One Town's Perspective on PIE-Rivers Priorities

PIE-Rivers Partnership 2018 Annual Meeting

Thursday, December 6th 8 AM to 12 PM
Newbury Town Library, 0 Lunt St, Byfield

Recommended Actions

In 2013, the Partnership released a list of 50 recommended actions to protect and restore the region's resources over the long term. In October 2014 the Steering Committee identified four priority areas for PIE-Rivers to focus on in the near-term. These priority areas directly address 12 of the original 50 actions.

Near-term Priorities | Complete List

Stormwater & MS4 Support

Related Actions:

- Identify Stormwater Priorities
- Provide MS4 Support
- Upgrade Stormwater Systems

River & Stream Continuity

Related Actions:

- Prioritize Aquatic Barriers
- Remove Migration and Flow Barriers

Water Conservation

Related Actions:

- Water Conservation Outreach
- Incentivize Water Conservation
- Create Model Municipal Integrated Water Resources Management Program
- Develop Water Conservation Program

Land Conservation & Protection

Related Actions:

- Prioritize Conservation Land
- Regional Land Protection and Conservation Plan
- Improve Conservation Land Stewardship

Storm Water and MS4 Support

Identify Storm Water Priorities


EXIT
PLEASE SIGN IN


05/15/2006


12/20/2006


05/15/2006


12/20/2006


12/20/2006


SPEED LIMIT 35
05/15/2006


05/15/2006


05/22/2007

CULVERT INSPECTION

BOXFORD, MASSACHUSETTS

General:
Date: 6 Oct 2014 Surveyed By: AJR
Weather: 40s Sun

Identification:
ID Name: D3 Culvert #: 1546, 1547

Location:
Route/Street: Baldpate
Nearest Cross Street: Great Pond Distance
Nearest House #: 64 Distance 100
Nearest Pole#: 21 Distance 30

Type of Culvert:
Shape: Box Coating:
Material: Stone Length: 27'
Size: 42" x 30" (W x H)

Headwall/Wingwalls
Headwall Material: Poured Concrete
Wingwall Material: —
Comments: —

Condition:	Condition Rating	Remarks
Channel & Channel Protection		
Channel Scour	3	Heavy Flow
Embankment Erosion	3	
Blockages/Debris	3	
Vegetation	3	
		General Rating: 3
Culvert & Retaining Walls		
Barrel	3	
Joints	3	
Headwall	2	Poured concrete is corroding
Wingwall	—	
Settlement	3	
Adequacy of Cover	1	very little cover
		General Rating: 2
Roadway		
Shoulder	2	Moderate cracking
Embankment	2	
Pavement	2	
		General Rating: 2

