"ResilientMass Metrics" - All ResilientMass Priority Metrics

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	Groupings of goals, indicators, and metrics that address similar themes	*Describe what a Massachusetts resilient to climate change would look like; highlight priority impacts that need to be addressed in order to succeed*	*Statements that could point to (indicate) success or progress ; often includes a direction (e.g., more/less, increased/decreased)*	*Measurable (quantitatively) or trackable (qualitatively) outcomes that represent an indicator (or multiple indicators)*	*Agencies presently assumed to conduct work or track data related to the metric;. Will need to be confirmed.*	*How often metric would be reported; Will need to be confirmed.*	*See "bin" descriptions on README sheet*	*This column identifies the year the metric was approved as a priority metric and added to the list.*
4	Government Systems and Services	The government is able to minimize interruptions to the services it provides amid threats from coastal and inland flooding, storms, wind, and extreme heat.	SERVICE CONTINUITY: State government services experience minimal disruptions and losses from climate change and extreme events	**% of state agencies with up-to-date "Continuity of Operations Plans"**	MEMA, all agencies involved	annually (once 100% of agencies, check periodically)	Currently being tracked	2024
7	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT PLANNING CAPACITY: Increased availability of personnel to plan and implement climate-resilience projects across all regions and communities, at the state and local levels	**Number of communities with updated MVP 2.0 or Hazard Mitigation Plans (HMPs)**	EOEEA MVP Program; EOPPS MEMA Mitigation Unit, DER	annually	Climate report card	2024
8	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT SERVICE CAPACITY: Increased availability of state government resources to meet increased demand for all government services due to climate change*	**Number of state agencies with climate vulnerability assessments of assets and operations**	EEA, all agencies involved	every 5 years	Climate report card	2024
9	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT SERVICE CAPACITY: Increased availability of state government resources to meet increased demand for all government services due to climate change*	**Amount of federal and state resilience funding**	EEA, all agencies involved	annually	Climate report card	2024
10	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT SERVICE CAPACITY: Increased availability of state government resources to meet increased demand for all government services due to climate change*	**Percent of 2023 ResilientMass Plan actions in progress or complete**	EEA, all agencies involved	annually	Climate report card	2024
11	Government Systems and Services	State-owned buildings, facilities*, and assets as well as key facilities used in partnership with the state or local governments) are resilient to coastal flooding, inland flooding, wind, extreme heat, and extreme storms.	GOVERNMENT FACILITIES SAFETY: State government facilities experience minimal damages from climate change and extreme events due to climate-safe design standards, operational practices and siting decisions	**% of new state facility construction projects that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**	MEPA, EEA, DOT, DOER, MBTA	every 5 years	Prioritized for Development	2024
14	Government Systems and Services	State-owned buildings, facilities*, and assets as well as key facilities used in partnership with the state or local governments) are resilient to coastal flooding, inland flooding, wind, extreme heat, and extreme storms.	CLIMATE-SAFE STATE FACILITIES INVESTMENT: Increasing portion of State infrastructure project designs that account for future climate change	**$ of state funding for state facility resilience improvements**	EEA, DCAMM	annually	Prioritized for Development	2024

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18	Government Systems and Services	Emergency planning at the state and municipal level accounts for climate change-driven extremes, including changes in frequency, intensity of events, and the possible occurrence of serial and compound events.	LOCAL EMERGENCY READINESS: More communities have trained Certified Emergency Response Teams (CERTs) available to assist in extreme events	**% of municipalities covered by Community Emergency Response Teams (CERTs) registered with FEMA that have participated in a training with MEMA in the last two years**	MEMA	annually	Currently being tracked	2024
25	Food and Water Security	Food distribution networks provide uninterrupted access to healthy foods, even during extreme weather events and climate-driven supply chain disruptions.	RELIABLE FOOD ACCESS: More reliable food access during extreme events	**Amount of state funding for climate resilient food distribution systems**	MVP, BCHAP, MDAR, DFW, DMF	annually	Climate report card	2024
30	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	FOOD SAFETY: Decreased infections from food-born illnesses (e.g., vibriosis) that are sensitive to climate change.*	**# of foodborne illnesses from shellfish due to warming**	DPH, DMF	every 5 years	Prioritized for Development	2024
33	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	LOCAL FOOD SOURCING: Increase proportion of diets coming from locally grown food sources*	**Acres of land protected for agricultural use**	EOEEA, MDAR	annually	Currently being tracked	2024
38	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	SUFFICIENT PUBLIC WATER SUPPLIES: Increased or maintained buffer between water used and water available in public surface water supplies	**# (or %) of municipalities with up-to-date water supply protection plans (incl. drought plans, protection against contamination)**	DEP DWP (Drinking Water Program), DCR	every 5 years	Prioritized for Development	2024
41	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	WATER QUALITY MAINTENANCE: Decreased impacts of harmful algal blooms and other water quality issues worsened by climate change at water supply sources	**Acres of drinking water supply watersheds protected through state programs**	EOEEA DCS	annually	Climate report card	2024
43	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	WATER QUALITY MAINTENANCE: Decreased impacts of harmful algal blooms and other water quality issues worsened by climate change at water supply sources	**# of public health advisories in public water supplies attributed to harmful algal blooms**	DEP	annually	Prioritized for Development	2024
48	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**% of state-aided housing developments, identified as highly vulnerable to multiple climate hazards, that have received climate resilience funding**	HLC, DCAMM(?)	annually	Climate report card	2024

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51	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	DECARBONIZED HOUSING: More housing is retrofitted or built to maintain safe conditions with minimized energy use.	**# of residential heat pump installations (annual and cumulative)**	Mass Save	annually	CRC-Decarb	2024
53	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	DECARBONIZED HOUSING: More housing is retrofitted or built to maintain safe conditions with minimized energy use.	**# of residential energy audits and weatherization projects (annual and cumulative)**	Mass Save	annually	CRC-Decarb	2024
61	Infrastructure	Communities are prepared to support new residents relocating to areas with fewer climate risks or driven from their homes by climate disasters, and both existing and new residents feel supported.	CLIMATE MIGRATION PLANNING: Increased comprehensive planning for potential population fluctuations driven by climate change (inmigration and outmigration)	**% of local hazard mitigation plans, comprehensive plans, and/or climate action plans that consider the potential for population changes driven by climate change (in/outmigration)**	MEMA, MVP/EEA, municipal/regional planning staff	every 5 years	Prioritized for Development	2024
65	Health	People are safe and healthy during extreme heat events.	HEAT MORBIDITY: Fewer cases of illness linked to extreme heat events	**Number of emergency department visits and hospitalizations attributable to extreme heat (normalized to the number of events/year and population)**	DPH	annually	Prioritized for Development	2024
66	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**$ for projects that focus on reducing negative extreme heat health outcomes**	MVP, DPH, MEMA	annually	Prioritized for Development	2024
67	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**# and % of relevant projects requiring MEPA review that implement best practices for climate resilience solutions for heat**	MEPA	every 5 years	Prioritized for Development	2024
69	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**Percent of population with public outdoor recreation opportunities for cooling within half mile of home**	DCR	annually	Climate report card	2024
70	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**# of shade structures (including tree plantings) implemented in areas scoring high in the DCR's Shade Suitability Assessment (e.g. in EJ communities, in areas with low existing canopy cover)**	DCR	every 5 years	Prioritized for Development	2024

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71	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**% of MA residents who report having a cool space they are comfortable using (public or private) during the day and during the night**	DCR, DCS, MOOR	every 5 years	Prioritized for Development	2024
73	Health	People are safe and healthy during extreme heat events.	PUBLIC HEAT AWARENESS: Increased awareness of heat events and education to caregivers (e.g. parents and guardians, camp counselors, coaches, teachers) about signs and treatment of heat-related illness.	**# of state employees and local health officials who complete climate and health trainings from DPH**	DPH	annually	Currently being tracked	2024
75	Health	People are safe and healthy during extreme heat events.	CLASSROOM HEAT SAFETY: Increase in the number of schools (K-12), colleges and university that are designed and equipped to provide safe temperatures for students and teachers	**% of public K-12 schools with low-emission cooling systems (including back-up power, passive functionality etc.)**	EOE, MA School Building Authority	every 5 years	Prioritized for Development	2024
79	Health	People are safe and healthy during extreme heat events.	WORKER HEAT SAFETY: Decrease in the incidence of job-related illness and injuries during extreme heat events.	**# of worker injuries and illnesses occurring during extreme heat events (normalized to the number of events/year and population)**	DPH, MDAR	annually	Prioritized for Development	2024
81	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT MORBIDITY: Fewer emergency department visits during flooding, storms, and related power outages.	**# of morbidity incidences (injuries, diseases) attributable to a specific flood and storm event (normalized to the number of events/year and population)**	DPH	annually	Prioritized for Development	2024
89	Health	People are safe from and healthy during climate-driven air quality events, like wildfire smoke, allergens, and general pollution that is made worse by climate change (for example, faster ozone formation with warmer temperatures and less frequent flushing of particulate matter with changing precipitation patterns).	AIR QUALITY MAINTENANCE: Decreased exposure to poor air quality (made worse by climate change)	**$ state funding toward improving school ventilation and air quality**	DESE	every 5 years	Currently being tracked	2024
96	Economy	Local agriculture, forestry, marine fisheries, and aquaculture industries remain productive in the face of climate threats to support the local economy and food security.	CONTINUITY OF NATURAL RESOURCE ECONOMIES: Minimized losses from climate stressors for all natural resource-based local businesses	**$ of loss to farms per drought event (defined by the Palmer Drought Severity Index (PDSI)) and flood event (2 or more inches in 24 hours)**	MDAR	every 5 years	Currently being tracked	2024

