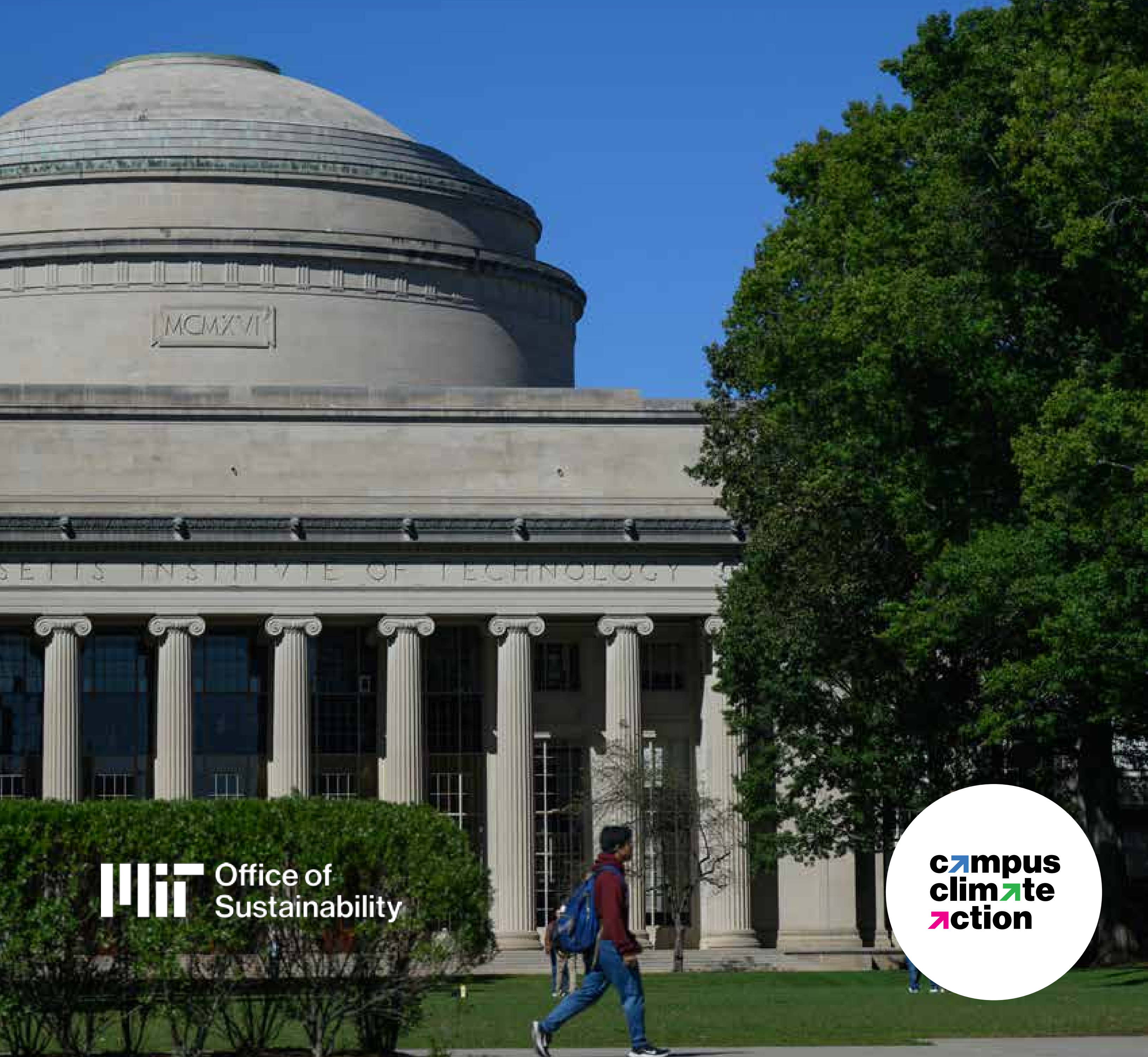
MIT Campus Climate Resilience & Adaptation Plan 2026–2030



MIT Office of Sustainability

campus climate action

CONTENTS

Introduction to MIT Campus Climate Resilience & Adaptation Plan, 2026–2030

In 2021, Fast Forward: MIT's Climate Action Plan for the Decade[1] committed to preparing this Resilience and Adaptation Plan to guide how the Institute plans and prepares for a changing climate while protecting the campus community, buildings, and ecosystem.

This plan summarizes four goals and 17 strategies. These strategies enable the MIT campus to continue fulfilling its mission in the event of disruption from climate-related hazards, such as severe precipitation, sea level rise with storm surge (SLR/SS), and extreme heat – all becoming more frequent and severe due to climate change.

This document outlines current and planned climate resilience activities at MIT to raise awareness across the community.

Grounded in the best available science, this living document will be updated as MIT's understanding of climate impacts and adaptation evolves. Re-evaluation will also enable continued resilience based on the effectiveness of adaptation strategies, community capacities, technological advances, and progression of implementation plans. The figure (below) diagrams the iterative process of re-evaluation that can enable the most strategic and impactful outcomes.

Framework for re-evaluating this Resilience Plan by 2030

Flood Risk Projections for MIT Campus and City of Cambridge

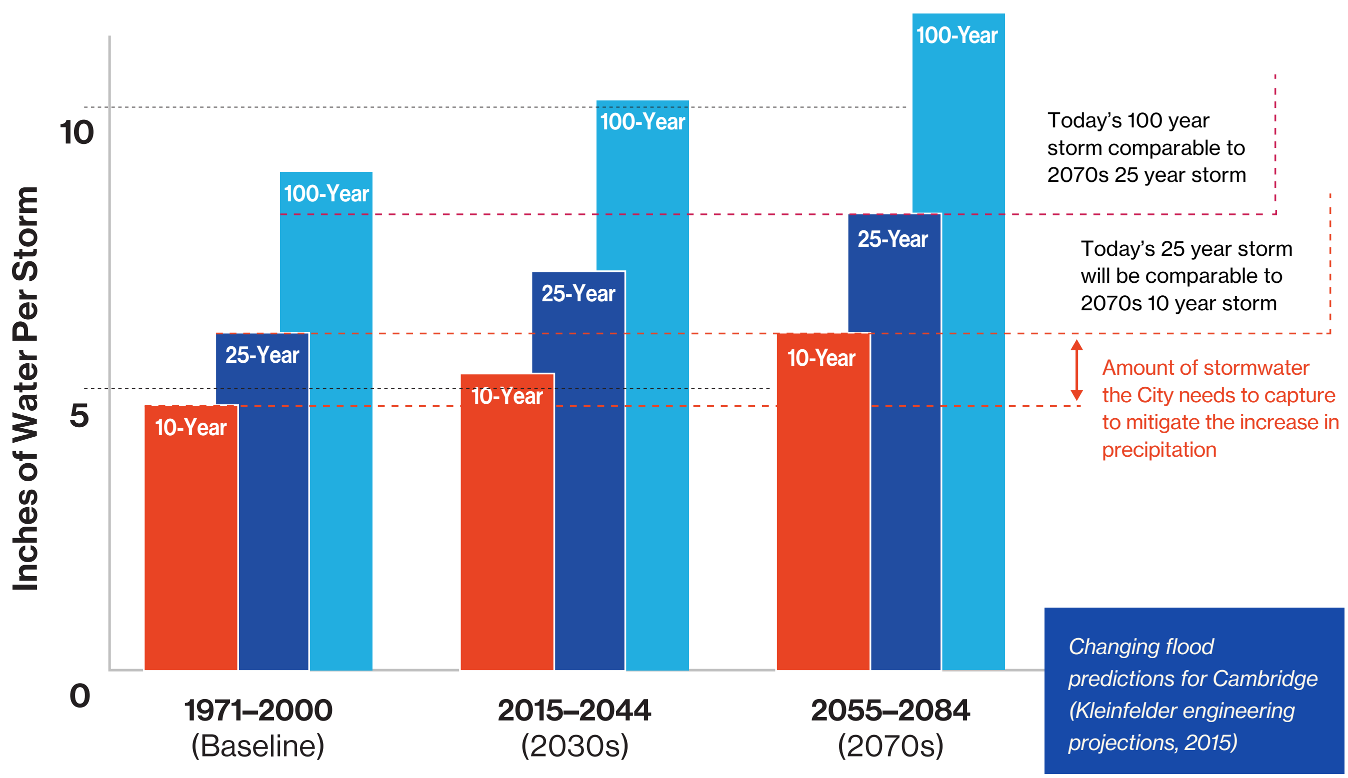
MIT uses the City of Cambridge flood projections as its planning basis for campus resilience and adaptation because they provide the best available, locally scaled projections, align the campus with local regulatory standards, and enable effective planning across campus and city scales. MIT will continue to coordinate with the City and evaluate new and emerging research to inform its climate resilience and adaptation planning.

