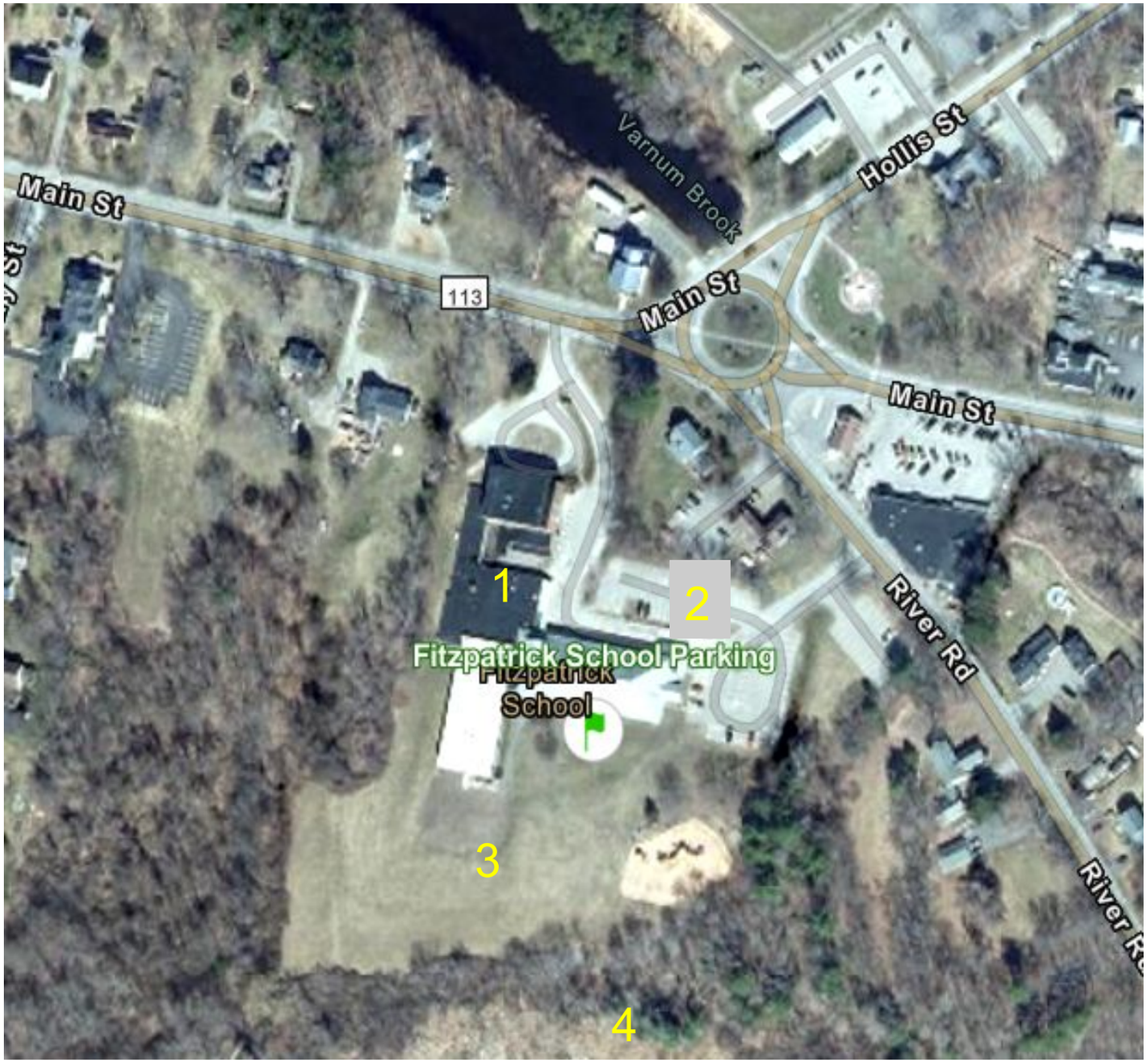
Site Study Pepperell: Fitzpatrick School Parking



About this site: This site was formerly the Peter Fitzpatrick School (public). The school was permanently closed and now it is a town-owned community center- the Fitzpatrick Collaborative. The site consists of the school buildings (1), a large asphalt parking lot (2), grass fields which were previously recreational fields (3). Greens Brook runs past the back of the property (4).