Recommendations and Miscellaneous Comments: 4 pics

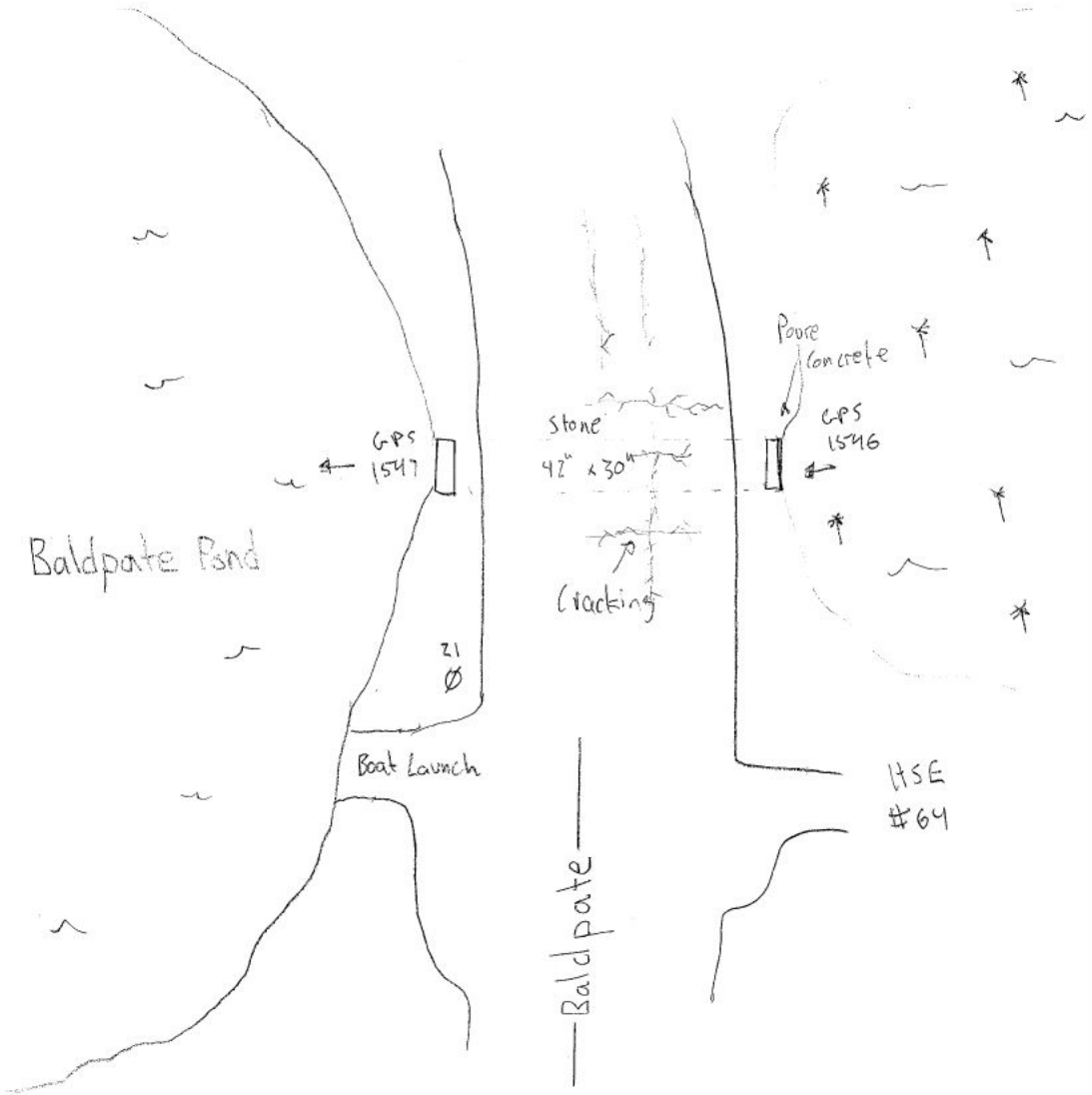
Rating Legend:
1 = repair/replace, emergency
2 = routine maintenance
3 = no action, check again in 1 year

Decent shape, corrugated metal roof shows moderate rust. (see picture "Baldpate GPS 1546 (2)")

Overall Rating: 2.0

28 Fox Road, Waltham, MA 02451-1099
Phone: (781) 891-2333 • Fax: (781) 891-1631
Email: info@haleyward.com • Web: www.haleyward.com

Sketch


GPS
1547
Baldpate Pond
21
Boat Launch
Stone
42" x 30"
Cracking
Poure
concrete
GPS
1546
ITSE
#64
Baldpate