Precipitation-Driven Flood Risk from Increasingly Severe Rainstorms

[The City of Cambridge *Climate Change Vulnerability Assessment*][2] projects that MIT's most immediate flood risk is increasingly frequent severe rainfall, which can cause urban surface flooding by overwhelming stormwater infrastructure. By 2070, compared to today, the City of Cambridge is likely to experience higher rainfall amounts during storms, including:

- An additional 1.5 inches of rainfall in one day during a storm with a 10-year (10% annual) probability of occurrence
- An additional 2.8 inches of rainfall in one day during a more severe or 100-year (1% annual) probability of occurrence

The graphic below illustrates how a "100-year storm" event (a storm with a 1% annual probability) yielded about 8 inches of rain in one day using historical rainfall averages of 1971 through 2000. Under a changing climate, one-day rainfalls of 8 inches or more are projected to become much more common by 2070, occurring with a frequency closer to a "25-year" (4% annual) probability. Similar shifts are anticipated, with the historical 4% annual probability storm becoming closer to a 10% annual probability event by 2070.



Changing flood predictions for Cambridge (Kleinfelder engineering projections, 2015)

Sea Level Rise (SLR) with Storm Surge (SS) Flood Risk

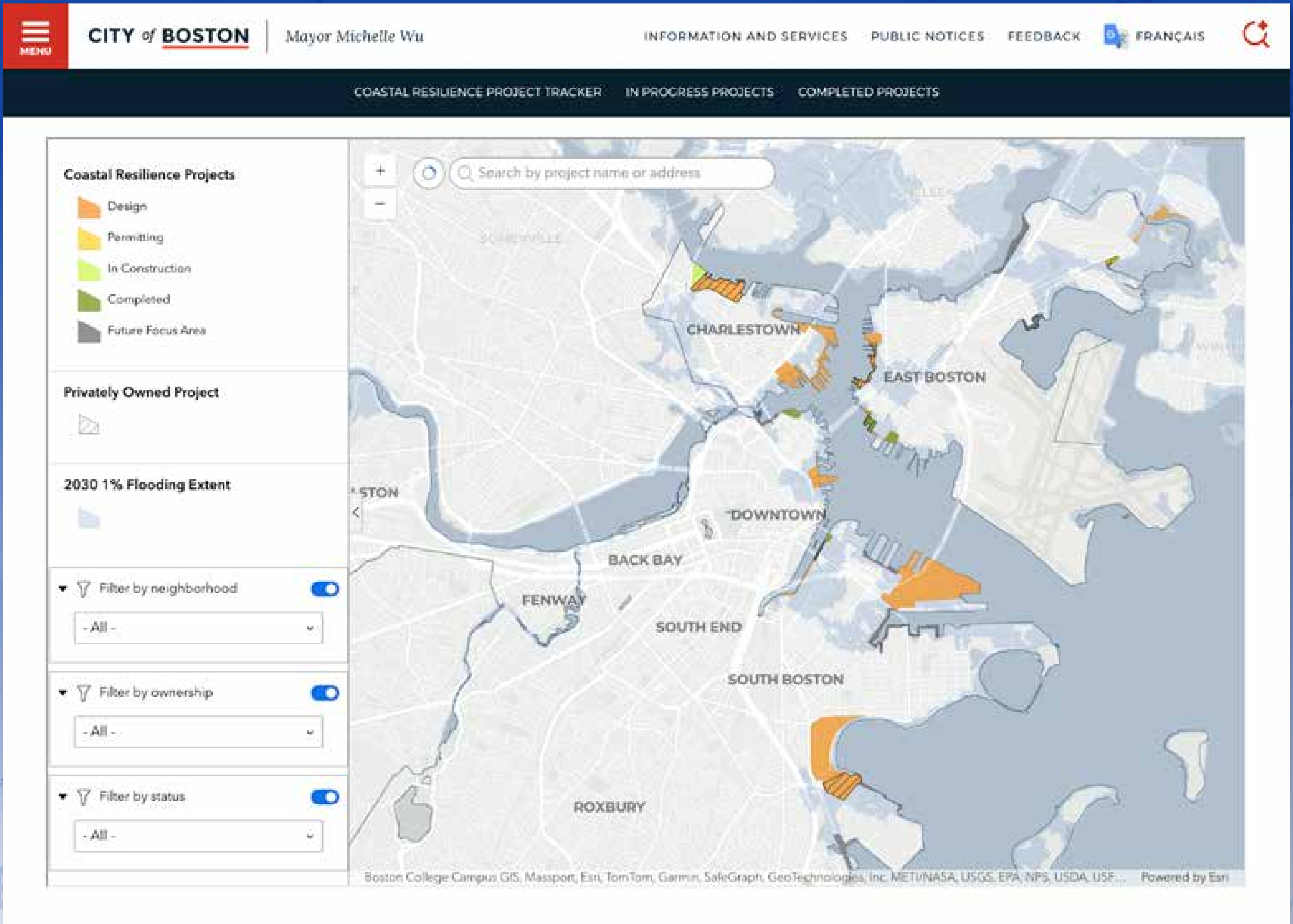
The New Charles River Dam (built in 1910) in Cambridge currently protects the MIT campus from Boston Harbor storm surges and extreme high tides. However, the dam is at risk of being overtopped by a storm surge compounded by rising sea levels within 20 to 30 years. The original design did not account for climate-driven sea level rise – potentially one foot by 2030 and four feet by 2070.[3]

While SLR/SS poses no immediate threat, MIT faces future risk of damage and disruption. MIT is collaborating with the Boston Green Ribbon Commission (GRC), a network of regional cultural, higher education, health care, and commercial real estate institutions. The GRC convenes governmental entities (e.g., the City of Boston, the Commonwealth of Massachusetts, and the MBTA) with regional institutions (e.g., MIT, Mass General Brigham, Harvard University, Boston Medical Center, and the Museum of Science) in quarterly working group meetings. The purpose is to promote continued awareness of climate resilience challenges and opportunities, ensure strategic alignment among GRC members and partners, and identify collective action opportunities.

