Site Study Leominster: Fournier Ballfields

About this Site: Fournier Ballfields, located at 525 Litchfield Street approx. 1 mile south of Downtown Leominster, is one of the main public parks in the City devoted to sports fields. It comprises 20.45 acres of athletic fields (softball, football, basketball), playgrounds, a walking path, and parking lots. The location of the park in Leominster is shown on page 5 of this Site Study.

Community Concerns at Fournier Ballfields/Park Site

Attendees at Leominster community meetings stated that Fournier Ballfields/Park (1) with its vast grass fields and parking lot (2) could use more trees.

There was concern that the large paved parking area adds to stormwater runoff, including potentially polluted runoff into nearby Fall Brook (3). Fall Brook should be protected from runoff as it provides wildlife habitat for species such as wild brook trout.

Concerns were voiced that the Fournier site, together with Barrett Park, added to the life-threatening flooding issues during the Sept. 11, 2023 storm that caused significant destruction in the city. A vulnerable senior community, Meadowbrook Acres, exists downstream along Fall Brook, partly in a former wetland. Stormwaters from upstream locations including Fournier Park can result in flooding in downstream locations such as Meadowbrook Acres. Residents there had to be evacuated by boat during the Sept. 11th floods.

The floods on Sept. 11th also caused bank erosion around a culvert on Litchfield Street (4).

Nature-based Solutions Recommended for Leominster: Fournier Ballfields

Fournier Ballfields

BSC Data Viewer link: https://arcg.is/1G4zSq1

Recommended NbS

NbS #s correspond to Project Templates referenced on pages 3, 6, & 7 of Site Study

1. Fournier Ballfields Parking Lot
   - D F RT #14 Shade-habitat/ Infiltration tree plantings
   - F #17 Pervious parking and walking areas
   - RT #23 PV parking awnings and rooftops
2. Vegetated Locations around Fournier Ballfields
   - F #11 Stormwater treatment wetlands
   - DL B #58 Invasive species management
   - F #28 Paved pervious trail
3. Edge of Baseball Field
   - B #19 Lighting modifications/upgrades
4. Sloped Green Space
   - DW F #13 Upstream BMPs rain-garden, bio-swale, etc.
   - B #8 Pollinator hedgerow buffer
   - #27 Soft trail
   - #52 Educational Interpretation

Map Key

Bright blue overlay is the FEMA 100 year floodplain

Pink overlay is FEMA 500 year floodplain

Recommended NbS Key

- F Flooding NbS
- D Drought NbS
- RT Rising temps NbS
- DW Degraded water NbS
- DL Degraded landscape NbS
- B Loss of biodiversity NbS

NbS Narrative/NbS Project Templates for Leominster: Fournier Ballfields

NbS Recommendations

- Stormwater treatment for the large paved surface on the west end of the parking lot, which currently has very few, widely spaced catch basins. If possible, switch to permeable pavement (this lot will be contracted to be paved soon).
- Install vegetated bioswales in the center of the parking lot, which would help alleviate urban heat island effects.
- Adding photovoltaic elements to the parking awnings and rooftops would make good use of the sunlight that hits this area.
- Strategically located tree plantings would add shade and increase water infiltration.
- Around the ballfields, we recommend adding stormwater treatment wetlands and a paved pervious trail.
- At the edge of the baseball field, we suggest changing the street light's color spectrum or dimming the lights during certain hours to reduce the impact of light pollution on wildlife.
- Address invasive plants. There is a mass of Japanese knotweed at the southern end of the field.
- A wide travel lane stretches from the northern section of the parking area to the southern section; reducing the width of this lane would create more plantable space.
- A vegetated slope at the southern end of the property is a good location for a pollinator hedgerow buffer, garden, and soft trail connections to the trail that runs around the outside of the park. Any of these interventions would reduce the need for mowing and increase utility for locals.

NbS Project Templates for Site Specific NbS Recommendations on previous page

Resource 1 - How to Use Templates

Resource 2 - Next Steps in Planning & Permitting

The following template numbers correspond to the NbS recommendations on the page 2 Map.

#8 Pollinator Hedgerow Buffer

#11 Stormwater Treatment Wetlands

#13 Upstream BMP Rain Gardens and Bioswales

#14 Shade Habitat Infiltration Tree Planting

#17 Pervious Parking- Walking Areas

#19 Lighting Modifications

#23 PV Parking- Parking Awnings

#27 Soft Trail

#28 Paved Pervious Trail

#52 Educational Interpretation

#58 Invasive Species Management

View Leominster Map Atlas **for maps on land covers, soil function and storage, water resources, ecological priority sites, and more.**

NbS Narrative/NbS Project Templates for Leominster: Fournier Ballfields

NbS Recommendations, cont'd.

