

4.5 Objectives and Actions for Sustainable Water Supply in the Barnegat Bay Watershed

<b>Goal - To ensure adequate water supplies and flow in the Barnegat Bay Watershed for ecological and human communities now and in the future.</b>					
<b>WS Objective</b>	<b>WS Action ID</b>	<b>CCMP Action</b>	<b>Lead Partners</b>	<b>Time-frame</b>	<b>Costs</b>
<b>1. Protect, maintain and enhance existing water supply and surface and ground water flow</b>					
	<b>1-1</b>	Assess and implement existing shallow groundwater protection programs including wellhead protection and rainwater and treated wastewater recharge  <b>METRIC:</b> The number of shallow groundwater protection programs, including local ordinances and project sites  <b>MILESTONES:</b> 1-1a: Assess programs already in place  1-1b: Identify areas where programs could be located  1-1c: Implement programs  1-1d: Evaluate results	NJDEP, Municipalities, Utilities	L	\$\$\$\$
	<b>1-2</b>	Determine minimum ecological flow requirements for streams, rivers and wetlands within the watershed.  <b>METRIC:</b> Number of waterways with minimum ecological flows determined  <b>MILESTONES:</b> 1-2a: Compile available data and determine where sufficient data exists and where there are data gaps  1-2b: Address data gaps	NJDEP, USGS, Pinelands Commission	S	\$\$\$

		<p>1-2c: Perform ecological flow assessments</p> <p>1-2d: Peer review and publishing of assessments</p>			
	<b>1-3</b>	<p>Assess and rank streams in the watershed for water supply capability related to streamflow, surface and shallow groundwater withdrawal capacity, and ecological impact.</p> <p><b>METRIC:</b> Number of assessments completed by HUC14 watershed</p> <p><b>MILESTONES:</b></p> <p>1-3a: Compile available data</p> <p>1-3b: Address data gaps</p> <p>1-3c: Perform assessments and rank areas in terms of capacity and ecological impact</p> <p>1-3d: Publish information to inform regulatory decision-making and guide mitigation</p>	NJDEP	S	\$\$ or \$\$\$
	<b>1-4</b>	<p>Support comprehensive planning that will guide sustainable water supply management, and to the maximum extent possible, maintain natural hydrology.</p> <p><b>METRICS:</b> Percentage of a Barnegat Bay-specific water supply plan completed; Percentage of a Barnegat Bay-specific water supply plan implemented</p> <p><b>MILESTONES:</b></p> <p>1-4a: Identify plan elements and additional detail needed beyond the existing NJDEP Statewide Water Supply Plan</p> <p>1-4b: Develop plan with stakeholder involvement</p> <p>1-4c: Implement plan with stakeholders and through the regulatory process</p>	NJDEP, Water/WW Utilities, Pinelands Commission	L	\$\$\$ or \$\$\$\$

		1-4d: Review progress, revise and update plan			
	<b>1-5</b>	<p>Promote and support land use activities that enhance water supply protection and minimize water withdrawals and usage, especially in the most stressed water supply planning areas as identified in the State Water Supply Master Plan</p> <p><b>METRICS:</b> Stabilized water demand figures; Acres of land uses with low water demand</p> <p><b>MILESTONES:</b>          1-5a: Examine/classify land use activities and stressed areas          1-5b: Examine/classify per capita and regional water demands          1-5c: Identify and implement land use changes necessary to stabilize water demands          1-5d: Evaluate and revise approaches, as necessary</p>	NJDEP, Municipalities, Land Conservancies	L	\$\$
<b>2. Prevent degradation of water supplies</b>					
	<b>2-1</b>	<p>Inventory and promote municipal land use regulations that emphasize water supply protection as a primary goal.</p> <p><b>METRIC:</b> Number of municipalities inventoried; number of new municipal regulations/ordinances</p> <p><b>MILESTONES:</b>          2-1a: Identify local regs/ordinances that are effective in protecting water supplies          2-1b: Identify municipalities where these regs are in place          2-1c: Identify water supply sources by municipality          2-1d: Target promotion of land use regulatory improvements where improvements can be made and with respect to the local water supply source(s)</p>	NJDEP, BBP	S	\$

