



Department of
Environmental
Conservation

MOHAWK RIVER BASIN ACTION AGENDA

2018-2022



Additional information about the Mohawk River Basin Action Agenda or the New York State Department of Environmental Conservation's Mohawk River Basin Program can be obtained by visiting:

<http://www.dec.ny.gov/lands/58571.html>

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Table of Contents

The Mohawk River Basin Program.....	1
Geographic Area.....	2
Goal 1: Improve water quality to create a swimmable Mohawk River	3
Goal 2: Improving fisheries and habitat to create a fishable Mohawk River	7
Goal 3: Planning for resiliency in the Mohawk River watershed.....	10

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The Mohawk River Basin Program

Conserving, preserving, and restoring the environmental quality of the Mohawk River while helping to manage the basin's resources for a sustainable future

The New York State Department of Environmental Conservation's (DEC) Mohawk River Basin Program, along with collaborating partners, seeks to promote the integrated and coordinated management of the many environmental resources of the Mohawk River and its watershed. As a partnership-based initiative, the Mohawk River Basin Program promotes collaborative decision-making based on an understanding of the entire ecosystem, recognizing that the complex issues within the region cannot be fully resolved by managing certain sectors, species or pollutants on an individual basis. The Mohawk River watershed is an excellent area for advancing New York State's ecosystem-based management goals by integrating environmental sustainability with the many compatible components of smart and sustainable economic growth and development. To be adaptive and responsive to our ever-changing environment, the Mohawk River Basin Program seeks to promote coordination and cooperation among public and private sectors, balancing competing uses, and inspiring compromise between users.

In 2009, the first Mohawk River Basin Action Agenda was developed by DEC in collaboration with partners from local, state, and federal agencies, academia, and many other non-governmental organizations. The Mohawk River Basin Action Agenda addressed goals and objectives specific to the watershed, as well as being supportive of a "whole Hudson" approach for managing the Hudson River and Estuary watersheds. The Mohawk River Basin Program's continued work is guided by this updated Action Agenda, a document with a focus on implementing a shared vision for the watershed of a swimmable, fishable, resilient Mohawk River watershed. Since development of the first Action Agenda in 2009, the region has experienced extreme weather events and flooding consistent with climate change predictions, and changes in land use and impacts from emerging invasive species have become cause for concern and action. Responding to these new challenges, the 2018-2022 Action Agenda directs actions and resources **"Towards a Swimmable, Fishable, Resilient Mohawk River Watershed"**. The Action Agenda is a vision for collective action and does not assume that any one entity will carry out all the work. Rather, it is to be viewed as a framework to guide implementation of goals by many stakeholders and partners in the watershed. It is our hope that all parties interested in sustaining the Mohawk River Basin will come together to assist in reaching the goals set forth in this updated Action Agenda (2018-2022).

Geographic Area

The Mohawk River Basin Action Agenda is a blueprint for managing the environmental resources of the Mohawk River Watershed located in central New York State. The Mohawk River, with its approximately 3,460 square mile watershed is the largest tributary to the Hudson River, making up roughly 25% of the Hudson's entire drainage area. The Mohawk River originates between the Adirondack Mountains and the Tug Hill Plateau in north central Lewis County, NY with most of the main stem intermingled with the New York State Barge Canal (formerly the Erie Canal). It flows eastward to its confluence with the Hudson River at Cohoes. Some of the Mohawk River's largest tributaries drain significant land areas of the southern Adirondack Mountains in Hamilton County (West Canada Creek) and the Catskill Mountains in Greene and Schoharie Counties (Schoharie Creek). The Barge Canal runs approximately 84 miles of the Mohawk River comprising nine locks, nine removable dams, five permanent dams, and five hydro-power facilities; not including the Waterford Flight (five more locks). Thus, the Mohawk River has been altered for navigational purpose since the Erie Canal was completed in 1825.