Storm Water and MS4 Support

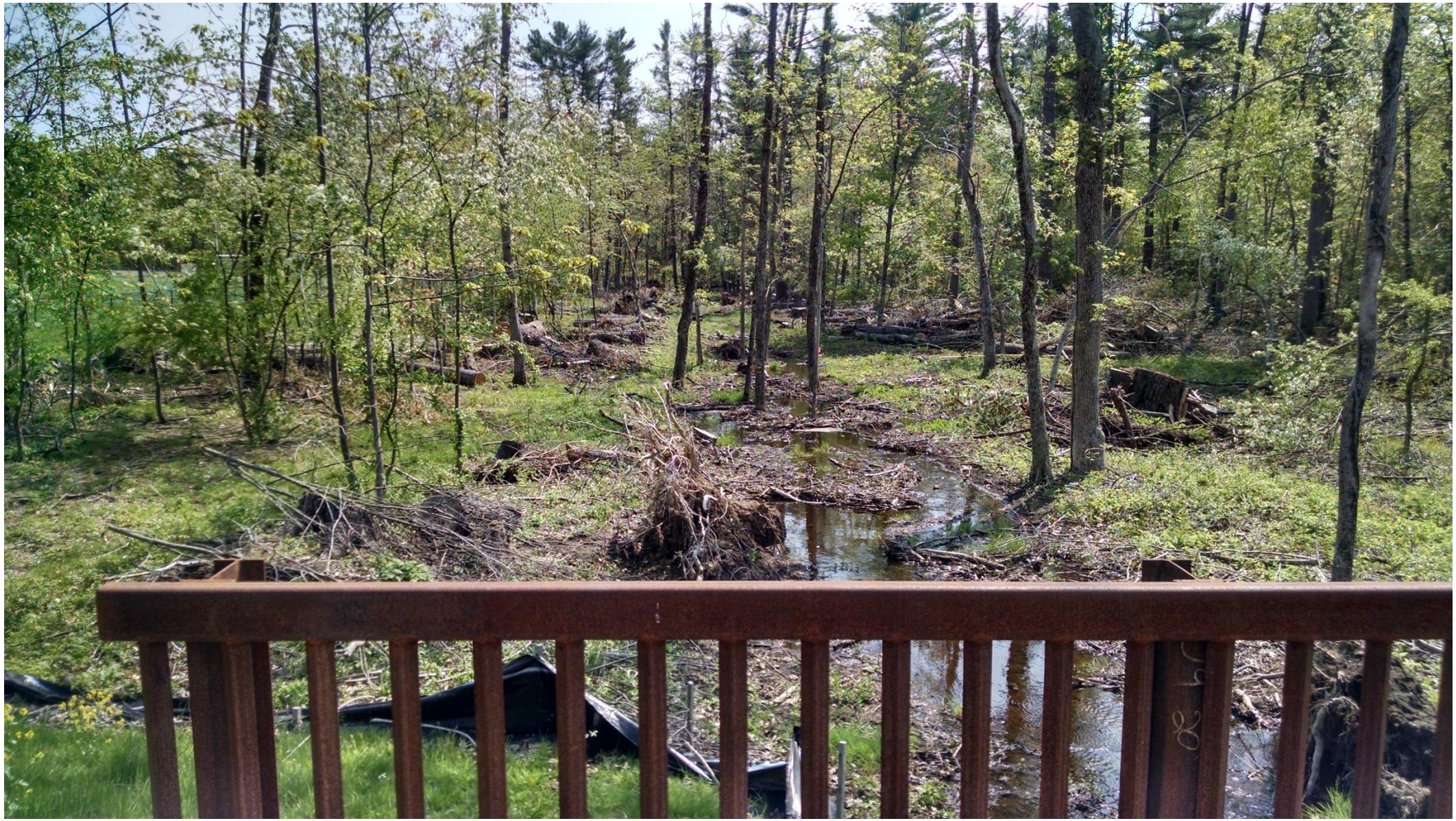
PIE Rivers MS4 Support

Storm Water and MS4 Support

Upgrade Storm Water Systems


12/07/2006


12/07/2006




12/27/2006


12/27/2006

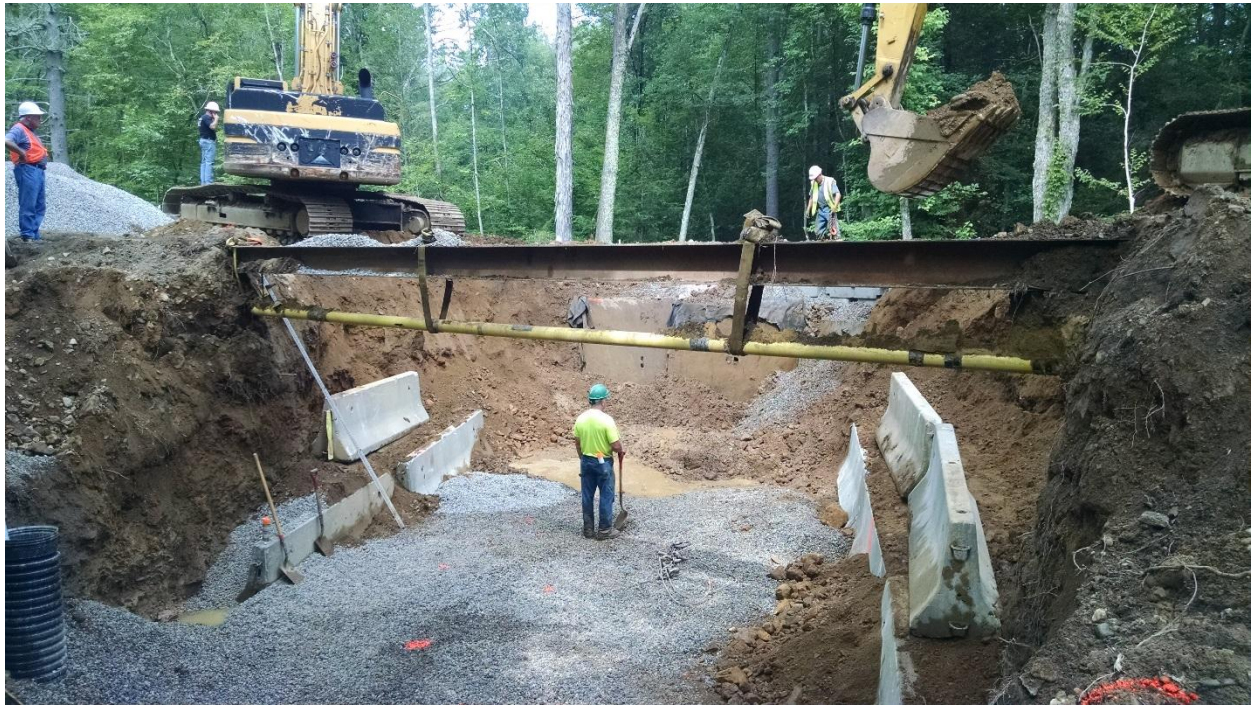

08.08.2014


08.09.2014


HITACHI


HITACHI


L.L.Bean




One Ton Bulk Bag


08/31/2011

River and Stream Continuity

Prioritize Aquatic Barriers

PIE Rivers Stream Continuity Survey

Ipswich River Watershed Interns conducting road-stream crossing surveys in 2014. From left to right: Shannon Gentile, Emily Korman and Cassie Tragert.

- Status

Complete (2014)

+ Toolkit and Actions

Lead Organization: Ipswich River Watershed Association

Project Contact: Brian Kelder (IRWA)

Final Report

About the Project

Very few road-stream crossings were designed with the movement of fish and wildlife in mind and many present partial or complete barriers to migration for a variety of species. Additionally, many bridges and culverts are undersized, improperly placed or blocked such that they can pond water in much the same way dams do, especially on smaller tributaries. It is important to know which bridges and culverts block migration and impair habitat as we increase efforts to restore fish and wildlife populations in the region.

In 2006 the Ipswich River Watershed Association began working with partner organizations and volunteers to survey the crossings as part of the UMass Extension regional River and Stream Continuity Project. Between 2006 and 2012 we were able to measure and score over 100 (20%) of the crossings in the Ipswich watershed for wildlife passage.

Thanks to a generous grant from the Massachusetts Environmental Trust, the survey effort was expanded to cover the neighboring Parker and Essex Rivers to cover the region of interest for the Parker Ipswich Essex Rivers Restoration Partnership (PIE Rivers). With help from this funding and a related survey effort by the MA Department

