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Climate Resilience Design Standards Tool

Project Form

The Climate Resilience Design Standards Tool can be found at https://resilient.mass.gov/rmat_home/designstandards/. If, for any reason, the web-tool is inaccessible, please complete this “Project Form” in lieu of the web-tool. The “Project Form” captures the majority of questions found in the web-tool, with the exception of questions requiring geospatial input, and should be attached to grant or other applications in place of the web-tool’s “Project Report”.

A. Context

The Climate Resilience Design Standards and Guidance project includes:

- **Climate Resilience Design Standards Tool:** a web-tool for agencies that provides a preliminary climate risk screening and recommended climate resilience design standards for State projects with physical assets
- **Climate Resilience Design Guidance:** guidance, best practices, and forms for State agencies to support implementation of recommended climate resilience design standards

The **Project Form** accompanies the **Climate Resilience Design Standards Tool** and is meant to be completed and submitted in lieu of the “Project Report” if the web-tool is inaccessible for any reason. The Site Suitability, Regional Coordination, and Flexible Adaptation Pathways Forms are **additional, optional forms** that serve to document project information and design considerations.

The forms are structured as follows:

Form Name	Abbreviation	Complete For...	Submission Process
Project Form	N/A	Project Questions: Overall Project	Only submit this form if the web-tool is inaccessible. Please follow instructions of your grant and other application process.
		Asset Questions: Each Asset	

Form Name	Abbreviation	Complete For...	Submission Process
Site Suitability Form	Form-SS	[Optional] Overall Project	Submit these optional forms as a complete package to supplement your grant application or other process.
Regional Coordination Form	Form-RC	[Optional] Overall Project	
Flexible Adaptation Pathways Form	Form-AP	[Optional] Overall Project	

B. Instructions

The Tool prompts users to input details related to the project and physical asset(s). This Project Form contains project-specific questions as well as asset-specific questions, which are further categorized by project asset categories (below) as identified in the web-tool.

- **All projects** should complete the “Project Questions” in Section C of this form.
- Projects with **building/facility assets** should complete the corresponding “Asset Questions” in Section D.
- Projects with **infrastructure assets** should complete the corresponding “Asset Questions” in Section E.
- Projects with **natural resource assets** should complete the corresponding “Asset Questions” in Section F.

C. Project Questions (All projects)

Provide the responses to related to the **overall project**.

Step 1: Core Project Information

The Core Project questions pertain to the proposed project in its entirety and are intended to provide a high-level snapshot of the project. The information provided in Step 1 does not directly influence recommendations or outputs of the Tool and are features that can be used to search for projects. If you aren't sure how to answer a question, click on the question mark icon. Questions related to specific physical assets are asked in Step 4.

Core Project Information	Answer
Project Name:	Click or tap here to enter text.
Location of Project: Please select the Massachusetts municipality and/or municipalities where the proposed project is located.	Click or tap here to enter text.
Estimated Capital Cost: This refers to the estimated total project cost through completion or construction. This number should reflect the dollar value estimated for capital planning and budgetary purposes. When associated with a grant, this number should match the total project cost given in the grant application. This number is not meant to reflect ratings or recommendations provided through the Tool.	Click or tap here to enter text.
Entity Submitting Project: Please select the State Agency, Municipality, Regional Planning Authority, or Other responsible for the planning, design, and/or construction of the project. Publicly owned assets and privately owned assets should be submitted as separate projects in this Tool. Public: defined as projects led by a public entity and focused on an asset owned by a municipality or state or federal agency. Private: defined as projects led by a private entity and focused on an asset owned by a private entity. If a project entails a combination of public and private ownership, you should submit the publicly owned assets and the privately owned assets as separate projects.	☐ Public ☐ Private Organization Name: Click or tap here to enter text. Contact Name: Click or tap here to enter text. Contact Email: Click or tap here to enter text.
Is this project being submitted as part of a state grant application? Examples of state grant applications include the Municipal Vulnerability Preparedness (MVP) Program. In contrast, the Chapter 90 Program and State Revolving Fund (SRF) Loan Program are state funding programs but are not state grants.	☐ Yes ☐ No
What stage are you in your project lifecycle? Pre-Planning: These projects are very early on in the planning process with an overall project concept, but specific project details are mostly unknown. Planning: These projects are in the process of conducting assessments and evaluating alternatives to inform the scope of future design, permitting, and construction work. Design or Permitting: These projects are in the process of engineering assets (infrastructure, buildings, and/or natural resources) and/or are in the process of completing permitting or regulatory reviews. Construction: These projects have permit-approved construction documents and/or are in the process of construction.	☐ Pre-Planning ☐ Planning ☐ Design ☐ Permitting ☐ Construction ☐ No physical assets planned for this project