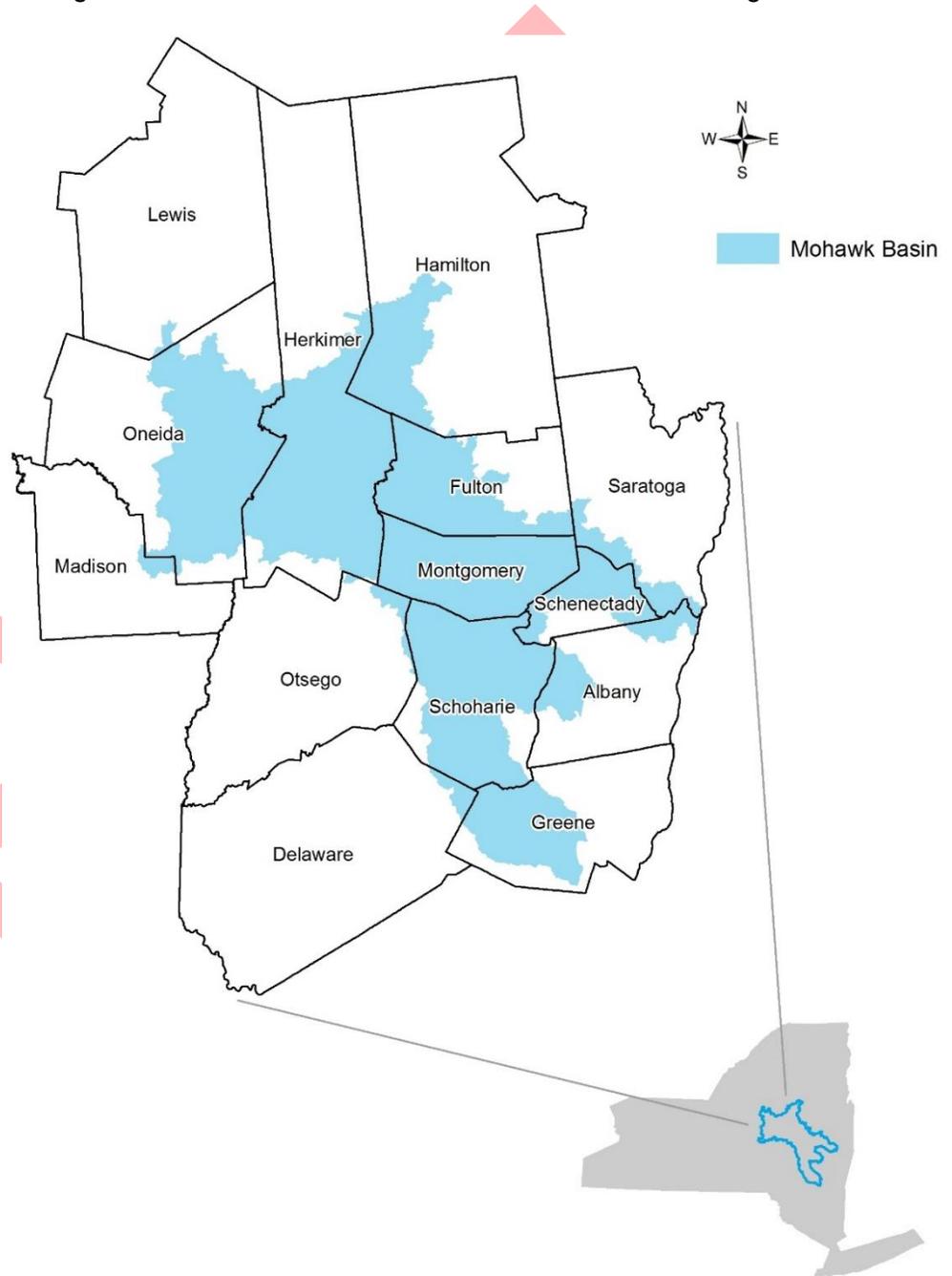


Figure 1. Map showing the general location of the Mohawk River watershed in New York State and the 14 counties it encompasses.