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98	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	GENERAL BUSINESS CONTINUITY: Massachusetts businesses experience minimal disruptions and damages from climate change and extreme events	**$ of state funding for climate resilience improvements for businesses**	A&F, DLS, MVP, DPH, EOED, MassDev, MOBD	annually	Prioritized for Development	2024
104	Economy	Local workforces are skilled and trained to implement resilience projects and initiatives.	PROFESSIONAL TRAININGS: Increase in the quantity and diversity of professional trainings for climate resilience jobs	**# of workers trained in climate resilience-related skills via MassHire programs and other relevant state agency initiatives**	DLS (MassHire), EOED, DEP, MVP, EORI, EOE, OEJE, DFG, EEA (MassCEC)	annually	Prioritized for Development	2024
106	Economy	Local workforces are skilled and trained to implement resilience projects and initiatives.	CLIMATE-RESILIENCE JOBS: Increase in the number of people employed in businesses supporting climate resilience	**# of jobs supporting climate resilience (e.g. jobs specific to climate adaptation research, development, and product manufacturing, and adaptation equity, etc.) (direct, indirect, and induced)**	EOED, EEA (MassCEC), DLS (MassHire), DFG (BioEO)	every 5 years	Prioritized for Development	2024
107	Infrastructure	All infrastructure development minimizes impacts on the natural environment and incorporates nature-based solutions to protect and enhance the climate resilience-building qualities of the natural environment.	NATURE-BASED SOLUTIONS: Increasing proportion of development and resilience solutions include nature-based solutions	**$ of state funding for projects that include implementing nature-based solutions (NbS) for resilience**	DEP, DER, CZM, MVP, DCR, MDAR, DCAMM, MEMA, DFW, DFG	annually	Prioritized for Development	2024
110	Infrastructure	Critical facilities such as hospitals, fire and police stations, resilience hubs, and shelters, are protected from flooding and other climate hazards, are accessible, and remain functional during extreme events.	RELIABLE CRITICAL FACILITIES AND SERVICES: Decreased damage to critical infrastructure from extreme events due to climate-safe design standards, operational practices and siting decisions, and decreased related service interruptions	**% of new and existing critical facilities with backup electricity supplies**	MEMA	every 5 years	Prioritized for Development	2024
113	Infrastructure	Critical facilities such as hospitals, fire and police stations, resilience hubs, and shelters, are protected from flooding and other climate hazards, are accessible, and remain functional during extreme events.	RELIABLE CRITICAL FACILITIES AND SERVICES: Decreased damage to critical infrastructure from extreme events due to climate-safe design standards, operational practices and siting decisions, and decreased related service interruptions	**% of new and existing critical infrastructure facilities that consider projected flooding, heat, wildfire, drought, and wind risks throughout the project's lifespan.**	MEPA, EEA, MVP, DOT, MBTA, DPU, CZM, DOER, EOPSS, MEMA	every 5 years	Prioritized for Development	2024
116	Infrastructure	Ports experience minimal infrastructure damage and minimal closures due to sea level rise, coastal erosion, and storm surge, as well as high wind events from tropical and ex-tra-tropical storms.	CLIMATE-SAFE PORT INFRASTRUCTURE INVESTMENT: Increasing funding for port-related infrastructure projects that account for future climate change	**$ of state funding for resilience improvements for port operators, port business suppliers, and other port-related businesses**	A&F, CZM, MVP, EOED, DEP	annually	Prioritized for Development	2024

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119	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**# of hours of weather-related transit service disruprtion (average per event and cumulatively per year)**	DOT, MBTA	annually	Prioritized for Development	2024
120.2	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**Amount of capital funds for MBTA projects with resilience benefits**	MBTA	annually	Climate report card	2024
121	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**% of public transit and rail organizations (Regional Transit Authorities, Amtrak etc.) that have completed systemwide resilience assessments and plans**	MBTA, DOT, Regional transit authorities	annually (until complete, then every time there is an updated one)	Prioritized for Development	2024
129	Infrastructure	Reliable and affordable electricity access, and minimal repair costs to the Commonwealth, related to damages caused by extreme events that directly affect the transmission and distribution system and demand surges during high temperatures.	RELIABLE ELECTRICITY: Reduced frequency and duration of weather-related electricity outage events due to climate-safe design standards, operational practices and siting decisions	**Average annual weather-related electricity outages, measured with the System Average Interruption Duration Index (SAIDI)**	DPU	annually	Prioritized for Development	2024
135	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	ROAD SAFETY AND RELIABILITY: Minimal disruption to transportation routes (roads), bridges, and supporting infrastructure from climate-driven extreme events	**# of stream crossings built to resilient standards based on the State Hydraulic Model**	Likely DEP, DFG, DER, CZM, DOT, UMass Amherst, USGS	every 5 years	Prioritized for Development	2024
137	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	CLIMATE-SAFE ROAD INFRASTRUCTURE INVESTMENT: Increasing funding for transportation-related infrastructure projects that account for future climate change	**$ of state funding for climate-resilient road infrastructure**	A&F, DOT, CZM, DEP, DPH, DFG, MVP	annually	Prioritized for Development	2024

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138	Infrastructure	Water and wastewater treatment infrastructure are resilient to flood damage and drinking water supply sources remain affordable and protected from bacteria (surface water), saltwater intrusion (groundwater), and drought (both).	CLIMATE-SAFE WATER INFRASTRUCTURE INVESTMENT: Increasing funding for water treatment-related infrastructure projects that account for future climate change	**$ of state funding for making drinking and waste water treatment infrastructure climate-resilient**	MVP, CZM, MEMA	annually	Currently being tracked	2024
138.2	Infrastructure	Dams and Culverts	RESILIENT DAMS & CULVERTS: Increased capacity for dams and culverts.	**$ awarded/budgeted for dam maintenance, repair, or removal that support climate resilience**	MVP, MassWildlife/DFW; EEA/Resilient MA Dam Grants; additional technical assistance (EEA); DCR ; DER; MEMA	annually	Currently being tracked	2024
140	Infrastructure	Water and wastewater treatment infrastructure are resilient to flood damage and drinking water supply sources remain affordable and protected from bacteria (surface water), saltwater intrusion (groundwater), and drought (both).	RELIABLE WATER TREATMENT: Fewer treatment plants are located in high-risk areas, and/or protected against climate-driven extremes	**% of new and existing water and wastewater treatment plants that consider projected flooding, heat, wildfire, and drought, wind risks throughout the project's lifespan.**	MEPA, DEP, CZM, DPU, MVP	every 5 years	Prioritized for Development	2024
145	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	ENGAGEMENT ACCESSIBILITY: Increased accessibility (e.g., location, timing, and all other accommodations) of resilience planning meetings	**% of public meetings, listening sessions, and hearings regarding climate resilience held in EJ communities for projects impacting EJ communities**	OEJE, MEPA, all agencies	annually	Prioritized for Development	2024
153	Environmental Justice, Equity, and Collaboration	Strong community relationships and organizational networks provide resources and support day-to-day and in climate-related emergencies.	COMMUNITY NETWORK PARTICIPATION: More people belong to a community network they trust and would turn to before, during, and after extreme weather-related events	**Number of community members being compensated for their efforts through resilience grant programs.**	MVP, CZM	annually	Prioritized for Development	2024
155	Environmental Justice, Equity, and Collaboration	Strong community relationships and organizational networks provide resources and support day-to-day and in climate-related emergencies.	COMMUNITY NETWORK PARTICIPATION: More people belong to a community network they trust and would turn to before, during, and after extreme weather-related events	**# of Community-Based Organizations (CBOs) that received state/EEA grants for climate resilience and % of CBOs receiving climate resilience funding that operate in areas with EJ populations (as defined by the 2021 Climate Act)**	OEJE, EEA (MVP, CZM) EOHLC, MassDevelopment (potentially), MEPA (potentially), all agencies	every 5 years	Prioritized for Development	2024
162	Environmental Justice, Equity, and Collaboration	State, Tribal, and local partnerships create a diverse network with robust capacity that shares resources and best practices for climate resilience initiatives and implement regional solutions.	JOINT MVP APPLICATIONS: More regional/joint applications for MVP grants	**% of MVP planning and action grants and Coastal Resilience Grants that are regional/joint.**	MVP, CZM	annually	Currently being tracked	2024

