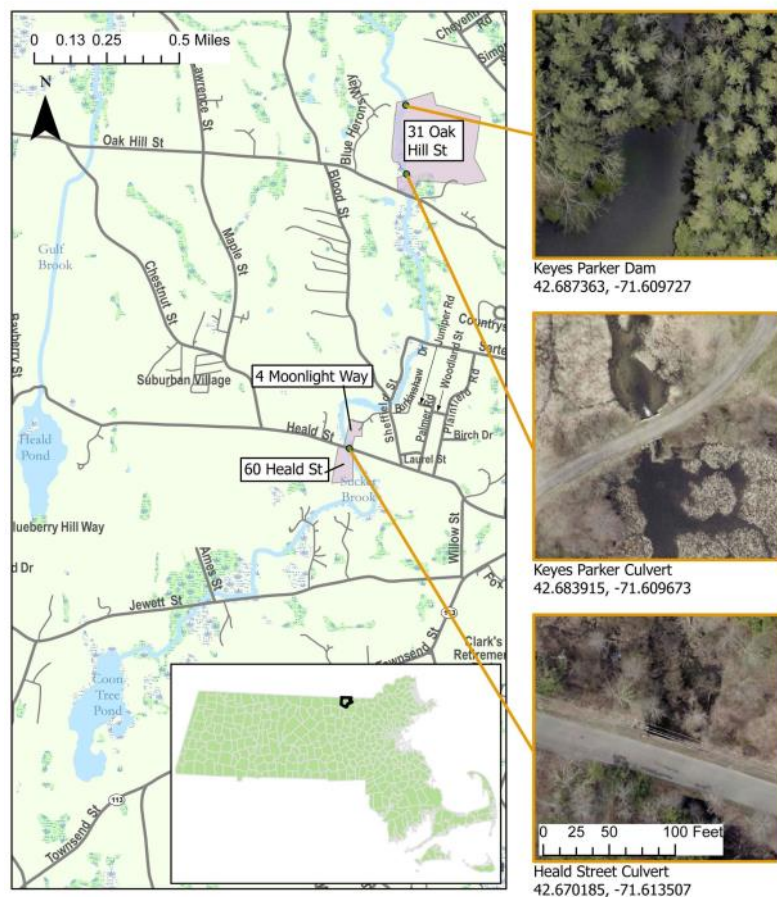


# Sucker Brook Continuity Restoration



## Community Background

Pepperell is a community of 11,694 people located in northwestern Middlesex County. It is 23.2 square miles in size and is located at the confluence of the Nashua and Nissitissit Rivers. Pepperell prides itself on its rural character and recognition for its commitment to permanently protected open space, including properties in agriculture. The Town of Pepperell has an Environmental Justice (EJ) population identified through the income criteria. In addition, Pepperell is an aging community and our seniors were identified as vulnerable. Flooding of roadways, sometimes major roadways, is always a major concern with two major river systems, because it can cut off access to critical services. The town has few options for those who require transportation if they do not have access to a vehicle, which can result in challenges for residents who rely totally on others to provide services.

## Project Goals

The project goals were to improve ecological conditions in Sucker Brook, a tributary to the Nissitissit River, by restoring stream continuity and restoration of the stream's natural processes with the removal of a dam and replacement of two undersized, perched culverts with culverts that meet MA Stream Crossing Standards, thereby improving habitat while addressing current and future climate change impacts. Monitoring efforts pre- and post-dam removal and culvert replacement, are taking within the Project area to evaluate long-term impacts and climate resiliency benefits of the project.

<b>MVP REGION</b>	Northeast
<b>GRANT AWARD</b>	\$840,142 (FY22/23)
<b>MATCH AMOUNT, SOURCE</b>	\$206,238 In-kind services, non-profit volunteer efforts, town
<b>PROJECT TYPE</b>	Construction and On-the-Ground Implementation
<b>CORE VALUES EXEMPLIFIED</b>	Employing Nature-Based Solutions; Utilizing climate change data
<b>OUTCOMES</b>	Dam Removal and culvert replacement to improve ecological conditions
<b>ADDITIONAL RESOURCES</b>	<a href="https://town.pepperell.ma.us/767">https://town.pepperell.ma.us/767</a> Sucker Brook Continuity Restoration-

# Sucker Brook Continuity Restoration



**Heald Street field data collection**

These efforts include, Photo Stations to capture changes to physical and biological conditions in riparian vegetation or channel features; Fish Community Assessments to collect presence/absence data on fish communities; Mussel Surveys and Monitoring to study populations of rare mussels and understand the impacts on all mussel species present; Sediment Management and Monitoring to evaluate sediment movement pre- and post-dam removal; ongoing Stream Temperature Monitoring post project completion by UMass Amherst, working with the Squan-a-Tissit Chapter of Trout Unlimited, for comparison with data collected over the past three years upstream and downstream of the Project site; and Vegetation Monitoring of riparian areas as well as those areas along the shoreline of the impoundments for invasive species.

## Project Outcomes

The Projects at the Keyes Parker Conservation Area removed two barriers and reconnected a 1.66 mile segmented section of Sucker Brook. The project at Heald Street, which consisted of a culvert replacement, removed one barrier and reconnected a .5 mile segmented portion of Sucker Brook. Each structure formed a barrier, which caused warmer, impounded waters while restricting the movement of sediment. The project eliminated warmer, shallow, impounded waters, which impact coldwater species. It will improve water quality and quantity; remove a public safety hazard including a potential road failure as a result of the collapsing culvert; eliminate flooding risks of agricultural fields; reduce the need for ongoing emergency maintenance of the culverts by highway department staff during flooding events; and build climate resiliency. Community outreach regarding the project included information sharing on the town website and at information sessions with seniors, the general public, state officials, representatives of conservation and watershed organizations, and UMass Amherst students. The project employed nature-based solutions such as an extensive native planting restoration effort.



**Keyes Parker culvert construction**



# Sucker Brook Continuity Restoration

Keyes Parker pre dam removal



Sucker Brook fish survey

## Lessons Learned

- Lasting partnerships are a critical component in moving projects of this size forward and these partnerships are the key to success, especially when considering future projects .
- While recognizing the need for regulations and oversight, it was realized that the permitting process can be very time consuming and costly and it is important to ensure that all permits are in hand prior to applying for funding for the construction phase of each project.

Keyes Parker post dam removal

