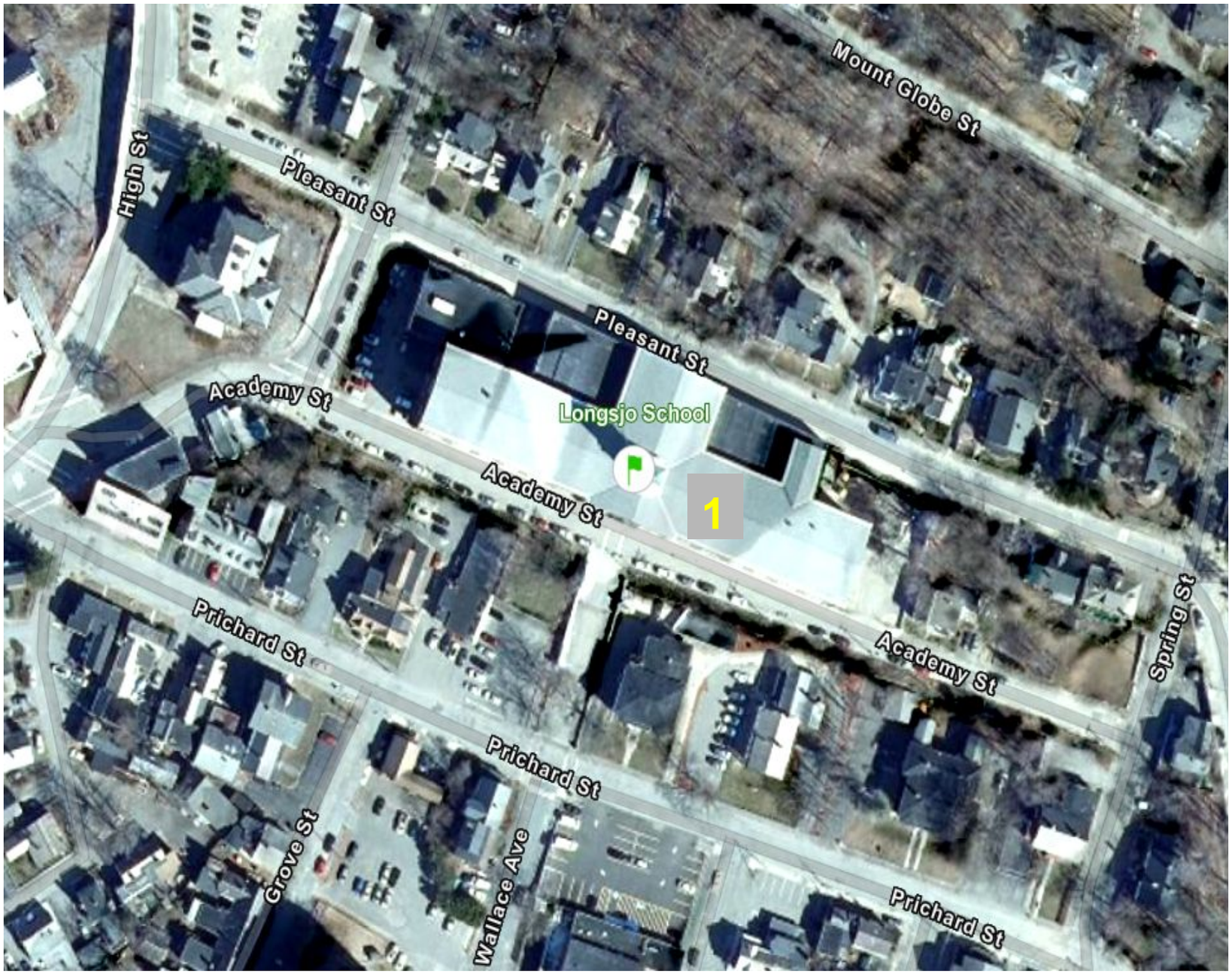
Site Study Fitchburg: Longsjo School



About this Site: Est.2009, the Longsjo Middle School (1) is on the site of the former Fitchburg High School. When opened, it combined two school populations- the BF Brown Arts Vision School and the Academy Community Pilot School. The school has a population of nearly 600 students in grades 6 to 8. The school lies within an Environmental Justice census block, and is situated on a steep hillside, draining toward the North Nashua River floodplain in the direction of Wallace Avenue.

Community Concerns at Longsjo School Site

The Longsjo School perched above downtown is completely devoid of greenspace to the detriment of the students in attendance there.

