



The Pontificate of Pope Francis articulated the moral framework needed to tackle our climate crisis: “The climate is a common good, belonging to all and meant for all.” Plagued by slow progress in subsequent years, the Holy Father warned us when he gathered us in the Vatican Gardens for the From Climate Crisis to Climate Resilience Summit in 2023, saying, “With the passage of time, I have realized that our responses have not been adequate, while the world in which we live is collapsing and may be nearing the breaking point.”

Heeding this call, the Pontifical Academy of Sciences and Pontifical Academy of Social Sciences developed a global, bottom-up approach to climate resilience. Relying upon local leaders - mayors and governors - who most acutely understand the urgency of climate resilience, we are weaving together a global network for best practices, implementation measures, and translational research to protect “our common home.”

Under Governor Maura Healey, Massachusetts is pioneering the Global Movement for Climate Change Resilience. The Planetary Call to Action for Climate Change Resilience—co-authored by UMass Boston Chancellor Suárez-Orozco, climate scientist Ram Ramanathan, Pontifical Academy of Sciences President Joachim von Braun, and America’s first state Climate Chief, Melissa Hoffer—committed leadership to address the climate crisis urgently and proactively. Building on efforts in Massachusetts, particularly the statewide hazard mitigation and climate adaptation plan adopted by Governor Healey in 2023, the ResilientMass summit provided a historic convening focused on climate resilience in the spirit of leadership and commitment to protect our common home. Sharply focused on shaping a resilient future and catalyzing a global movement of climate resilience, we engaged stakeholders from local leaders to policymakers and government officials locally, nationally, and internationally.

The MAST strategy, which emphasizes Mitigation, Adaptation, and Social Transformation, is the foundational principle for all regional summits. The ResilientMass Summit was a launching point for the remaining regional summits scheduled for 2025 and 2026. As with all regional summits, the areas of focus at the ResilientMass Summit included:

1. **Regional Contexts:** Tailor solutions to each region's unique climate challenges, socio-economic and cultural contexts, innovative approaches, and efforts to advance coordination and collaboration among cities and towns.
2. **Community Engagement:** Engage local communities, Indigenous leaders, business and nonprofit leaders, academic institutions, faith leaders, and regional stakeholders in discussions and decision-making.
3. **Global Collaboration:** Foster subnational cooperation and knowledge sharing to develop effective, scalable climate solutions.
4. **Nature-Based Solutions:** Emphasize integrating and resilience enhancing trade, and nature-based and scientific solutions to avoid costly future climate damages by mitigating flood and heat risk, capturing and storing forest, soil, and wetland carbon dioxide, improving health outcomes, preserving critical ecosystem functions, and enhancing ecosystem resilience.
5. **Unlocking Finance:** Accelerate climatech R&D focused on resilience solutions. Discuss research, return on investment, and innovative approaches to funding and financing key resilience needs.
6. **Insurance:** Strengthen partnerships with the insurance sector to promote resilience investments that will protect property and better ensure a solvent insurance market; explore regulatory options to encourage greater risk disclosure and pricing of risk.
7. **Equity and Justice:** Ensure that all summits prioritize equity and the protection of the poor and most vulnerable populations, including children and youth, by addressing the disproportionate impacts of climate change on marginalized communities and incorporating diverse perspectives in climate planning.

A central theme of the ResilientMass summit was to showcase an integrated, all-of-government approach to building climate resilience that has been successfully implemented in Massachusetts, offering a blueprint for other states and cities worldwide.

Massachusetts has improved efficiency and performance in public health, transportation, housing, and economic development by fostering collaboration among government agencies to enhance resilience. Aligning housing and transportation objectives with resiliency is critical for developing sustainable, transit-oriented multifamily housing near public transportation.

Extreme weather events highlight the need for insurance protection. The Division of Insurance collaborates with insurers to address evolving needs and the impacts of extreme weather on insurance markets. Financing climate resilience requires public-private capital and should be seen as an investment to prevent economic downturns and preserve property values. Communities must prioritize resilience investments,

focusing on urgent needs, while public-private partnerships and local collaboration are essential for long-term success.

Local communities play a key role in decision-making on land use and resilience planning to ensure cohesive outcomes. A bottom-up approach is necessary to avoid fragmented projects, and modeling future climate risks can attract capital by demonstrating the value of proactive investments.

Massachusetts' blueprint focuses on aligning resources and creating funding mechanisms to support the actions and policies needed to achieve the state's resiliency goals.

