Fall 2006

FEMA

Mitigation
...In Massachusetts

Mitigation (mit.i.ga.tion) n. - Measures taken to reduce adverse impacts.

"*Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage.*" -

FEMA.gov website, 2006

The Commonwealth of Massachusetts Department of Conservation and Recreation (DCR) and the Massachusetts Emergency Management Agency (MEMA) partner with the Federal Emergency Management Agency (FEMA) to deliver the following FEMA grants.

The Hazard Mitigation Grant Program (HMGP) provides a percentage of total Disaster Assistance funds for mitigation measures to be implemented during the immediate recovery *after a disaster*.

The Flood Mitigation Assistance (FMA) Program provides funding to states and communities for measures that reduce or eliminate the long-term risk of *flood damage* to buildings, manufactured homes and other structures insured under the National Flood Insurance Program (NFIP).

The Pre-Disaster Mitigation (PDM) Program provides competitive grants to states, tribal governments and local governments for cost-effective hazard mitigation that complements a comprehensive mitigation program.

A Comprehensive Approach in the City of Quincy

Photo by Anthony Losordo

As redevelopment moves ahead in the City of Quincy, local government, private contractors, and individuals are each investing in mitigation to produce a disaster-resistant community. The city currently has more than 88,000 residents; the largest municipality south of Boston.

"With 27 miles of coastline and the Blue Hills to our west, we experience the full range of coastal and inland flood problems," notes Quincy (MA) Mayor William J. Phelan.

Officials here have shown a long-term commitment to reducing threats to life and property from natural events. This takes the form of sharing

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Residents and Wildlife Benefit

Whately Wells Safeguarded

Modern bio-engineering methods protect drinking water for half of the quiet rural community of Whately, Massachusetts. This scenic town within the Connecticut River watershed is widely known for its agricultural setting and historic Main Street.

In 2000, the town and the Massachusetts Department of Environmental Protection (DEP) funded the stabilization of 215 linear feet of riverbank along the Mill River in Franklin County. The waterway had become destabilized during construction of Interstate 91.

The river meanders around two municipal wells serving the eastern side of town with 240 private homes, retail stores, and two manufacturing plants, including that of Yankee Candle Company, Inc. The wells were threatened by bank erosion that could change the course of the channel and damage or

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information and technical expertise between many departments, as well as, coordinating with City Planning and Community Development to locate grants.

The City of Quincy has repeatedly sought out funding from a variety of federal, state, and local sources to carry out undertakings as varied as public works, seawall construction, and housing improvements. Twelve FEMA grants specifically targeted drainage, pump stations, and acquiring and retrofitting residential homes with the assistance of the Federal Emergency Management Agency (FEMA). This FEMA aid totaled close to $3.5 million.

Since 1993, nearly one hundred homes were elevated, or their utilities and appliances relocated above the base flood elevation (BFE) with a combination of local, state, and federal dollars. According to Anthony Losordo, the city Program Manager of Housing Rehabilitation, "Every time there is a storm interest picks up and people start

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NRCS Photo

The bioengineered slope along the Mill River after placement in the fall of 2000.

FEMA Photo

Thick vegetation completely covers the river embankment during the summer of 2006.

destroy the wellhead and water supply infrastructure.

The project had two phases. The first placed a rock toe and a log revetment at the base of the riverbank slope, followed by brush layers, fascines (bundles of plant cuttings), brush mattress, geotextile material encapsulated fill, and live stakes on the upper slope. This established a self-repairing, armor of living vegetation along the stream bank. Lastly, sheet piles were added in the embankments closest to the wells.

DEP funded $67,869 of the cost from a Section 319 Nonpoint Source (NPS) Competitive Grant with the Franklin Regional Council of Governments administering the grant. The Town of Whately matched 40% of those dollars, plus additional expenses. Together the local community and state spent $171,144. Technical assistance was provided by the U.S. Department of Agriculture under the Natural Resources Conservation Service (NRCS).

Today the bioengineered slopes are covered with lush plant growth. The Whately Water Commissioner, Paul Fleuriel, is happy to see black locust seedlings moving onto the site. He recently noted river water temperatures are being kept cool by the shading of the bank vegetation, which is excellent for local fish and wildlife. In fact, the Mill River is listed by MassWildlife as a "Cold Water Fishery Resource" with reproducing native brook trout.