Goal 1: Improve water quality to create a swimmable Mohawk River

Tens of thousands of people visit the Mohawk River every year, participating in activities which bring them in direct contact with the water. Recreational activities such as boating, swimming, and fishing afforded by the Mohawk River create opportunities for transmission of waterborne illness through exposure to wastewater and can be hindered by excessive algal blooms and aquatic vegetation growth. Between May 2016 – May 2017 approximately 260 individual sewage discharge notifications of untreated or partially treated wastewater into the Mohawk River were reported to DEC (NYSDEC Sewage Pollution Right to Know, <http://www.dec.ny.gov/chemical/90315.html>, September 2017). Each of these discharges elevated the risk of human contact with waterborne illness. Since 2012 there have been 14 confirmed harmful algal blooms (HABs), three of which had documented high algal toxins present in nine different waterbodies within the Mohawk River watershed. An additional four HABs were suspected during that time. Like waterborne illness from bacterial contamination, these HABs limit the public's ability to recreate in or near these waters because of the potential threat to human health (NYSDEC Harmful Algal Bloom Notification Program, <http://www.dec.ny.gov/chemical/77118.html>, September 2017). Improving water quality to reduce risks to human health, safe guard water supplies, and improve recreational opportunities is a primary goal of the Mohawk River Basin Program.

Targeted Actions to Reduce Point Source Pollution

1. Working with NYSDEC regional offices, commit to a watershed-wide policy of no net increases in combined sewer overflow discharges.
2. Working with municipalities watershed wide, encourage them to develop and support policies to implement and accelerate regional Long-Term Control Plans (LTCP) that reduce or eliminate combined and sanitary sewer overflows, nutrients, and pathogens.
3. Continue to identify and address unauthorized discharges of untreated or partially treated sewage from collection systems, Publicly Owned Treatment Works (POTWs) and Publicly Owned Sewer Systems (POSSs).
 - Continue notifications under the Sewage Pollution Right to Know Act
 - Require and support the development of operation and maintenance plans and asset management plans for sewage collection infrastructure.

- Require and support the development of Inflow/Infiltration reduction plans, including but not limited to constructed improvements and green infrastructure practices, to reduce non-sanitary discharges to sewage collection systems.
 - Require and support collection system and treatment facility upgrades including better monitoring such as SCADA (Supervisory Control and Data Acquisition), engineered improvements like slip lining, and pump station improvements.
 - Require and support public education for sanitary sewer users.
 - Encourage POTWS and POSSs to seek infrastructure improvement funding through grants programs such as Environmental Facilities Corporation's Engineering Planning Grants (EPG) and NYSDEC's Water Quality Improvement Project Grants (WQIPG).
4. Encourage and support specific wastewater treatment improvements with or without a LTCP and include:
- Exploration of feasibility of wastewater treatment facilities in areas of dense development, areas with poor soils, and areas with a history of failing systems.
 - Sewer rehabilitation/replacement and construction of new facilities to address historic issues associated with poorly constructed or maintained facilities.
5. Require wastewater treatment facilities in the watershed to disinfect. For those facilities already planning on disinfection, reduce the implementation time frame, and for select facilities require disinfection year-round:
- During the contact recreation season from May 1 - October 31, public access points should strive to maintain below the New York State Department of Health single sample beach action level of 1000 cfu/100 mL no more than 24 hours after precipitation of (define storm of precipitation level here) or more.
 - Require LTCPs to include a 10hr return to "swimmable status" based on Department of Health's beach closure standard for coliform bacteria. Return to "swimmable status" should be confirmed with monitoring data.
 - The main-stem Mohawk River should comply with New York State's water quality standard for fecal coliform. The goal is to achieve a 30-day geometric mean of 200 cfu/100 mL during the contact recreation season from May 1 - October 31, and year-round in sections of the river classified for use as a drinking water supply.
 - All wastewater treatment facilities and sewage treatment plants discharging to the main stem Mohawk River, or otherwise having the potential to impact main stem water quality, should

implement a minimum of seasonal disinfection from May 1 - October 31. Year-round disinfection should be required on portions of the river classified for use as a drinking water supply.

- All wastewater treatment facilities discharging to tributaries located within one (1) mile of the main stem; facilities with permitted capacity between 0.1 and <1 mgd discharging to tributaries within 5 miles of the main stem; and facilities with permitted capacity for 1 mgd or greater discharging within 10 miles of the main stem Mohawk River should implement seasonal disinfection by 2022.