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163	Environmental Justice, Equity, and Collaboration	Climate resilience funding, and the benefits of climate resilience investment, is equitably distributed.	EQUITABLE FUNDING: Equitable funding for resilience going to priority populations	**% of state resilience funding to Environmental Justice Populations and Other Priority Populations**	EOEEA - MVP, OEJE, CZM	annually	Currently being tracked	2024
169	Environmental Justice, Equity, and Collaboration	The inequitable distribution of climate impacts is reduced.	EQUITABLE CLIMATE BURDEN: Reduced inequitable burden of climate change across all tracked impacts (as measured for other indicators in this framework)	**$, #, and/or % of (a) all households statewide and (b) environmental justice and priority population groups who report they are experiencing (for example):** **Health and labor impacts:** **-Unable to get to work or school due to weather** **-Health impacts due to climate change and extreme events** **-Business disruptions** **Problems with housing:** **-Loss and damages to homes, affordability of safe homes** **-Affordable energy costs** **Food insecurity:** **-Trouble paying for food**	DPH, MVP, OEJE	every 5 years	Prioritized for Development	2024
170	Environmental Justice, Equity, and Collaboration	Climate resilience solutions are based on science and Traditional Ecological Knowledge (TEK) or Indigenous Knowledge (IK)-informed decision-making.	RESTORATIVE JUSTICE IN RESPECT FOR IK/TEK: Increase in the proportion of climate resilience planning efforts that respectfully invite and integrate IK/TEK	**% of state-agency and state-funded resilience projects that incorporate or are based on traditional ecological knowledge (i.e., the evolving knowledge acquired by indigenous and local peoples over hundreds or thousands of years through direct contact with the environment)**	OEJE, all agencies	every 5 years	Prioritized for Development	2024
172	Environmental Justice, Equity, and Collaboration	Climate resilience solutions are based on science and Traditional Ecological Knowledge (TEK)-informed decision-making.	KNOWLEDGE PARTNERSHIPS: Increase in the collaboration between scientists and Indigenous wisdom holders to support climate resilience planning and decisions with integrated knowledge	**Number of resilience projects conducted in collaboration with Tribal Nations and Tribally serving (Native serving) organizations**	MVP, CZM, EmPower, DCR, DFW, MEMA, DER, DFG	annually	Climate report card	2024
177	Natural Environment	Everyone has safe and easy access to public green space, tree cover, aquatic recreational areas, and natural open space.	URBAN GREEN SPACE: Increase in urban green space and tree cover	**Percent tree canopy cover within developed areas**	EEA	annually	Climate report card	2024

"ResilientMass Metrics" - All ResilientMass Priority Metrics

All metrics Currently Being Tracked (including Climate Report Card) and Prioritized for Development.

#	SECTOR	GOAL	INDICATOR	METRIC	CONTRIBUTING AGENCIES	UPDATE FREQUENCY	PRIORITY BIN	YEAR APPROVED AS PRIORITY METRIC
	Groupings of goals, indicators, and metrics that address similar themes	*Describe what a Massachusetts resilient to climate change would look like; highlight priority impacts that need to be addressed in order to succeed*	*Statements that could point to (indicate) success or progress ; often includes a direction (e.g., more/less, increased/decreased)*	*Measurable (quantitatively) or trackable (qualitatively) outcomes that represent an indicator (or multiple indicators)*	*Agencies presently assumed to conduct work or track data related to the metric;. Will need to be confirmed.*	*How often metric would be reported; Will need to be confirmed.*	*See "bin" descriptions on README sheet*	*This column identifies the year the metric was approved as a priority metric and added to the list.*
180	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that the habitats are more resilient to climate change stressors	**% change in impervious cover and acres of reduction**	DCR	every 5 years	Currently being tracked	2024
182	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that the habitats are more resilient to climate change stressors	**% of freshwater wetlands, streams, other freshwater habitats protected or restored added/year**	DFG/DER; DFW/DFG; DEP; MVP	every 5 years	Prioritized for Development	2024
184	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Progress toward state biodiversity goals for freshwater species (Phase, state of completion)**	DFG	variable	Prioritized for Development	2024
186	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT AVAILABILITY: Maintained and increased area of healthy coastal habitats (e.g., salt marsh, beaches, dunes, swamps)	**# of acres of coastal habitat and resources protected and restored (acres or % protected and increased/year)**	DCR, DER, CZM, DFW, DFG	annually	Currently being tracked	2024
189	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**# of combined sewer overflow events in inland and coastal areas (normalized by precipitation events)**	DEP	annually	Prioritized for Development	2024
191	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**# of acres of land acquired and/or protected for saltmarsh migration with state funding**	DCR, CZM, DFW, DFG, DEP	every 5 years	Currently being tracked	2024

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195	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST HABITAT QUALITY: Maintained or improved forest and urban forest habitat quality including through (but not limited to) reforestation, species management etc.	**# of total acres (and acres increase/year) of connected forested areas (per UMass Amherst Critical Linkages Conservation Assessment and Prioritization System or BioMap)**	DFG/DFW (MassWildlife), DCR	every 5 years	Prioritized for Development	2024
197	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST AND OTHER INLAND HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**# of acres of land acquired by Tribal Nations using state funding and/or returned to Tribal Nations from state ownership, for purposes of land management using traditional methods**	DCR, MVP	every 5 years	Currently being tracked	2024
198	Infrastructure	All infrastructure development minimizes impacts on the natural environment and incorporates nature-based solutions to protect and enhance the climate resilience-building qualities of the natural environment.	NATURE-BASED SOLUTIONS: Increasing proportion of development and resilience solutions include nature-based solutions	**# of nature-based solutions (NbS) projects implemented through MA grant programs**	DEP, DER, CZM, MVP, DCR, MDAR, DCAMM, MEMA, DFW, DFG	every 5 years	Prioritized for Development	2024
202	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST HABITAT AVAILABILITY: Maintained or improved forest and urban forest habitat	**Natural and working lands conserved, expressed as area and percent of MA**	MDAR, DCS, DEP, EEA	annually	CRC-Decarb	2024
203	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST HABITAT AVAILABILITY: Maintained or improved forest and urban forest habitat	**Natural and working land area and forest land area**	MDAR, DCS, DEP, EEA	annually	CRC-Decarb	2024
204	[Placeholder for wildfire metric]	[Placeholder for wildfire metric]	[Placeholder for wildfire metric]	**[Placeholder for wildfire metric]**	TBD	TBD	Prioritized for Development	2024
205	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT SERVICE CAPACITY: Increased availability of state government resources to meet increased demand for all government services due to climate change*	**Total resilience investment**	TBD	TBD	Prioritized for Development	2024

Metrics for Futher Consideration

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5	Government Systems and Services	The government is able to minimize interruptions to the services it provides amid threats from coastal and inland flooding, storms, wind, and extreme heat.	SERVICE CONTINUITY: State government services experience minimal disruptions and losses from climate change and extreme events	**$ of state funding for municipal facilities to mitigate climate risks**		annually	Outcome-oriented (gap-filling)	2024
6	Government Systems and Services	The government has enough capacity to meet the increase in demand for infrastructure maintenance, public health resources, and emergency services caused by climate stressors.	GOVERNMENT PLANNING CAPACITY: Increased availability of personnel to plan and implement climate-resilience projects across all regions and communities, at the state and local levels	**# of positions at the state and municipal level with "climate resilience,", "climate adaptation", or "climate preparedness" in job description**		every 5 years	Outcome-oriented (gap-filling)	2024
12	Government Systems and Services	State-owned buildings, facilities*, and assets as well as key facilities used in partnership with the state or local governments) are resilient to coastal flooding, inland flooding, wind, extreme heat, and extreme storms.	GOVERNMENT FACILITIES SAFETY: State government facilities experience minimal damages from climate change and extreme events due to climate-safe design standards, operational practices and siting decisions	**% of existing state facilities with "low" inland and coastal flood risk**		every 5 years	Context Information	2024
13	Government Systems and Services	State-owned buildings, facilities*, and assets as well as key facilities used in partnership with the state or local governments) are resilient to coastal flooding, inland flooding, wind, extreme heat, and extreme storms.	GOVERNMENT FACILITIES SAFETY: State government facilities experience minimal damages from climate change and extreme events due to climate-safe design standards, operational practices and siting decisions	**$ of damage to state facilities (normalized by # of extreme weather events)**		every 5 years	Agency-specific management relevance	2024
15	Government Systems and Services	State revenue streams remain stable through property tax loss following structure damage from any hazard (particularly sea level rise), and income and sales tax losses associated with climate impacts on local economies.*	REVENUE STREAMS: Increased diversification of state revenue base in climate-impacted regions*	**Key climate-sensitive local and state revenue streams (sales, property, and income taxes) can be compensated for through alternative or additional revenue streams (% decrease due to impacts is matched by % increase from another source)**	Unknown	every 5 years	Action Toward Goal not Begun	2024
16	Government Systems and Services	State revenue streams remain stable through property tax loss following structure damage from any hazard (particularly sea level rise), and income and sales tax losses associated with climate impacts on local economies.*	REVENUE STREAMS: Increased diversification of state revenue base in climate-impacted regions*	**Assessment of climate risk on state revenues (not started, in progress, completed)**	Unknown	every 5 years	Action Toward Goal not Begun	2024