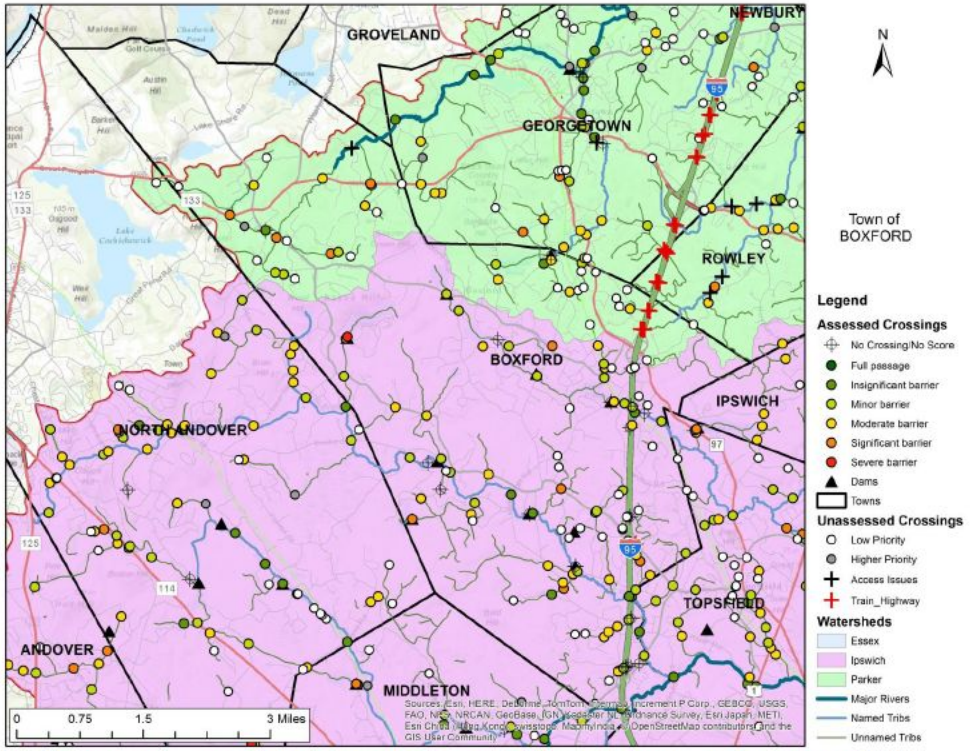


Figure 14. Road-stream crossing locations, scores and categories for PIE-Rivers crossings in the Town of Boxford, MA.

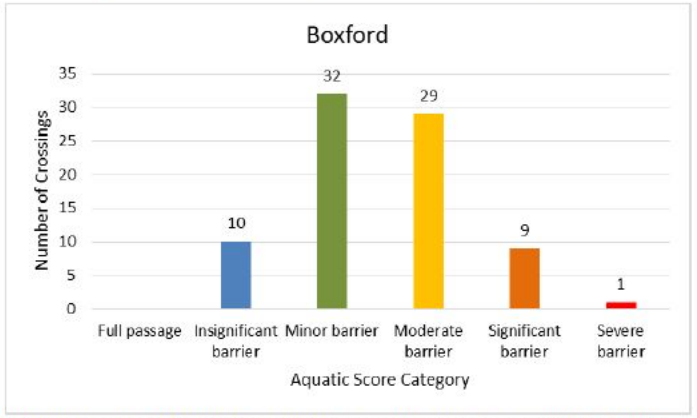


Figure 15. Frequency distribution of aquatic scores for crossings scored in the Town of Boxford, MA.

Table 7. Parameter scores for the aquatic score algorithm for crossings in the Town of Boxford, MA. Only crossings rated as moderate barriers or worse are included on this table.