Target Actions to Reduce Non-Point Source Pollution

1. Reduce non-point source nutrient and sediment loads to the Mohawk River from active farmland.
 - With the Soil and Water Conservation Districts of the Mohawk River Watershed Coalition (MRWC) advocate for and access Federal Farm Bill programs available for best management practice implementation on agricultural land such as the Conservation Reserve Enhancement Program (CREP), Regional Conservation Partnership Program (RCP), and Environmental Quality Incentives Program (EQIP).
 - Accelerate enrollment in existing Farm Bill and NYS best management practice funding programs by reducing the cost share burden of individual farmers.
 - Establish the Dairy Acceleration Program (DAP) in the watershed.
 - Develop and implement Comprehensive Nutrient Management Plans (CNMP) for non-permitted facilities.
 - Expand existing contracts with MRWC and New York State Department of Agriculture and Markets to support implementation of best management practices (i.e. cover crops, riparian buffers) at the watershed or county level.
 - Identify and work to increase enrollment in New York State's Agricultural Environmental Management (AEM) program at the county level.
2. Develop a comprehensive riparian buffer program for both agricultural and urban land within the Mohawk River watershed.
 - Work with local land trusts and municipalities to purchase conservation easements on land adjacent to streams, stabilize streambanks, and restore riparian buffers.
 - Support expanded implementation of the Trees-for-Tribs program in the watershed.
 - Support adoption of local ordinances or zoning provisions that restrict development adjacent to streams and recommend restoration of riparian buffers.

3. Expand the main-stem Mohawk River water quality model and Total Maximum Daily Load (TMDL) into the remaining portions of the watershed. Implement best management practices to reduce nutrient loading as recommended in the TMDL or other priority Mohawk River and tributary watershed plans.
 - Update the MRWC's Mohawk River Watershed Plan to meet EPA's Nine Element plan criteria, including quantifying pollutant loads from sources identified in the watershed plan, identifying target pollutant loads to reach water quality goals, and identify specific BMPs needed to achieve total reductions.
 - Engage MRWC in development of the Mohawk River TMDL implementation strategy
 - Survey and evaluate local marinas and boat launch facility owners to better understand the demand for vessel pump out stations to reduce sewage discharges from boats.
 - Develop a best management plan tracking system which covers both historic and future best management practices. This can be done through modification of existing best management tracking systems in other watersheds.

4. Reduce non-point source discharges and pollutant loads from stormwater to the Mohawk River. This should be accomplished for all communities regardless of designation as a "Municipal Separate Storm Sewer System (MS4)".
 - Maintain compliance with Minimum Control Measures of the SPDES General Permit for Municipal Separate Storm Sewer Systems (MS4).
 - Identify, investigate and eliminate sources or potential sources of illicit discharges within the watershed.
 - Develop and maintain detailed mapping of the MS4 or municipal storm sewer system.
 - Develop and maintain detailed mapping of the storm sewer sheds within the regulatory boundaries of the designated community.
 - Implement roadway and ditch best management practices (i.e. hydroseeding) and support training of municipalities through the Cornell Local Roads Program or other education programs targeted for reducing stormwater.

Targeted Actions for Source Water Assessment and Protection

1. Source Water Assessment Program

Goal 2: Improve fisheries and habitat to create a fishable Mohawk River

The fisheries of the Mohawk River watershed, like many inland waters, are in a state of transition. Understanding the ecology of this diverse and highly disturbed watershed is complicated yet extremely important for creating sustainable fisheries in the Mohawk River. Extensive habitat alteration, water-level management practices, introductions of invasive species, and recent improvements in water quality have all contributed to shape the present-day fish community. This fish community is dominated by warm-water species and is used extensively by recreational anglers. Management of this fishery is complicated by the continuous influx of new species through the New York State Canal System and must balance the need to provide desirable fishing opportunities for sportfish while also trying to sustain native biodiversity. Improving water quality, enhancing fish habitat through ecologically based water-level management, and acting to reduce the influx of invasive species will improve Mohawk River fisheries and is another primary goal of the Mohawk River Basin Program.