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17	Government Systems and Services	Emergency planning at the state and municipal level accounts for climate change-driven extremes, including changes in frequency, intensity of events, and the possible occurrence of serial and compound events.	COMPREHENSIVE EMERGENCY PLANNING: Increase in emergency planning efforts that address simultaneous, serial and/or compounding extreme climate events	**$ of state and federal support to municipalities for climate change-related emergency preparedness**		annually	Context Information	2024
19	Government Systems and Services	Emergency planning at the state and municipal level accounts for climate change-driven extremes, including changes in frequency, intensity of events, and the possible occurrence of serial and compound events.	LOCAL EMERGENCY READINESS: More communities have trained Certified Emergency Response Teams (CERTs) available to assist in extreme events	**# of state and municipal trainings that practice for simultaneous, serial, and compound weather-related events**		annually	Quality-based	2024
20	Government Systems and Services	Emergency planning at the state and municipal level accounts for climate change-driven extremes, including changes in frequency, intensity of events, and the possible occurrence of serial and compound events.	INFORMAL COMMUNITY HUBS: More support from the state to maintain community hubs that provide informal communication, coordination and emergency support	**$ from state to support CBO/NGO managed resilience hubs**	Unknown	annually	Action Toward Goal not Begun	2024
21	Government Systems and Services	Emergency service providers are able to respond in a timely manner and people are able to safely evacuate from high-risk areas, even during extreme storms, wildfires, and flooding events.	ESCAPE TIME: Reduced travel times out of high-risk flood areas and wildfire zones	**Average travel time from warning delivered to exiting the area under evacuation order**	Unknown	every 5 years	Action Toward Goal not Begun	2024
22	Government Systems and Services	Emergency service providers are able to respond in a timely manner and people are able to safely evacuate from high-risk areas, even during extreme storms, wildfires, and flooding events.	ESCAPE TIME: Reduced travel times out of high-risk flood areas and wildfire zones	**Development of tracking system to monitor average escape times during evacuation orders (not begun, in planning/development, in implementation, completed)**	Unknown	every 5 years	Action Toward Goal not Begun	2024
23	Government Systems and Services	Emergency service providers are able to respond in a timely manner and people are able to safely evacuate from high-risk areas, even during extreme storms, wildfires, and flooding events.	EMERGENCY RESPONSE TIME: Maintained or reduced emergency response times during and after extreme events	**Average response time from 911 call placed to arrival at emergency site (during weather extremes only)**	Unknown	every 5 years	Action Toward Goal not Begun	2024

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24	Government Systems and Services	Emergency service providers are able to respond in a timely manner and people are able to safely evacuate from high-risk areas, even during extreme storms, wildfires, and flooding events.	EMERGENCY RESPONSE CAPACITY: Increase in ability to rapidly deploy emergency response teams in cases of extreme weather events*	**$ of state funding provided to municipalities for incident command staffing**		annually	Agency-specific management relevance	2024
26	Food and Water Security	Food distribution networks provide uninterrupted access to healthy foods, even during extreme weather events and climate-driven supply chain disruptions.	SECURE FOOD DISTRIBUTION HUBS: Reduced risk of damage to food or food storage facilities from floods and other climate risks	**# of emergency action plans (or continuity of operations plans) for retail food and wholesale facilities**	DPH, private sector partners	every 5 years	Private Data	2024
27	Food and Water Security	Food distribution networks provide uninterrupted access to healthy foods, even during extreme weather events and climate-driven supply chain disruptions.	SECURE FOOD DISTRIBUTION HUBS: Reduced risk of damage to food or food storage facilities from floods and other climate risks	**$ of state funding to food distribution centers in "high" inland or coastal flood risk areas to improve resiliency**		annually	Agency-specific management relevance	2024
28	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	FOOD SECURITY: Incidence of chronic and periodic hunger among MA residents minimized*	**% of household income spent on food**		every 5 years	Context Information	2024
29	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	FOOD SECURITY: Incidence of chronic and periodic hunger among MA residents minimized*	**% of households facing food insecurity (USDA threshold)**		annually	Context Information	2024
31	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	LOCAL FOOD SOURCING: Increase proportion of diets coming from locally grown food sources*	**$ of state funding for community gardens and local food forests**		annually	Agency-specific management relevance	2024
32	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	LOCAL FOOD SOURCING: Increase proportion of diets coming from locally grown food sources*	**% of food sold in Massachusetts that is grown in New England**		every 5 years	Context Information	2024
34	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	LOCAL FOOD SOURCING: Increase proportion of diets coming from locally grown food sources*	**# of food producing/processing businesses with business continuity plans**	Unknown, private sector partners	every 5 years	Private Data	2024
35	Food and Water Security	Local food production provides reliable access to healthy foods, day-to-day and in an emergency.*	LOCAL FOOD SOURCING: Increase proportion of diets coming from locally grown food sources*	**% of purchases through state food assistance programs from local producers**		annually	Context Information	2024

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36	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	SUFFICIENT PUBLIC WATER SUPPLIES: Increased or maintained buffer between water used and water available in public surface water supplies	**Ratio between water use and sum of surface and groundwater supply available by water district**		annually	Context Information	2024
37	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	SUFFICIENT PUBLIC WATER SUPPLIES: Increased or maintained buffer between water used and water available in public surface water supplies	**# of drought guidance workshops for public water suppliers**		annually	Agency-specific management relevance	2024
39	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	GROUNDWATER AVAILABILITY: Increased knowledge of groundwater availability in areas reliant on wells	**# of educational outreach events to homeowners reliant on well water about groundwater availability tracking data**		annually	Agency-specific management relevance	2024
40	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	WATER QUALITY SURVEILLANCE: Reliable, dense network of water quality testing sites and testing capacity at water supply sources	**$ of state funding for water quality testing at drinking water sites and upstream locations**		annually	Agency-specific management relevance	2024
42	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	WATER QUALITY MAINTENANCE: Decreased impacts of harmful algal blooms and other water quality issues worsened by climate change at water supply sources	**$ of state funding for watershed protection around drinking water sources**		annually	Agency-specific management relevance	2024
44	Food and Water Security	People have access to safe and affordable drinking water via wells or public water supply in face of potential drought or water quality issues driven by climate change.	AFFORDABLE WATER ACCESS: All MA residents can afford to access safe drinking water supplies	**% of MA residents that have access to affordable, safe drinking water**		every 5 years	Context Information	2024
45	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**% of new housing construction projects that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**		every 5 years	Quality-based	2024

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46	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**% of existing housing stock with "low" inland and coastal flood risk**		every 5 years	Context Information	2024
47	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**# of housing units in the floodplain relocated outside of the floodplain via voluntary buyouts**		every 5 years	Outcome-oriented (gap-filling)	2024
49	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**$ of funding for household resilience to climate-driven indoor air quality issues (e.g. mold, allergens)**		annually	Agency-specific management relevance	2024
50	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	CLIMATE-SAFE HOUSING: Reduced damage from flooding and other climate-driven extreme events to private and public housing (incl. more building permits in climate-safe locations and buildings designed/built to state-set resilience standards)	**# of households in MA permanently or temporarily displaced due to climate-driven events that have been helped by state assistance**	Unknown	every 5 years	Action Toward Goal not Begun	2024
54	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	DECARBONIZED HOUSING: More housing is retrofitted or built to maintain safe conditions with minimized energy use.	**% of housing units that have updated weatherization/ insulation**		annually	Outcome-oriented (gap-filling)	2024