Is climate resiliency a core objective of this project? Resilience is the ability to withstand and recover from an extreme event. Ideally, resilient systems “bounce forward” to create healthier, greener, and more equitable systems and spaces. Projects that incorporate climate resilience as a core objective adapt assets to changing climate conditions, and prioritize designing above and beyond regulatory requirements by leveraging available resources such as the RMA’s Climate Resilience Design Guidance and Standards.	☐ Yes ☐ No
Is this project being submitted as part of the state capital planning process? The State Capital Planning Process identifies the budget and financing needed to support the State’s assets, which can include infrastructure and natural resources. In Massachusetts, capital planning is led by the State’s Executive Office for Administration and Finance (A&F). The state capital planning process does not include municipal grant applications.	☐ Yes ☐ No
Is this project being submitted as part of a regulatory review process or permitting? For example, an applicable regulatory review process could include MEPA environmental review. Please note that the RMA’s tool assumes that projects submitted already meet baseline regulatory requirements, for example the Massachusetts Stormwater Management Standards. The RMA’s guidance is intended to assist projects in incorporating climate resilient considerations that exceed baseline requirements.	☐ Yes ☐ No
Brief Project Description: Please summarize the project’s main goals, anticipated tasks, and contribution towards advancing climate resilience and adaptation in the Commonwealth (500 character limit). Please indicate what permits the project will require (if any).	Click or tap here to enter text.

Step 2: Project Ecosystem Benefit

Ecosystem Services are critical to mitigating and adapting to the effects of climate change. As such all projects should consider possible indirect and direct benefits to or provided by ecosystems as part of planning and design. Your responses to these questions should consider benefits provided by the project as a whole, as opposed to individual assets.

Please indicate if the project provides a benefit (select YES), if the benefit may be integrated into the project if possible (select MAYBE), or if the benefit will not be provided in the project (select NO).

The questions are intended for projects that are going above and beyond existing regulatory requirements. If you are required to provide a benefit because of regulations, for example, compensatory storage as a result of increasing fill in a floodplain, you should not answer yes unless it is going above that regulatory requirement. Refer to the information icons for additional guidance, including definitions and subsequent examples of each ESB.

