















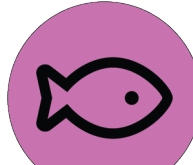


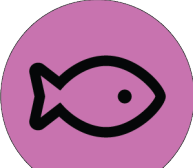

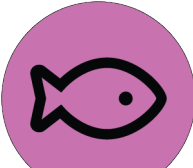

 <h1>Goal 1: Reduce flood risks to people and property</h1>		<p><b>SUMMARY:</b> Perhaps one of the critical driving forces that initially sparked this planning process, though one of several stakeholder interests, is reducing flood risks to those residing within the watershed. The aim of this goal is to leverage nature’s inherent ability to absorb rainfall. This includes enhancing the watershed’s current capacity to soak up stormwater runoff by restoring the floodplain and improving natural areas management. We also need to be more thoughtful of where and how we develop, to ensure new development is not placed in potential hazard areas, where flooding is currently likely, or may be possible in the future. Lastly, we need to assess how our built infrastructure creates barriers to the flow of water throughout the watershed. Culverts, bridges and dams all allow us to coexist with our water resources, but ensuring these structures are sized appropriately and not preventing the flow of water is essential to reduce flood risks.</p>					
	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
<b>Objective A:</b> Limit Development in the Floodplain and enhance protection for existing development							
A-1	Pursue regional participation in <b>FEMA’s CRS</b> program, on a local and regional basis.		✓	Conservation Commission, Planning Board	3-5 years	Local staff time; investigate grant options	
A-2	Create a regional <b>buy-out program</b> and/or prepare to participate in a potential state-run program (currently under consideration) to acquire properties for flood storage.	✓	✓	Planning Board, Conservation Commissions, APC Management Team	10-15 years	FEMA/ MEMA	 
A-3	Adopt shared wetland regulations across all communities that expand the Conservation Commission’s authority to uniformly protect floodwater storage areas and their buffers across the watershed from development.	✓	✓	Conservation Commission, Planning Board	3-5 years	Local staff and board member time; grants; technical assistance from SRPEDD or another consultant	 
A-4	Expand the floodplain overlay district to the <b>500-year FEMA flood zones</b> , and take a climate change - aware stance in accounting for floodplain shifts.		✓	Conservation Commission, Planning Board	3-5 years	Local staff and board member time; grants; technical assistance from SRPEDD or another consultant	
A-5	Restrict development encroachment into the floodplain by requiring special permit review in the flood overlay district, subject to review by Conservation Commission, Planning Board, Board of Health, Dept of Public Works, and/or building department.		✓	Conservation Commission, Planning Board	3-5 years	Local staff and board member time; grants; technical assistance from SRPEDD or another consultant	 
<b>Objective B:</b> Leverage natural functions that protect communities from flooding, extreme heat, and intense storms							
B-1	All local jurisdictions should adopt a current Hazard Mitigation Plan that prepares the community for future climate impacts, incorporating the latest information and projections.		✓	All municipal departments	3-5 years	Grants (MEMA, MVP)	   
B-2	Identify and prioritize areas where nature-based stormwater management (i.e. green infrastructure, swales, etc.) may have the greatest impact on mitigating stormwater and flooding.	✓	✓	Conservation Commission, Board of Health, Planning Board	3-5 years	Grants (MEMA, MVP)	 
B-3	Restore natural wetland habitat and function so that these lands can act like a sponge to hold and slowly infiltrate and filter water.	✓	✓	Conservation Commission, Board of Health, Agricultural Commissions	5-7 years	Grants (DER, SNEP)	  
<b>Objective C:</b> Improve the flexibility of the APC – Nemasket System to move water between its constituent parts							
C-1	Replace the Snake River Culvert (but not before addressing invasive weeds in Long Pond to minimize transfer between waterbodies).	✓	✓	Lakeville & Freetown Conservation Commission, Planning Board	10-15 years	FEMA BRIC (but requires Lakeville to have an approved HMP), DER	
C-2	Restore the Nemasket River channel (especially in the first 600-1,200 ft), including limited and targeted sediment removal or dredging on a regular basis as required, and vegetation removal.	✓	✓	Lakeville & Middleborough Conservation Commission, Planning Board; APC Management Team	Ongoing, as needed	SRPEDD ARPA APC funds	 
C-3	Remove the Wareham Street Dam to gain topography, increase flows, and reduce impoundment.	✓	✓	Middleborough Conservation Commission, Planning Board; APC Management Team	5-7 years	State Dam and Seawall Grant, NOAA, NWF, TNC, other non-profit partners	  

Reference Terms:

**The Federal Emergency Management Agency (FEMA)** compiles flood risk data for communities for use in both insurance rating and floodplain management, which includes flood hazard maps that predict the area of inundation during storms. Regulatory flood hazard areas typically reflect the 100-year storm, or a rainfall event expected to occur about once every 100 years. Climate change is increasing the fequency of these types of storms, however. **FEMA's Community Rating System (CRS)** encourages municipal leaders to increase the flood resilience of their community so that local homeowners may collectively receive a discount on their flood insurance premiums. Enrolling in the CRS not only reduces costs, but also helps reduce flooding risks to homes, businesses, ecosystems, and people. **Buy-out programs** can provide a mechanism for vulnerable homeowners to receive compensation for their homes if they chose to relocate, without placing someone else in harm’s way.