Targeted Actions to Understand, Manage and Increase Fish Populations

1. Implement surveys of fish individual, populations and their habitats in the Mohawk River and key tributaries to increase our knowledge on their condition and health.
 - For example, assessment of the condition of important game fish such as walleye and smallmouth bass to better understand their resiliency and responses to invasive species and climate change. Similarly, conduct these assessments for native fish species as well.
2. Develop implementation strategies to mitigate the impacts of invasive species and manage the protection of native fish populations, communities, and the entire river ecosystem.
 - Investigate the extent and severity of ecosystem impacts caused by invasive or introduced species throughout the Mohawk River and tributaries.
 - Characterize the presence and/or colonization potential and expansion rates for nearby and already resident, non-native or invasive aquatic species. Assess their actual impacts or potential for harming resident fish assemblages in the Mohawk River and tributaries.
 - Document the spatial distribution and population dynamics of harmful invasive species that are a present or a potential threat.
 - Document the condition of current fish assemblages in the lesser-known natural river channel above Lock E16 and in major tributaries to the Mohawk River to establish baseline pre-goby information to gauge their impacts on Mohawk River fisheries.

3. Monitor and restore declining migratory fish populations. For example, survey the timing, movement, abundance, and distribution of migratory (anadromous and catadromous) species populations that historically of currently inhabit the Mohawk River and its tributaries.
 - Blueback Herring:
 - o Quantify the size of annual adult spawning run and young-of-the-year density to detect future changes in populations.
 - o Investigate habitat usage by both life stages, critical spawning habitat, limiting factors for in-migration and recruitment, and how water level management and canal lock operations could be optimized to benefit recruitment.
 - American Eel:
 - o Investigate and gather baseline information to better understand the spatial distribution and condition of existing populations.
 - o Conduct watershed-wide surveys to determine the status of American eel in the Mohawk River and tributaries. Identify prime eel habitat and identify limiting factors for juvenile migration into the watershed.
 - o Implement the successful “Hudson River Eel Project: Citizen Science Juvenile American Eel Survey” to document the movement of glass, yellow, and silver life stages of American eel within the Mohawk River and tributaries. Augment this program with additional academic research of these life stages.
 - Develop and implement comprehensive management actions that help grow, recover, or restore migratory fish populations that are struggling or on the edge of local extirpation.

Targeted Actions to Improve Habitat and Habitat Connectivity

1. Work with NYS Canal Corporation to formulate and implement a modified canal lockage plan to accommodate fish passage and conserve spawning habits for species such as Walleye, Blueback Herring and American Eel.
 - Monitor to measure impacts of the modified canal lockage plan on fish species in the Mohawk River.
2. Investigate the influence of the first lock passage of the Mohawk River located at the Federal Dam in Troy, New York on fish populations and habitat.
3. Develop comprehensive inventories of all artificial structures such as dams, road/stream crossings, gates, canal locks, gaging stations, and hydropower facilities located within the watershed. Create publicly accessible GIS base maps for use in various research and planning activities.

4. Inventory and assess bridges and culverts for their impacts upon ecological connectivity and flooding risk.
 - i) Conduct road/stream crossing assessments utilizing the North Atlantic Aquatic Connectivity Collaborative (NAACC) protocol (streamcontinuity.org) and enter data into online database
 - ii) Perform flood risk capacity modeling of NAACC assessed sites, create and share results with infrastructure owners
5. Develop and provide implementation grants that improve connectivity by replacing, removing or retrofitting road/stream crossings and dams based upon ranking and prioritization of NAACC assessed sites.

Targeted Actions to Improve Recreational Opportunities

1. Improvements to Access.

Goal 3: Planning for resiliency in the Mohawk River watershed

Resiliency is the capacity of social, economic and environmental systems to cope with stressors such as a hazardous event or disturbance; responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation. The Mohawk River watershed is a resilient ecosystem, and the communities located within this watershed are building blocks of that resiliency. Increasing community resiliency also serves to increase natural resource resiliency, as well as being an appropriate vehicle by which to also address climate change. Improving community planning and the sustainable use of landscapes for resiliency will enhance a community's ability to be both resilient and resistant to hazardous events and disturbances and is another primary goal of the Mohawk River Basin Program.

Global climate change means that the Mohawk River Watershed, like other areas of the world, will be increasingly subject to episodes of extreme weather, increasing in severity and frequency. In the Mohawk River Watershed, this is evidenced by flooding events within the watershed that have become more frequent and more destructive such as the back-to-back severe flooding events caused by Hurricane Irene and Tropical Storm Lee in 2011. These storms passed through the area within two weeks of each other, depositing upwards of 13 inches of precipitation in parts of the watershed. In June 2013, a severe precipitation event and subsequent flooding in Herkimer, Oneida and Montgomery Counties resulted in significant loss of infrastructure, property and human life, and in July 2017, an extreme precipitation event resulted in substantial flooding in Herkimer and Oneida Counties.