Ecosystem Services Benefits	YES	NO	MAYBE
Is the primary purpose of this project ecological restoration?	☐	☐	☐
Provides flood protection through green infrastructure or nature-based solutions Project components that prevent or reduce inland or coastal flooding and flood damage to project assets (or other natural areas or infrastructure), through water infiltration, retention, redirection, or buffering of water flow using nature-based solutions. Nature-based solutions are adaptation measures focused on the protection, restoration, and/or management of ecological systems to safeguard public health, provide clean air and water, increase natural hazard resilience, and sequester carbon. Examples of nature-based solutions may include floodplain restoration through to reconnection of a floodplain to the waterway, restoration or protection of stream-side wetland systems, riparian zones and buffers.	☐	☐	☐
Reduces storm damage Project components that take measures to mitigate the severity and consequence of storm conditions and impacts, including winds, precipitation, storm surge, waves, ice, water flow, erosion, and sediment movement on an asset. Nature-based solutions in the coastal zone may include living shorelines and the protection or restoration of tidal wetlands, dunes, or oyster reefs.	☐	☐	☐
Recharges groundwater Project components that promote the infiltration of surface waters to the groundwater table such as through stormwater infiltration and retention using green infrastructure or nature-based solutions. Co-benefits of this practice include reduction in flooding, contributions to stream base flow and drought amelioration.	☐	☐	☐
Protects public water supply Projects that reduce the risk of contamination, pollution, and/or runoff of surface and groundwater sources used for human consumption. Land protection strategies within wellhead protection zones along with other nature-based solutions or green infrastructure designed to reduce pollutant loads from stormwater are examples.	☐	☐	☐
Filters stormwater using green infrastructure Project components that absorb and filter stormwater, such as through rain gardens, swales, or bio basins.	☐	☐	☐
Improves water quality Projects that mitigate adverse impacts from increased temperature, nutrient, sediment, and pollutant inputs to waterbodies. Project examples may include restoration or protection of riparian zones, vegetation filter strips.	☐	☐	☐
Promotes decarbonization Projects that reduce overall carbon emissions through strategies such as using heat pumps for heating and cooling of buildings, or renewable energy sources for electric supply. Projects proponents should refer to the DOER Leading by Example program for additional guidance on decarbonization strategies.	☐	☐	☐
Enables carbon sequestration Project components that enable the uptake of carbon containing substances, in particular carbon dioxide, in terrestrial or marine reservoirs. Nature-based climate solutions which may serve as carbon sinks or reservoirs include restoration or protection of woodlands, peatlands and salt marshes along with improved agricultural practices to manage the use of synthetic fertilizers and planting cover crops on croplands.	☐	☐	☐
Provides oxygen production	☐	☐	☐

Project components that generate oxygen through photosynthesis by plants, trees and other vegetation as part of nature-based solutions. Project examples may include green roofs and living walls in urban settings, restoration or protection of woodlands in terrestrial settings, or restoration of submerged aquatic vegetation (eel grass) in coastal areas.			
Improves air quality Project components that generate oxygen through photosynthesis by plants, trees and other vegetation as part of nature-based solutions. Project examples may include green roofs and living walls in urban settings, restoration or protection of woodlands in terrestrial settings, or restoration of submerged aquatic vegetation (eel grass) in coastal areas.	☐	☐	☐
Prevents pollution Projects that prevent the release of pollutants, including but not limited to contaminants (atmospheric, groundwater, or soil), wastewater (storm or sewage), or other hazardous waste. Project examples may include nature-based solutions that protect a landfill from coastal erosion.	☐	☐	☐
Remediates existing sources of pollution Project components that remove existing pollutants or contaminants on-site. Project examples may include aquatic habitat restoration through the dredging of contaminated sediments or removal of contaminated soil as part of a brownfield redevelopment.	☐	☐	☐
Protects fisheries, wildlife, and plant habitat Project components that preserve, enhance or restore habitats important for conservation of fish, wildlife, and plant abundance and diversity. Increasing habitat complexity within degraded systems typically leads toward greater production and higher levels of biodiversity. Incorporating or protecting critical habitat features for species of concern, managing invasive populations and providing connectivity to other habitat types are important considerations.	☐	☐	☐
Protects land containing shellfish Project components that preserve, enhance or restore coastal habitats important for conservation of shellfish abundance and diversity. As an important component of coastal ecosystems, shellfish support both commercial and recreational fisheries, provide nutrient mitigation, reduce shoreline erosion, provide nursery habitat, and support recreation and cultural heritage values. Project examples may include living shorelines or breakwaters and oyster reef restoration.	☐	☐	☐
Provides pollinator habitat Project components that provide feeding, nesting or stopover habitat for pollinators (i.e., hummingbirds, butterflies, moths, beetles, wasps, and most importantly bees). Pollinators are critical for agricultural productivity as well as the many co-benefits provided by a healthy ecosystem. Project examples may include rain gardens with native shrubs that feed bees.	☐	☐	☐
Provides recreation Project components that provide active or passive recreational opportunities (such as swimming, paddling, bird watching, hiking or exercise activities) for the public through the use of outdoor spaces.	☐	☐	☐
Provides cultural resources/education Project components that 1) provide opportunities for environmental education, scientific study or research or 2) protect important archaeological or historic sites, areas with unique biological communities, geologic or aesthetic features, or cultural heritage values.	☐	☐	☐

Step 3: Project Climate Hazard Exposure

Projects should indicate if the project location has experienced flooding in the past or if proposed site improvements include increasing the net impervious area on the site or removing trees. This information will be used in conjunction with the polygon drawn for the project to establish a Preliminary Climate Hazard Exposure and Risk Ratings.