		2-1e: Update inventory and re-promote where needed			
	<b>2-2</b>	<p>Identify and acquire open space to support water supply protection, encourage natural recharge and reduce consumption.</p> <p><b>METRIC:</b> Acres of open space preserved</p> <p><b>MILESTONES:</b>          2-2a: Identify and prioritize parcels/tracts with water supply protection value for preservation</p> <p>2-2b: Develop/maintain GIS database of preserved open space and identified tracts</p> <p>2-2c: Screen parcels for willing sellers for conservation and prioritize these for acquisition</p> <p>2-2d: Update database and maintain periodic outreach to owners</p>	NJDEP (through Environmental Infrastructure Trust), Counties, Municipalities, Land Conservancies	L	\$
	<b>2-3</b>	<p>Establish and enforce 300-foot riparian buffers and pursue opportunities for green/blue acres acquisitions in buffer areas and floodplains.</p> <p><b>METRIC:</b> Number of new 300' riparian buffers established; existing natural buffers acreage; buffer/floodplain acres acquired via green/blue acres programs</p> <p><b>MILESTONES:</b>          2-3a: Identify 300' riparian buffer and floodplain areas in GIS database</p> <p>2-3b: Identify i) riparian areas without protection, ii) riparian areas with protection that have been illegally disturbed</p> <p>2-3c: Work with municipality or State to i) establish new 300' protective buffers, and ii) restore or provide mitigation for protected buffer areas that were illegally disturbed</p>	NJDEP, Municipalities, Green/Blue Acres, Land Conservancies,	M	\$\$

		<p>2-3d: Evaluate and pursue opportunities for green/blue acres preservation</p> <p>2-3e: Update/maintain GIS database</p>			
	<b>2-4</b>	<p>Identify, implement and support voluntary and mandated conservation and infiltration practices and regulation to maintain and restore base stream flows and natural hydrology.</p> <p>METRIC: Number of ongoing conservation programs and regulations identified, implemented, and supported</p> <p>MILESTONES:          2-4a: Identify effective water conservation and infiltration practices and programs, both voluntary and mandatory          2-4b: Build upon existing programs to incorporate new practices, increase effectiveness and expand coverage across the Barnegat Bay watershed</p>	<p>NJDEP, Municipalities, Utilities, Pinelands, USEPA WaterSense</p>	L	\$
	<b>2-5</b>	<p>Inventory and evaluate municipal ordinances, rate structures and other available information for opportunities to better ensure judicious water usage and incentivize water conservation at the household and community levels; including metering all water usage.</p> <p>METRIC: Water use in developed and developing areas</p> <p>MILESTONES:          2-5a: Develop list of strategies to decrease water usage at the household and community level           2-5b: Pursue opportunities/partners to implement these strategies           2-5c: Evaluate success</p>	<p>NJDEP, Municipalities, Utilities</p>	M	\$\$
<b>3. Monitor and assess status and trends of water supply throughout the watershed.</b>					

	<p><b>3-1</b></p>	<p>Conduct shallow aquifer protection monitoring.</p> <p><b>METRIC:</b> Collection of monitoring data</p> <p><b>MILESTONES:</b>          3-1a: Identify representative sites and install monitoring wells</p> <p>3-1b: Collected groundwater quality and water level data at appropriate intervals</p> <p>3-1c: Evaluate data, identify areas of concern, adjust monitoring as necessary</p> <p>3-1d: Institute groundwater protections/mitigation where needed</p>	<p>USGS, NJDEP</p>	<p>L</p>	<p>\$\$\$</p>
	<p><b>3-2</b></p>	<p>Continue to monitor water use trends.</p> <p><b>METRIC:</b> Availability of current database of water use trends for the Barnegat Bay watershed</p> <p><b>MILESTONES:</b>          3-2a: Maintain or, if necessary, expand upon collection of water use data</p> <p>3-2b: Periodically evaluate trends</p> <p>3-2c: Publish results to inform water supply planning and conservation programs</p>	<p>NJDEP</p>	<p>L</p>	<p>\$\$\$</p>
	<p><b>3-3</b></p>	<p>Continue, and if possible expand, stream flow monitoring throughout the watershed to assess the effects of changing precipitation patterns, water use and development.</p> <p><b>METRIC:</b> Number of stream gaging stations in the Barnegat Bay watershed</p> <p><b>MILESTONES:</b>          3-3a: Maintain existing gaging stations</p>	<p>USGS, NJDEP</p>	<p>L</p>	<p>\$\$\$\$</p>