Flooding within the Mohawk River watershed has been a long-standing natural phenomenon since formation of the area, with vulnerability to flood hazards influenced by factors such as stream and river channel regulation, flood plain conveyance and constriction, ice jam formation, and storm dynamics. Landscape changes and human development have contributed to the impacts of flooding as land uses and development in flood prone areas change the hydrology of the watershed and limit the natural function of floodplains. To become more resilient to hazardous events such as flooding, communities must work to protect vulnerable undeveloped lands, to promote site development in safer locations, and to design development so that it is more resilient and less likely to be damaged in a flood event. Planning and implementing prioritized measures for environmentally and economically sustainable development is integral to communities becoming more resilient to future hazardous events and disturbances.

Targeted Actions to Increase Resiliency to Climate Change

1. Support community participation in NYS's "Climate Smart Communities Program" which is dedicated to reducing greenhouse gas emissions, improving climate resilience and adapting to a changing climate.

- Conduct Climate Vulnerability Assessments to increase natural resource resiliency and decrease vulnerability to future flood risks. Develop and implement priority project lists based on results of these assessments.
- 2. Implement comprehensive Climate Resilient Farming practices to reduce greenhouse gas footprints of farms, mitigate environmental impacts of agriculture-related activities, and enhance farm resiliency. For example, those developed by the United States Department of Agriculture (https://www.usda.gov/oce/climate_change/), or the NYS Department of Agriculture and Markets Climate Resilient Farming Program (<https://www.nys-soilandwater.org/programs/crf.html>).
- 3. Foster development of Comprehensive Plans consistent with the principles of Smart Growth and other sustainable growth and development principles, integrating environmental, social, historic, cultural, recreational and economic factors.
- 4. Develop and implement a comprehensive Green Infrastructure program to preserve and restore habitats, protect against flooding and restore natural hydrology which includes adoption of local ordinances or zoning provisions.
- 5. Maintain viable traditional agricultural and forested landscapes through implementation of land protection options such as conservation easements, purchase of development rights and other stewardship agreements to protect key farm and forest land within the Mohawk River watershed.
- 6. Encourage forestland owners to practice sustainable forest management through the development of forest management plans, implementation of Best Management Practices, and participation in State and Federal programs.
- 7. Work with communities to promote adoption of local ordinances or zoning provisions that include preservation and restoration of natural landscape features such as forests, floodplains and wetlands.

Targeted Actions to Increase Flood Resiliency

1. Implement community flood prevention strategies through the National Flood Insurance Program Community Rating System. For example, perform flood assessments, implement flood mitigation projects as recommended, and develop policies, practices, and tools to help communities maximize the flood protection value of floodplains.
2. Update and improve floodplain and flood risk mapping within the Mohawk River watershed utilizing current technologies. Expand mapping efforts to include previously unmapped tributaries, sub-

basins and upstream areas as well as restudies of outdated or flood-prone segments of the Mohawk River and its tributaries.

3. Expand existing flood alert system(s) through installation of new real-time stream gages throughout the watershed. Continue to improve emergency preparedness and response systems for anticipated extreme weather events that result in increased flood risk.
4. Investigate impacts of historic water level control structures on flood frequency and events throughout the Mohawk River and adjoining canal.
5. Understand and predict the hazards associated with ice jams through monitoring, investigation and assessment of events. Using monitoring data and developing predictive models, enable emergency responders to provide reasonable warning of where ice jam flooding might occur.
6. Implement projects to right-size bridges and culverts, conserve floodplains, and stream buffers for ecological benefit and managing flood risk. For example, develop conservation measures such as flood plain benches or green plains projects that manage risks associated with erosion and flooding in priority areas.
7. Implement projects that protect critical facilities from hazardous events and climate change. Such facilities include, but are not limited to utilities, health and safety, and vehicle and equipment storage facilities.
 - identify and prioritize critical facilities vulnerable to future flood risk.
 - relocate and/or retrofit critical facilities to reduce future flood risk.

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