Icon Legend:


Flood Management


Drinking Water Supply


Water Quality


Ecology



Land Development


Recreation


Stewardship


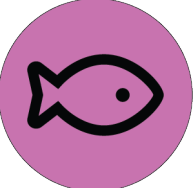

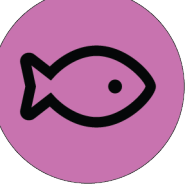

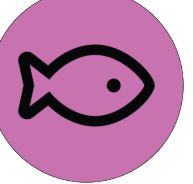



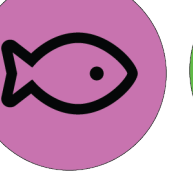


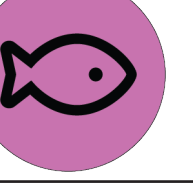



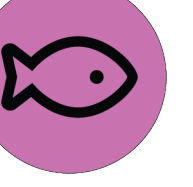

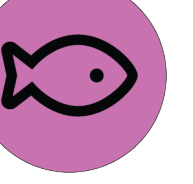

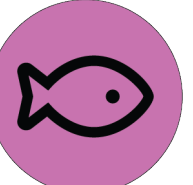

Interagency Cooperation





# Goal 2: Safeguard public drinking water supplies

**SUMMARY:** More than 250,000 people rely on the Assawompset Ponds for their drinking water supply, and many more wells throughout the watershed similarly provide for the watershed communities’ water needs. Ensuring the Watershed is able to continue to meet growing water demands is essential. This means protecting the watershed’s capacity to recharge ground and surface waters, protecting drinking water supplies from pollutants, and considering water use impacts (as well as the Watershed’s capacity to accommodate increased demands) when considering future development and land use proposals. Additional steps will also need to be taken to safeguard the resilience of the water supply to future droughts.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Anticipate and guard against drought, especially as climate change causes more frequent and extended drought periods in summer and fall							
A-1	Adopt uniform Water Resource Protection Overlay Districts and Regulations that protect groundwater recharge areas to the ponds, as well as local water supply wells elsewhere in the watershed.	✓	✓	Conservation Commission, Planning Board, Water Suppliers	3-5 years	Local staff and board member time; Technical Assistance from SRPEDD or other consultant; grants (EEA, MVP, etc.)	  
A-2	Update and increase transparency about thresholds and implementation measures for enforcing water use restrictions during drought.		✓	APC Management Team; Water Suppliers; Planning Board, Board of Health, Conservation Commission	1-3 years	Local staff and board member time	 
A-3	Use a multi-platform approach to notify the public of restricted water use periods and conservation measures, including webpage, social media, and roadway signage boards.		✓	APC Management Team; Water Suppliers; Planning Board, Board of Health, Conservation Commission	1-3 years, and ongoing	Local staff and board member time	 
A-4	Regularly evaluate and update drought protocols and back-up supply plans.		✓	Water Suppliers	1-3 years, and ongoing	Local staff time	
Objective B: Take steps to improve knowledge and management capabilities to enhance water supply management							
B-1	Complete a full groundwater study and model of the ponds system.		✓	APC Management Team	1-3 years	Grant funding secured (DER)	  
B-2	Determine an updated <b>safe yield</b> of the ponds.		✓	Water Suppliers	7-10 Years	Local staff time; explore grant opportunities	 
B-3	Reconfigure the APC dam spillway for greater control over water levels in the ponds.		✓	Water Suppliers, APC Management Team	10-15 Years	Grants (NOAA, DER, SNEP, MVP etc.)	 
Objective C: Keep contaminants out of the water supply							
C-1	Support additional drinking source water testing and monitoring for regulated and emerging contaminants, especially those that would require treatment by water suppliers.			Water suppliers, APC Management Team, local volunteer organizations	3-5 Years, then ongoing	Grants or partnership with groups like the TRWA and local wastewater treatment plant	 
C-2	Continue to monitor compliance with <b>WMA</b> registration / permit water withdrawal limits and other special conditions.			Water suppliers, APC Management Team, local environmental groups	Ongoing, but especially at permit renewals	Local staff and volunteer time	 
C-3	Eliminate the use of herbicides in the ponds, which pose an unacceptable risk to public drinking water supplies, by encouraging <b>integrated pest management</b> and mechanical/source intercepting invasive weed control options.	✓		APC Mgmt Plan Implementation Committee; Long Pond Association; Conservation Commission	Ongoing	Local staff and volunteer time	 

Reference Terms:

**Safe yield**, sometimes also referred to as firm yield, is the maximum amount of water that can be removed from a system, usually calculated per day, without harming either the water supply or the environment from which the water is being withdrawn.