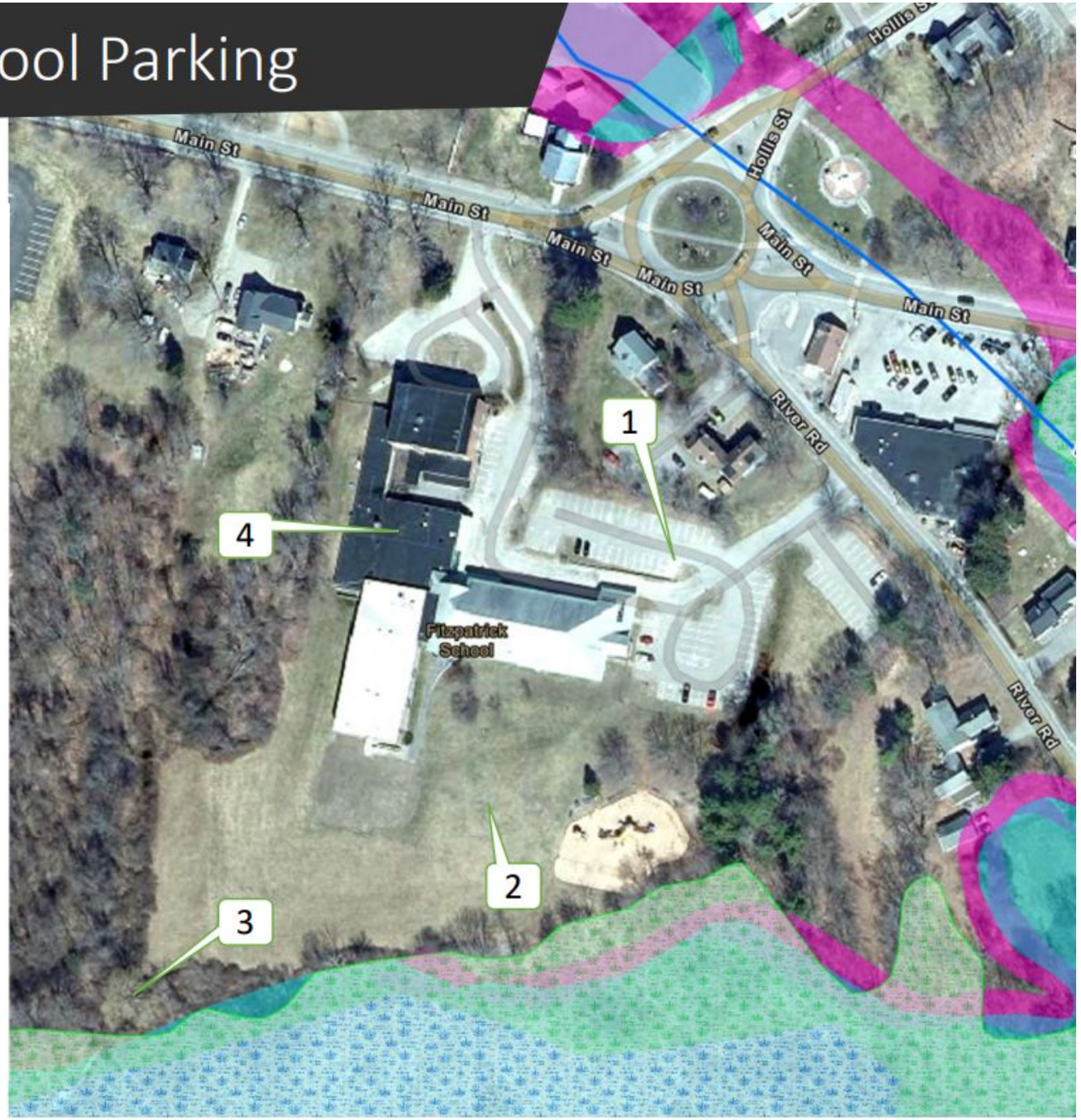
Community concerns about Fitzpatrick School Parking

Utility companies come in and take down trees and they should be replaced. We could do a street tree survey to assess what trees should be protected starting in the downtown area. The heat island is the priority.

In the back of the Fitzpatrick school there is Greens Brook. The buffer zone between the school and brook is 65% invasives that should be addressed.