Both residents and wildlife are reaping the benefits of hazard mitigation along the Mill River in Whately, Massachusetts.

Information on the programs in the preceding article may be obtained from the Massachusetts Department of Environmental Protection, Section 319 Program Coordinator, Telephone: 508.792.7470, Web site: http://www.mass.gov/dep/, and from the United States Department of Agriculture, Natural Resources Conservation Service, State Conservation Engineer, Telephone: 413.253.4362, Web site: http://www.ma.nrcs.usda.gov/

From Evacuations to Open Space in Lawrence, MA

The May 2006 flooding within Lawrence's Arlington neighborhood impacted two dozen fewer families then in the past, according to Michael Sweeney, Planning Director for the city. In the previous twenty years, evacuations have occurred several times.

DCR Photo

FEMA Photo

(Top right) View from Holly Street across acquired properties, May 2006 Flood

(Left) A portion of the Holly Street site post-flood, July 2006

This older urban area is located next to the Spicket River, a tributary of the Merrimack River, and close to Malden Mills of textile manufacturing fame.

In 2003, the largest New England acquisition by FEMA was completed here with twenty-two owners and tenants relocated out of the river floodplain at a cost of $1,411,430. A FEMA Hazard Mitigation Grant Program award paid for 75%, and a HUD Community Development Block Grant covered the remaining 25% of costs. MEMA and DCR provided technical assistance.

Two months after the heavy spring flooding in 2006, the grassy fields at the site appeared untouched. Red clover and milkweed bloomed profusely as butterflies fluttered about. Local children frequently explored the broad open space. This is an unusual landscape to find in a congested city of 10,000 people per square mile. Community leaders recognized the unique opportunity this land offered to local families.

Officials plan to make the property part of a larger greenway along the Spicket River. Additional city lots nearby are being held to use in a larger planned, passive recreation area. Now the neighborhood is looking at a future ball field and river walkway. Sweeney says, "None of this would have been possible without FEMA and the state".

Reservoir Inlet and Dam Improved

The residents of Haverhill depend on their reservoir, Kenoza Lake, for drinking water, but on March 22, 2001 that reliance was threatened. Over 5 inches of rain coupled with 36 inches of melting snow washed out 20 feet of an earthen dam separating the lake from a smaller pond known as Winnekenni Basin. Estimated damages exceeded $57,000. The situation became critical as storm water and sewage overflowed into the basin.

Despite the city spending $180,000 to update its sewer system in the area, the reservoir continued to be vulnerable to elevated bacteria levels following rainstorms as water flowed in from the basin.

A view of the reconstructed dam (upper right) as seen from Winnekenni Park in Haverhill, MA.

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Photo courtesy of Haverhill Water Dept.

Reconstruction of the dam and outlet control structure, July 2004.

FEMA Photo

The dam road completes a public trail encircling the pond, July 2006.

With $157,500 from the Hazard Mitigation Grant Program, the city reconstructed the dam in 2004 at a total cost of $260,000. Unlike the original built in the 1800's, the improved dam has a steel sheet wall, concrete seepage collars, and rip-rap slopes. A flow control structure replaces the previous 24 inch culvert through the dam.

In the words of Water Treatment Plant Manager John D'Aoust, "It has given us the ability to easily drop the water level in Winnekenni Basin in anticipation of large rain events…The Winnekenni Dam has weathered heavy rainstorms and performed each time."

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thinking how they want to start their own project."

The city has utilized the FEMA Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA), and Pre-Disaster Mitigation (PDM) program to implement its elevation/utility retrofit project. The U.S. Dept of Housing and Urban Development (HUD) has also been a significant contributor through Community Development Block Grants (CDBG).

In addition to flooding, other natural hazards have been targeted by local authorities. Public Works Engineer George Clark remarked that over a decade ago a fire danger posed to local homes by dry marsh vegetation was removed near Post Island Road. This was accomplished by installing a new tidal gate to deliberately discourage an invasive plant, *Phragmites australis,* through the regular ebb and flow of seawater.

By April 2005 a Hazard Mitigation Plan for Quincy was approved by FEMA and the city may request additional federal funds for eligible projects. This plan identifies prospective mitigation sites.

Quincy Public Works may add up to four additional drainage projects for action within the next updated Hazard Mitigation Plan.

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This brochure is a publication of the U.S. Department of Homeland Security, Federal Emergency Management Agency, produced in cooperation with the Commonwealth of Massachusetts.

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