climate impacts, pollution, displacement, energy burden and cost while prioritizing climate, environmental, energy and health benefits. GreenRibbonCommission.org | 57 Green

Preparing the Museum for Climate Change

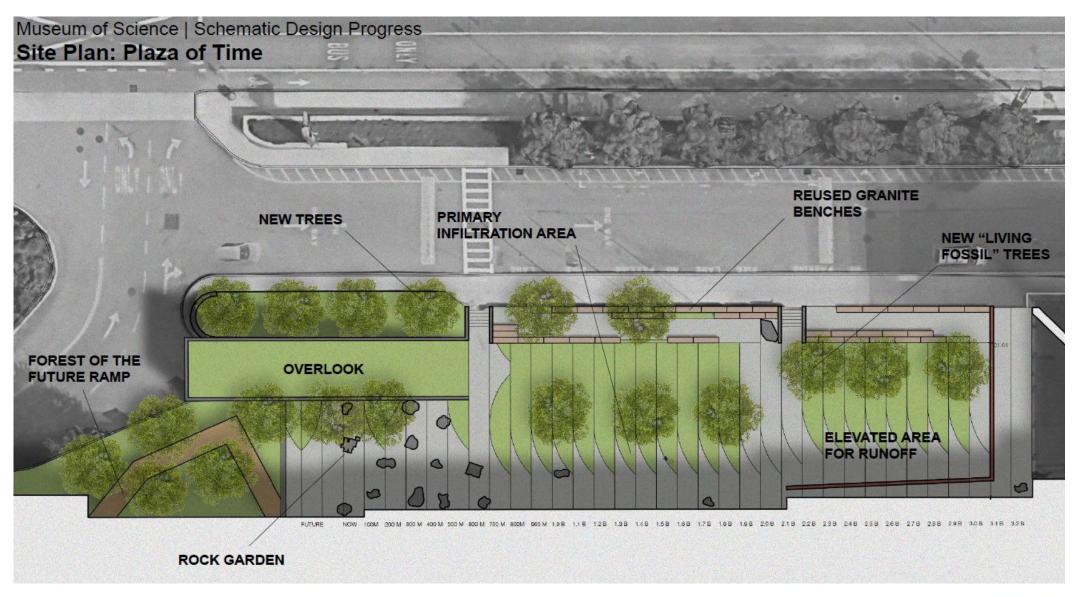
Precipitation: Projected 24 Hour Design Storm



- Average 10-year, 24-hour storm events have increased to 5.25" and may reach over 5.5." by 2035.
- There is significant probability that by the end of the century, it will increase to 6".
- Boston's current stormwater drainage system is designed to handle 4.8' of rain in 24 hours



Preparing the Museum for Climate Change



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Proposed Boston Emission Targets Cambridge

 $CY2019 = 8.3 \quad CY2022 = 7.7$

- Developed through the technical analysis process
- Aligned with citywide goals
- May be updated periodically to ensure the City is achieving its emissions reduction goals
- Limited exemptions (e.g. EV charging)
- Buildings with multiple use-types can adopt a blended target

Building use	Emissions standard (kgCO ₂ e/SF/yr.)						
	2025-2029	2030-2034	2035-2039	2040-2044	2045-2049	2050-	
Assembly	6.5 7.8	4.9 4.6	3.3 3.3	1.6 2.1	0.8 1.1	0 0	
College/ University	10.2	5.3	3.8	2.5	1.2	0	
Education	3.9	2.4	1.8	1.2	0.6	0	
Food Sales & Service	17.4	10.9	8.0	5.4	2.7	0	
Healthcare	15.4	10.0	7.4	4.9	2.4	0	
Lodging	5.8	3.7	2.7	1.8	0.9	0	
Manufacturing/ Industrial	23.9	15.3	10.9	6.7	3.2	0	
Multifamily housing	4.1	2.4	1.8	1.1	0.6	0	
Office	5.3	3.2	2.4	1.6	0.8	0	
Retail	7.1	3.4	2.4	1.5	0.7	0	
Services	7.5	4.5	3.3	2.2	1.1	0	
Storage	5.4	2.8	1.8	1.0	0.4	0	
Technology/Science	19.2	11.1	7.8	5.1	2.5	0	

Developed by Synapse Energy Economics for the City of Boston.

Proposed Boston Emission Targets

n/a

Inside film R=0.68 R=0.68

= U 80%= 0.037

Total 1/R

n/a

Butterfly - SUMMARY OF PRELIMINARY ENERGY STUDY Existing sloped glazing vs New flat roof with increased vertical thermally broken Triple glazing system

```
Thermal (heating) Envelope
Existing conditions
    Roof assembly
             Outside film
                                 R=0.17
             2" rigid ins
                                 R=8.00
             Inside film
                                 R=0.68
                                          Area 1678 DT 70f
                                                                  Q = 12,921 btuh
             Total 1/R = U=0.11
    Sloped Glazing
             Outside film
                                 R-0.17
             Glazing clr
                                 R = 2.00
             Inside film
                                 R=0.61
             Total 1/R = U= 0.36
                                          Area 1158 DT 70f
                                                                  Q = 29,182 btuh
     Vertical Glazing
             Outside film
                                 R-0.17
             Glazing clr
                                 R=2.00
             Inside film
                                 R = 0.68
             Total 1/R = U= 0.35
                                          Area 640 DT 70f
                                                                  Q = 15,680 btuh
     Wall assembly (assumed)
                 80% ins 20% framing
             Outside
                                 R=0.17
                         R=0.17
                         R=0.40
                                 R=0.40
             Brk
                         R=1.0
                                 R=1.0
                         n/a
                                 n/a
             MB/VB
             Sheathing R=0.50
                                 R=0.50
             6in Batt ins R=15.0
                         R=0.50 R=0.50
                         n/a
                                n/a
             Inside film R=0.68 R=0.68
             Total 1/R
                                             Area 120 DT 70f Q = 890 btuh
                   = U 80%= 0.055
                                 U20%= 0.31
                            Existing assembly Total BTUH loss
                                                                  Q = 58.673 BTUH
```