Planning and design are already in progress for several coastal resilience interventions that can reduce risk of storm damage to coastal communities in the Boston area (see the City of Boston coastal resilience project tracker showing proposed interventions).[4]

This tracker does not include three related USACE studies that are most relevant to reducing coastal storm risk for MIT and Cambridge. All three studies are being carried out in close coordination. MIT will continue to monitor progress and align with outcomes from these studies:

- ***USACE New Charles River Dam Planning Assistance to States Study:*** A state-level study assessing future impacts of climate change and sea-level change on dam operations. This technical study will assist the Commonwealth in identifying when and how the dam should be adapted, physically or operationally. (Anticipated completion 2026.)
- ***USACE / City of Boston Coastal Storm Risk Management Study (CSRM):*** The Boston CSRM will consider long-term flood risk and existing city, federal, state, and local plans and projects along Boston's 47-mile coastline. USACE is assessing coastal flood effects on people, ecosystems, property, and critical infrastructure. From there, USACE will develop potential strategies to manage flood risk, including different tools and approaches that would be eligible for up to 65% federal funding. (Draft plan expected summer 2026, with submission for congressional funding 2028.)
- ***USACE / Boston Metropolitan Area Coastal Resilience Study:*** USACE and the Commonwealth of Massachusetts will conduct this study to assess long-term risk and resilience at a watershed level. (Draft plan expected summer 2026, with submission for congressional funding 2028.)



The MIT Campus Climate Resiliency and Adaptation Plan aligns with initiatives at city and regional scales, such as City of Boston flood mitigation planning represented above.

The Plan

Strategies, Implementation, and Next Steps

The Plan includes risk management actions, operational preparedness and response, and built environment adaptations.

The Office of Sustainability (MITOS) collaborates with Campus Services and Stewardship (CSS) teams to inform and coordinate resilience integration and implementation. MITOS and CSS will assign dedicated staff to lead implementation through campus partnerships and regional collaborations. Participants will be drawn from the Climate Resilience Committee, which has helped inform these efforts since 2015, faculty and researchers with relevant expertise, and staff and students keen to assist implementation of these strategies.

In addition, the “campus as test bed” approach will play a key role in raising awareness and driving action by fostering collaboration among faculty, staff, and students.

Resilience =

Risk Management	Plans, actions, or policies (e.g., business continuity plans, insurance, or partnerships) that mitigate the consequences or costs of disruption.
+	
Response & Recovery	Changes to built and social systems that allow for rapid response and recovery from disruption, restoring essential functions quickly.
+	
Adaptation	Changes to buildings and operational systems that reduce the potential for disruptions.

Resilience Goals and Strategies 2026–2030

The four primary goals*:

1. Understand, anticipate, and communicate climate risks and progress

Communicate climate risks to the MIT community and utilize the campus as a test bed to demonstrate mitigation of stormwater, sea level rise with storm surge, and heat risks.

Measures of success for goal achievement include:

- Reporting quarterly on flood model and resilience dashboard updates (available to members of the MIT community with Touchstone access via the MIT Sustainability Data Pool)
- Engaging DLCIs (departments, labs, centers, and institutes) in understanding risks and adaptation opportunities, with priority given to locations with higher flood probability based on current models
- Developing strategic adaptation collaborations that scale beyond campus, including Cambridge, Boston, and the region

2. Build capacity to adapt

Grow knowledge and capacity to adapt operations across scales – from the Department of Facilities to DLCIs and the schools and college – to ensure fulfillment of MIT's mission.

Measures of success include:

- Assigning resilience and preparedness job requirements to key staff
- Increasing the number of at-risk DLCIs prepared to manage weather-related disruptions
- Integrating resilience planning through campus infrastructure and operational decision-making
- Coordinating preparedness with the City of Cambridge and city partners

3. Plan and implement adaptation projects

Plan and implement measures to reduce exposure to climate-related events, including adaptations to infrastructure, building systems, structures, and landscapes.

Measures of success include:

- Increasing the number of buildings and sites protected from future climate risks
- Increasing the number of DLCIs adapting operations to maintain ability to fulfill the MIT mission

4. Adapt operations for systemwide resilience

Identify systemwide actions that can reduce the impacts of stormwater and coastal flood risks (preparedness and protection, response, and recovery) and heat risk through continuity planning, stormwater maintenance, heat relief deployment (e.g., MIT Cool Spots), and tree canopy stewardship.

Measures of success include:

- Increasing the percentage of DLCIs developing/updating continuity plans
- Increasing awareness of heat relief options for the MIT community
- Deploying effective flood prevention and response operations

**Development of metrics to guide implementation of these goals is in progress through stakeholder processes in 2027. Initial resilience and adaptation metrics will be formalized in 2027.*

COMMUNICATE RISKS AND BUILD CAPACITY (SUPPORTING GOALS 1 + 2)	
GOAL 1: UNDERSTAND, ANTICIPATE AND COMMUNICATE RISKS AND PROGRESS Lead: MIT Office of Sustainability (MITOS)	
1.1 Maintain updated flood model and flood records: Update every two years to align with campus and city data and include in the campus resilience dashboard. Develop a flood mapping system for tracking observed impacts. (MITOS)	☑
1.2 Monitor heat risk: Collect data; maintain and update campus-wide heat risk dashboard (annually); evaluate heat risk impacts and mitigations for people and infrastructure.	☑
1.3 Communicate via flood and heat risk dashboards: Expand flood visualizations to include heat risk data, and recent stormwater and coastal surge events. (MITOS, Urban Risk Lab [URL])	☑
1.4 Collaborate with cities and state in regional resilience: Identify opportunities to engage in regional resilience, including the campus and beyond, by managing risks from sea level rise with storm surge (SLR/SS), and city-scale stormwater flooding, establishing resilience hubs, and coordinating tree planting, heat monitoring and flood risk modeling, etc. (MITOS)	☑
1.5 Report on progress, impacts, and lessons learned: Communicate stormwater flooding, SLR/SS, and heat risk findings; develop brief project summaries and lessons learned. Convene annual review of adaptation and resilience progress. (MITOS, CSS)	☑
GOAL 2: BUILD CAPACITY TO ADAPT	
2.1 Establish and maintain governance, implementation, and reporting structures: Define roles and secure operational and capital budget support. Communicate this plan to leadership and identify synergies in "campus as a test bed" opportunities. (MITOS)	☑
2.2 Build awareness among administrative and operations units: Provide project managers and key operational and planning teams with resilience expectations, tools, and resources to deliver more resilient, adapted projects and operations plans (MITOS, CSS, Emergency Management [EM], URL)	
2.3 Catalyze DLCI-level adaptation: For potentially-impacted DLCIs, develop and deliver communications and workshops that engage staff and faculty in adaptation actions (MITOS, CSS). Integrate preparedness, response and continuity planning (EM, MITOS)	
2.4 Assign climate resilience and stormwater engineer: Seek stormwater engineer expertise to advise, manage, and implement resilience and adaptation actions; utilize model to develop flood risk mitigations; mitigate heat risk (Facilities Engineering and Energy Management, MITOS)	☑
☑ = Implementation underway	