Nature-based Solutions Recommended for Pepperell: Fitzpatrick School Parking

Fitzpatrick School Parking



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

1. Fitzpatrick School Parking Lot
   - DW D F #17 Pervious parking walking areas
2. Field
   - #24 Outdoor classroom/nature play
   - B DL #2 Grassland meadow management
   - #25 Food production and forage
3. Forest
   - #27 Soft trail
   - DL #29 Soil protection-puncheon boardwalk
   - F #21 Beaver deceiver
   - B DL #58 Invasive species management
4. Fitzpatrick School
   - RT #23 PV parking awnings and rooftops

DataViewer link:
https://arcg.is/11PiLa0

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 Pepperell: Fitzpatrick School Parking

NbS Recommendations

- In the parking lot of the former Fitzpatrick School, now known as the Fitzpatrick Collaborative, there is a need for pervious parking and walking areas.
- In the field, there is an opportunity to offer outdoor classroom instruction (nature-play), increase management of the grassland meadow, and grow forageable foods (like berries and mushrooms).
- In the adjacent forest, there are opportunities for a soft trail, soil protection (another puncheon boardwalk), a beaver deceiver, and invasive species management.
- Outside the former Fitzpatrick School, it would be a good idea to add photovoltaic elements to the parking awnings and rooftops.
- A large amount of acreage out back is currently being mowed; it could be used for community garden space and linked to the community kitchen space.
- Behind the former Fitzpatrick School is Green's Brook. The buffer zone between the school and the brook is 65% invasives. There is a very high density of phragmites. This should be addressed.
- Restoration of the existing trail would enhance public access to the wetland area. The boardwalk there needs to be restored.
- The soils around Fitzpatrick Collaborative are highly degraded; the interventions described in the Healthy Soils Report would restore soil health.

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.

#2 Grassland Meadow Management-Restoration

#17 Pervious Parking- Walking Areas

#21 Beaver Deceiver/Promoter

#23 PV Parking- Parking Awnings

#24 Outdoor Classroom- Nature Play

#25 Food Production and Forage

#27 Soft Trail

#29 Soil Protection Puncheon Boardwalk

#58 Invasive Species Management

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

Soils Information for Pepperell: Fitzpatrick School Parking

Pepperell

With a position low in the watershed, Pepperell's farmland and suburban residential lands have major potential for better management for increased soil function that would mitigate stormwater issues and benefit the several towns downstream.

Of the five focus communities, Pepperell is "lowest" in the watershed and receives stormwater impact from a vast upland land area. The Nashua River runs along the town's southeastern border and then through the center of town before continuing north. The rich alluvial soils of this riverside community are home to significant acreage of farmland with interspersed residential neighborhoods that constitute a large portion of Pepperell's "degraded soils with high regeneration potential". Compared with other focus communities like Fitchburg and Leominster, Pepperell has a low amount of "highly degraded" soil that would need intensive intervention to replicate lost soil function. The town's acreage of High Functioning soil is below the watershed-wide average, but is still significant and protection of these lands is important for watershed health. These high-functioning soils are evenly mixed with "moderate-low function" soil throughout the town.

Sites Considered for Nature-based Solutions

At least two of the sites being considered for stormwater mitigation are on soils with "high regeneration potential" and these sites could be priorities for implementing and tracking the performance of soil-regeneration measures. The Unkety Brook site has been identified as prone to flooding but is within a subbasin that is mostly in neighboring Dunstable.

Priority Actions for Protecting/Enhancing Soil Health in Pepperell

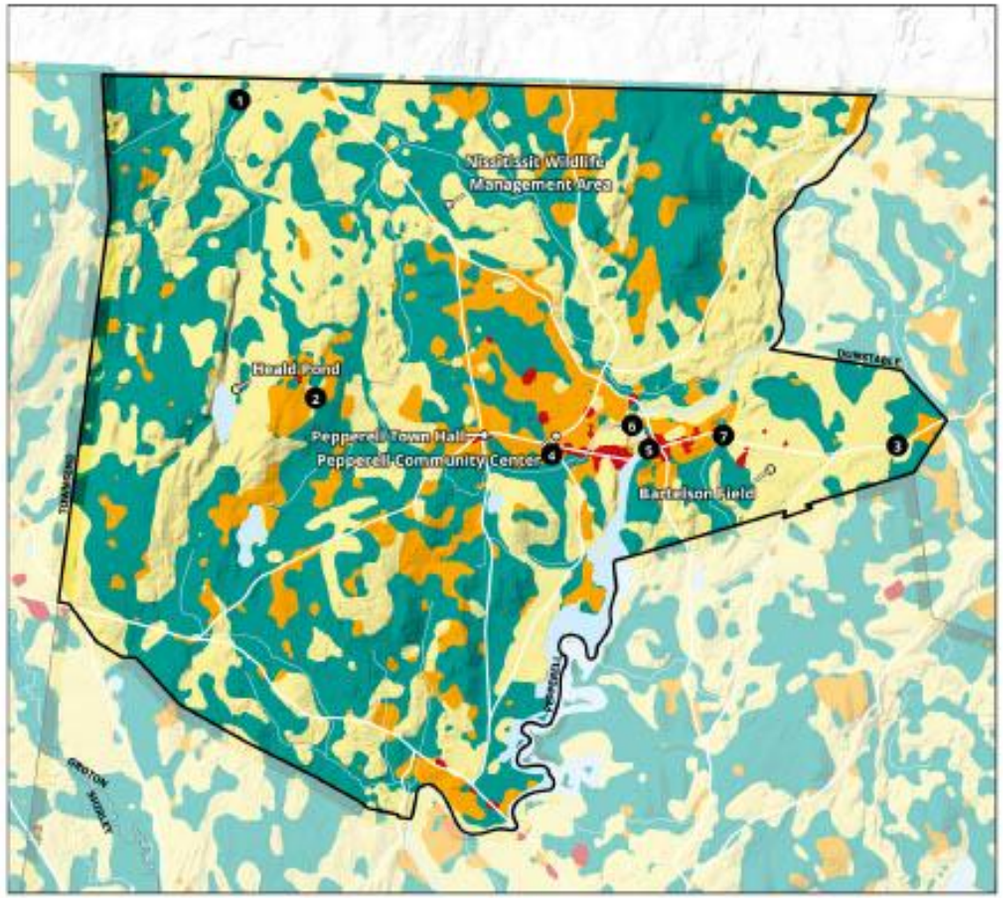
Better management of turf, lawns, gardens, and farms.