Massachusetts plans a sea level rise of up to 2.5 feet by 2050 if global emissions are not significantly reduced. Both tidal and storm-related flooding are expected to increase. By 2070, coastal flooding is anticipated to cause over \$52 million in annual damage to state-owned coastal properties, a 550% increase from 2023. Approximately 43% of the Commonwealth's population lives in coastal communities, with populations expected to grow. Coastal salt marshes provide vital ecosystem services, including wildlife habitat, storm buffering, and carbon capture. The Commonwealth is projected to lose 250 acres of salt marsh by 2030 and over 24,000 acres by 2100. Currently, annual damage to coastal buildings in Massachusetts is approximately \$185 million. This damage is expected to nearly double by 2030 due to changes in sea level and storm surge.

By 2070, Massachusetts could experience 12%–42% more winter precipitation. Flood damage costs are expected to rise by \$9.3 million annually by 2030. Over 400,000 residents live in FEMA flood zones, where intense precipitation and flooding increase sediment delivery, nutrient loads, contaminants, and riverbed scouring, threatening freshwater ecosystems

By 2050, Massachusetts is expected to see annual temperatures rise by 5.9 to 7.9°F, resulting in 23 to 29 high heat days yearly. Extreme heat could increase transportation infrastructure maintenance costs by over \$140 million annually by the century's end. Nineteen premature deaths are currently linked to extreme heat annually, with up to 400 additional deaths projected by 2100 if no action is taken. The Massachusetts Department of Public Health is addressing heat risks, health impacts, and rising youth anxiety from climate issues. Forest ecosystems, vital for carbon sequestration and water filtration, face threats from rising temperatures. Rail repair costs due to heat are projected to rise by \$6 million by 2050 and \$35 million by 2100.

Massachusetts is framed by over 1,500 miles of coastline to the east and the Appalachian Mountains to the west, with more than half of the state's land area covered by forest. As a geographically diverse state with ecosystems that include the Atlantic Ocean, wetlands, salt marshes, forests, working farms, and urban parks, Massachusetts presents all the resilience challenges and opportunities faced by regions worldwide.

The ResilientMass Summit showed the Commonwealth is uniquely positioned to tackle the most pressing climate-related challenges, including but not limited to:

Whole of Government

- Implement cross-agency resilience programs for critical services like health, transportation, and housing.
- State regulators must assess evolving needs and monitor extreme events' impacts on insurance markets.

Finance and Investment Strategy

- Develop investment strategies to support local resilience plans.
- Treat resilience as an investment with returns funding further efforts, emphasizing self-sufficiency, community empowerment, and alignment across sectors.

Innovative Climate Resilience Solutions

- Extreme weather transcends borders, requiring collaboration among officials, policymakers, advocates, and communities.
- Data-driven, community-inclusive processes are crucial for local support and resilience outcomes.

Global-Local Collaboration

- Global stakeholders must address resilience in areas least responsible for emissions.
- Local governments implement solutions and share scalable practices globally.
- AI supports resilience through deforestation monitoring, species tracking, water management, and precision agriculture.

Coastal Resilience

- Social transformation drives resilience; data-driven solutions are key at local levels.
- Identify nature-based solutions like living seawalls and greenspaces.

Climate and Health

- Address immediate and long-term health impacts of climate issues like heat, air pollution, and food insecurity.
- Engage communities in green initiatives to foster social change.

Inland Flooding Resilience

- Use flood modeling, regional collaboration, flexible infrastructure design, and effective communication to enhance resilience.
- Overcome funding and permitting challenges through innovation and collaboration.

Nature-Based Solutions

- Conserve and restore natural resources to complement engineering approaches against climate threats like flooding or heat islands.
- Promote equity by increasing greenspaces, biodiversity, and carbon sequestration.



Lessons from Disasters

- Cities must integrate resilience into land use planning to prepare for high-impact weather events.
- Community support is vital for displaced individuals during extreme events.

Resilience Playbook for Cities

- State governments provide tailored plans to transition from planning to action with proven strategies.

Climate-Ready Workforce

- Create career pathways through apprenticeships and co-ops for low-income individuals.
- Foster public-private partnerships to drive innovation.

Youth Engagement

- Education fosters change through local projects and systemic shifts.
- Combine nature-based education with youth involvement for environmental justice.

Indigenous Stewardship

- Indigenous communities integrate cultural and environmental resilience through land reclamation and education initiatives.

Science and Innovation in Resilience Tech

- Technology enhances preparedness with energy storage, environmental monitoring, and secure data-sharing platforms.
- Collaboration among stakeholders addresses climate adaptation challenges.

As Massachusetts advances its resiliency efforts, it will do so while considering the Holy Father's words: "We must never forget that the natural environment is a collective good, the patrimony of all humanity, and the responsibility of everyone."