ADAPT BUILDING AND SYSTEMWIDE OPERATIONS (SUPPORTING GOALS 3 + 4)	
GOAL 3: PLAN AND IMPLEMENT ADAPTATION PROJECTS	
3.1 Identify and initiate immediate localized flood risk adaptations: Mitigate present-day, experienced flood risks; identify small-scale adaptations for mission-critical property located in basements and sub-basements; coordinate with the RISQ Team[5] to identify high priority needs. (Facilities, MITOS)	☑
3.2 Integrate resilience into new construction: Identify appropriate processes to ensure new construction and renovation projects align with resilience goals and priorities. (Facilities, Office of Campus Planning, MITOS)	☑
3.3 Identify and implement heat adaptation projects: Develop data-driven "campus as a test bed" projects to identify and test landscape and architectural cooling strategies that reduce heat risk for people in indoor and outdoor spaces. (Leads TBD by 2027)	
3.4 Scope district-scale flood adaptation practices and projects: Identify priority practices and projects to reduce multi-building flood risk by leveraging MIT Flood Risk Model and RISQ Team to test proposed interventions. (Facilities, MITOS, Office of Insurance)	☑
3.5 Integrate resilience and adaptation in campus space planning: Integrate resilience risk assessment into planning processes for space renovation projects. (Provost's Office, Facilities)	☑
GOAL 4: ADAPT OPERATIONS FOR SYSTEMWIDE RESILIENCE	
4.1 Prepare for imminent flood event: Refine procedures and operational coordination by completing and implementing the Flood Preparedness and Response Plan; integrate learnings from past events, peer institutions, and municipal practices. (EM, CSS, Facilities, MITOS, URL)	☑
4.2 Implement preventive maintenance and DLCI continuity actions: Identify procedures through workshops; move and elevate vulnerable equipment, research materials, and lab supplies; develop specific guidance. (EM, CSS, Facilities, MITOS, URL)	☑
4.3 Understand heat relief needs and recommend adaptation actions: Evaluate and recommend policies and/or practices needed to protect students and essential workers in changing climate. (MITOS, Facilities, Housing and Residential Services, URL)	☑
☑ = Implementation underway	

Keys to Successful Implementation

The resilience goals and strategies presented on the prior pages respond to the recommendations identified during our 2021–2024 review of campus resilience implementation strategies. While progress is already underway across all four goals, factors for promoting sustained success require advancing efforts in five key areas:

1. Clearly define a resilience governance team with budget authority to sustain decision-support tools and inform strategic decision-making (2026)

- Designate MIT staff with authority and leadership capacity to drive resilience and adaptation implementation
- Ensure appointed staff have resources and pathways to seek budget support for implementing interventions
- Integrate resilience considerations into space planning, project reviews, and systemwide operations
- Sustain core resilience planning systems (data analysis, visualization, and dashboards)

2. Leverage MIT's world-class expertise: Campus as test bed (ongoing)

- Develop and lead resilience-based "campus as a test bed" projects that:
  - Refine and expand methods for monitoring and deepening understanding of campus-based climate risks
  - Sharpen our models and risk impact analytics
  - Develop metrics for measuring and managing activities
  - Prioritize adaptations and resilience interventions
- Communicate findings and progress to MIT community
- Continue to integrate faculty and staff expertise through resilience project design, project evaluations, and progress updates
- Communicate methods to accelerate resilience among higher ed and community partners
- Continue to identify experiential education opportunities for engaging MIT students in resilience monitoring, analysis, and communications

3. Coordinate with city, state, and regional institutions

- Evaluate local climate science with Cambridge, Boston, and the Commonwealth of Massachusetts
- Engage in next step recommendations emerging from the USACE New Charles River Dam Planning Assistance to States Study, both to understand implications and promote strategic alignment
- Participate in coastal resilience system collaborations led by Boston Green Ribbon Commission and Metropolitan Area Planning Council (MAPC) related to Charles River Dam

4. Establish alignment among MIT stakeholders around key adaptation priorities

- Confirm shared understanding of campus-based climate risks
- Prioritize adaptation actions based on risk factors including life safety, program impacts, operational impacts, property value, and recovery costs
- Commit to recognized risk-reduction strategies

5. Develop and track metrics supported by monitoring and evaluation (2027)

- Support monitoring of resilience indicators that align with city, regional, and state partners
- Monitor and evaluate performance of solutions against flood and heat risks to be mitigated
- Assess return on investment of implemented strategy

Timeline for Goal Implementation

Below is an initial implementation timeline indicating the level of effort required across each goal over this Roadmap's first five years. A more detailed implementation table is available for prioritizing budget, strategy scoping, and schedule planning.

Resilience and Adaptation Goals	2026	2027	2028	2029	2030
Goal 1: Understand, anticipate, and communicate risks and progress					
Goal 2: Build capacity to adapt and prepare					
Goal 3: Plan and implement projects					
Goal 4: Adapt operations for systemwide resilience					

NOTE: Darker shading indicates higher approximate level of effort required for budget and time.

APPENDIX

APPENDIX A

Campus Progress in Adaptation and Resilience

Capital Projects + Major Renovations

Since 2019, the MIT Campus Flood Risk Model – harmonized with Cambridge's model – has informed capital project design, reducing future risks to people, infrastructure, and the MIT mission. MIT has aligned with Cambridge's flood resilience standards which require that new capital projects should withstand the 2070 10% annual probability rain event (7 inches/24 hours) and recover from the 2070 1% annual probability event (11.7 inches/24 hours).[6]

Examples of climate resilience strategies designed into these capital projects include elevating ground floors above projected future peak flood depth (e.g., MIT Stephen A. Schwarzman College of Computing); eliminating programmed basement spaces that are not floodproofed (e.g., New Vassar Residence Hall, Metropolitan Storage Warehouse); elevating critical equipment above 2070 projected peak flood levels (e.g., Central Utilities Plant); and integrating stormwater capture and retention via landscape (e.g., Edward and Joyce Linde Music Building).

In addition to aligning MIT's resilience practices with the City of Cambridge's flood design standard, MIT's resilience planning processes are well positioned to meet sustainable building and landscape guidance for LEED v5 which includes additional prerequisites and credits for integrating resilience planning into projects.

CENTRAL UTILITIES PLANT (UPGRADED IN 2021)

NEW VASSAR RESIDENCE HALL (OPENED IN 2021)

MIT STEPHEN A. SCHWARZMAN COLLEGE OF COMPUTING (OPENED IN 2024)

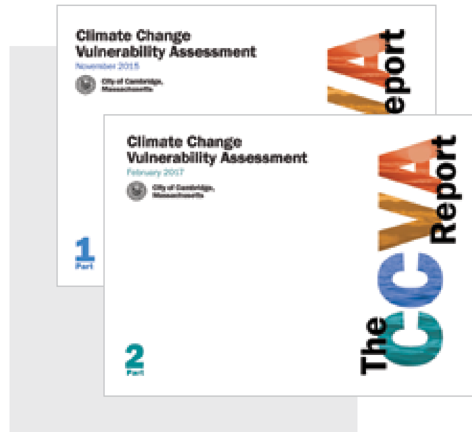
EDWARD AND JOYCE LINDE MUSIC BUILDING (OPENED IN 2025)

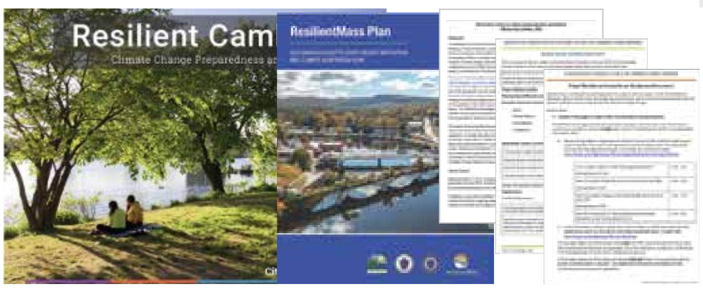
METROPOLITAN STORAGE WAREHOUSE BUILDING (ANTICIPATED IN 2026)

APPENDIX B

Context Across Scales and Process

The policy and regulatory context at the City and Commonwealth scales are continually evolving as the knowledge and understanding of a changing climate is more deeply understood. Since the City of Cambridge released its Climate Change Vulnerability Assessment (CCVA) in November 2015, the City and Commonwealth have developed climate resilience plans with strategies and regulatory changes (see below) to integrate future climate risk into design and development decisions.