Through the Massachusetts **Water Management Act (WMA)**, MassDEP regulates withdrawals from ground and surface waters by requiring permits from major withdrawers (i.e. over 100,000 gallons per day, which typically applies to public water suppliers, golf courses, and agricultural and industrial users).

**Integrated Pest Management** is taking a holistic approach to managing pests (i.e. invasive plant species, rodents, mosquitoes, ticks) that first addresses the causes of the infestation (in the case of aquatic weeds, nutrient pollution) and utilizes the most targeted mechanical treatments (pulling out the target species, either by hand or with a machine such as an Ecoharvester), and only uses more general herbicide application as a last resort, to avoid negative impacts to non-target species and water quality.

Icon Legend:

 Flood Management

 Drinking Water Supply

 Water Quality

 Ecology


 Land Development

 Recreation

 Stewardship








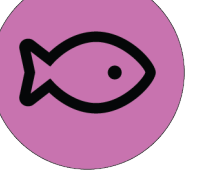



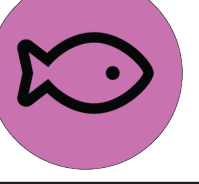


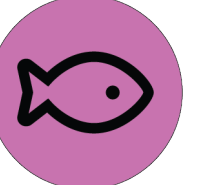


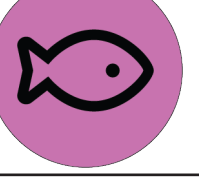



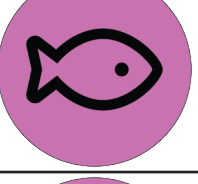




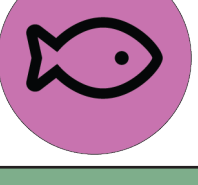



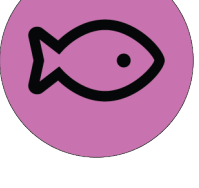




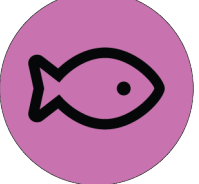


 Interagency Cooperation





# Goal 3: Improve Water Quality

**SUMMARY:** Water quality throughout the watershed impacts wildlife, drinking water supplies, environmental health, and people’s ability to recreate in, on and around the Watershed’s water resources. Development and associated increases in stormwater runoff are contributing to water quality impairments throughout the watershed, but steps can be taken to remove and/or manage these threats and improve the health of our waterways.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Eliminate potential contaminants at the source using physical treatment and regulation							
A-1	Explore grant and loan funding for septic system upgrades from conventional to denitrifying systems.			Dept of Public Works, Board of Health, Conservation Commission, Planning Board	Ongoing	Local staff and board member time; technical assistance through SRPEDD or another consultant	 
A-2	Adopt uniform local septic bylaws that go beyond minimum <b>Title V</b> regulations to reduce nutrient releases from septic systems contaminating groundwater.			Planning Board, Board of Health, Conservation Commission	3-5 years	Local staff and board member time; grants (MVP, EEA, etc.); technical assistance through SRPEDD or another consultant	 
Objective B: Prevent and monitor the spread of contaminants into waterbodies							
B-1	Restore buffers on lands adjacent to wetlands and waterways for increased water filtration and purification. Where these buffers are currently in place, retain and enhance them.			Conservation Commission, Dept of Public Works	3-5 years	Local staff time; grants (SNEP, MVP, etc.)	 
B-2	Alter mowing practices that compromise the integrity of buffer areas, and establish “no-mow zones” on municipal lands surrounding water bodies and wetlands.			Conservation Commission, Dept of Public Works	2-4 years	N/A (routine staff operations)	 
B-3	Adopt local wetland bylaws that protect wetlands and their buffers for stormwater filtration.			Conservation Commission, Planning Board	1-3 years	Local staff and board member time; grants (i.e. MVP), technical assistance from SRPEDD or other consultant	  
B-4	Install <b>permeable reactive barriers</b> to filter nutrients from groundwater, as appropriate.			APC Management Team; homeowners	1-3 years	SNEP, explore other grant opportunities	  
B-5	Install more water-quality monitoring stations and develop a volunteer network dedicated to routine water quality sampling.			Local environmental groups, Conservation Commission	3-5 years	Local staff and volunteer time, explore grant opportunities	   
B-6	Reduce excessive sediment transport by removing sandbars near water crossing infrastructure and improving drainage outlets where feasible.			Local Dept of Public Works, MassDOT	3-5 years	Staff time; explore grant opportunities	    
Objective C: Educate stakeholders on methods they can take to reduce contaminant inputs							
C-1	Educate landowners about MA Dept of Agricultural Resources’ fertilizer use regulations and encourage Farm Conservation Plans that implement best practices. Coordinate with retailers to provide consumer information.			Agricultural & Conservation Commissions	2-5 years	Local staff and board member time; technical support from practitioners, such as SRPEDD, TNC, UMass Amherst	   
C-2	Develop and spread water quality protection best practices (particularly as it relates to nitrogen and fertilizer runoff). Lead by example on public lands.			Agricultural & Conservation Commissions	2-5 years	Local staff and board member time; technical support from practitioners, such as SRPEDD, TNC, UMass Amherst; grant funding for implementing best practices (i.e. NRCS)	  

Reference Terms:

The State’s **Title V** rules control how home septic systems should be installed, used and maintained, in order to protect public health and safety.