- There is an opportunity to provide connectivity along the Fall Brook corridor. This corridor connects downstream to a Mass Audubon property with vernal pools and priority habitat. There is also priority habitat upstream.There is wild brook trout habitat here that should be protected.
- A retention basin in Fournier's parking lot would filter water before it gets to Fallbrook Reservation.
- Bank erosion has been ongoing at Litchfield Street over Fall Brook where the culvert is undermined.
- The Meadowbrook Acres mobile home park on Central Street is home to a vulnerable population of senior citizens. The mobile home park is in a floodplain connected to, and receiving drainage from, Barrett Park. We recommend adding a rain garden and constructed wetlands to Fournier Park. These features would absorb water and pollutants before they get to Fall Brook.
- We also recommend adding swales planted with fruit bearing trees to help wildlife thrive.
- Interpretive signage would contribute to increasing public understanding of Nature-based Solutions.

Fall Brook behind Meadowbrook Acres mobile home park.

Photo by Sherry Anders

Soils Information for Leominster: Fournier Ballfields

Leominster

Leominster's soils of high regeneration potential form a belt around the downtown area and are more clustered together than neighboring Fitchburg's. Regeneration or replication of the degraded soil function can mitigate negative impacts to Leominster's downtown and to the communities downstream.

Leominster, like neighboring Fitchburg, contains significant areas of developed and impervious landscapes compared with other communities in the Nashua River Watershed. Much of the most developed and degraded landscapes are found along the North Nashua River that flows in from northern neighbor Fitchburg. Pockets of "Highly Degraded" soils that have the potential for restored function with intensive intervention strategies are found throughout this central corridor along the river. Of the five focus communities, Leominster contains the most acreage of "degraded soil with high regeneration potential" primarily found in the suburban belt that surrounds the more urbanized downtown. The forested upland western side of town is home to the highest functioning soils in Leominster.

Sites Considered for Nature-based Solutions

Several sites in downtown Leominster near the North Nashua river have been identified as flood prone. Efforts to improve soil function in the suburban belt that surrounds the downtown can slow stormwater flows mitigate flooding. Potential sites for this kind of Nature-based Solution are Smith St. and Pierce Pond. Educational projects could be implemented there to encourage better soil management practices on the lawns and gardens of these suburban yards. Notably, there are several sites flagged for potential stormwater catchment projects that are in the same subbasin of the identified flood sites in Ashburnham and upstream of those sites. Sites in the forested uplands should be conserved/reinforced.

Priority Actions for Protecting/Enhancing Soil Health in Leominster

Better management of turf, lawns, gardens, and farms.

Example Nature-based Solutions:

- Education and outreach to key landowners and farmers about smart soil practices
- Pocket forests to transform biodiversity
- Planting and earthworks to restore connectivity and hydrology
- Front yard pollinator meadows
- Dual use solar
- Planning and zoning to preserve and enhance ecosystem function

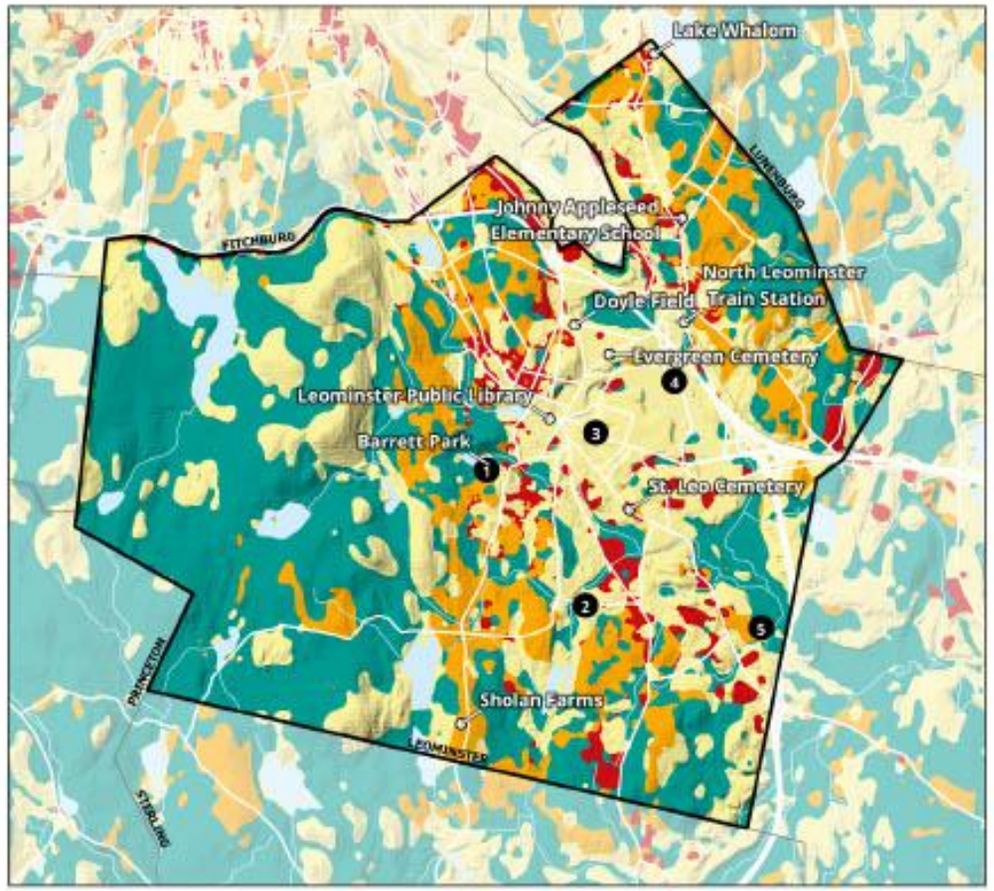
Regenerate or replicate lost soil function in highly degraded urbanized landscapes.