Resilient Cambridge Plan; ResilientMass Plan; MEPA Interim Protocol on Climate Change; Cambridge Resilient Zoning: Flood Resilience & Green Factor Standards

MITOS developed this Climate Resilience & Adaptation Plan document from 2021 through 2024 with input from the MIT Climate Resilience Committee[7] and campus stakeholders. The process included a global best practices review, gap analysis of MIT resilience progress, and stakeholder interviews.

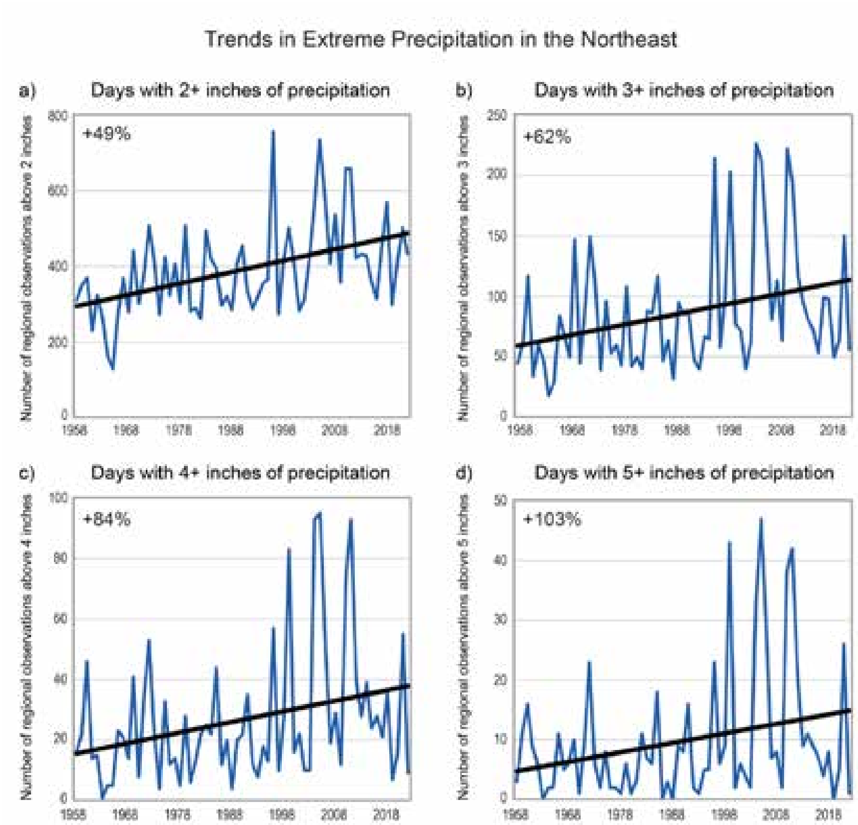
Best Practice Review	Gap Analysis	Stakeholder Interviews	Outline Roadmap	Stakeholder Interviews	Resilience Roadmap
Reviewed best practices from other universities and municipalities Reviewed frameworks for developing effective resilience plans	Reviewed MIT's resilience activities to date, including key documents, processes, and plans Identified where activities were robust and where there were still gaps in knowledge	Interviewed MIT stakeholders across key departments, including facilities, planning, emergency management, risk management, and insurance, to identify key themes and opportunities	Translated findings from best practice review, gap analysis and stakeholder interviews into a needs assessment Developed draft roadmap process with key actions and next steps	Conducted a second round of interviews with key stakeholders to identify clear process changes and actions to be integrated into the final roadmap	Developed the final roadmap with a clear vision, identification of key goals, and clearly outlined actions, responsible parties, and timelines for implementation

Understanding Climate Risks

Climate Science

MIT's understanding of climate change will continue to evolve, informing resilience and adaptation planning as research advances, technology changes, and models become more refined. The scientific assessment of climate, as described in the IPCC Sixth Assessment Report,[8] shows that human influence has unequivocally warmed the atmosphere and that the rate at which the climate is warming, sea levels are rising, and ice is retreating, is unprecedented in the past several thousand years. This has resulted in irreversible changes that will endure for centuries. The authors note that given rapid climate changes and increasingly complex risks, delaying adaptation will make it more challenging to adapt urban and natural systems effectively.

The Fifth National Climate Assessment (NCA5) highlights chronic impacts from extreme weather – most notably severe precipitation (see figure below) and heatwaves – as the most significant climate changes in the northeastern United States. Encouragingly, the Assessment notes that "While barriers to adaptation remain, many of these can be overcome with financial, cultural, technological, legislative, or institutional changes."[9]