**Permeable Reactive Barriers (PRBs)**, installed underground in strategic locations adjacent to water water bodies, filter nutrients out of groundwater as it passes through the barrier and into the water body.

Icon Legend:

Flood Management

Drinking Water Supply

Water Quality

Ecology

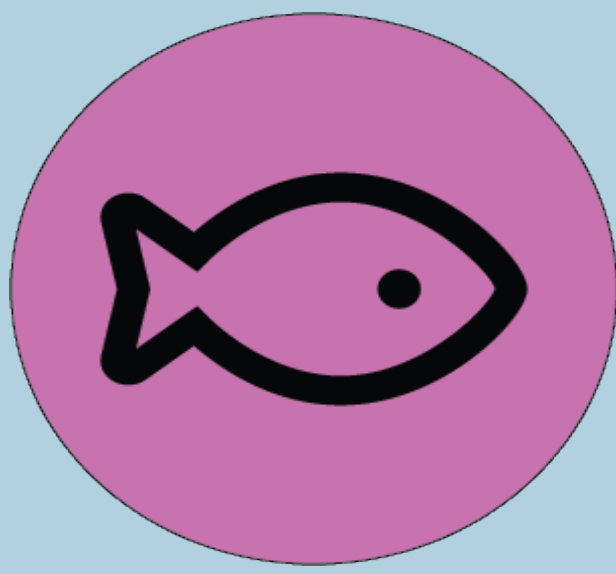
Land Development

Recreation

Stewardship


















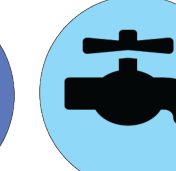



















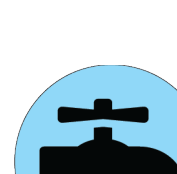
Interagency Cooperation





# Goal 4: Preserve Wildlife and Habitat

**SUMMARY:** Wildlife and the natural landscapes that they make up provide a wealth of resources to people, and living sustainably alongside nature is as critical for the resilience of people as it is for the Watershed. Protecting these resources includes both preserving the Watershed’s existing natural areas through active management that supports health and function, and also strategically expanding the existing open space network to protect priority natural areas from development. All of nature is worth protecting, but those unique and/or culturally significant species and natural communities that are special to the APC, such as river herring, northern red-bellied cooter, breeding bobolinks, and coastal plain pondshore habitats, should be prioritized for protection in particular.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Strategically expand the watershed’s open space network							
A-1	Preserve the regional <b>Green Infrastructure Network</b> , through both land acquisition and by minimizing land disturbance during development.	✓	✓	Planning Boards, Open Space Committees, Conservation Commissions, Select Boards; APC Management Team	Ongoing	Local staff and volunteer time; grants (i.e. MVP, State Planning Grants, DCR Grants); Local CPA Fund	   
A-2	Keep Open Space & Recreation Plans current, prioritizing high value and connected natural areas, such as the <b>Green Infrastructure Network</b> , for protection. Consider the development of a Regional Open Space and Recreation Plan.	✓	✓	Planning Boards, Open Space Committees, Conservation Commissions	Ongoing, every 7 years as OSRPs expire	Keep Open Space & Recreation Plans current, prioritizing high value and connected natural areas, such as the Green Infrastructure Network, for protection.	   
A-3	Launch public education campaign to garner support for land acquisitions.			Open Space Committees, Local Environmental Groups, APC Management Team	1-3 years, and ongoing	Local staff and volunteer time, utilizing resources from MassLand and Mass Audubon	 
A-4	Adopt the <b>Community Preservation Act</b> to fund open space protection.		✓	Freetown & Rochester Open Space Committees, Planning Board	1-3 years	Local staff and volunteer time, utilizing resources from the Community Preservation Coalition	  
Objective B: Improve habitat through natural resource management							
B-1	Adopt and/or update forestry management plans that improve forest health and resilience to climate change.	✓	✓	Forest owners & managers; Conservation Commissions	3-5 years, and ongoing	Local staff & volunteer time; technical & financial assistance from NRCS	    
B-2	Address barriers to fish passage in the Nemasket River at dams, fish ladders, and stream crossings (i.e. dam removal, bridge replacement).	✓		APC Management Team; Lakeville Middleborough Herring Fishery Commission	5-10 years, and ongoing	Partnership with MA DOT; grants (i.e. NOAA, MVP, DER)	   
B-3	Protect headwater stream flow and shading for cold-water fish.	✓	✓	APC Management Team; Conservation Commissions; local environmental groups	3-5 years, and ongoing	Grants (i.e. MVP, DER)	 
B-4	Install wildlife corridors & road crossing structures.	✓	✓	APC Management Team; Conservation Commissions, Dept of Public Works, MassDOT	5-7 years, and ongoing	Explore grant opportunities	 
Objective C: Manage and prevent the spread of invasive species							
C-1	Implement public education campaign to increase awareness and knowledge of invasive species, and help with containment and early detection.			Conservation Commission; Long Pond Association; APC Management Team	1-3 years, and ongoing	Local staff and volunteer time	  
C-2	Institute volunteer monitoring programs for rapid detection and management of invasive plants.			Conservation Commission; Long Pond Association; APC Management Team	1-3 years, and ongoing	Local staff and volunteer time; explore grant opportunities	  
C-3	Implement a holistic <b>integrated pest management</b> approach for controlling invasive plant species.	✓		Conservation Commissions, Long Pond Association, APC Management Team; public	Ongoing	Local staff and board/ commission member time	  
C-4	Monitor and minimize the spread of aquatic invasive plants from Long Pond to Assawompset Pond.			Conservation Commissions, Long Pond Association, APC Management Team	Ongoing, before action taken at Snake River Culvert	Local staff and board/ commission member time	  

