Dunshire Drive Culvert Replacement & Deep Brook Stream Restoration: Phase I
Town of Chelmsford FY20 MVP Action Grant
Project Summary
June 30, 2020

In January 2020, The Town of Chelmsford was awarded an action grant through the MVP program administrated by the Executive Office of Energy and Environmental Affairs in the amount of $83,545 to complete Phase I of the Dunshire Drive Culvert Replacement & Deep Brook Stream Restoration Project. This project involves redesign and subsequent replacement of undersized drainage infrastructure as well as ecological and stream bank restoration. These improvements will increase the resiliency of the neighborhood and associated roadways, reduce localized flooding in current and future climates, and enhance the resiliency of over thirteen acres of residential land located within the Merrimack River floodplain.

As part of this project, the Town seeks to incorporate nature-based solutions into the engineering and construction phases of the project while replacing the existing culverts with more effective, resilient drainage infrastructure. This new infrastructure consists of appropriately-sized box culverts, reestablishment of uninterrupted stream bed beneath the road crossing which will provide improved aquatic habitat and promote ecological restoration. Additionally, the project includes stream bank restoration and the design and installation of water quality swales to encourage natural infiltration of stormwater runoff.

The entire project was split into two phases, the first of which involved field collection and analysis, modeling, design, and permitting, while the second phase involves construction. The time frame, from January to June 2020, was ambitious and despite many hurdles including COVID-19, the project team was able to complete all deliverables and submit an application to the MVP program for funding for Phase II. The team, which consisted of several members of the Chelmsford Department of Public Works as well as consultants and engineers from Weston & Sampson, completed a topographical site survey, wetlands delineation, geotechnical assessment, climate change model, a hydrologic and hydraulic assessment, and public outreach initiatives. Each of these, after collective review, informed a structural and civil design for the project which aims to mitigate issues of increased flooding due to climate change and address presently failing, existing infrastructure. At each stage of Phase I, the project team reached out to residents to educate and inform, then gather input and receive feedback on the ongoing issues in the neighborhood and to share the intent of the multi-phased project. The designs that have resulted from the months of work spent compiling data and information will be submitted as part of a permitting packages and notice of intent that will be filed with the Army Corps of Engineers, MA DEP, and the local Conservation Commission.

Ideally, we will receive notification of and be awarded funding for Phase II by August 2020 and by that time, with permits in hand, we will be prepared to begin construction in the fall of 2020. Please see the attached slides for photos and summary of project milestones.