		<p>3-3b: Identify areas where new stations, either temporary or permanent, would provide beneficial data and secure funding for installation and maintenance</p> <p>3-3c: Publish gaging station data on USGS website consistent with current practice, including a monthly summary of freshwater flows to the bay</p>			
	<b>3-4</b>	<p>Assess water-supply trends and effects of current and projected surface and groundwater withdrawals</p> <p><b>METRIC:</b> Number of completed assessment reports on the effects of existing and projected water withdrawals</p> <p><b>MILESTONES:</b>          3-4a: Develop current and projected water withdrawal estimates</p> <p>3-4b: Identify and address data gaps</p> <p>3-4c: Evaluate trends and effects (ecological, social, etc.) at appropriate spatial scales, from local to watershed-wide</p>	NJDEP, USGS	M	\$\$\$
<b>4. Review existing literature/successful pilots and conduct studies to improve scientific understanding of new and emerging issues pertaining to water conservation, advanced potable treatment options, and reuse</b>					
	<b>4-1</b>	<p>Identify infrastructure, research and piloting options for the use of advanced treatment at wastewater treatment plants and water reuse, including wastewater and gray water, within the watershed.</p>	EPA, USGS, NJDEP, OCUA	S	\$\$

		<p><b>METRIC:</b> Completed report on advanced wastewater treatment and reuse options</p> <p><b>MILESTONES:</b>          4-1a: Identify possible applications of advanced wastewater treatment and water reuse in the watershed, drawing from available literature</p> <p>4-1b: Identify and address, where possible, data/information gaps and barriers to implementation</p> <p>4-1c: Identify specific sites for pilot/research projects and corresponding infrastructure improvement needs and budgetary cost estimates</p>			
	<b>4-2</b>	<p>Conduct research on the effects of sea level rise, salt water intrusion, and deicer/chloride on regional water supply and ecology.</p> <p><b>METRIC:</b> Completed report(s) documenting threats and mitigation options</p> <p><b>MILESTONES:</b>          4-2a: Identify areas of vulnerability and existing or potential water quality impairment</p> <p>4-2b: Identify research questions</p> <p>4-2c: Secure funding, conduct research and report findings</p>	EPA, USGS, NJDEP, BTMUA, OCUA, BBP		
<b>5. Educate consumers regarding water supply issues and indoor/outdoor water conservation and reuse</b>					
	<b>5-1</b>	<p>Promote water reuse demonstration projects for stormwater, graywater and wastewater.</p> <p><b>METRIC:</b> Number of demonstration projects completed.</p>	EPA, NJDEP, Counties, Municipalities, MUAs, PPA	L	\$\$\$\$

		<p><b>MILESTONES:</b>          5-1a: Identify feasible demonstration projects</p> <p>5-1b: Leverage existing programs, or create new ones, to complete demonstrations with appropriate public education and outreach</p> <p>5-1c: Periodically update list of what is feasible to incorporate advances in understanding/technology</p>			
	5-2	<p>Disseminate educational materials related to best practices for water conservation activities.</p> <p><b>METRIC:</b> Number of materials distributed, people reached, and/or conservation improvements made</p> <p><b>MILESTONES:</b>          5-2a: Inventory available education materials and develop new materials, as necessary</p> <p>5-2b: Distribute materials to the public and incorporate into existing programs</p> <p>5-2c: Evaluate effectiveness and revise program, as necessary</p>	USEPA WaterSense, NJDEP, BBP, Utilities	S	\$
	5-3	<p>Develop program to educate stakeholders on the source and value of their water.</p> <p><b>METRIC:</b> Completion and implementation of program</p> <p><b>MILESTONES:</b>          5-3a: Inventory available education materials and develop new materials, as necessary</p> <p>5-3b: Develop education strategy</p> <p>5-3c: Implement program, evaluate effectiveness and revise, as necessary</p>	NJDEP, BBP, Utilities, PPA (Save the Source Campaign), USEPA WaterSense	S	\$
	5-4	<p>Implement components of the BBP Communications Plan related to water supply protection.</p>	BBP, Save Barnegat	S	\$

		<p><b>METRIC:</b> Water supply protection components being implemented</p> <p><b>MILESTONES:</b> 5-4a: Identify components and whether revisions/updates are necessary 5-4b: Leverage partners to carry out implementation</p>	Bay, JCNEER, NJDEP		
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