Core Project Information	YES	NO	UNSURE
Does the project site have a history of coastal flooding? Projects that have evidence of flooding since 1990, as indicated by State and/or local hazard mitigation plans, the NOAA Storm Events Database, or Town/ local historical records. This does not include flooding caused by utility infrastructure failure (e.g., sewer, water, etc.). Coastal flooding examples include inundation of roads, infrastructure or structures due to spring tides, King tides, nor'easters, tropical storms, etc.	☐	☐	☐
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)? Projects that have evidence of flooding since 1990, as indicated by State and/or local hazard mitigation plans, the NOAA Storm Events Database, or Town/ local historical records. This does not include flooding caused by utility infrastructure failure (e.g., sewer, water main breaks, etc.), but does include flooding from overwhelmed sewer or drainage infrastructure, excessive stormwater runoff, inundation of built structures, etc.	☐	☐	☐
Does the project site have a history of riverine flooding? Projects that have evidence of flooding since 1990, as indicated by State and/or local hazard mitigation plans, the NOAA Storm Events Database, or Town/ local historical records. This does not include flooding caused by utility infrastructure failure (e.g., sewer, water main breaks, etc.). Riverine flooding examples include inundation of roads, infrastructure or structures due to overbank flooding, flash flooding, etc.	☐	☐	☐
Does the project result in a net increase in impervious area of the site? Projects that increase the area on-site with paved or hard surfaces which decrease infiltration of stormwater.	☐	☐	☐
Are existing trees being removed as part of the proposed project? Projects that are removing trees, even if the project is proposing a net increase in trees following construction, should answer yes.	☐	☐	☐

SECTION D: BUILDING/FACILITY ASSET

Complete this section if your Project includes Building/Facility Assets

D. Asset Questions: Building/Facility

Physical assets are defined as assets that make up the major physical components of a project and organized into three main Asset Categories; buildings/facilities, infrastructure, and natural resources. Please provide responses to the following questions for **each building/facility asset** in the project. If a project has multiple building/facility assets, please copy this Section and complete a copy for each asset.

1. For this building/facility asset, please select ONE of the following Asset Types and ONE corresponding Asset Sub-Type.

ASSET CATEGORY	BUILDING/FACILITY ASSET – **LIST HERE**	
ASSET TYPE	TYPICALLY OCCUPIED <i>If Typically Occupied, select ONE of the following, below.</i>	TYPICALLY UNOCCUPIED <i>If Typically Unoccupied, select ONE of the following, below.</i>
ASSET SUB-TYPE	☐ Airport	☐ Food distribution center
	☐ Childcare facility	☐ Fuel storage/station
	☐ Community center	☐ Generator
	☐ Correctional facility	☐ Hazardous waste storage
	☐ Elderly housing	☐ Industrial
	☐ Emergency operations/response building (fire, police, etc.)	☐ Maintenance facility
	☐ Emergency shelter	☐ Material storage
	☐ Government building	☐ Mechanical building/vent stack
	☐ Group home	☐ Morgue
	☐ Higher-education facility	☐ Parking facility
	☐ Hospital and mental health facilities	☐ Power transmission facility, substation, and/or generation station
	☐ House/place of worship	☐ Pump Station - Sanitary
	☐ Laboratory	☐ Pump Station - Stormwater
	☐ Library	☐ Rapid Transit/Rail station
	☐ IT data center	☐ Recreational facility
	☐ Judicial center	☐ Solid waste facility (recycling facilities, transfer stations, etc.)
	☐ Military facility	☐ Telecommunications facility/communication tower
	☐ Mixed-use building	☐ Ventilation building/fan plants
	☐ Non-residential building (office, commercial, retail)	☐ Wastewater treatment plant
	☐ Residential building - Public Housing	☐ Water storage tank or tower
☐ School (primary, secondary, high, vocational, etc.)	☐ Water treatment plant (potable water)	
☐ Other	☐ Other	