Town	Watershed	Evaluation	Outlet Drop	Physical Barriers	Water Velocity	Water Depth	Inlet Drop	Crossing Span	Crossing Substrate	Embedment	Openness	Scour Pool	Tailwater Armoring	Height
BOXFORD	Ipswich	Severe barrier	0	1	0	0	0.1	0.5	0	0	0.9	1	0	0.4
BOXFORD	Ipswich	Significant barrier	0	1	0	1	0.5	0	0	0	0	0	0.5	0.4
BOXFORD	Parker	Significant barrier	0.25	0	0	1	1	0	0	0.5	0	0	1	0.4
BOXFORD	Ipswich	Significant barrier	0.8	0	1	0	1	0	0.25	0	0	0	1	0.4
BOXFORD	Ipswich	Significant barrier	1	0	0.75	0.75	0.1	0	0	0	0	1	1	0.4
BOXFORD	Ipswich	Significant barrier	0	1	0.75	0.75	0.5	0	0	0	0	1	1	0.4
BOXFORD	Parker	Significant barrier	0.5	0	1	0	1	0	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Significant barrier	1	1	0	0	1	0	0	0	0.5	1	0	0.4
BOXFORD	Parker	Significant barrier	0	1	0	1	1	0	0	0	0.5	1	1	0.9
BOXFORD	Parker	Significant barrier	0.25	0.8	0	0	1	0	0	0.5	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	0.25	1	0.75	0.75	1	0.5	0.25	0	0	0	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	0	1	1	1	0	0	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	0.25	1	0.5	1	1	0.5	0	0	0.5	0	0.5	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.8	1	0	0.8	0	0	0	0	1	1	0.4
BOXFORD	Parker	Moderate barrier	1	1	1	0	1	0	0	0.5	0	0	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.9	0.75	0.75	1	0	0	0	0	0	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0	1	1	0	0	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	0.8	1	1	0	1	0	0	0	0.5	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	0.8	1	1	0	0.8	0.9	0	0.5	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	1	0	1	0.5	0	0	0.5	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	0.8	1	0.75	0.75	1	0.5	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0.75	0.75	1	0	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.8	0.75	0.75	1	0	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.8	0.75	0.75	1	0.5	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0.75	0.75	1	0	0	0.5	0	1	1	0.4
BOXFORD	Parker	Moderate barrier	1	0	1	1	1	0	0.25	0	0	1	1	0
BOXFORD	Parker	Moderate barrier	1	1	0.75	0.75	0.5	0.5	0.25	0	0	1	0.5	0.4
BOXFORD	Parker	Moderate barrier	1	1	0.75	0.75	1	0.5	0	0	0	1	1	0.4
BOXFORD	Parker	Moderate barrier	1	1	0	1	1	0	0	0.5	0.5	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.9	0.75	0.75	1	0.5	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0.75	0.75	1	0.5	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0.5	1	1	0	0.75	1	0	0	0	0.4
BOXFORD	Ipswich	Moderate barrier	1	0.9	1	1	1	0	0.25	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	1	0.5	1	0.9	0	0	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	1	1	1	0	0	0	0.5	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	0.5	1	1	0.5	0	0.5	0	1	1	0.4
BOXFORD	Ipswich	Moderate barrier	1	1	1	1	1	0	0.25	0	0	1	1	0.4
BOXFORD	Parker	Moderate barrier	1	1	1	1	1	0	0.25	0	0	1	1	0.4
BOXFORD	Parker	Moderate barrier	0.8	0.8	1	0	1	0.5	1	0.9	0	1	1	0.4

Essex

The Town of Essex accounts for the majority of the Essex River watershed with a total of 20 crossings scored as part of this survey effort (Figure 16). There were no crossings in the Town of Essex rated as significant barriers or worse and 5 (25%) crossings were insignificant barriers (Figure 17). The two moderate barriers with low outlet drop scores should be further investigated (Table 8).

River and Stream Continuity

Remove Migration and Flow Barriers

Water Conservation

Water Conservation Outreach


KASCO
ROCKET
GREENSCAPES


Problem:
Station 5

Visual mock-up of proposed signs: Fish Brook where it is crossed by Lockwood Lane.

Above: Placement of the Fish Brook sign on Lockwood Lane, heading towards Topsfield.

Below: Placement of the Fish Brook sign on Lockwood Lane, heading toward Middleton Rd.

About

A water treatment plant was installed in the basement of the Boxford Police Station in 2001 to provide the Police Station, DPW Building, and Town Hall with treated drinking water, provided by a well in Tri-Centennial Park.

Testing

The small scale plant is tested quarterly to ensure that it is operating safely, efficiently, and correctly, Testing the plant ensures that harmful chemicals stay out of the water, and that the drinking water coming out of the system meets state standards set by the Massachusetts Department of Environmental Protection.

TOWN OF BOXFORD

DPW
7B Spofford Road
Boxford, MA, 01921
978-352-6555
town.boxford.ma.us

Water Treatment

Brochure by Andrew Fiore

1) Intake

The untreated water from the 1200ft well in Tri-Centennial Park is pumped from the well pump 220ft under the ground into the basement of the Boxford Police Station, where it enters the water treatment system.

2) Filtration

The water is pumped into a filtration tank, where suspended solids and chlorine are removed. The water is cycled through the tank multiple times to ensure that any large particles and solids are removed.

3) Ionization

The filtered water is then pumped into a second tank, where a water softener is added. The water goes through the process of regeneration, where it is cycled through the tank using varying amounts of salt and four different rinse cycles.

4) Backwash

Backwashing the system ensures that solids and other harmful particles stay out of the water and do not enter the full treatment system. The backwashed water from the filtration and ionization processes is moved out of the system and into the town sewer system.

5) Aeration

From the filtration and ionization tanks, the water then enters a large aeration tank. Air is pumped from an air pump into the tank to remove harmful radon and CO_2 from the water.