Example Nature-based Solutions:

- Green infrastructure (high performance tree pits, bio-swales, rain gardens)
- Parking lot renovations

#	SITE	PREDOMINANT SOIL FUNCTIONS FOR RESILIENCE			
		Highly Degraded	High Regeneration Potential	Moderate-Low Function	High Function
1	Barrett Park			◆	◆
2	Fournier Ballfields			◆	
3	Mechanic St.			◆	
4	Mall Area			◆	
5	Johnny Appleseed SP (DCR)		◆		◆

Soil Functions for Resilience



	Leominster
High Performance Soils & High Carbon Soils	7,821 ac (41.2%)
Average Function Soils	7,489 ac (39.4%)
Degraded Soils with High Regeneration Potential	2,628 ac (13.8%)
Highly Degraded Soils	1,055 ac (5.6%)

○ Landmarks

① Sites Considered for Nature-based Solutions

[Read full Nashua River Watershed-wide Healthy Soils Report](#) (PDF 25MB)

Nature-based Solutions Opportunity Table Leominster: Fournier Ballfields

Value	BEST	BETTER	GOOD
Feasibility	high	mid	low
Ownership	Municipal		

Best Value = An improvement to a resource that provides significant lasting resiliency and strengthens or serves related resources

Better Value = Makes significant improvements to resiliency with long lasting effect

Good Value= Improves the habitat value, or resiliency of a site or feature

Feasibility is based on property ownership or technical access

NbS Template #	Nature-based Solution Description	Fournier Ballfields
	Natural Environment Restructuring	
1	River / pond bank revegetation	
3	Forest / shrubland heath management or restoration	high
4	Wetland management restoration	
5	New wetland or floodplain construction / expansion	mid
7	Stream flow alteration	
8	Pollinator hedgerow buffer	high
9	Pocket forest	
10	Soil management or restoration	
	** see Healthy Soils Report	

NbS Template #	Nature-based Solution Description	Fournier Ballfields
	Built Environment Restructuring	
11	Stormwater treatment wetlands	high
13	Upstream BMPs rain-garden, bio-swale	high
14	Shade-habitat/ Infiltration tree plantings	mid
16	Dam modification / controls	
17	Pervious/ hi-SRI parking/walking areas	low
18	Aquatic algae / invasive treatment	
19	Lighting modifications / upgrades	high
22	High-performance soil specifications**	
23	PV Parking Awnings + Rooftops	low

Nature-based Solutions Opportunity Table Leominster: Fournier Ballfields, cont'd.

Value	BEST	BETTER	GOOD
Feasibility	high	mid	low
Ownership	Municipal		

Best Value = An improvement to a resource that provides significant lasting resiliency and strengthens or serves related resources

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Feasibility is based on property ownership or technical access

NbS Template #	Nature-based Solution Description	Fournier Ballfields
	Ecological Awareness & Access Projects	
24	Outdoor classroom/ Nature-play	**mid**
25	Food production and forage	**mid**
27	Soft trail	**high**
28	Paved pervious trail UANT	**high**
29	Soil protection-puncheon-boardwalk	
30	Pedestrian safety and bike access	
	Architectural Projects to Consider	
49	Nature-based recreational opportunities	

NbS Template #	Nature-based Solution Description	Fournier Ballfields
	Value Added Features on Projects	
52	Educational Interpretation	**mid**
53	Furnishings / gathering space	
56	Volunteer opportunities	**high**
58	Invasive species management	**high**
59	Species monitoring protocol	
60	Habitat enhancements	**mid**

Fournier Ballfields

Photo by Sherry Anders

This "Building Community Climate Resilience: Nashua River Watershed-wide Nature-based Solutions Plan" is funded by a Municipal Vulnerability Preparedness grant awarded to the City of Fitchburg by the Healey-Driscoll Administration's Municipal Vulnerability Preparedness (MVP) program, which is administered by the Executive Office of Energy and Environmental Affairs (EEA). NRWA was the lead coordinator for this project.

To view the interactive online Plan, please visit nashuariverwatershed.org/Climate Resilience