2. For the building/facility asset, check one Asset Construction Type.

ASSET CATEGORY	BUILDING/FACILITY ASSET – **LIST HERE**	
ASSET CONSTRUCTION TYPE	New Construction	☐
	Major Repair/Retrofit	☐
	Maintenance (critical repair)	☐
	Maintenance (environmental)	☐
	Renovation	☐

3. Construction Start Year: Click or tap here to enter text.

4. Asset Useful Life: Click or tap here to enter text.

Useful Life refers to the estimated number of years before the project will require significant reconstruction or renovation to continue performing its normal function(s). This differs from the design life, which is typically shorter. The environmental surroundings and/or lack of maintenance can reduce typical useful life of assets. Climate change may accelerate deterioration of assets and expose assets to new or more frequent environmental impacts. Regular maintenance and inspections are essential to infrastructure and building performance.

5. Summarize the above selections here.

Tool Input	**LIST ASSET HERE**
Asset Category	Click or tap here to enter text.
Asset Type	Click or tap here to enter text.
Asset Sub-Type	Click or tap here to enter text.
Construction Type	Click or tap here to enter text.
Construction Start Year	Click or tap here to enter text.
Asset Useful Life	Click or tap here to enter text.

6. For **each building/facility asset** identified above, document the following information to the best of your knowledge, given your response to the first question in the table below, “Identify the length of time the asset can be inaccessible/inoperable without severe consequences.”

Only one answer choice may be selected per question.

BUILDING/FACILITY ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
TIME	1. Identify the length of time the asset can be inaccessible/inoperable without severe consequences.	Building may be inaccessible/inoperable more than a week after natural hazard events without consequences	☐
		Building may be inaccessible/inoperable for more than a day, but less than a week after natural hazard events without consequences	☐
		Building may be inaccessible/inoperable during natural hazard events, but must be accessible/operable within one day after natural hazard events	☐
		Building must be accessible/operable at all times, even during natural hazard events	☐
SCOPE	2. Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.	Impacts limited to site only	☐
		Impacts would be limited to local area and/or municipality	☐
		Impacts would be regional (more than one municipality and/or surrounding region)	☐
		State-wide or greater impacts	☐
	3. Identify the population directly served that would be affected by the permanent loss or significant inoperability of the building/facility.	Less than 100 people	☐
		Less than 1,000 people	☐
		Less than 10,000 people	☐
		Greater than 10,000 people	☐
	4. Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.	The building does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations	☐
		The building provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations	☐

BUILDING/FACILITY ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
SEVERITY	5. If the building/facility became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?	Inoperability of the building/facility would not be expected to result in injuries	☐
		Inoperability of the building/facility would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses	☐
		Inoperability of the building/facility would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses	☐
		Inoperability of the building/facility would be expected to result in possible loss of life	☐
	6. If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?	There are no hazardous materials in the building/facility	☐
		Spills and/or releases of hazardous materials would be relatively easy to clean up	☐
		Spills and/or releases of hazardous materials would be moderately difficult to clean up	☐
		Spills and/or releases of hazardous materials are expected with difficult remediation and pose a severe threat to public health or safety (e.g., wastewater treatment plant; biohazard laboratory)	☐
	7. If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?	Minor – Inoperability will not likely affect other facilities, assets, or buildings	☐
		Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate	☐
		Significant – Inoperability is likely to impact other facilities, assets, or buildings and will likely affect their ability to operate	☐
		Debilitating – Inoperability will result in cascading impacts that will render other facilities, assets, or buildings inoperable and/or prevent the functionality of major regional or statewide facilities and/or delivery of critical services	☐

