Newburyport FY20 MVP Case Study

Municipality: **City of Newburyport**

Project Title: **Resilient Critical Infrastructure: Adapting Wastewater Treatment Facility, Underground Electric Lines and Public Rail Trail to Future Sea Level Rise and Storm Surge**

Grant Award: $71,160
Match: $23,720

Community Overview:

The City of Newburyport is a small city of approximately 18,000 people located on the Merrimack River and Atlantic Ocean about 35 miles north of Boston. Newburyport includes a large stock of 19th and 20th Century pre-World War II architecture, as well as a large National Register Historic District, making it one of the older and more historic cities. Newburyport has been largely shaped by its waterfront. In the 17th and 18th centuries, Newburyport was a center for ship-building, fishing, and trade. In the 19th Century, the community's waterfront became industrialized, including filling in the wharves and reshaping the shoreline to support a railroad and the regional distribution of coal. In the mid- to late 20th century, the downtown and the central waterfront were revitalized through "urban renewal" public investments which helped bring the community out of a lengthy economic slump.

Description of Climate Impact:

Newburyport has experienced many challenges related to climate change in recent years, and vulnerabilities will continue to increase with future sea level rise. Significant storms have caused severe flooding and erosion due to rainfall and storm surge coinciding with seasonal high tides, impacting infrastructure and causing major disruption to commerce, government, schools, transportation, power distribution, emergency response, and life in general. A top concern identified during the MVP planning process, as well as a number of regional studies, is erosion along the shoreline and flooding of the City's newly upgraded wastewater treatment facility (WWTF) located in the Merrimack River coastal floodplain, which is largely below the current FEMA Base Flood Elevation. In addition to the WWTF, this section of shoreline includes vulnerable 23 kV underground electric lines serving the City and the region, as well as the missing link of a Rail Trail network.

Newburyport's Wastewater Treatment Facility (WWTF) is a regional facility handling 3.4 million gallons per day of wastewater for all the households, businesses, and institutions in the City of

Newburyport as well as a substantial portion of the neighboring Town of Newbury in both Plum Island and on the mainland. The plant has been in operation at this riverfront location for over half a century since it was built in 1964. In recent years, $37 million have been invested in upgrading the facility by a combination of local, state, and federal funding. The facility has an expected useful life of approximately 50 years when the plant will need additional rehabilitation or relocation. Modern sewage treatment has enormous impacts on human and ecological health. Flooding the WWTF would result in severe consequences, shutting down the treatment plant and causing raw sewage overflows into the streets, Merrimack River, and ocean, producing major negative public health impacts, environmental and habitat damage, and requiring millions of dollars of lengthy repairs. The City needs to take action to protect the critical infrastructure of the WWTF and the underground electric lines.

Project Goals:

The project's goals include cleaning up PCB-contaminated soil, developing the design and applying for permits associated with reconstructing a sloped stone revetment, an elevated berm, and a paved trail on top. Once constructed, this project will be a critical step towards the protection of the Newburyport Wastewater Treatment Plant, protection of the underground 23kV power lines servicing the region, and providing a multiuse public Rail Trail in order to help make this infrastructure resilient to future sea level rise and storm surge.

Approach and Result:

The City has worked with a Licensed Site Professional (LSP) to identify and characterize the area of soil contamination, report to the state and federal regulatory authorities, and manage a contractor to excavate, transport, and dispose of the contaminated soil where feasible along this section of shoreline. The City hired engineering consultants to develop plans, specifications, cost estimates, and permit applications for rebuilding the seawall and sloped stone revetment, an elevated berm, and public trail along this 1,100 section of vulnerable shoreline.

Lessons Learned:

The cost and complexity of this type of waterfront climate change resiliency project is more than most other projects. The permitting effort associated with this waterfront project has required substantially more time and effort than originally anticipated (even by experienced consultants and municipal project managers) to address the concerns and requirements of multiple local, state, and federal regulatory agencies. In addition, the highly regulated process of remediating contaminated soils has required substantially more planning, time, regulatory coordination, and money than originally anticipated.

Partners and Other Support:

The City of Newburyport's Office of Planning and Development has been the primary proponent for the project, working under the direction of the Mayor's Office, and has worked closely with the City's Department of Public Services to develop and review the plans. In addition to the Municipal Vulnerability Preparedness Program, the project has been supported financially and politically by Newburyport's Water/Sewer Commission, Community Preservation Committee, and City Council. The nonprofit regional Coastal Trails Coalition has provided advocacy support and some financial support, as well. The regional Merrimack Valley Planning Commission has provided grants and technical assistance in support of the contaminated soil cleanup. The City's consultants Stantec, GZA, Bryant Associates, and Dewberry have provided analyses and reports, surveys, permit applications, plans, cost estimates, and specifications. The City's remediation contractor U.S. Ecology/NRC has provided excavation, transport, and disposal services to address the contaminated soil.