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55	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	DECARBONIZED HOUSING: More housing is retrofitted or built to maintain safe conditions with minimized energy use.	**% of households spending more than 5% of income on energy**		every 5 years	Context Information	2024
56	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	HOUSING AFFORDABILITY: Minimized displacement due to climate resilience improvements increasing housing prices*	**% of households spending less than 1/3 of income on housing, for renters and homeowners**		every 5 years	Context Information	2024
57	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	HOUSING AFFORDABILITY: Minimized displacement due to climate resilience improvements increasing housing prices*	**% of large-scale climate resilience projects that consider the risk of displacement due to changes in housing prices**	Unknown	every 5 years	Action Toward Goal not Begun	2024
58	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	PUBLIC AWARENESS OF HOUSING OPTIONS: More education and technical assistance to the public to inform their housing and home-building choices	**# of households receiving technical assistance for climate-safe housing (e.g. information on relocation, retrofitting for resilience, etc.)**		annually	Agency-specific management relevance	2024
59	Infrastructure	People have access to housing that is safe from flooding and other climate hazards and is affordable, even as demand for safe housing increases and resilience projects make some areas more desirable.	PUBLIC AWARENESS OF HOUSING OPTIONS: More education and technical assistance to the public to inform their housing and home-building choices	**$ spent on public communication and outreach on resilient housing options (e.g. choosing where to live, how to improve your homes resiliency, etc.)**	Unknown	annually	Action Toward Goal not Begun	2024
60	Infrastructure	Communities are prepared to support new residents relocating to areas with fewer climate risks or driven from their homes by climate disasters, and both existing and new residents feel supported.	CLIMATE MIGRATION PLANNING: Increased comprehensive planning for potential population fluctuations driven by climate change (inmigration and outmigration)	**# of educational outreach events to municipalities on climate migration planning**	Unknown	annually	Action Toward Goal not Begun	2024
62	Infrastructure	Communities are prepared to support new residents relocating to areas with fewer climate risks or driven from their homes by climate disasters, and both existing and new residents feel supported.	COMMUNITY UNITY: Increased community cohesion during shifts in population driven by climate change*	**% of households relocated due to climate change that report feeling welcome in their community and % of existing residents of receiving communities that feel welcome in their community**	Unknown	every 5 years	Action Toward Goal not Begun	2024

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63	Infrastructure	Communities are prepared to support new residents relocating to areas with fewer climate risks or driven from their homes by climate disasters, and both existing and new residents feel supported.	COMMUNITY UNITY: Increased community cohesion during shifts in population driven by climate change*	**# of grants that address social cohesion in receiving or sending communities, related to climate migration**		every 5 years	Outcome-oriented (gap-filling)	2024
64	Health	People are safe and healthy during extreme heat events.	HEAT MORTALITY: Fewer deaths linked to extreme heat	**# of deaths attributable to extreme heat (normalized to the number of events/year and population)**	DPH	annually	Agency-specific management relevance	2024
68	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**Reduction in the Urban Heat Island (UHI) effect (in degrees F from historical baseline of UHI effect [temperature difference between urban and ex-urban areas])**		every 5 years	Outcome-oriented (gap-filling)	2024
72	Health	People are safe and healthy during extreme heat events.	ACCESS TO COOL SPACES: Increased and sustained access to public and/or private cool spaces	**# of residents reached by municipal outreach (digital or reverse-911) that alerts residents to the availability and location of cooling spaces**		annually	Agency-specific management relevance	2024
74	Health	People are safe and healthy during extreme heat events.	PUBLIC HEAT AWARENESS: Increased awareness of heat events and education to caregivers (e.g. parents and guardians, camp counselors, coaches, teachers) about signs and treatment of heat-related illness.	**# of people aware of the Extreme Heat alert system**		every 5 years	Agency-specific management relevance	2024
76	Health	People are safe and healthy during extreme heat events.	CLASSROOM HEAT SAFETY: Increase in the number of schools (K-12), colleges and university that are designed and equipped to provide safe temperatures for students and teachers	**decline in # of half-day and school cancellations during extreme heat conditions for public K-12 schools (because school conditions are safer)**		annually	Outcome-oriented (gap-filling)	2024
77	Health	People are safe and healthy during extreme heat events.	WORKER HEAT SAFETY: Decrease in the incidence of job-related illness and injuries during extreme heat events.	**# of employees reached with outreach materials for heat illness prevention**		annually	Agency-specific management relevance	2024
78	Health	People are safe and healthy during extreme heat events.	WORKER HEAT SAFETY: Decrease in the incidence of job-related illness and injuries during extreme heat events.	**% of employers complying with OSHA worker heat standards**		annually	Agency-specific management relevance	2024

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80	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT MORTALITY: Fewer deaths linked to flooding, storms, and related power outages.	**# of deaths attributable to a specific flood and storm events normalized to the number of events/year and population)**		annually	Outcome-oriented (gap-filling)	2024
82	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT MORBIDITY: Fewer emergency department visits during flooding, storms, and related power outages.	**# of worker injuries and deaths due to extreme weather and storm clean-up**		annually	Outcome-oriented (gap-filling)	2024
83	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT PREPAREDNESS: Increase in readiness for flood and storm events to maintain health and safety.	**# of projects within state residential facilities that provide support in the event of extreme heat and power outages (sum of # of large capacity pumps for flooding, # of back up portable generators, # of heavy equipment for snow removal, wash-outs, etc., # of buildings to withstand severe weather with reinforced concrete)**		every 5 years	Agency-specific management relevance	2024
84	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT PREPAREDNESS: Increase in readiness for flood and storm events to maintain health and safety.	**% of state residential facilities that retain power/safety during extreme events**		every 5 years	Outcome-oriented (gap-filling)	2024
85	Health	People are safe and healthy during and following coastal and inland flooding and windstorm events and related power interruptions.	FLOOD & STORM EVENT PREPAREDNESS: Increase in readiness for flood and storm events to maintain health and safety.	**% of households with someone who relies on electronic medical devices with a backup power source**		annually	Outcome-oriented (gap-filling)	2024
86	Health	People are safe from and healthy during climate-driven air quality events, like wildfire smoke, allergens, and general pollution that is made worse by climate change (for example, faster ozone formation with warmer temperatures and less frequent flushing of particulate matter with changing precipitation patterns).	AIR QUALITY MORTALITY: Fewer deaths linked to climate-driven air quality events	**# of illnesses and deaths attributable to climate-driven air quality events (summed over calendar year) (per 1,000 and normalized to the number of events/year)**		annually	Outcome-oriented (gap-filling)	2024

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87	Health	People are safe from and healthy during climate-driven air quality events, like wildfire smoke, allergens, and general pollution that is made worse by climate change (for example, faster ozone formation with warmer temperatures and less frequent flushing of particulate matter with changing precipitation patterns).	AIR QUALITY MORBIDITY: Fewer emergency department visits for respiratory illness	**# of emergency department visits for respiratory illness on high heat days**		annually	Outcome-oriented (gap-filling)	2024
88	Health	People are safe from and healthy during climate-driven air quality events, like wildfire smoke, allergens, and general pollution that is made worse by climate change (for example, faster ozone formation with warmer temperatures and less frequent flushing of particulate matter with changing precipitation patterns).	AIR QUALITY MAINTENANCE: Decreased exposure to poor air quality (made worse by climate change)	**# of projects requiring MEPA review implementing best practices for greenhouse gas and air quality mitigation, specifically for reducing climate risks in environmental justice populations**		annually	Agency-specific management relevance	2024
90	Health	People are safe from and healthy during climate-driven air quality events, like wildfire smoke, allergens, and general pollution that is made worse by climate change (for example, faster ozone formation with warmer temperatures and less frequent flushing of particulate matter with changing precipitation patterns).	AIR QUALITY MAINTENANCE: Decreased exposure to poor air quality (made worse by climate change)	**% change in number of student visits to the school nurse for asthma-related issues following improvements in air quality within school districts**		annually	Agency-specific management relevance	2024
91	Health	Mental health impacts from extreme events and chronic stressors related to climate change, including extreme heat, are minimized, readily treated, and adequate support resources are available to promote mental wellbeing.	MENTAL HEALTH MORBIDITY: Minimized incidence of mental illness worsened by climate change	**# of incidences of mental illness attributed to climate-driven stressors**	Unknown	annually	Action Toward Goal not Begun	2024