6) Clear Well & Sediment

After the water is aerated, it is moved into two 300 gallon clear well holding tanks. As the water is needed, it is pumped by two 1Hp booster pumps through two sediment filters before moving on to the arsenic removal system.

7) Arsenic Removal

Upon entering the arsenic removal system, the water is simultaneously moved through two four cylinder A&B train processes. It enters an oxidation tank, followed by three arsenic adsorption tanks, in each train, ensuring the harmful arsenic is removed.

8) Charcoal Filter

From the arsenic removal system, the water moves through two charcoal filters to maintain the quality of odor and taste in the water.

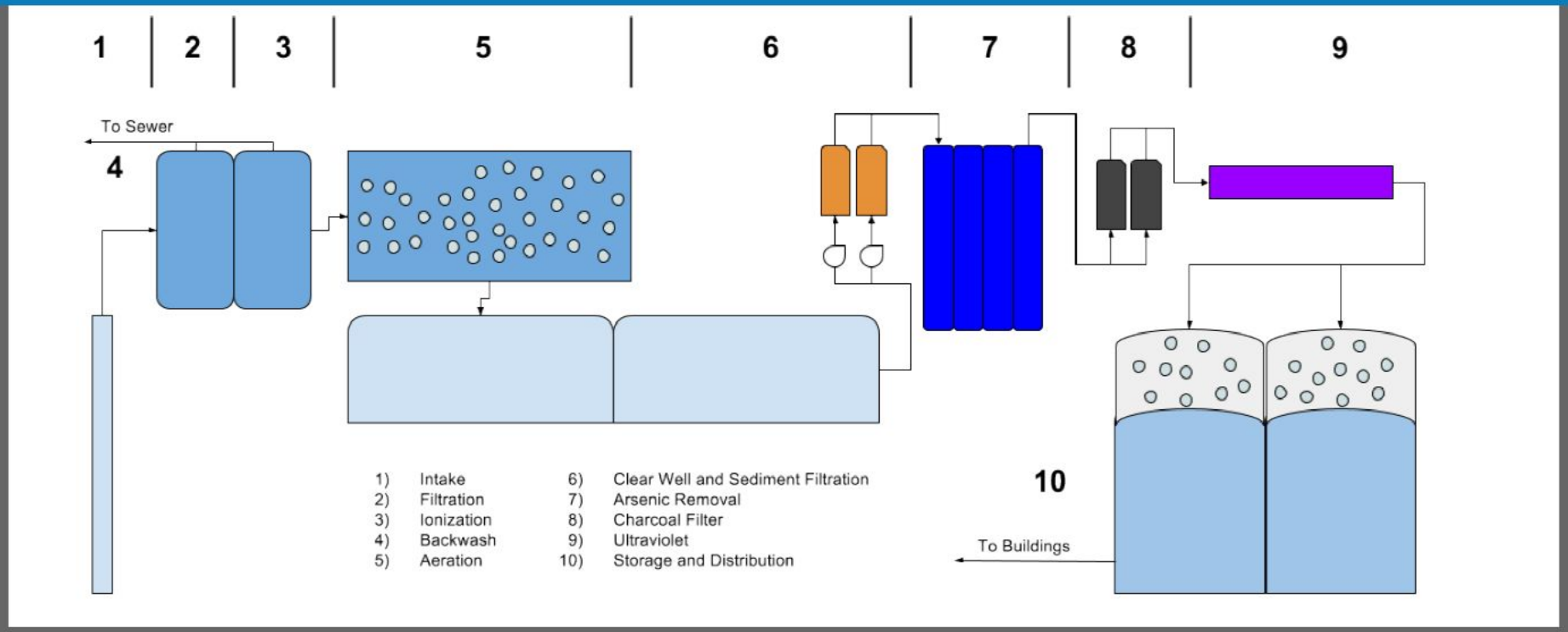
9) Ultraviolet

The water then passes through the ultraviolet radiation system, which kills microorganisms, harmful viruses, and bacteria. This ensures that anyone who drinks the water doesn't get sick.

10) Storage & Distribution

After the water has been washed through the UV system, it is then moved into two 250 gallon hydrostatic water pressure tanks. The water is kept at 60 psi to maintain optimal water pressure in the three buildings which are serviced, and is distributed as needed.