**Reference Terms:**

The regional **Green Infrastructure Network** identifies connected, cohesive areas of land that are performing critical landscape functions and ecosystem services that sustain communities and help them mitigate and adapt to climate change (i.e. removing carbon from the atmosphere, purifying our air and water, cooling neighborhoods during heat waves, and protecting our built infrastructure from flooding).

The **Community Preservation Act (CPA)** gives communities the option to adopt a local property tax surcharge that goes into a local Community Preservation Fund, with state matching funds, that can be used for open space protection, historic site preservation, recreational facilities and affordable housing.

**Integrated Pest Management** is taking a holistic approach to managing pests (i.e. invasive plant species, rodents, mosquitoes, ticks) that first addresses the causes of the infestation (in the case of aquatic weeds, nutrient pollution) and utilizes the most targeted mechanical treatments (pulling out the target species, either by hand or with a machine such as an Ecoharvester), and only uses more general herbicide application as a last resort, to avoid negative impacts to non-target species and water quality.

Icon Legend:

 Flood Management

 Drinking Water Supply

 Water Quality

 Ecology

 Land Development

 Recreation

 Stewardship

 Interagency Cooperation





# Goal 5: Encourage sustainable development that retains natural functions

**SUMMARY:** Ongoing development to support the watershed’s growing population does not need to come at the expense of nature. Thoughtful and proactive planning can help to guide development towards the most appropriate areas across the watershed, and protect priority natural areas that provide important resilience functions. An extensive toolbox of sustainable development techniques is also available to reduce the footprint and environmental impacts of new development. Resilient growth requires the Watershed communities to take important regulatory approaches that encourage sustainable development built with both natural resources and future climate in mind.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Plan for and manage expected growth, and its impacts to the watershed							
A-1	Prioritize areas for development vs. protection in long-range planning efforts (including Master Plans).	✓	✓	Planning Boards, Open Space Committees	Ongoing	Local staff and board member time, grants (i.e. technical assistance funds through SRPEDD)	 
A-2	Address the impacts of expansion and winterization of homes around the Ponds transitioning from seasonal to full-time.		✓	Planning Boards, Conservation Commissions, Boards of Health; APC Management Team	Ongoing	N/A (routine staff operations)	  
A-3	Consider increasing capacity at the Middleborough Waste Water Treatment Plant to accommodate future development.			Middleborough Public Works Dept.	10-15 years	Local staff time; explore grant opportunities	 
A-4	Engage the state in updating new MBTA multi-family housing zoning requirements; and protect watershed resources while meeting the new regulations locally.	✓	✓	Planning Boards, Conservation Commissions; APC Management Team; SRPEDD	1-3 years	Local staff and volunteer time; grants (i.e. state planning grants, technical assistance grants through SRPEDD)	    
A-5	Consider the effects that new land development will have on the watershed’s water table and ability to maintain drinking water to public and private well sources.		✓	Planning Boards, Conservation Commissions, Board of Health, developers	Ongoing	N/A (routine staff operations)	
Objective B: Encourage low impact development practices in local bylaws and regulations							
B-1	Allow flexible lot designs in zoning and subdivision regulations, and require development that conforms to, rather than alters, natural features.	✓	✓	Planning & Zoning Boards	1-3 years	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	  
B-2	Allow Cluster and <b>Open Space Design</b> development <b>by-right</b> that protects priority natural land.	✓	✓	Planning & Zoning Boards	1-3 years	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	  
B-3	Consider mixed-use developments with a commercial component that can add to the tax base as other lands are put into permanent preservation (i.e., removed from the tax base).		✓	Planning Boards	Ongoing	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	  
Objective C: Ensure new development is built with the future climate in mind, and doesn’t contribute to stormwater runoff							
C-1	Establish impervious cover controls in zoning and site design to limit conversion of natural areas that contributes to stormwater runoff.	✓	✓	Planning & Zoning Boards	1-3 years	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	   
C-2	Require the inclusion of 100- and 500-yr floodplains and the most up-to-date rainfall rates in site planning, to ensure all new infrastructure is built for the future.		✓	Planning & Zoning Boards	1-3 years	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	 
C-3	Strengthen local regulations to meet <b>MS4</b> requirements and further protect water quality and groundwater supply through low impact development techniques.	✓	✓	Planning & Zoning Boards	1-3 years	Local staff and board member time; grants (i.e. state planning, technical assistance via SRPEDD)	  
Objective D: Increase local capacity and education around sustainable land use							
D-1	Increase local staffing capacity, including resources and training, for land use planning and enforcement.			Community managers, Select Boards	3-5 years, and as needed	Municipal budgets, utility fees	     
D-2	Work with and create easy-to-understand materials for developers to clearly define priority development vs. preservation areas, and preferred development practices.	✓	✓	Planning Boards	3-5 years	Local staff and board member time; grants; technical assistance	   
D-3	Increase public education about ecologically responsible land management practices.		✓	Planning Boards, Conservation Commissions, APC Management Team	1-3 years, and ongoing	Local staff and board member time; technical assistance	    