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92	Health	Mental health impacts from extreme events and chronic stressors related to climate change, including extreme heat, are minimized, readily treated, and adequate support resources are available to promote mental wellbeing.	MENTAL HEALTH SERVICES CONTINUITY: Increased professional and community-based mental health support and resources in the aftermath of climate disasters and in the face of the ongoing climate crisis	**% of MA mental health services that remain open during and immediately after extreme weather**	DPH, HHS, private sector partners	annually	Private Data	2024
93	Health	Mental health impacts from extreme events and chronic stressors related to climate change, including extreme heat, are minimized, readily treated, and adequate support resources are available to promote mental wellbeing.	CLIMATE-INFORMED MENTAL HEALTH: Increased availability of service providers that are trained in appropriate approaches for climate-related mental health concerns	**$ of state funding for work toward improved climate-aware mental health services**		annually	Outcome-oriented (gap-filling)	2024
94	Economy	Local agriculture, forestry, marine fisheries, and aquaculture industries remain productive in the face of climate threats to support the local economy and food security.	CONTINUITY OF NATURAL RESOURCE ECONOMIES: Minimized losses from climate stressors for all natural resource-based local businesses	**% of natural resource businesses reached by state/climate extension with technical assistance or trainings in developing business continuity plans**	MDAR, EOED, MEMA	annually	Agency-specific management relevance	2024
95	Economy	Local agriculture, forestry, marine fisheries, and aquaculture industries remain productive in the face of climate threats to support the local economy and food security.	CONTINUITY OF NATURAL RESOURCE ECONOMIES: Minimized losses from climate stressors for all natural resource-based local businesses	**% of private farms and forests adopting climate-smart management practices**		every 5 years	Outcome-oriented (gap-filling)	2024
97	Economy	Local agriculture, forestry, marine fisheries, and aquaculture industries remain productive in the face of climate threats to support the local economy and food security.	CONTINUITY OF NATURAL RESOURCE ECONOMIES: Minimized losses from climate stressors for all natural resource-based local businesses	**$ of economic impact driven by outdoor recreation (i.e., recreation impacted by climate)**		every 5 years	Outcome-oriented (gap-filling)	2024
99	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	GENERAL BUSINESS CONTINUITY: Massachusetts businesses experience minimal disruptions and damages from climate change and extreme events	**# of local businesses with business continuity plans**	Unknown, private sector partners	every 5 years	Private Data	2024

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100	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	GENERAL BUSINESS CONTINUITY: Massachusetts businesses experience minimal disruptions and damages from climate change and extreme events	**% of small businesses reached by state with technical assistance or trainings in developing business continuity plans**	DLS, EOED	annually	Agency-specific management relevance	2024
101	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	PREPARED & PROTECTED FACILITIES: Increase in the number of businesses that are in secure locations, disaster prepared, and insured against potential climate-driven extreme event losses	**# of new business construction projects, including # of projects proposed in floodplain, that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**		every 5 years	Quality-based	2024
102	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	PREPARED & PROTECTED FACILITIES: Increase in the number of businesses that are in secure locations, disaster prepared, and insured against potential climate-driven extreme event losses	**% of existing business structure with "low" inland and coastal flood risk**		every 5 years	Context Information	2024
103	Economy	Businesses experience limited disruption due to extreme events and climate-driven supply chain issues.	SUPPLY CHAIN PLANNING: Increased planning to prepare for climate-driven supply chain issues that may occur outside of the Commonwealth	**# of businesses that have completed a supply chain training with respect to climate change impacts**	Unknown	annually	Action Toward Goal not Begun	2024
105	Economy	Local workforces are skilled and trained to implement resilience projects and initiatives.	PROFESSIONAL TRAININGS: Increase in the quantity and diversity of professional trainings for climate resilience jobs	**# of participants in career pathway programs that support adding to the workforce for climate and clean energy jobs**	DLS, EOED	annually	Action Toward Goal not Begun	2024
108	Infrastructure	All infrastructure development minimizes impacts on the natural environment and incorporates nature-based solutions to protect and enhance the climate resilience-building qualities of the natural environment.	MINIMIZING INFRASTRUCTURE IMPACTS: Increase in consideration and avoidance of cumulative impacts to natural environment from new development	**% of projects requiring MEPA review that consider cumulative impacts to surrounding natural environments**		every 5 years	Agency-specific management relevance	2024
109	Infrastructure	All infrastructure development minimizes impacts on the natural environment and incorporates nature-based solutions to protect and enhance the climate resilience-building qualities of the natural environment.	NATURE-BASED SOLUTIONS: Increasing proportion of development and resilience solutions include nature-based solutions	**% of development projects that include nature-based solutions**		every 5 years	Agency-specific management relevance	2024

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111	Infrastructure	Critical facilities such as hospitals, fire and police stations, resilience hubs, and shelters, are protected from flooding and other climate hazards, are accessible, and remain functional during extreme events.	CLIMATE-SAFE CRITICAL FACILITY INFRASTRUCTURE INVESTMENT: Increasing funding for critical facility-related infrastructure projects that account for future climate change	**$ of state funding for making critical facility infrastructure climate-resilient**	DEP, MVP, CZM, EOEEA F&A, MEMA, DCAMM, DOT, MBTA, EOPSS	annually	Agency-specific management relevance	2024
112	Infrastructure	Critical facilities such as hospitals, fire and police stations, resilience hubs, and shelters, are protected from flooding and other climate hazards, are accessible, and remain functional during extreme events.	RELIABLE CRITICAL FACILITIES AND SERVICES: Decreased damage to critical infrastructure from extreme events due to climate-safe design standards, operational practices and siting decisions, and decreased related service interruptions	**% of existing critical facilities with "low" inland and coastal flood risk**		every 5 years	Context Information	2024
114	Infrastructure	Critical facilities such as hospitals, fire and police stations, resilience hubs, and shelters, are protected from flooding and other climate hazards, are accessible, and remain functional during extreme events.	RELIABLE CRITICAL FACILITIES AND SERVICES: Decreased damage to critical infrastructure from extreme events due to climate-safe design standards, operational practices and siting decisions, and decreased related service interruptions	**% of days of uninterrupted service from critical infrastructure**	MEMA, private sector partners	annually	Private Data	2024
115	Infrastructure	Ports experience minimal infrastructure damage and minimal closures due to sea level rise, coastal erosion, and storm surge, as well as high wind events from tropical and ex-tra-tropical storms.	PORT BUSINESS CONTINUITY: Massachusetts port facilities and businesses experience minimal business disruptions and damages from climate change and extreme events due to climate-safe design standards, operational practices and siting decisions	**# of port-related operators and businesses with business continuity plans**	MassPort, private sector partners	every 5 years	Private Data	2024
117	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**% of transit and rail line miles proactively prepared for runoff, debris, and hazardous trees prior to forecasted storms**		annually	Agency-specific management relevance	2024

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118	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**# of miles of MBTA tunnels that have mitigated flood risks**		every 5 years	Agency-specific management relevance	2024
120	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**% completion of systemwide resilience roadmap (MBTA only)**		annually (until complete, then every time there is an updated one)	Agency-specific management relevance	2024
122	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**% of public transit providers that have adopted the state's flood design directive**		every 5 years	Agency-specific management relevance	2024
123	Infrastructure	Public transit and rail networks face minimal disruptions from sea- level rise driven flooding and inland flooding, storms and other extreme climate events.	TRANSIT & RAIL RELIABILITY: Reduced frequency and duration of weather-related outage events for public transit and railroad networks due to climate-safe design standards, operational practices and siting decisions	**# of weather-related transit/rail service disruptions/year (total and normalized by extreme events/year)**		annually	Outcome-oriented (gap-filling)	2024
124	Infrastructure	Reliable and affordable communications infrastructure and information technology systems at risk of damages caused by extreme events that directly the infrastructure and during high demand during extreme events.	RELIABLE COMMUNICATIONS: Reduced frequency and duration of weather-related communications systems outage events due to climate-safe design standards, operational practices and siting decisions	**% of new and existing communication infrastructure projects that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**	DTC, MEPA, private sector partners	every 5 years	Private Data	2024
125	Infrastructure	Reliable and affordable communications infrastructure and information technology systems at risk of damages caused by extreme events that directly the infrastructure and during high demand during extreme events.	RELIABLE COMMUNICATIONS: Reduced frequency and duration of weather-related communications systems outage events due to climate-safe design standards, operational practices and siting decisions	**# of annual communications network weather-related outages reported**	DTC, private sector partners	annually	Private Data	2024

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126	Infrastructure	Reliable and affordable communications infrastructure and information technology systems at risk of damages caused by extreme events that directly the infrastructure and during high demand during extreme events.	RELIABLE COMMUNICATIONS: Reduced frequency and duration of weather-related communications systems outage events due to climate-safe design standards, operational practices and siting decisions	**% of data servers in coastal and inland flood-, heat-, and fire-safe locations**	DTC, DCAMM, private sector partners	every 5 years	Private Data	2024
127	Infrastructure	Reliable and affordable communications infrastructure and information technology systems at risk of damages caused by extreme events that directly the infrastructure and during high demand during extreme events.	CLIMATE-SAFE COMMUNICATION INFRASTRUCTURE INVESTMENT: Increasing funding for communications-related infrastructure projects that account for future climate change	**Development of vulnerability assessment and prioritized investment plan for communication infrastructure adaptation (completed/in progress/not begun)**	DTC, private sector partners	annually (until complete, then every time there is an updated one)	Private Data	2024
128	Infrastructure	Reliable and affordable electricity access, and minimal repair costs to the Commonwealth, related to damages caused by extreme events that directly affect the transmission and distribution system and demand surges during high temperatures.	CLIMATE-SAFE ELECTRICITY INFRASTRUCTURE INVESTMENT: Increasing funding for electricity-related infrastructure projects that account for future climate change	**$ for electricity generation, transmission, distribution and storage grants to increase resilience**		annually	Agency-specific management relevance	2024
130	Infrastructure	Reliable and affordable electricity access, and minimal repair costs to the Commonwealth, related to damages caused by extreme events that directly affect the transmission and distribution system and demand surges during high temperatures.	RELIABLE ELECTRICITY: Reduced frequency and duration of weather-related electricity outage events due to climate-safe design standards, operational practices and siting decisions	**% of new and existing electricity infrastructure that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**		every 5 years	Quality-based	2024
131	Infrastructure	Reliable and affordable electricity access, and minimal repair costs to the Commonwealth, related to damages caused by extreme events that directly affect the transmission and distribution system and demand surges during high temperatures.	CLIMATE-SAFE ELECTRICITY INFRASTRUCTURE INVESTMENT: Increasing funding for electricity-related infrastructure projects that account for future climate change	**Development of vulnerability assessment and prioritized investment plan for electricity infrastructure adaptation (completed/in progress/not begun)**	DPU, private sector partners	annually (until complete, then every time there is an updated one)	Private Data	2024

