



Assawompset Pond Complex Floodwater Management Program 2020

SNAKE RIVER CULVERT REPLACEMENT

Priority Action Next Steps Summary

Where: MassDOT owns the culvert where the Snake River (also known as Long Pond River) crosses under Bedford Street (Route 105/18) in Lakeville. The culvert location is shown with the green dot/red triangle in the map, adjacent to Tamarack Park.

What's the problem:



The Snake River culvert is a 4' x 8' concrete box culvert that facilitates the flow of water between Long Pond and Assawompset Pond under Bedford Street. The culvert was constructed in 1993 as part of a road safety improvement measure by Mass Highway District 7 (now MassDOT District 5 jurisdiction). The invert of this culvert was determined to be too high for the downstream migration of juvenile herring. To remedy this, Mass Highway added a 2' diameter culvert, approximately 30" to the north of the larger culvert, in 1994. State dive teams have periodically inspected the larger structure, most recently in September of 2016.

Flooding in this area suggests that the culvert is undersized, creating backwatering that overflows Bedford Street during high rains, and with a design that hinders fish passage. The latter problem has led the Division of Marine Fisheries to designate this stream crossing as a Priority Barrier that inhibits the passage of diadromous River Herring and American Eel species. According to NAACC culvert surveying methodology and bankfull estimates (22.8 ft to 44.1 ft) from USGS StreamStats, the culvert width of 8' represents a severe constriction to stream flow. Increased development around the pond shore, shallow stream profile, continued presence of aquatic invasives, and lack of stormwater improvements and flood control measures all contribute to the problem. Because the culvert runs the width of the public right of way, a failure could cause Bedford Street to become impassable in this location, flood pond-front communities on Long Pond, make Town Hall inaccessible, and force emergency response personnel (fire and rescue) to use other routes leading to longer emergency response times.



What's the solution: Replace the existing problematic culvert with a new, larger open box or open bottom arched culvert that will allow greater conveyance of water, lessen overtopping during flood events, and allow for fish passage.

Who: The Town of Lakeville, MassDOT (especially District 5), SRPEDD, Mass DEP, the Division of Ecological Restoration, the Middleboro-Lakeville Herring Fisheries Commission, environmental non-profits, and civil engineers would have a role. The Town would like to work with MassDOT to replace the culvert, but MassDOT has no immediate or long-term plans to improve Bedford Street. MassDOT has worked with outside partners to facilitate similar repairs in tidally impacted areas.

Steps to complete work:

1. File a Notice of Intent (NOI) with the Lakeville Conservation Commission
2. Obtain a MassDOT Access Permit
3. Conduct assessment field work to determine design specifications
4. Engineer culvert design
5. Permitting
6. Culvert removal and construction

Permits required: Environmental permitting and coordination, from concept through construction may include: NOI, MassDOT Access Permit, MESA Coordination, Ch. 91, ACOE, WQC from DEP, Sect. 106 Coordination; MEPA

Assets and barriers: The data already known about this culvert is an asset. The state dive team inspection results, knowledge of fisheries impacts at the Herring Commission, and monitoring conducted by SRPEDD staff (2001-2003, as part of the Geographic Roadway Runoff Inventory Program and a DEP Source Water Protection Program Grant) will all contribute to expediting initial project design and investigation and have noted problems related to increased presence of aquatic invasive vegetation, channel clogging, and poor water exchange. Inadequate culvert infrastructure has become a priority issue across the state, with guides on the construction of better culvert systems now available. The barriers to culvert replacement projects are mainly associated with funding, phasing the project in sync with funding schedules, and coordinating all of the agencies that have a role in the project.

When would we see results: approximately two years

How much (ballpark costs):

- Initial Phase (field data collection and analysis, engineering, permitting) - \$75,000 - \$100,00
- Construction Phase - \$200,00 - \$500,000



Funding sources: USFWS, NOAA, DEP 604(b), DEP Sect. 319,, Mass. Environmental Trust (MET), MVP Action Grant, NFWF

Similar Examples: Pearse Road, Swansea; Hill Street, Raynham