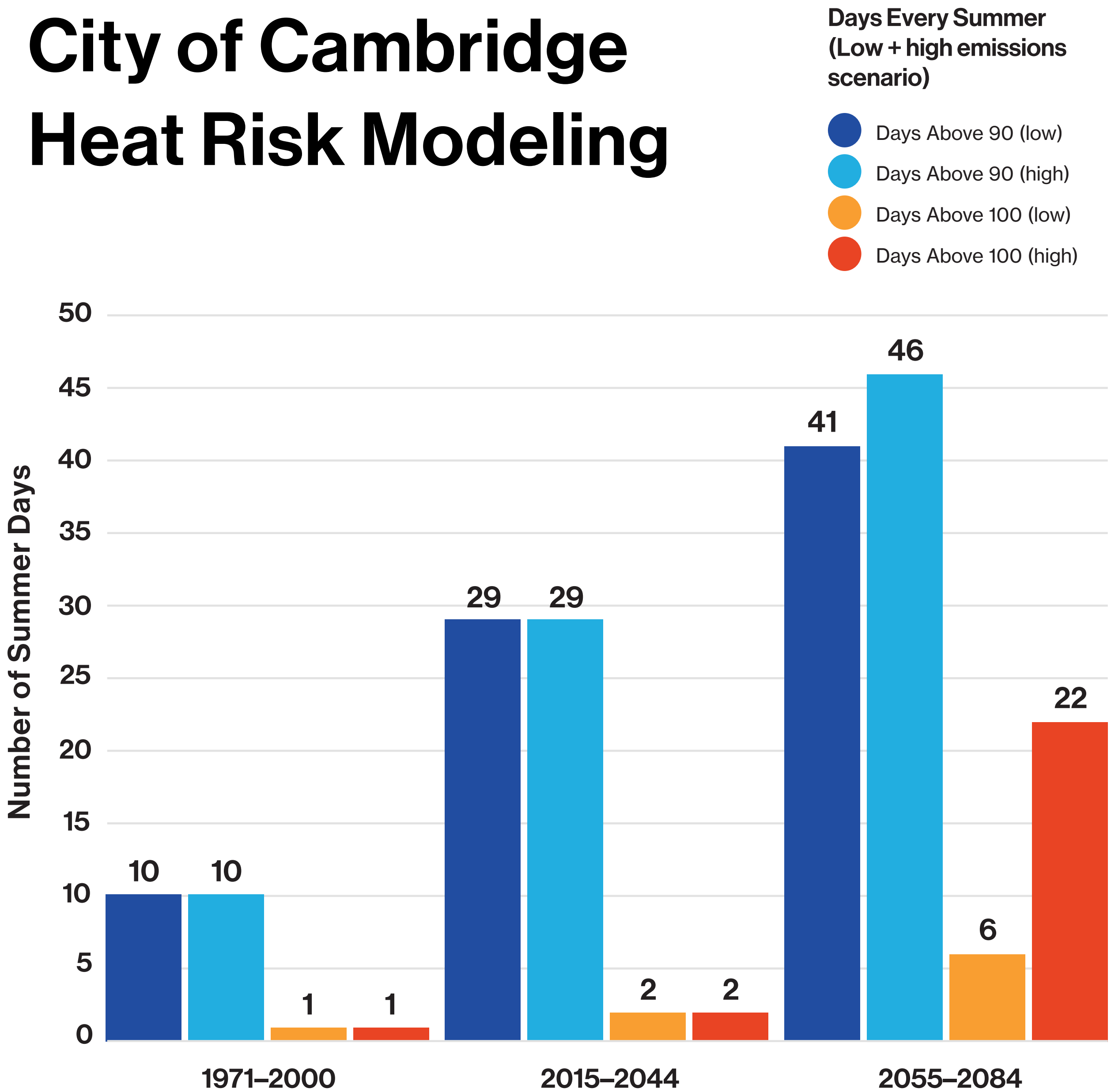


Increasing frequency of extreme rainfall in Northeast US (Fifth National Climate Assessment, 2022)

Heat Risk Projections: MIT Campus and City of Cambridge

Heat risk projections from the Commonwealth and the City of Cambridge show that the campus could see approximately 23-30 days per year exceeding 90°F – triple the historical baseline of 10 days (1971–2000)[10 11]. More frequent and extreme heat can impact the health and well-being of MIT's community by disrupting sleep, causing heat-related illnesses, and exacerbating underlying health conditions.

City of Cambridge Heat Risk Modeling



Source: City of Cambridge Climate Vulnerability Assessment, 2017 (Graphic adapted with color modification)

High heat days per year in Cambridge are projected to increase, a trend expected even under lower emissions scenarios (City of Cambridge, 2021).

APPENDIX D

Understanding MIT Flood Risk via Model Development

MITOS identified a gap in the City's 2015 flood risk maps: MIT's private stormwater pipe network was not included in the analysis.

In 2017, MIT launched a "campus as a test bed" effort to develop the MIT Campus Flood Risk Model in collaboration with the Center on Global Change (now Center for Sustainability Science and Strategy), the Concrete Sustainability Hub, MIT faculty, the Department of Facilities, and the City of Cambridge.[12] The beta version of the model was published in 2020 using the City of Cambridge's base model and aligning with the City's climate-change rainfall projections. An updated and refined model was released in 2024, including additional data about campus interconnected basements.

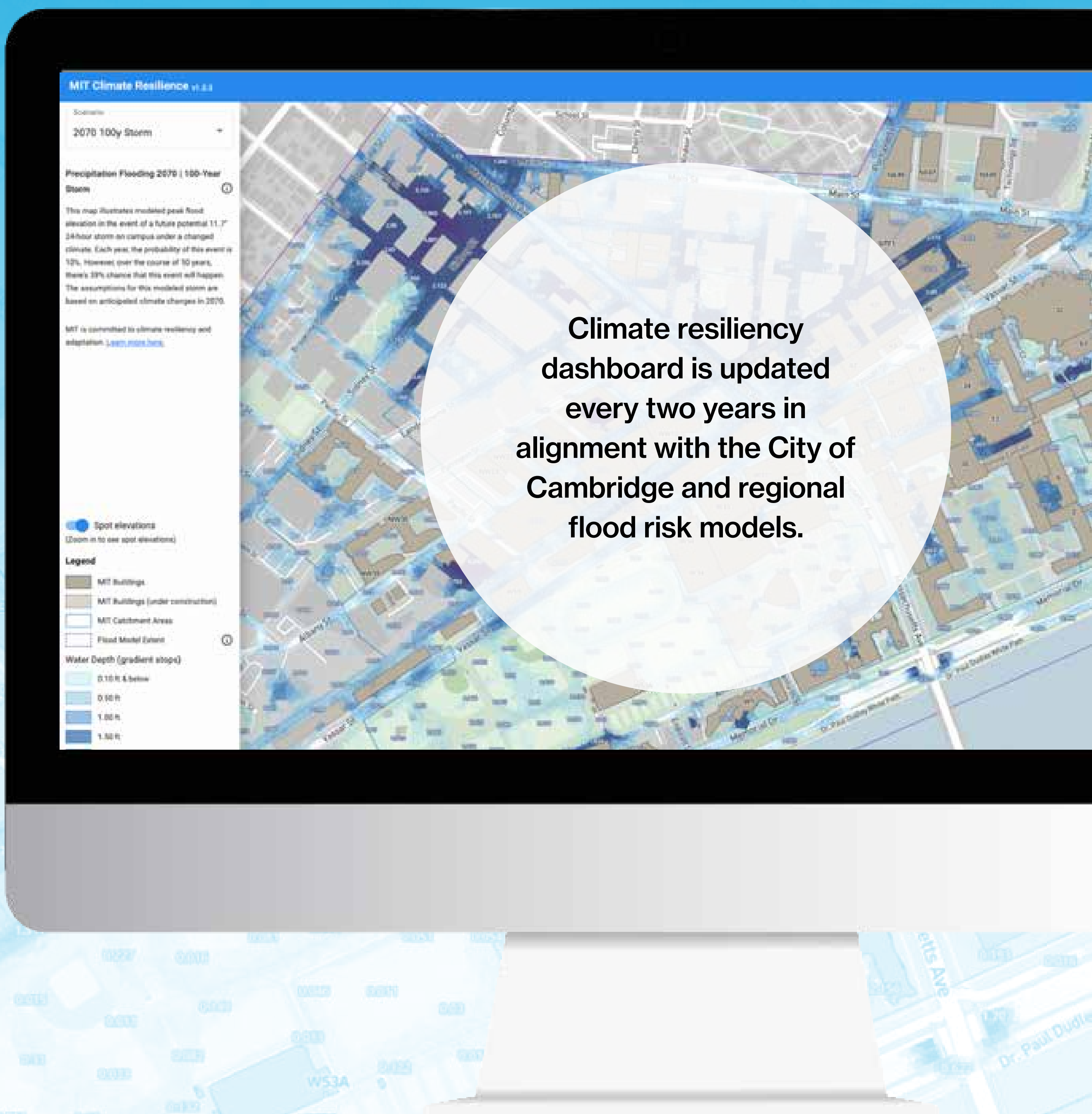
In 2024, the flood model was transitioned from the "campus as a test bed" research team into full institutional operation of the model. This upgraded model – a formally established, engineer-validated flood model within MIT's decision-making processes for campus infrastructure, operations, and risk management – will ensure that MIT's campus planning decisions are informed by a changing climate. Moving forward, the model's operation, updating, and application to decision-making will become fully integrated within existing planning, engineering, and operations.

These model findings have been visualized for the campus community in the MIT Climate Resiliency Dashboard, a visualized planning tool showing projected flood depths and elevations under future climate change at locations outside of campus buildings.

Moving forward, MITOS will harmonize MIT's flood model with Cambridge's model every two years. Aligning with the MIT Climate Project, MITOS will work with the MIT Urban Risk Lab and other campus partners to maintain and update the MIT Climate Resiliency Dashboard, informing the tool with lessons learned from the Lab's research on climate risk documentation and communications in cities worldwide.

MIT flood model research advancements since 2020 have included the integration of building openings and potential infiltration of water into campus basements. This dashboard allows MIT to identify, communicate, and educate the community about potential flood threats to campus, and it informs planning and design decisions for new building and infrastructure projects.