**Reference Terms:**

**Low Impact Development (LID)** is a land development strategy that incorporates nature based solutions into site design by preserving natural features as much as possible and minimizing the negative impacts of development on habitats and waterways.

**Open Space Design (OSD)** is a clustered development type that allows smaller lot sizes concentrated within a smaller footprint, so that the remaining lot area may be protected as open space.

**By-right** is a zoning term that means a certain use or development type is allowed, assuming it meets all other requirements of that zoning district, without needing to apply for a special permit. This option is the easiest way to get a project approved, and allowing perfered development techniques by-right incentivizes developers to adopt those practices.

**MS4** means Municipal Separate Storm Sewer System. Municipalities are subject to the MA General MS4 permit, which regulates how stormwater is managed and treated, to prevent negative impacts to water quality, flooding, and public health.

Icon Legend:

Flood Management

Drinking Water Supply

Water Quality

Ecology


Land Development

Recreation

Stewardship

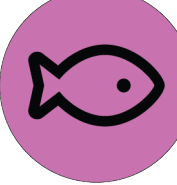


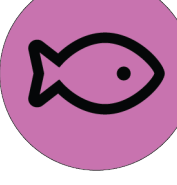



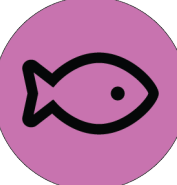


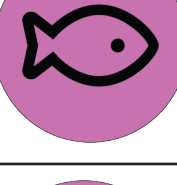


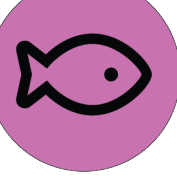




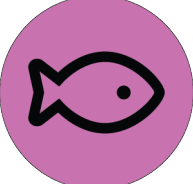


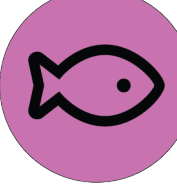


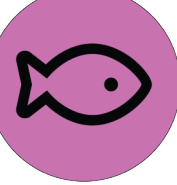


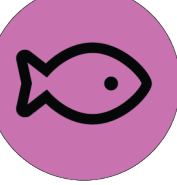


Interagency Cooperation





# Goal 6: Enable ecologically appropriate recreation

**SUMMARY:** For the purpose of watershed and climate resilience planning, a balanced recreation program is one which provides a quality outdoor recreation experience for people within a range of recreational activities that have a low impact on ecology and water quality in the Watershed. Community leaders and recreational users alike share the responsibilities of recreating appropriately in the watershed. Clearly communicated guidelines for how and where community members can enjoy various activities throughout the watershed can empower recreational users to be more mindful and reduce their impact on natural resources. This in turn can enable local capacity to expand the Watershed’s open space network and available programming.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Improve signage and communication regarding permitted uses, access locations, and proper standards for recreating in the Watershed							
A-1	Encourage responsible and appropriate recreation in the region by improving signage in and around the area about public access and use limitations.			Conservation Commissions, Parks Commissions, APC Rangers	Ongoing	Local staff and board member time; CPA funds; explore grant opportunities	  
A-2	Increase public access to online information about where and how to recreate across the Watershed.			Conservation Commissions, APC Rangers, Town Managers	Ongoing	Local staff and board member time; CPA funds; explore grant opportunities	  
Objective B: Increase local municipal capacity for oversight and enforcement of recreational activities across the Watershed							
B-1	Provide a larger annual budget for the <b>APC Rangers</b> program to increase their presence around the ponds during peak months, for public education, enforcement and safety.			APC Management Team, Town Managers & Select Boards	Ongoing	Municipal Budgets, water utility & boat permit fees	 
B-2	Increase municipal funding for local Parks Commissions and/or departmental staff to improve maintenance of open space.			Town Managers & Select Boards, Parks & Conservation Commissions	Ongoing	Municipal Budgets; explore potential grant opportunities	  
B-3	Create a formal system for logging reports submitted by the <b>APC Rangers</b> to keep track of repeat rule breakers.			APC Rangers, APC Management Team	1-2 years	Local staff & volunteer time; explore potential grant opportunities	  
B-4	Invite and advocate for more oversight from MA Environmental Police throughout the region, and at the boat launch for Long Pond, especially if a boat washing station is installed.			APC Rangers, Local Police, State Environmental Police	Ongoing	Local staff & volunteer time	  
B-5	Highlight the importance of the <b>APC Rangers</b> in town communications.			Conservation Commissions, APC Rangers, APC Management Team, Town Managers	Ongoing	N/A (routine staff operations)	  
Objective C: Maintain and center ecological integrity in recreational offerings							
C-1	Install a <b>boat washing station</b> at the Long Pond Boat Ramp in Freetown to reduce the spread of water-quality degrading invasive plants.			MA DCR, State and Local Police, Freetown Conservation Commission	1-2 years	State budget	  
C-2	Manage over-use of recreational areas that threatens ecology and natural resources by directing users to more appropriate locations.			Conservation Commission, Parks and Rec Departments, APC Rangers	Ongoing	Local staff and commission time	 
C-3	Establish Downtown Middleborough <b>River Walk</b> with educational and stewardship signage about the Nemasket River.			Middleborough Conservation Commission, Parks and Rec Dept; APC Management Team	3-5 years	Grants (state & federal trails grants); CPA funds	