BUILDING/FACILITY ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
SEVERITY	8. If this building/facility was damaged beyond repair, how much would it approximately cost to replace?	Less than \$10 million	☐
		Between \$10 million and \$30 million	☐
		Between \$30 million and \$100 million	☐
		Greater than or equal to \$100 million	☐
	9. Is this a recreational facility which can be vacated during a natural hazard event?	No	☐
		Yes	☐
	10. If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?	Many alternative programs and/or services are available to support the community	☐
		Some alternative programs and/or services are available to support the community	☐
		Few alternative programs and/or services are available to support the community	☐
		No alternative programs and/or services are available to support the community	☐
	11. If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?	No impact on surrounding natural resources is expected	☐
		Impact on natural resources can be mitigated naturally	☐
		Impact on natural resources will require remediation/rehabilitation	☐
		Impact on natural resources is irreversible/natural resource lost	☐
	12. If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e., the building is not able to serve or operate its intended users or function)?	Loss of building is not expected to reduce the ability to maintain government services.	☐
		Loss of building may reduce the ability to maintain some government services, while a majority of services will still exist.	☐
Loss of building may reduce the ability to maintain most government services, while some services will still exist.		☐	
Government agency will no longer be able to maintain services		☐	

BUILDING/FACILITY ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
SEVERITY	13. If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e., the building is not able to serve or operate its intended users or function)?	No impact	☐
		Reduced morale and public support	☐
		Loss of confidence in government agency	☐
		Loss of confidence in Commonwealth	☐

SECTION E: INFRASTRUCTURE ASSET

Complete this section if the Project includes Infrastructure Assets

E. Asset Questions: Infrastructure

Physical assets are defined as assets that make up the major physical components of a project and organized into three main Asset Categories; buildings/facilities, infrastructure, and natural resources. Please provide responses to the following questions for **each infrastructure asset** in the project. If a project has multiple infrastructure assets, please copy this Section and complete a copy for each asset.

1. For this infrastructure asset, please select ONE of the following Asset Types and ONE corresponding Asset Sub-Type.

ASSET CATEGORY	INFRASTRUCTURE ASSET – **LIST HERE**									
ASSET TYPE	TRANSPORTATION		DAMS AND FLOOD CONTROL STRUCTURES		UTILITY INFRASTRUCTURE		GREEN INFRASTRUCTURE		SOLID AND HAZARDOUS WASTE	
	<i>If Transportation, select ONE of the following, below.</i>		<i>If Dam and Flood Control Structure, select ONE of the following, below.</i>		<i>If Utility Infrastructure, select ONE of the following, below.</i>		<i>If Green Infrastructure, select ONE of the following, below.</i>		<i>If Solid and Hazardous Waste, select ONE of the following, below.</i>	
ASSET SUB-TYPE	☐	Pedestrian ways and bikeways	☐	Dams	☐	Energy (electric, gas, petroleum, renewable)	☐	Bioswale	☐	Landfill
	☐	Bridge	☐	Dikes and/or levees	☐	Stormwater utility infrastructure	☐	Green Roof	☐	Solid Waste Facility/Transfer Station
	☐	Bus (stops)	☐	Multi-purpose flood storage	☐	Telecommunications	☐	Permeable Pavement	☐	Other Solid and Hazardous Waste (e.g., salvage/junk yard)
	☐	Culvert	☐	Seawall	☐	Wastewater	☐	Rain Garden		
	☐	Ferry/water taxi	☐	Other Flood Barrier	☐	Water	☐	Other Green Infrastructure		
	☐	Ports			☐	Other Utility				
	☐	Railways (rail and rapid transit)								
	☐	Roads (highway)								
	☐	Roads (local)								
	☐	Other Transportation								

2. For the infrastructure asset, check one Asset Construction Type.

ASSET CATEGORY	INFRASTRUCTURE ASSET – **LIST HERE**	
ASSET CONSTRUCTION TYPE	New Construction	☐
	Major Repair/Retrofit	☐
	Maintenance (critical repair)	☐
	Maintenance (environmental)	☐

3. Construction Start Year: Click or tap here to enter text.

4. Asset Useful Life: Click or tap here to enter text.

Useful Life refers to the estimated number of years before the project will require significant reconstruction or renovation to continue performing its normal function(s). This differs from the design life, which is typically shorter. The environmental surroundings and/or lack of maintenance can reduce typical useful life of assets. Climate change may accelerate deterioration of assets and expose assets to new or more frequent environmental impacts. Regular maintenance and inspections are essential to infrastructure and building performance.