Surrounded by impervious surfaces and with no trees, the site is also susceptible to the heat island effect.

Lack of greenspace also means lack of natural environment for birds, insects, and other wildlife.

Greenspaces would improve students' sense of well-being.

Nature-based Solutions Recommended for Fitchburg: Longsjo School

Longsjo School

BSC Data Viewer link:
https://arcg.is/0a5u5D

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

1. Longsjo School Main Entrance
   - RT F #36 Reduce impervious surface incentive
   - #30 Pedestrian safety and bike access
   - DL #3A Cliff stabilization shrubland
2. Longsjo School Patio/Terrace
   - #25 Food Production and forage
   - DL B #58 Invasive species management
3. Community Garden
   - B #8 Pollinator hedgerow buffer
   - #25 Food production and forage
   - #26 Apply indigenous knowledge
   - #52 Educational interpretation
   - RT B #9 Pocket forest
   - DL B #58 Invasive species management

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 Fitchburg: Longsjo School

NbS Recommendations

- Install a small pocket forest to the left of (immediately west of) the stairs leading up to the school.
- Remove invasive species (e.g., Trees of Heaven, ailanthus).
- Consider installation of a "green wall" (foliage) on the huge concrete retaining wall along the eastern side of the school.
- There is potential for terraced shade gardens and a vegetated area next to the school, to provide respite from the heat and a scenic venue for outdoor gatherings.
- The city could potentially close down Academy Street and create a greenway in front of the school, with pickup and deliveries being shifted to Pleasant Street behind (uphill of) the school.
- NbS installations at this site present an opportunity for educational lessons around NbS and community action, as well as hands-on learning projects, such as creation of a pollinator garden.

NOTE: As part of the "Building Community Climate Resilience: Nashua River Watershed-wide Nature-based Solutions Plan", funded by a Municipal Vulnerability Preparedness grant awarded to the City of Fitchburg, NRWA is preparing an implementation plan for installation of a pocket forest at this site. That plan will be posted on this Plan website when complete.

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.

#3A Cliff Stabilization Shrubland

#8 Pollinator Hedgerow Buffer

#9 Pocket Forest

#25 Food Production and Forage

#26 Apply Indigenous Knowledge

#30 Pedestrian Safety & Bike Access

#36 Reduce Impervious Surface Incentive

#52 Educational Interpretation

#58 Invasive Species Management

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

Soils Information for Fitchburg: Longsjo School

Fitchburg

Significant acreage of degraded soils and soils with high regeneration potential that are spread throughout the city mean that better management practices and efforts to replicate lost soil function are important for increasing resilience in Fitchburg.

Fitchburg, along with neighboring Leominster, 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 through the city center. 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. The high functioning soils of Fitchburg are found primarily in the forested uplands in the northern half of the city with pockets of "high regeneration potential" soils located on the farmland and residential areas there.

Sites Considered for Nature-based Solutions

Sites of interest for this project are located in the more degraded and low functioning soil areas and subbasins with a focus on green infrastructure to replicate soil water filtration and holding capacity. This is an important strategy; however, paying attention to the areas of high regeneration potential on the farms, lawns, and gardens of the city's upland areas and encouraging management for better soil health there should be a complementary strategy.