Reference Terms:

The **APC Rangers** are the first line of defense for protecting the watershed and water supply from inappropriate use. They patrol the Watershed, enforce recreational use regulations, and provide education and outreach to recreational users.

**Boat Washing Stations** help reduce the spread of contaminants, like invasive aquatic plant and animal species, from one water body to another. Boats (particularly motor boats, but smaller row boats and canoes and kayaks as well) may carry hitch-hiking species on them, and should always be cleaned and disinfected thoroughly in between uses to reduce the spread of invasive and nuisance species.

There is a conceptual Downtown Middleborough **River Walk** in development on public properties from Route 28 to Route 105/East Main Street near the Nemasket River. There are some private properties interrupting the proposed pathway at present, but many properties are already public that could be used for a walkway and/or bike path. Educational signage placed along the walk could increase awareness about the River’s history and natural resources, and encourage more ecologically-mindful recreation.

Icon Legend:

 Flood Management

 Drinking Water Supply

 Water Quality

 Ecology


 Land Development

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 Interagency Cooperation





# Goal 7: Foster a widespread culture of stewardship

**SUMMARY:** Similar to recreation, stewardship requires a balance between the right to enjoy local natural resources and the responsibility to do so mindfully. It is important to note that everyone plays a role in stewardship, and there are opportunities for municipal managers, residents, recreational users and other stakeholders, through the ways they interact with the Watershed and its resources on a daily basis, to act as environmental stewards. Community leaders and land managers can help foster a widespread culture of stewardship among those who live, work and play in the watershed through education and leading by example, to help the public recognize and adopt best practices.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Expand outreach to increase education and awareness of the impact of stewardship							
A-1	Engage local schools and provide educational opportunities for youth.			Conservation Commissions, School Departments, environmental groups	1-3 years, and ongoing	Local staff time; in-kind services from environmental groups and consultants; explore grant opportunities	 
A-2	Reach out to property owners who live on the water and share recommendations on how they can be effective stewards.			Conservation Commissions, Planning Boards, Long Pond Association	1-3 years, and ongoing	Local staff time; in-kind services from environmental groups and consultants; explore grant opportunities	  
A-3	Increase public awareness of the scenic and ecological value of the Nemasket River, and support efforts to nominate this corridor for potential designation programs.			APC Management Team, APC Rangers	3-5 years, and ongoing	Local staff & volunteer time; explore grant opportunities	  
A-4	Expand spiritual, cultural, and historical education and recreation offerings to encourage better relationships with, and understanding of, the Watershed.			Local arts and culture organizations, Conservation Commissions, Historical Commissions, Parks Depts & Commissions	1-3 years, and ongoing	Local staff & volunteer time; in-kind services from local orgs; CPA; explore grant opportunities	
Objective B: Enable residents to apply their knowledge of stewardship to active stewardship projects							
B-1	Engage archeological and historical groups in stewardship efforts on a more regular basis.			Town Boards & Commissions, local community groups, Historical Commissions	Ongoing	N/A (routine staff operations)	
B-2	Encourage public review and comment on new water withdrawal permits from the Watershed to assure healthy ground and surface water flow levels.			Town Boards & Commissions; APC Management Team, local & regional environmental groups	Ongoing	N/A (routine staff operations)	   
B-3	Organize and mobilize local volunteers and environmental groups to help steward open space and outdoor recreation facilities.			Conservation Commissions, local environmental groups, APC Management Team	Ongoing	Local staff & volunteer time; in-kind services from environmental groups; explore grant opportunities	 
B-4	Enlist high school and college student-run clubs and/or programs to help monitor local ecological conditions and track changes.			Local environmental groups & schools	Ongoing	Local staff & volunteer time; in-kind services from environmental groups; explore grant opportunities	 
Objective C: Take municipal actions to improve stewardship							
C-1	Install public art in community and civic spaces throughout the region to foster a connection and celebration of the Watershed’s special natural resources.			Planning Boards, Dept of Public Works, Arts and cultural groups	Ongoing	Local staff and volunteer time; CPA Funds; explore grant opportunities	 
C-2	Manage growth in historical villages to enhance and preserve what is special.			Historical Commissions, Planning Boards, developers	Ongoing	N/A (routine staff operations)	
C-3	Encourage good stewardship of cranberry bogs and their preservation and/or restoration as wetlands.			Conservation Commissions, Planning Boards, Cranberry Bog owners	Ongoing	Local staff and bog owner time; utilize resources and grant funding from DCR, MDAR and NRCS	 