5. Summarize the above selections here.

Tool Input	**LIST ASSET HERE**
Asset Category	Click or tap here to enter text.
Asset Type	Click or tap here to enter text.
Asset Sub-Type	Click or tap here to enter text.
Construction Type	Click or tap here to enter text.
Construction Start Year	Click or tap here to enter text.
Asset Useful Life	Click or tap here to enter text.

7. For **each infrastructure asset** identified above, document the following information to the best of your knowledge, given your response to the first question in the table below, “Identify the length of time the asset can be inaccessible/inoperable without severe consequences.”

Only one answer choice may be selected per question.

INFRASTRUCTURE ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
TIME	1. Identify the length of time the asset can be inaccessible/inoperable without significant consequences.	Infrastructure may be inaccessible/inoperable more than a week after natural hazard events without consequences.	☐
		Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard events without consequences.	☐
		Infrastructure may be inaccessible/inoperable during natural hazard events, but must be accessible/operable within one day after natural hazard event.	☐
		Infrastructure must be accessible/operable at all times, even during natural hazard events.	☐
SCOPE	2. Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.	Impacts limited to location of infrastructure only	☐
		Impacts would be limited to local area and/or municipality	☐
		Impacts would be regional (more than one municipality and/or surrounding region)	☐
		State-wide or greater impacts	☐
	3. Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.	Less than 5,000 people	☐
		Less than 10,000 people	☐
		Less than 100,000 people	☐
		Greater than 100,000 people	☐

INFRASTRUCTURE ASSET – **LIST ASSET HERE**				
Component	Questions	Answer Choices	Selection	
	4. Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.	The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations	☐	
		The infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations	☐	
		5. Will the infrastructure reduce the risk of flooding?	No	☐
		Yes	☐	
SEVERITY	6. If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?	Inoperability of the infrastructure would not be expected to result in injuries	☐	
		Inoperability of the infrastructure would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses	☐	
		Inoperability of the infrastructure would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses	☐	
		Inoperability of the infrastructure would be expected to result in possible loss of life	☐	
	7. If there are hazardous materials in your infrastructure, what are the extent of impacts related to spills/releases of these materials?	There are no hazardous materials in the infrastructure	☐	
		Spills and/or releases of hazardous materials are expected with relatively easy cleanup	☐	
		Spills and/or releases of hazardous materials are expected with moderately difficult cleanup	☐	
		Spills and/or releases of hazardous materials are expected with difficult remediation and pose a severe threat to public health or safety (e.g., wastewater treatment plant; biohazard laboratory)	☐	

INFRASTRUCTURE ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
SEVERITY	8. If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?	Minor – Inoperability will not likely affect other facilities, assets, or buildings	☐
		Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect ability of other facilities, assets, or buildings to operate	☐
		Significant – Inoperability is likely to impact other facilities, assets, or buildings and result in cascading impacts that will likely affect their ability to operate	☐
		Debilitating – Inoperability will result in cascading impacts that will render other assets inoperable and/or prevent the functionality of major regional or statewide infrastructure or delivery of critical services	☐
	9. If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?	Less than \$10 million	☐
		Between \$10 million and \$30 million	☐
		Between \$30 million and \$100 million	☐
		Greater than or equal to \$100 million	☐
	10. Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.	No	☐
		Yes	☐
	11. If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?	No impact on surrounding natural resources is expected	☐
		Impact on natural resources can be mitigated naturally	☐
		Impact on natural resources will require remediation/rehabilitation	☐
		Impact on natural resources is irreversible or the natural resources are lost	☐

INFRASTRUCTURE ASSET – **LIST ASSET HERE**			
Component	Questions	Answer Choices	Selection
SEVERITY	12. If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e., the infrastructure is not able to serve or operate its intended users or function)?	Loss of infrastructure is not expected to reduce the ability to maintain government services	☐
		Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist	☐
		Loss of infrastructure may reduce the ability to maintain most government services, while some services will still exist	☐
		Government agency will no longer be able to maintain services	☐
	13. What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?	No impact	☐
		Reduced morale and public support	☐
		Loss of confidence in government agency	☐
		Loss of confidence in Commonwealth	☐

SECTION F: NATURAL RESOURCE ASSET

Complete this section if the Project includes Natural Resource Assets

F. Asset Questions: Natural Resources

Physical assets are defined as assets that make up the major physical components of a project and organized into three main Asset Categories; buildings/facilities, infrastructure, and natural resources. Please provide responses to the following questions for **each natural resource asset** in the project. If a project has multiple natural resource assets, please copy this Section and complete a copy for each asset.