Priority Actions for Protecting/Enhancing Soil Health in Fitchburg

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

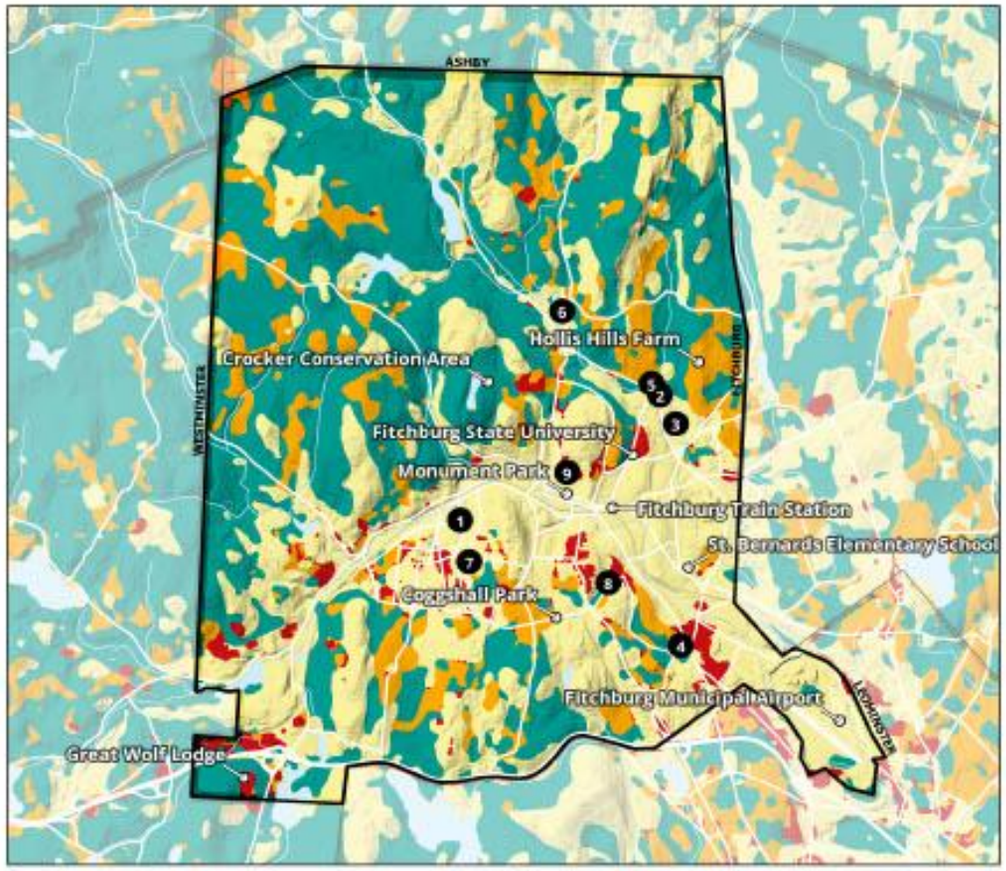
Regenerate or replicate lost soil function in highly degraded urbanized landscapes.

Example Nature-based Solutions:

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

#	SITE	PREDOMINANT SOIL FUNCTIONS FOR RESILIENCE			
		Highly Degraded	High Regeneration Potential	Moderate-Low Function	High Function
1	Cleghorn St.			◆	
2	Civic Center/Falulah Brook			◆	
3	Coolidge Park			◆	
4	Green Acres		◆		
5	Putt's Pond			◆	◆
6	Greene's Pond			◆	◆
7	Parkhill Park/Sand Brook			◆	
8	Beekman St. and Hobson St. Culverts	◆		◆	
9	Longsjo School			◆	

Soil Functions for Resilience



	Fitchburg
High Performance Soils & High Carbon Soils	7,369 ac (41%)
Average Function Soils	7,952 ac (44.2%)
Degraded Soils with High Regeneration Potential	2,064 ac (11.5%)
Highly Degraded Soils	609 ac (3.4%)

○ Landmarks

❶ Sites Considered for Nature-based Solutions

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

Nature-based Solutions Opportunity Table Fitchburg: Longsjo School

Value	BEST	BETTER	GOOD
Feasibility	high	mid	low
Ownership	Municipal/Residential		
	** see Healthy Soils Report		

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	Longsjo School		NbS Template #	Nature-based Solution Description	Longsjo School
	Natural Environment Restructuring				**Built Environment Restructuring**	
1	River / pond bank revegetation			11	Stormwater treatment wetlands	**low**
2	Grassland meadow management restoration			13	Upstream BMPs rain-garden, bio-swale	**mid**
3	Forest / shrubland heath management or restoration			14	Shade-habitat/ Infiltration tree plantings	**low**
3A	Cliff stabilization shrubland	**mid**		15	MSCS culvert improvement	
4	Wetland management restoration			16	Dam modification / controls	
5	New wetland or floodplain construction / expansion			17	Pervious parking walking areas	**mid**
6	Pond creation/ elimination / alteration			18	Aquatic algae / invasive treatment	
7	Stream flow alteration			19	Lighting modifications / upgrades	**mid**
8	Pollinator hedgerow buffer	**mid**		20	Species crossing protections	
9	Pocket forest	**mid**		22	High-performance soil specifications	
10	Soil management or restoration			23	PV Parking Awnings + Rooftops	**mid**

Nature-based Solutions Opportunity Table Fitchburg: Longsjo School, cont'd.

Value	BEST	BETTER	GOOD
Feasibility	high	mid	low
Ownership	Municipal/Residential		

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Feasibility is based on property ownership or technical access

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

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

MVP Project Site Walk at Longsjo Middle School in Fitchburg, MA.

Photo by 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](nashuariverwatershed.org/ClimateResilience)