Site Study Fitchburg: Parkhill Park/Sand Brook

About this site: This park is the 3rd most popular park in the City, behind Coggshall and Coolidge Parks. It is located in the Cleghorn neighborhood which is an Environmental Justice census block. It has recreational fields (1), a playground (2), skateboard park (3), and a splash park (4). Sand Brook (5) running through the center of the park is highly channelized. When Sand Brook was channelized in the 1930s, toward the southern end of the park, the Works Projects Administration (WPA) and Civilian Conservation Corps. (CCC) constructed stone bridges and pools that have since fallen into disrepair.

Community concerns about Parkhill Park/Sand Brook

This is a very important outdoor activity site for the neighborhood but is subject to the heat island effect for lack of shade on much of the site. Parkhill Park is the largest public park in the entire Cleghorn neighborhood, most of which lacks tree canopy or shade. Therefore green space in the park is particularly valuable.

Straight channelized brook adds to stormwater runoff and flooding issues downhill, particularly because Sand Brook becomes a buried stream immediately downstream of the park all the way north to the North Nashua River.

Invasives have overtaken some portions of the park, particularly where the main north-south trail crosses through the woods.

Ecological restoration of the WPA/CCC-era bridges and pools (see photos on p. 7) could add to biodiversity while providing attractive, refreshing places for the public to enjoy and picnic while taking a break from the urban heat-islands around them.

Nature-based Solutions Recommended for Fitchburg: Parkhill Park/Sand Brook

Parkhill Park/Sand Brook

BSC Data Viewer link: https://arcg.is/11PSDi1

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

1. Sand Brook Pond
   - RT DL B — #3 Forest/shrubland health management or restoration
   - F DL B — #4 Wetland management restoration
   - B — #2 Grassland meadow management
2. Sand Brook
   - DL B — #1 **River**/pond bank restoration
   - DW — #7 Stream flow alteration
   - B — #8 Pollinator hedgerow buffer
   - • #49 Recreational opportunities
   - • #52 Educational Interpretation
3. Old Baseball Field
   - F — #5 New wetland or floodplain **construction**/expansion
4. Parkhill Park
   - RT DL B — #3 Forest/shrubland health management or restoration
   - F — #6 Pond **creation** elimination/alteration
   - 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: Parkhill Park/Sand Brook

NbS Recommendations

- This is the third most used park in the city, in an EJ neighborhood with few green spaces.
- Create shaded areas to alleviate the urban heat island effect.
- Next to the former swimming pond, existing native trees should be thinned /pruned to achieve the desired safety goals, rather than being graded and replanted.
- Wet meadow creation / stream dechannelization, ecological restoration of Sand Brook, and invasives removal are needed.
- The city could potentially involve students and staff from the adjacent Memorial Middle School in some of the restoration work to cultivate awareness and a sense of greater public investment in the park.

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.

#1 River/Pond Bank Revegetation

#2 Grassland Meadow Management/Restoration

#3 Forest Management Restoration

#4 Wetland Management Restoration

#5 Wetland or Floodplain Construction- Expansion

#6 Pond Creation/Alteration

#7 Streamflow Alterations

#8 Pollinator Hedgerow Buffer

#49 Recreational Opportunities

#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: Parkhill Park/Sand Brook

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

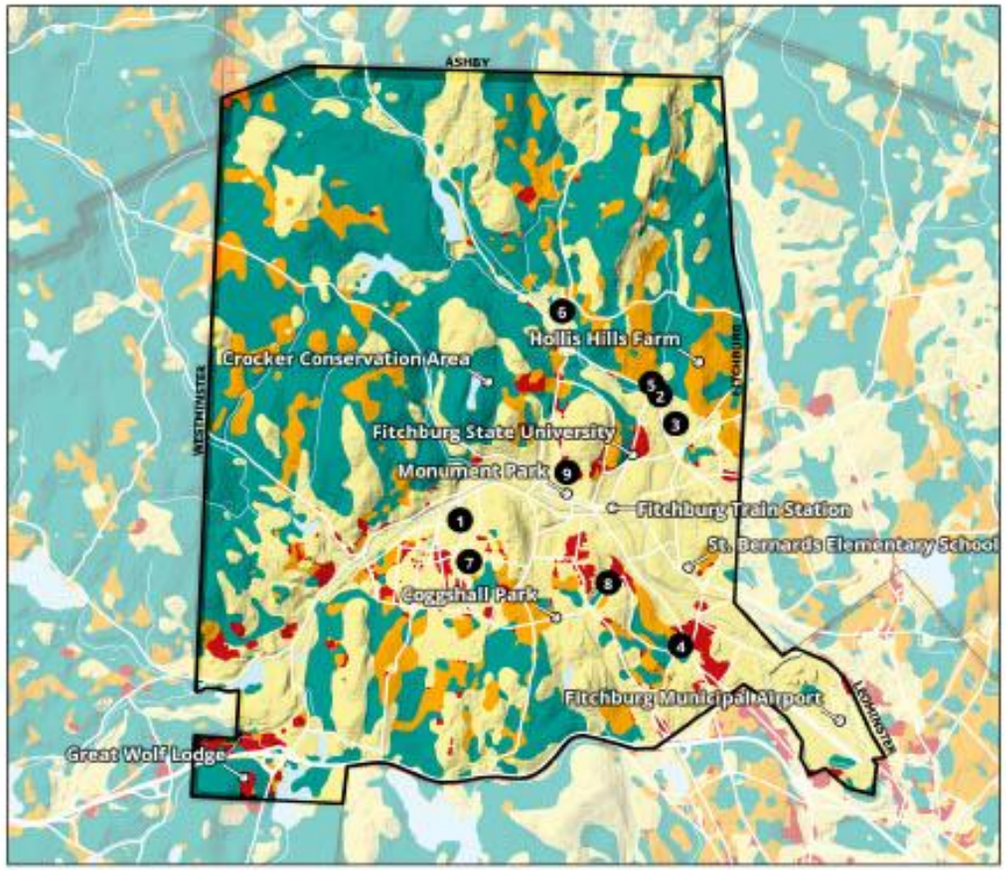
Regenerate or replicate lost soil function in highly degraded urbanized landscapes.

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: Parkhill Park/Sand Brook

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

Nature-based Solutions Opportunity Table Fitchburg: Parkhill Park/Sand Brook, 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	Parkhill Park/Sand Brook
	Ecological Awareness & Access Projects	
24	Outdoor classroom/ Nature-play	**high**
25	Food production and forage	**high**
27	Soft trail	**high**
28	Paved pervious trail	**high**
29	Soil protection-puncheon-boardwalk	**high**
30	Pedestrian safety and bike access	**high**
	Architectural Projects to Consider	
49	Nature-based recreational opportunities	**high**

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

Parkhill Park
stone pools

Photos by
Paulina Torres

MVP site visit at Parkhill Park

Photo by Ralph Baker

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To view the interactive online Plan, please visit [nashuariverwatershed.org/Climate Resilience](nashuariverwatershed.org/ClimateResilience)