The MIT Climate Resiliency Dashboard visualizes projections of campus flood risk that integrate topography, building envelope porosity, basement connectivity, city and regional drainage infrastructure, and a range of rainfall scenarios.



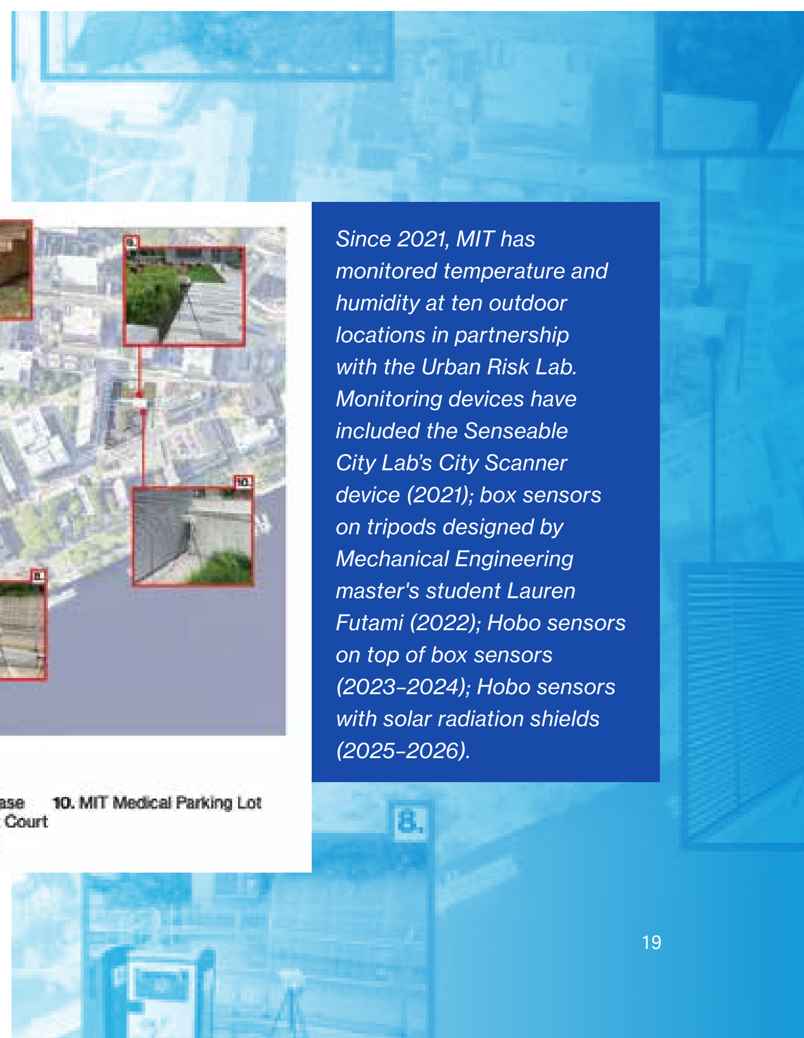
Climate resiliency dashboard is updated every two years in alignment with the City of Cambridge and regional flood risk models.

Understanding Extreme Heat through Collaborations Across Campus and City

The process of understanding more frequent and extreme heat risk has also started as a “campus as a test bed” initiative led by MITOS with key partners, including the MIT Urban Risk Lab; Center on Global Change (now Center for Sustainability Science and Strategy); Campus Services and Stewardship; Department of Athletics, Physical Education, and Recreation; Office of Campus Planning; Emergency Management; and the City of Cambridge. This collaboration aims to help MIT develop procedures for mitigating extreme heat risk and to serve as a model for other institutions facing similar challenges.

Campus data collection efforts have been underway since 2021 to develop a baseline understanding of how more frequent and extreme heat might impact the campus. These efforts include: quantitative temperature monitoring, qualitative evaluations of campus heat experiences, review of peer institutions' approaches, and shared learning sessions with Cambridge, Boston, and regional higher education institutions.

The team is developing a data dashboard for communicating findings and raising awareness about campus heat risk. As the team develops a more conclusive understanding of campus risks from extreme heat, these findings will continue to be integrated into campus risk management decision-making. Over the next 1–2 years, this “campus as a test bed” research will be operationalized – similar to the flood modeling effort – ensuring MIT adapts to increasingly extreme and frequent heat.



Since 2021, MIT has monitored temperature and humidity at ten outdoor locations in partnership with the Urban Risk Lab. Monitoring devices have included the Senseable City Lab's City Scanner device (2021); box sensors on tripods designed by Mechanical Engineering master's student Lauren Futami (2022); Hobo sensors on top of box sensors (2023–2024); Hobo sensors with solar radiation shields (2025–2026).

Models, Guidance, Tools and Resources

MIT Campus Flood Risk Model and MIT Climate Resiliency Dashboard

The MIT Climate Resiliency Dashboard provides guidance for the MIT community about campus locations that might receive flooding in a range of weather events. The MIT Climate Resiliency Dashboard is updated every other year (available via Kerberos access for the MIT community) and reflects current flood model alignment with the City of Cambridge and regional model.

MIT has made notable progress in translating resilience principles into built infrastructure. The design of the Edward and Joyce Linde Music Building marked a significant achievement – the building was specifically engineered to be resilient to extreme flood risks, informed by the MIT campus flood risk model developed and refined over several years.

A series of workshops was conducted in 2025 in collaboration with Campus Services and Stewardship and MIT Emergency Management to develop a campus-wide flood preparedness plan for guiding flood risk reduction efforts by operational units across the Institute. MIT's climate resiliency efforts continue to be informed by campus-based partnerships with researchers and staff from the departments of Urban Studies and Planning, Architecture, and Electrical Engineering and Computer Science, as well as by staff in the Urban Risk Lab, MIT Emergency Management, and Housing and Residential Services.

The implementation of these efforts relies on ongoing work from MITOS in capturing and analyzing data related to potential stormwater flooding, coastal flooding, and extreme heat.

The flood-resilient red brick structure and tree grove of the Edward and Joyce Linde Music Building centers both the natural and built environments of MIT's West Campus. Photo credit: Ken'ichi Suzuki

Cool Spots on Campus

Building on the successful launch of Cool Spots on campus in 2024, MITOS continued its partnership with MIT Emergency Management and the City of Cambridge to maintain these cooling resources in 2025.

Cool Spots are indoor, air-conditioned spaces around MIT that are open to the public. During heat waves, MITOS promotes these campus locations, encouraging members of the MIT and local communities to take a break from the heat.

In 2025, the City leveraged the Cool Spots concept by developing outdoor publicly accessible "cool spots" throughout Cambridge, extending this lifesaving resource beyond campus boundaries.

This collaboration demonstrates how campus-based initiatives can scale to serve the broader community during climate emergencies.