Icon Legend:

 Flood Management

 Drinking Water Supply

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# Goal 8: Expand opportunities to improve cooperative management

**SUMMARY:** For many of the management actions proposed in this Plan, cooperation among various local, regional state and federal entities is essential, particularly where interests and jurisdictions overlap. For example, several Nemasket River bridge crossings managed by the State Department of Transportation are of interest to entities focused on habitat and water quality restoration, as well as to recreational entities interested in river access locations. At a more holistic level, the overall management of the watershed requires continued and strengthened interagency cooperation and communication among local public water supply agencies in New Bedford and Taunton, watershed municipalities, homeowner associations, conservation agencies and organizations and many others. Collaboration across jurisdictions can increase efficiency and likelihood of success in achieving these management goals. Expanding upon the partnerships already existing across the watershed, and establishing platforms for more regular and streamlined communication with each other as well as with the public, will help achieve the 2050 Vision for the Watershed.

	Action Item	Nature Based Solution	Climate Resilience Priority	Responsible Party	Timeline	Funding	Co-Benefits
Objective A: Continue the efforts of the APC Management Team to enhance regional coordination and transparency of pond level management and water supply-related protections							
A-1	Provide ongoing transparency and clarity into Assawompset Pond water level management, particularly around target water thresholds.			APC Management Team, Water Suppliers	Ongoing	N/A (routine staff operations)	 
A-2	Consistently monitor and report water levels to a centralized online location where residents (and water suppliers) can access pond level information and the status of the dam (boards in or open) on demand.			APC Management Team, Water Suppliers	Ongoing	N/A (routine staff operations)	 
A-3	Install automated pond water level gauges that can streamline water level monitoring and reporting.			APC Management Team, Water Suppliers	3-5 years	Explore grant opportunities	 
A-4	Formalize fisheries and wildlife considerations in APC dam management through continued coordination between water suppliers and the Lakeville-Middleborough Herring Fisheries Commission.			APC Management Team	1-3 years	Local staff and board member time	  
Objective B: Improve regional collaboration and coordinate on environmental monitoring and management efforts							
B-1	Increase coordination with state agencies for improved regulation, education, management, and monitoring of invasive plant removal strategies.			Conservation Commissions; MA DCR, NHESP; APC Management Team	Ongoing	N/A (routine staff operations)	   
B-2	Coordinate efforts between towns and local stewardship groups to remove and monitor the spread of invasives plants.			Conservation Commissions, Long Pond Association, local environmental groups	Ongoing	Local staff and volunteer time	   
B-3	Increase collaborative efforts to preserve land in the Watershed through an inter-municipal committee dedicated to prioritizing acquisition targets and generating funding.			APC Management Team, Conservation Commissions, Open Space Committees, local & regional environmental groups	1-3 years	Local staff and volunteer time; in-kind time of environmental groups	  
Objective C: Educate stakeholders on methods they can take to reduce contaminant inputs							
C-1	Review <b>MOUs</b> , <b>OOCs</b> and operating procedures with entities like MassDOT and DEP that have a role in scheduled maintenance that affects drainage, sedimentation and water flow.			APC Management Team, Dept of Public Works	Ongoing	Local staff and board member time	   
C-2	Work with MassDOT to explore new road surface quality and road bed design and maintenance standards that will reduce runoff.			APC Management Team, Dept of Public Works, Conservation Commission	Ongoing	Local staff and board member time	   
Objective D: Improve communication and public awareness of environmental regulations and ongoing efforts across the Watershed							
D-1	Establish a public communications platform to share information about the watershed and communicate the status of various ongoing projects across the Watershed.			APC Management Team	Ongoing	Local staff and volunteer time; explore grant opportunities	 
D-2	Identify and address inconsistencies in bylaws and enforcement approaches between communities			Planning Boards, Conservation Commissions, APC Management Team	1-3 years, and ongoing	Local staff and board member time; explore grant opportunities	  
D-3	Work with state representatives and other communities to lobby for additional resources for MA Environmental Police.			APC Management Team, local and regional environmental/ advocacy groups	Ongoing	Local staff and volunteer time	  

Reference Terms:

**Memorandums of Understanding (MOUs)** and **Orders of Conditions (OOCs)**, in this context, are agreements between two or more entities on how to operate and maintain infrastructure (including roadways, culverts and bridges) that exists across overlapping jurisdictions.

Icon Legend:

 Flood Management

 Drinking Water Supply

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