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132	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	ROAD SAFETY AND RELIABILITY: Minimal disruption to transportation routes (roads), bridges, and supporting infrastructure from climate-driven extreme events	**% of critical road miles (criticality defined on AADT & ridership levels) with "low" inland and coastal flood risk**	Unknown	every 5 years	Action Toward Goal not Begun	2024
133	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	ROAD SAFETY AND RELIABILITY: Minimal disruption to transportation routes (roads), bridges, and supporting infrastructure from climate-driven extreme events	**% of miles of evacuation routes that consider projected flooding, heat, drought, wildfire, and wind risks throughout the project's lifespan.**	Unknown	every 5 years	Action Toward Goal not Begun	2024
134	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	ROAD SAFETY AND RELIABILITY: Minimal disruption to transportation routes (roads), bridges, and supporting infrastructure from climate-driven extreme events	**% of projects that adopted the State Hydraulic Model for evaluating stream crossing vulnerability (funded, developed, in use, etc.)**		every 5 years	Agency-specific management relevance	2024
136	Infrastructure	Roads and bridges remain accessible and safe for travel despite potential damage from extreme precipitation, flooding, windstorms and temperature increases, with minimal government spending on reactive repairs.	ROAD SAFETY AND RELIABILITY: Minimal disruption to transportation routes (roads), bridges, and supporting infrastructure from climate-driven extreme events	**# of days of critical road (defined by Annual Average Daily Traffic data & ridership levels) closures after extreme events, normalized by # of extreme events per year**	Unknown	annually	Action Toward Goal not Begun	2024
138.1	Infrastructure	Dams and culverts can manage the increasing pressures from a changing climate.	RESILIENT DAMS AND CULVERTS: Increased capacity for dams and culverts.	**$ awarded/budgeted for culvert upgrades that meet stream crossing standards**	MVP, DER, DFG	annually	Agency-specific management relevance	2024
139	Infrastructure	Water and wastewater treatment infrastructure are resilient to flood damage and drinking water supply sources remain affordable and protected from bacteria (surface water), saltwater intrusion (groundwater), and drought (both).	RELIABLE WATER TREATMENT: Fewer treatment plants are located in high-risk areas, and/or protected against climate-driven extremes	**# of water treatment plants moved out of high-risk flood zones**		every 5 years	Outcome-oriented (gap-filling)	2024

Metrics for Futher Consideration

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141	Infrastructure	Water and wastewater treatment infrastructure are resilient to flood damage and drinking water supply sources remain affordable and protected from bacteria (surface water), saltwater intrusion (groundwater), and drought (both).	RELIABLE WATER TREATMENT: Fewer treatment plants are located in high-risk areas, and/or protected against climate-driven extremes	**Degree of completion of Dam Resilience Assessment and Strategy (completed, in progress, not yet begun)**		annually (until complete, then every time there is an updated one)	Agency-specific management relevance	2024
142	Infrastructure	Water and wastewater treatment infrastructure are resilient to flood damage and drinking water supply sources remain affordable and protected from bacteria (surface water), saltwater intrusion (groundwater), and drought (both).	CLIMATE-SAFE WATER INFRASTRUCTURE INVESTMENT: Increasing funding for water treatment-related infrastructure projects that account for future climate change	**% of households receiving rebate/tax incentive to upgrade septic systems**	Unknown	annually	Action Toward Goal not Begun	2024
143	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	PARTICIPATION: More people are engaged in climate resilience planning	**# of community members participating in state climate resilience initiatives**	OEJE, All agencies	annually	Agency-specific management relevance	2024
144	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	PARTICIPATION: More people are engaged in climate resilience planning	**# and % of equity working groups that EJ&PP, Indigenous / Tribal Nations participate in**		every 5 years	Outcome-oriented (gap-filling)	2024
146	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	ENGAGEMENT ACCESSIBILITY: Increased accessibility (e.g., location, timing, and all other accommodations) of resilience planning meetings	**% of meetings led in languages other than English**	OEJE, All agencies	annually	Agency-specific management relevance	2024
147	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	ENGAGEMENT ACCESSIBILITY: Increased accessibility (e.g., location, timing, and all other accommodations) of resilience planning meetings	**% of state agencies with adopted guidelines for accessibility (to be developed)**	OEJE, All agencies	annually (until 100% is achieved)	Action Toward Goal not Begun	2024
148	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	CLEAR COMMUNICATION: Increased translation of materials, interpretation services, and usage of general language around climate resilience planning	**# and % of programs/projects that have translated and/or interpreted critical program/project information in languages other than English**	OEJE, All agencies	annually (until 100% is achieved)	Agency-specific management relevance	2024

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149	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	MEANINGFUL ENGAGEMENT: More community members feel meaningfully engaged in the state's climate resilience work	**% of respondents surveyed on their participation experience saying: • their concerns were heard • they felt listened to • the agency explained how their concerns were considered in its decision**	OEJE, All agencies	annually	Agency-specific management relevance	2024
150	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	CULTURALLY AWARE EDUCATION ABOUT ADAPTATION: Greater effort by state agencies to reach out to, educate and provide technical assistance to the public, and vulnerable sub-populations, about the need for, process of, options, and anticipated outcomes of adaptation	**# of public engagement and training events for external community organizations and partners to foster participation in culturally sensitive resilience planning**	OEJE, All agencies	annually	Agency-specific management relevance	2024
151	Environmental Justice, Equity, and Collaboration	People in Environmental Justice populations, Indigenous peoples, and other priority populations are meaningfully involved in resilience planning.	CULTURALLY AWARE EDUCATION ABOUT ADAPTATION: Greater effort by state agencies to reach out to, educate and provide technical assistance to the public, and vulnerable sub-populations, about the need for, process of, options, and anticipated outcomes of adaptation	**# of trainings for state agency staff on culturally appropriate engagement**	OEJE, All agencies	annually	Action Toward Goal not Begun	2024
152	Environmental Justice, Equity, and Collaboration	Strong community relationships and organizational networks provide resources and support day-to-day and in climate-related emergencies.	COMMUNITY NETWORK PARTICIPATION: More people belong to a community network they trust and would turn to before, during, and after extreme weather-related events	**# of resilience/community hubs in the Commonwealth (EJ Communities to be tracked in EJ metric)**	Unknown	every 5 years	Action Toward Goal not Begun	2024
154	Environmental Justice, Equity, and Collaboration	Strong community relationships and organizational networks provide resources and support day-to-day and in climate-related emergencies.	COMMUNITY NETWORK PARTICIPATION: More people belong to a community network they trust and would turn to before, during, and after extreme weather-related events	**% of people who report they are part of community network that they could turn to during extreme weather events**		every 5 years	Quality-based	2024