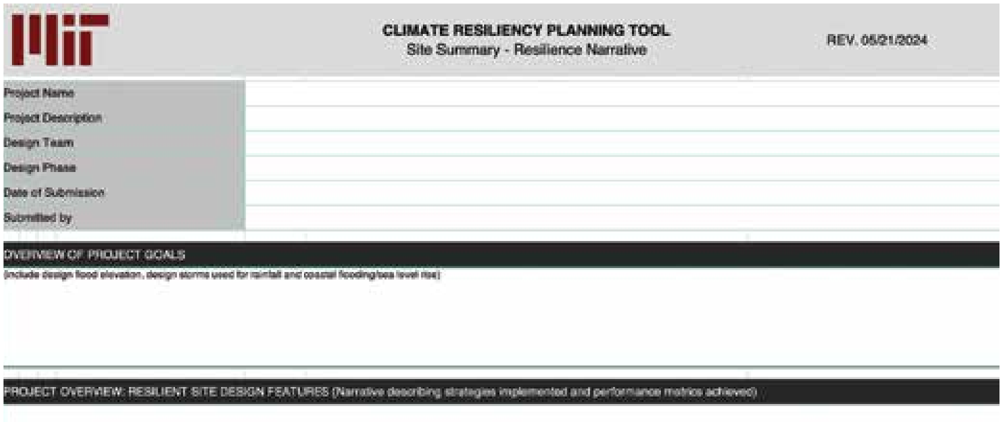
MIT Campus Heat Risk Monitoring Tool

MIT is developing a component of the MIT Climate Resiliency Dashboard that includes visualizations of campus heat risk data from temperature sensors. The goal of this dashboard is to communicate findings to the MIT community about campus-based temperatures.

Heat risk sensors capture temperature and humidity data in the Kendall/MIT Open Space. The 2023 sensor (top) is located on a tripod; the 2025 sensor (bottom) is hung from a tree by MITOS student researcher Santiago Vega (photo credit: Noah Phoenix, MIT Open Space Programming).

MIT Climate Resilience Pilot Project Planning Tool

The MIT Sustainable Design Standards (v.2022), which are required for new construction, major renovations, and other projects, includes a number of climate resilience strategies.



CLIMATE RESILIENCY PLANNING TOOL
Site Summary - Resilience Narrative

REV. 05/21/2024

Project Name	
Project Description	
Design Team	
Design Phase	
Date of Submission	
Submitted by	

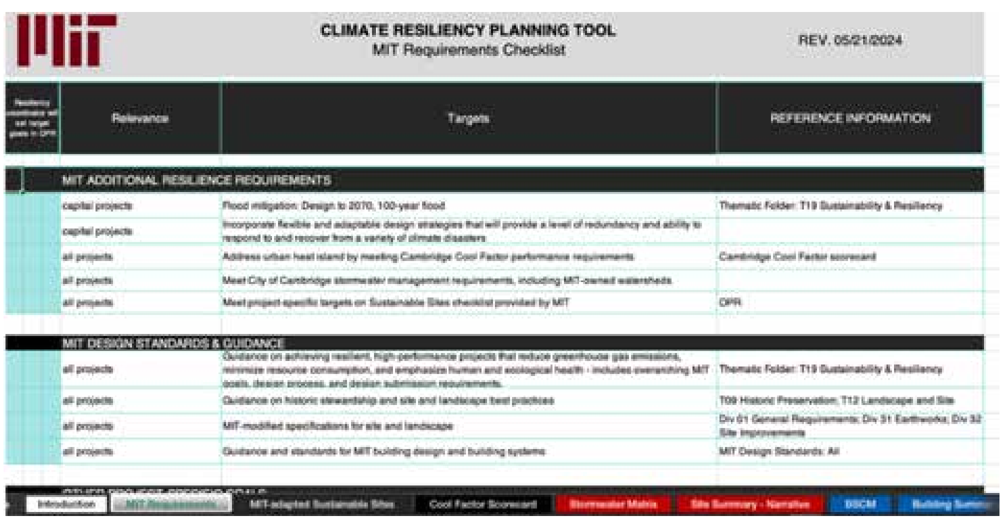
OVERVIEW OF PROJECT GOALS
(include design flood elevation, design storms used for rainfall and coastal flooding/sea level rise)

PROJECT OVERVIEW: RESILIENT SITE DESIGN FEATURES (Narrative describing strategies implemented and performance metrics achieved)

A resilience narrative is also required in the design submittals at all major milestone reviews of capital projects (i.e., concept design, schematic design, design development, construction documents). This mirrors Cambridge's requirement that a resilience narrative be submitted with any major project requiring Planning Board review.

Given the rapidly emerging regulatory and LEED context for climate resilience planning and design, this Plan includes the pilot Climate Resilience Planning Tool: an Excel-based document that integrates resiliency, stormwater, and other relevant sustainability requirements from MIT, the City of Cambridge, and LEED into one checklist serving as a comprehensive resilience design guide for a project.

This pilot version of the tool has been designed by MIT staff and will continue to evolve and integrate with MIT campus design standards to meet diverse project needs.



CLIMATE RESILIENCY PLANNING TOOL
MIT Requirements Checklist

REV. 05/21/2024

	Relevance	Targets	REFERENCE INFORMATION
	MIT ADDITIONAL RESILIENCE REQUIREMENTS		
	capital projects	Flood mitigation: Design to 2070, 100-year flood	Thematic Folder: T19 Sustainability & Resiliency
	capital projects	Incorporate flexible and adaptable design strategies that will provide a level of redundancy and ability to respond to and recover from a variety of climate disasters	
	all projects	Address urban heat island by meeting Cambridge Cool Factor performance requirements	Cambridge Cool Factor scorecard
	all projects	Meet City of Cambridge stormwater management requirements, including MIT-owned watersheds	
	all projects	Meet project-specific targets on Sustainable Sites checklist provided by MIT	OPR
	MIT DESIGN STANDARDS & GUIDANCE		
	all projects	Guidance on achieving resilient, high-performance projects that reduce greenhouse gas emissions, minimize resource consumption, and emphasize human and ecological health - includes overarching MIT goals, design process, and design submission requirements.	Thematic Folder: T19 Sustainability & Resiliency
	all projects	Guidance on historic stewardship and site and landscape best practices	T09 Historic Preservation; T12 Landscape and Site
	all projects	MIT-modified specifications for site and landscape	Div 01 General Requirements; Div 31 Earthworks; Div 32 Site Improvements
	all projects	Guidance and standards for MIT building design and building systems	MIT Design Standards: All

Endnotes

1 MIT, Fast Forward Climate Action Plan for the Decade, 2021

2 City of Cambridge, 2017

3 Resilient Cambridge Plan, 2021, referencing findings from Massachusetts Coast Flood Risk Model (MC-FRM v.11)

4 City of Boston, Coastal Resilience Project Tracker. Accessed May 2026. (https://www.boston.gov/departments/climate-resilience/coastal-resilience-implementation)

5 RISQ Team (Resilience Implementation Subgroup Quarterly), established in 2026, is a group of operational leaders representing multiple MIT departments who meet quarterly to coordinate campus adaptation actions. The RISQ Team is co-facilitated by MIT Office of Sustainability and Office of Emergency Management.

6 City of Cambridge, 22.80 Flood Resilience Standards: Resilience Flood Elevations Regulations, adopted September 1, 2023.

7 MIT Climate Resilience Committee was established in 2016 to identify campus risks and mitigation strategies for adapting to heat and flood risks. The Committee includes representatives from across MIT functions including faculty, research, residential life, students, and Campus Services and Stewardship.

8 IPCC, 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-33, doi:10.1017/9781009325844.001.

9 Jay, A.K., A.R. Crimmins, C.W. Avery, T.A. Dahl, R.S. Dodder, B.D. Hamlington, A. Lustig, K. Marvel, P.A. Méndez-Lazaro, M.S. Osler, A. Terando, E.S. Weeks, and A. Zycherman, 2023: Ch. 1. Overview: Understanding risks, impacts, and responses. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023.CH1. https://nca5.climate.us/

10 City of Cambridge, Resilient Cambridge, 2021

11 Commonwealth of Massachusetts, ResilientMass, 2023

12 MIT Climate Resilience Planning: Flood Vulnerability Study. Strzepek, K., C. Fant, M. Preston, K. Emanuel and B. Goldberg (2018). Joint Program Report Series.

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