The fuel savings noted are for the heat transmission through the assemblies. This does not include the impact the new building's construction "tightness " measured in air changes per hour as it relates to the volume of the impacted space. This improvement should dramatically reduce energy loss through lower infiltration as

Thermal (heating) Envelope Proposed conditions Roof assembly Outside film R=0.17 7" r6/in rigid ins R=42.0 Inside film R=0.68 Total 1/R = U= .023 Q = 2,702 btuh New Flat roof - like above (no sloped roof) Total 1/R = U= 0.023 Q = 1,864 btuh A = 1158 sqft increased (new flat roof) New increased vertical DBL glazing (like below) Total 1/R = U= 0.17 Q = 2,856 btuh A = 240 sqft increased (new vertical glazing) Vertical Glazing Outside film R-0.17 Glazing clr R=5.0 VOLUMES WITHIN STUDY Inside film R=0.68 AREA UNDER ADDED FLAT Total 1/R = U= 0.17 Q = 7,616 btuh FLAT ROOF Wall assembly (assumed) 80% ins 20% framing Outside R=0.17 R=0.17 Brk R=0.40 R=0.40 2 SUTTERFLY ROOM SECTION FLAT ROOF OPTION R=1.0 R=1.0 Air space 34" rigid ins R=4.0 MB/VB n/a n/a Sheathing R=0.50 R=0.50 6in Batt ins R=20.0 Gypwb R=0.50 R=0.50

> U20%= 0.14 Q = 1,286 btuh Proposed new Triple glazed NET reduction in BTUH loss = approx. 72% Q = 16,324 BTUH / sloped | Total BTUH loss Thus 72 % less demand = 72% savings in fuel

A BUTTERFLY ROOM BOHETRIC VIEW PLATROOF OPTION

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home. Through these experiences, visitors will...

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home. Through these experiences, visitors will...

learn about the impacts of climate change upon a range of human and natural systems, and about the possible solutions that can reduce these impacts and build resilience,

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home. Through these experiences, visitors will...

consider the perspectives of others and how different mitigation and resilience strategies could negatively or positively affect them,

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home. Through these experiences, visitors will...

become more confident taking action and discussing climate change with friends and family; and

The Museum of Science will shine a light on the climate crisis through a series of experiences that highlight the impact of climate change in diverse ecologies around the world and here at home. Through these experiences, visitors will...

discover new ways they can be part of the solution through individual and collective action.

It is our hope that such experiences will affect not only the individuals who take part in them, but also in the broader community by providing common experiences that facilitate and initiate new conversations about climate change in the Boston area.

CLIMATE JUSTICE

We value diversity and inclusivity, and are considerate of our local and global communities.

We acknowledge that our operation's contribution to emissions has undue influence on underserved members of those communities.

Therefore, we are committed to pursuing a sustainable and just future through education, outreach and advocacy in service of these groups.

CLIMATE JUSTICE STRATEGIES

BUILD UPON	Stakeholders	
Strategy #.1	Visitors will leave with a deeper understanding of climate change, its disproportionate impact & ways to be part of the solutions	Exhibits & Programs
Strategy #.2	Review our Endowment / Investment Strategies	 Finance
Strategy #.3	Could we be a Cooling Center or Place of Refuge	Fac, Finance & Advancement
Strategy #.4	Energy Procurement (how does it impact our local area)	Fac, Finance & Advancement
Strategy #.5		

Museum of Science.





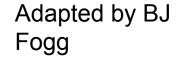


Next Steps

Theory of Change

BEHAVIOR ELEMENTS











Adapted by BJ Fogg





CAP

Adapted by BJ Fogg



The Collaborative Planning
Process was created with
behavior theory and
organizational change
management as its
framework.

User-Friendly Framework:

Meetings are designed to focus on the task at hand - giving organization leads baseline knowledge, tools, templates, and peer-support they can bring back to their organization. GRC will provide the guidance, framework, and accountability that is key to keep the momentum going in any change work.





The Collaborative Planning
Process was created with
behavior theory and
organizational change
management as its
framework.

Curation of Best Practices and Tools:

Important tools and best practices already exist, but it can be hard to know where to start or what resources to use. The collaborative planning workbook is a curated and focused list of resources that will be used throughout the plan development.





The Collaborative Planning
Process was created with
behavior theory and
organizational change
management as its
framework.

Capacity Building:

Core to this work will be educating and training participants with the goal to build the knowledge base and skill set for each organization that takes part. Participants will walk away with a deeper understanding of the impacts of climate change and have the tools to facilitate organizational change that will be used during the development of the plan and beyond.





The Collaborative Planning
Process was created with
behavior theory and
organizational change
management as its
framework.

Engagement Focused:

Engagement starts with the development of a climate action plan. An engagement focused planning process will educate staff and customers, provide clarity and build trust, and create the buy-in needed for the successful implementation of the plan once complete.



Accepting applications for the 2023/2024 cohort until June 30, 2023.

To apply fill out form (link in chat) and the GRC will schedule a readiness interview.

For more information contact email <u>azanta@greenribboncommission.org</u>



WE CAN'T DO THIS ALONE



Climate change is bigger than any person, institution, or city. But by taking action together, we can make a real difference for our loved ones, our city, and our world. ACTION PACT BOSTON

Thank You



Boston Green Ribbon Commission Cultural Institutions Working Group