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156	Environmental Justice, Equity, and Collaboration	Strong community relationships and organizational networks provide resources and support day-to-day and in climate-related emergencies.	COMMUNITY NETWORK PARTICIPATION: More people belong to a community network they trust and would turn to before, during, and after extreme weather-related events	**# of Community Based Organizations (CBOs) engaged with the Office of Environmental Justice and Equity**	OEJE, All agencies	every 5 years	Agency-specific management relevance	2024
157	Environmental Justice, Equity, and Collaboration	State, Tribal, and local partnerships create a diverse network with robust capacity that shares resources and best practices for climate resilience initiatives and implement regional solutions.	RESILIENCE COLLABORATIVES: More regional working groups and associations within Massachusetts and across neighboring states formed to work on climate resilience	**% of residents covered by standing regional resilience working groups**	OEJE, All agencies	every 5 years	Action Toward Goal not Begun	2024
158	Environmental Justice, Equity, and Collaboration	State, Tribal, and local partnerships create a diverse network with robust capacity that shares resources and best practices for climate resilience initiatives and implement regional solutions.	RESILIENCE COLLABORATIVES: More regional working groups and associations within Massachusetts and across neighboring states formed to work on climate resilience	**# of regional Resilience Collaboratives**	EEA	every 5 years	Action Toward Goal not Begun	2024
159	Environmental Justice, Equity, and Collaboration	State, Tribal, and local partnerships create a diverse network with robust capacity that shares resources and best practices for climate resilience initiatives and implement regional solutions.	RESILIENCE COLLABORATIVES: More regional working groups and associations within Massachusetts and across neighboring states formed to work on climate resilience	**$ of state funding for local/regional resilience partnerships**	OEJE, All agencies	annually	Agency-specific management relevance	2024
160	Environmental Justice, Equity, and Collaboration	State, Tribal, and local partnerships create a diverse network with robust capacity that shares resources and best practices for climate resilience initiatives and implement regional solutions.	RESILIENCE COLLABORATIVES: More regional working groups and associations within Massachusetts and across neighboring states formed to work on climate resilience	**# of locally/regionally-led partnerships receiving technical assistance from state programs**	OEJE, All agencies	annually	Agency-specific management relevance	2024
164	Environmental Justice, Equity, and Collaboration	Climate resilience funding, and the benefits of climate resilience investment, is equitably distributed.	EQUITABLE FUNDING: Equitable funding for resilience going to priority populations	**$ from Federal grants for resilience and/or adaptation to LIDACs, following Justice40 Initiative definitions**		annually	Context Information	2024

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165	Environmental Justice, Equity, and Collaboration	Climate resilience funding, and the benefits of climate resilience investment, is equitably distributed.	EQUITABLE FUNDING: Equitable funding for resilience going to priority populations	**# of awards and $ awarded to community-based organizations, and % of climate resilience funding distributedd to community-based organizations**	MVP, CZM	annually	Agency-specific management relevance	2024
166	Environmental Justice, Equity, and Collaboration	Climate resilience solutions are based on science and Traditional Ecological Knowledge (TEK) or Indigenous Knowledge (IK)-informed decision-making.	RESTORATIVE JUSTICE IN RESPECT FOR IK/TEK: Increase in the proportion of climate resilience planning efforts that respectfully invite and integrate IK/TEK	**% of communities who qualified for reduced match, received upfront funding for resilience planning and project implementation that receive a grant**		every 5 years	Outcome-oriented (gap-filling)	2024
167	Environmental Justice, Equity, and Collaboration	Climate resilience solutions seek restorative justice to address past disproportionate burdens.	RESTORATIVE JUSTICE IN INVESTMENT: State funding for climate resilience considers historical underinvestment (e.g., in EJ, small, rural or Indigenous communities)	**% of state grants that implement strategies for equitable allocation of funding**	OEJE, All agencies	annually	Action Toward Goal not Begun	2024
168	Environmental Justice, Equity, and Collaboration	Climate resilience solutions seek restorative justice to address past disproportionate burdens.	CUMULATIVE IMPACT CONSIDERATION: Increase in consideration of cumulative environmental burdens (e.g., facility siting, pollution) in resilience funding allocation	**% of projects following/utilizing protocols for Analysis of Project Impacts on EJ Populations**	OEJE, All agencies	annually (until 100% is achieved)	Action Toward Goal not Begun	2024
171	Environmental Justice, Equity, and Collaboration	Climate resilience solutions are based on science and Traditional Ecological Knowledge (TEK) or Indigenous Knowledge (IK)-informed decision-making.	RESTORATIVE JUSTICE IN RESPECT FOR IK/TEK: Increase in the proportion of climate resilience planning efforts that respectfully invite and integrate IK/TEK	**% of resilience projects receiving state funding or technical assistance that are led by Indigenous Peoples or Tribes and tribal organizations**		annually	Outcome-oriented (gap-filling)	2024
173	Environmental Justice, Equity, and Collaboration	Climate resilience actions and investments avoid negative unintended consequences, including displacement and increased greenhouse gas emissions.	MINIMIZATION OF NEGATIVE CONSEQUENCES OF ADAPTATION: Increase in the proportion of climate resilience decisions/actions that are examined for ecological, social, health and economic negative side effects (incl. GHG emissions and displacement) prior to enactment	**% of resilience programs/projects where siting or scoring criteria considered social, health, economic and ecological impacts including displacement**	MVP, CZM, MEPA	annually (until 100% is achieved)	Agency-specific management relevance	2024
174	Environmental Justice, Equity, and Collaboration	Climate resilience actions and investments avoid negative unintended consequences, including displacement and increased greenhouse gas emissions.	GHG EMISSIONS: Minimized GHG emissions from climate resilience initiatives	**% of resilience programs/projects where siting or scoring criteria considered greenhouse gas emissions**	MVP, CZM, MEPA	annually (until 100% is achieved)	Agency-specific management relevance	2024

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175	Natural Environment	Everyone has safe and easy access to public green space, tree cover, aquatic recreational areas, and natural open space.	OPEN SPACE ACCESS: Increase in well-designed open spaces (terrestrial and aquatic) close to home	**% of population with public open space within a half mile of home**		every 5 years	Outcome-oriented (gap-filling)	2024
176	Natural Environment	Everyone has safe and easy access to public green space, tree cover, aquatic recreational areas, and natural open space.	OPEN SPACE ACCESS: Increase in well-designed open spaces (terrestrial and aquatic) close to home	**$ of state funding to create more access to outdoor recreation opportunities for marginalized groups**		annually	Agency-specific management relevance	2024
178	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT AVAILABILITY: Protected, connected, and available habitat	**Total acres of state freshwater habitat (incl. streams, lakes, ponds, freshwater wetlands, vernal pools)**		every 5 years	Outcome-oriented (gap-filling)	2024
179	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT QUALITY: Maintained or improved habitat quality in freshwater ecosystems	**# of acres of healthy freshwater ecosystems (as indicated by diadromous fish populations and freshwater mussel populations)**		every 5 years	Outcome-oriented (gap-filling)	2024
181	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that the habitats are more resilient to climate change stressors	**# of stream restoration projects aimed at planting shade trees**		every 5 years	Outcome-oriented (gap-filling)	2024
183	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that the habitats are more resilient to climate change stressors	**$ of funding for stream continuity improvements (e.g., dam removals, culvert upgrades)**		annually	Agency-specific management relevance	2024
185	Natural Environment	Freshwater ecosystems are resilient to rising temperatures and changing precipitation patterns.	FRESHWATER ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Carbon stored in vs. carbon lost from inland wetlands**	Unknown	every 5 years	Action Toward Goal not Begun	2024

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187	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT QUALITY: Maintained or improved coastal habitats	**% of MA shoreline that is in a natural state (incl. restored to natural state)**		every 5 years	Outcome-oriented (gap-filling)	2024
188	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT QUALITY: Maintained or improved coastal habitats	**# of acres of healthy saltmarsh ('healthy' to be defined with agencies)**		every 5 years	Outcome-oriented (gap-filling)	2024
190	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**# of resilience projects focused on nutrient management (e.g., Cape Cod Nutrient Management Plan, CZM Nonpoint Source Pollution Grants)**		every 5 years	Agency-specific management relevance	2024
192	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Progress toward state biodiversity goals for coastal and marine species (Phase, state of completion)**		variable	Quality-based	2024
193	Natural Environment	Marine and coastal ecosystems, including beaches, dunes, and coastal wetlands, are resilient to sea level rise and the effects of increased temperatures, precipitation, and storms.	COASTAL AND MARINE ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Carbon stored in vs. carbon lost from coastal wetlands**	Unknown	every 5 years	Action Toward Goal not Begun	2024
194	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST HABITAT AVAILABILITY: Maintained or improved forest and urban forest habitat	**% of state under forest cover (differentiated by old growth/mature versus younger stands)**		every 5 years	Quality-based	2024

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196	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST AND OTHER INLAND HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**% of working forest land using climate-smart management practices**		every 5 years	Outcome-oriented (gap-filling)	2024
199	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST AND OTHER INLAND HABITAT MANAGEMENT AND RESTORATION FOR RESILIENCE: Restored habitats, improvements to surrounding conditions, and adaptive management such that habitats are more resilient to climate change stressors	**$ of state funding to private and public landowners for protection of mature forested areas**	Unknown	annually	Action Toward Goal not Begun	2024
200	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Progress toward state biodiversity goals for forest and other terrestrial species (Phase, state of completion)**		variable	Quality-based	2024
201	Natural Environment	Forests and other native inland ecosystems, including urban green spaces, are resilient and maintain biodiversity and biomass despite increasing pests, storms, and wildfires.	FOREST ECOSYSTEM SERVICES: Maintained or improved provision of ecosystem services (e.g., biodiversity and carbon storage)	**Carbon stored in vs. carbon lost from forests**	Unknown	every 5 years	Action Toward Goal not Begun	2024