Boxford's Water Treatment Plant



Water Conservation

Incentivize Water Conservation

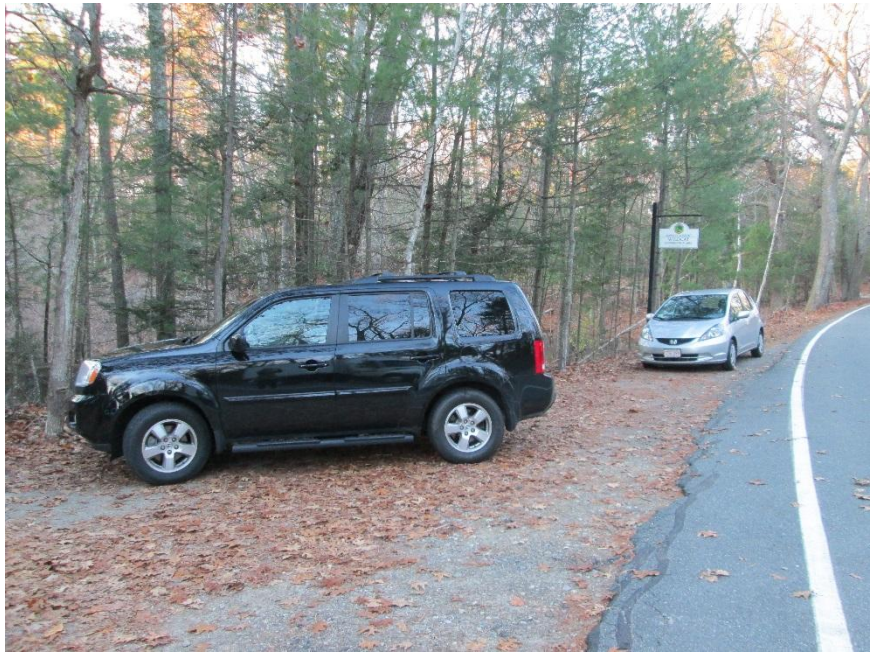
Land Conservation and Protection

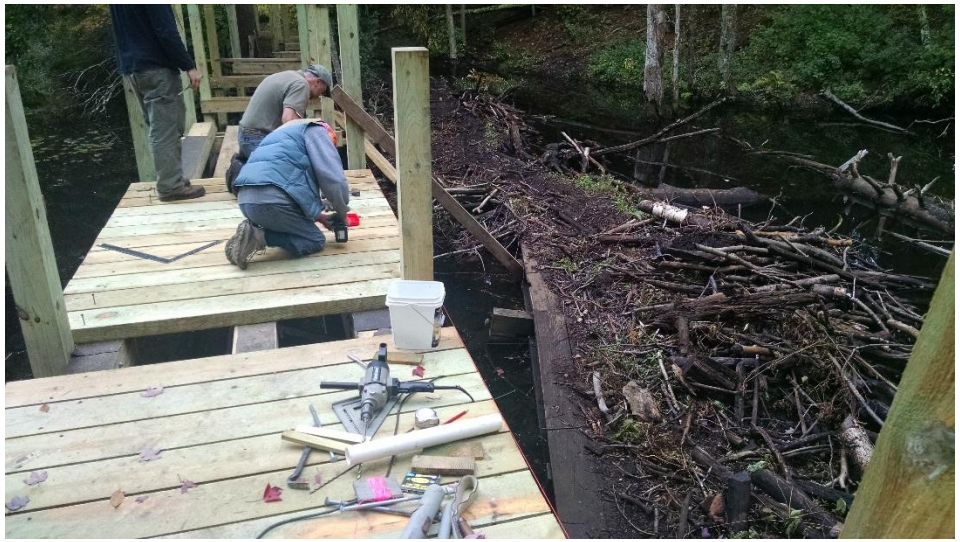
Prioritize Conservation Land

Land Conservation and Protection

Improve Conservation Land Stewardship


Welcome to
Lockwood Forest
TRAIL ETIQUETTE
1. Please enjoy our trails for
passive recreational use.
2. Open from dawn to dusk.
3. Obey signs and stay on the trail.
4. No motorized vehicles.
5. No hunting.
6. No littering. Carry out
what you carry in.
7. Do not remove plants. Take
only pictures and memories.
Thank you!






HEMLOCK
JUNCTION