1. For this natural resource asset, please select ONE of the following Asset Types and ONE corresponding Asset Sub-Type. *See table on following page.*

ASSET CATEGORY	NATURAL RESOURCES - **LIST ASSET HERE**					
ASSET TYPE	COASTAL RESOURCE AREA	FORESTED ECOSYSTEMS	AQUATIC ECOSYSTEMS	WETLAND RESOURCE AREA - INLAND	AGRICULTURAL RESOURCES	OPEN SPACE
	<i>If Coastal Resource Area, select ONE of the following, below.</i>	<i>If Forested Ecosystem, select ONE of the following, below.</i>	<i>If Aquatic Ecosystem, select ONE of the following, below.</i>	<i>If Wetland Resource Area, select ONE of the following, below.</i>	<i>If Agricultural Resources, select ONE of the following, below.</i>	<i>If Open Space, select ONE of the following, below.</i>
ASSET SUB-TYPE	☐ Barrier beach	☐ Forested swamps	☐ Connecticut and Merrimack Mainstems	☐ Banks	☐ Cropland and/or arable land (annual replanting)	☐ Conservation land
	☐ Coastal bank	☐ Lowland forest	☐ Lakes and Ponds - Non water supply	☐ Bogs	☐ Permanent Cropland	☐ Grassland
	☐ Coastal beach	☐ Riparian forest	☐ Large- and mid-size rivers	☐ Emergent wetlands	☐ Permanent Pastures (grasslands, shrublands)	☐ Open recreation space
	☐ Coastal dune	☐ Shrub swamps	☐ Small streams	☐ Land under Water Bodies or Waterways		☐ Parklands
	☐ Coastal plain ponds	☐ Upland forest		☐ Lower Floodplains		☐ Peatlands
	☐ Coastal wetland	☐ Woodlands		☐ Marsh		☐ Reserves
	☐ Estuarine open water	☐ Young forests and shrublands		☐ Riverfront Area		☐ Trails
	☐ Land subject to coastal 100-year storm flowage			☐ Vernal Pool Habitat		
	☐ Land subject to tidal action			☐ Wet meadows		
	☐ Land under a salt pond			☐ Wooded deciduous swamps		
	☐ Land under an estuary					
	☐ Land under streams, rivers, lakes, or creeks within the coastal zone that are anadromous/ catadromous fish runs					
	☐ Land under the ocean					
	☐ Rocky intertidal shores					
	☐ Salt marsh					

2. For the natural resource asset, check one Asset Construction Type.

ASSET CATEGORY	NATURAL RESOURCES ASSET – **LIST HERE**	
ASSET CONSTRUCTION TYPE	New Construction	☐
	Restoration or enhancement	☐
	Maintenance (environmental)	☐
	Dam removal	☐

3. Estimated year construction will start: Click or tap here to enter text.

4. Asset Useful Life: Click or tap here to enter text.

Useful Life refers to the estimated number of years before the project will require significant reconstruction or renovation to continue performing its normal function(s). This differs from the design life, which is typically shorter. The environmental surroundings and/or lack of maintenance can reduce typical useful life of assets. Climate change may accelerate deterioration of assets and expose assets to new or more frequent environmental impacts. Regular maintenance and inspections are essential to infrastructure and building performance.

5. Summarize the above selections here.

Tool Input	**LIST ASSET HERE**
Asset Category	Click or tap here to enter text.
Asset Type	Click or tap here to enter text.
Asset Sub-Type	Click or tap here to enter text.
Construction Type	Click or tap here to enter text.
Estimated Year Construction Will Start	Click or tap here to enter text.
Asset Useful Life	Click or tap here to enter text.