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

#	SITE	PREDOMINANT SOIL FUNCTIONS FOR RESILIENCE			
		Highly Degraded	High Regeneration Potential	Moderate-Low Function	High Function
1	Bemis Wellhead Protection Zone/Gulf Brook		◆	◆	◆
2	Heald Orchard/Heald Pond		◆		◆
3	Unkety Brook		◆	◆	◆
4	Fitzpatrick School Parking	◆	◆		
5	Railroad Square	◆	◆		
6	Mill Street/Varnum Brook			◆	
7	Reedy Meadow off Lowell Rd.		◆	◆	◆

Soil Functions for Resilience



	Pepperell
High Performance Soils & High Carbon Soils	6,811 ac (45.9%)
Average Function Soils	6,039 ac (40.7%)
Degraded Soils with High Regeneration Potential	1,893 ac (12.8%)
Highly Degraded Soils	101 ac (0.7%)

○ Landmarks

❶ Sites Considered for Nature-based Solutions

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

Nature-based Solutions Opportunity Table Pepperell: Fitzpatrick School Parking

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	Fitzpatrick School Parking
	Natural Environment Restructuring	
1	River / pond bank revegetation	
2	Grassland meadow management restoration	**low**
3	Forest / shrubland heath management or restoration	
4	Wetland management restoration	
5	New wetland or floodplain construction / expansion	**high**
7	Stream flow alteration	
8	Pollinator hedgerow buffer	**high**
10	Soil management or restoration	**mid***
	** see Healthy Soils Report	

NbS Templat #	Nature-based Solution Description	Fitzpatrick School Parking
	Built Environment Restructuring	
11	Stormwater treatment wetlands	
12	Daylighting of streams	
13	Upstream BMPs rain-garden, bio-swale, etc.	
14	Shade-habitat/ Infiltration tree plantings	
15	MSCS culvert improvement	
17	Pervious parking walking areas	**high**
19	Lighting modifications / upgrades	
20	Species crossing protections	
21	Beaver deceiver / promoter	**high**
22	High-performance soil specifications	
23	PV Parking Awnings + Rooftops	**mid**

Nature-based Solutions Opportunity Table Pepperell: Fitzpatrick School Parking, 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

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	Fitzpatrick School Parking
	Ecological Awareness & Access Projects	
24	Outdoor classroom/ Nature-play	**mid**
25	Food production and forage	**mid**
26	Apply Indigenous knowledge	
27	Soft trail	**high**
28	Paved pervious trail UANT	
29	Soil protection-puncheon-boardwalk	**high**
30	Pedestrian safety and bike access	
	Architectural Projects to Consider	
49	Nature-based recreational opportunities	**high**

NbS Template#	Nature-based Solution Description	Fitzpatrick School Parking
	Value Added Features on Projects	
50	Analysis and study projects	
52	Educational Interpretation	**mid**
53	Furnishings / gathering space	**mid**
55	Advocacy group/ Stewards	
56	Volunteer opportunities	**mid**
58	Invasive species management	**high**
59	Species monitoring protocol	
60	Habitat enhancements	

MVP site visit to the Fitzpatrick Collaborative site.

Photo left: Sherry Anders
Photo above: Ralph Baker

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