Site Study Groton: Cow Pond Brook/Playing Fields & Highway Dept

About this site: The Cow Pond Brook Playing Fields (1) site includes multiple playing fields with two parking areas (2) on approx. 54 acres on the west side of Cow Pond Brook Road. The fields abut Cow Pond Brook and wetlands (3), with a wooded buffer area. The highway department occupies an extensive site on the east side of Cow Pond Brook Road, and includes buildings, equipment storage, and two fields of solar arrays.

Community concerns at Cow Pond Brook/Playing Fields & Highway Dept.

The Cow Pond Brook Playing Fields parking lot is a former gravel removal area and is prone to being dry and dusty. During large storm events the fields can flood.

There is a trench (red line) along the western side of the larger parking area, adjacent to the Cow Pond Playing Fields, that may have silted up.

The Highway Department (4) across the street from the fields gets very hot and could use some aesthetic improvements. There are very few trees on the property.

The Spring 2025 Groton Town Meeting voted to carry out a study of potential access, parking, and field improvements.

DLNature-based Solutions Recommended for Groton: Cow Pond Brook/Playing Fields & Highway Dept

Cow Pond/Playing Fields & Highway Dept.

DataViewer link: https://arcg.is/XPGiH0

Recommended NbS

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

1. Parking Lot for Playing Fields and Access Road
   - D F RT #14 Shade-habitat/infiltration tree planting
   - B #8 Pollinator hedgerow buffer
   - • #30 Pedestrian safety and bike access
   - D RT #36 Shade requirement
2. Highway Department
   - DL B #58 Invasive species management
   - • #26 Apply indigenous knowledge
   - B #59 Species monitoring protocol
   - DL B #60 Habitat enhancements
3. Baseball Fields
   - B #19 Lighting modifications/upgrades
   - B #20 Species crossing protection
   - • #49 Nature-based recreational opportunities

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 Groton: Cow Pond Brook/Playing Fields & Highway Dept

NbS Recommendations

- Parking improvements could include lines to designate parking areas, tree plantings for shade, erosion controls, and possible traffic pattern changes to reduce congestion when games end.
- A rain garden/swale/retention area could be created between the road and the parking area to manage runoff.
- Improved turtle migration could be facilitated from Cow Pond Brook wetland area to upland sandy pine/oak forest south and east of the ball fields.
- Across Cow Pond Brook Road, the Groton Highway Department is conducting beneficial interventions. An additional item to accomplish would be to remediate significant concentrations of mugwort along their fill piles and around the perimeter of their property.
- The Highway Department across the street from the fields gets very hot and could use some aesthetic improvements, native grasses, and cooling features.

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 memo numbers correspond to the NbS recommendations on the page 2 Map.

#8 Pollinator Hedgerow Buffer

#14 Shade Infiltration Tree Planting

#19 Lighting Modifications

#20 Species Crossing Protection

#26 Apply Indigenous Knowledge

#30 Pedestrian Safety and Bike Access

#36 Shade Requirement

#49 Nature-based Recreational Opportunities

#58 Invasive Species Management

#59 Species Monitoring Protocol

#60 Habitat Enhancement

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

Soils Information for Groton: Cow Pond Brook/Playing Fields & Highway Dept

Groton

The significant acreage of soil with high regeneration potential that surrounds downtown Groton and drains to the close by Nashua River could act as key demonstration sites for improved soil practices.

The Nashua River flows northward towards Pepperell on the west side of Groton. A major watershed boundary splits the town, with a large area draining to the Nashua River and another to the Merrimack River. The side of town that drains to the Nashua River contains the community's most significant acreage of farmland and residential neighborhoods as well as most of downtown Groton. These areas are where Groton's acres of "high regeneration potential" soil are found. A key objective for stewarding healthy soils in Groton should be encouraging better management of these degraded lands through education and demonstration projects. Of the five focus communities, Groton has the lowest percentage of "high function/high carbon" soils and the highest percentage of "moderate-low function" soil.

Sites Considered for Nature-based Solutions

Several sites near downtown Groton are being considered for green infrastructure to improve stormwater management. These sites are in areas with "high regeneration potential" soils and could be key demonstration sites for better soil practices. Flooding has been identified at sites throughout the town. Regenerating water holding capacity on soils within the same sub-basins as these flood prone areas is an important planning approach to mitigate these issues.

Priority Actions for Protecting/Enhancing Soil Health in Groton

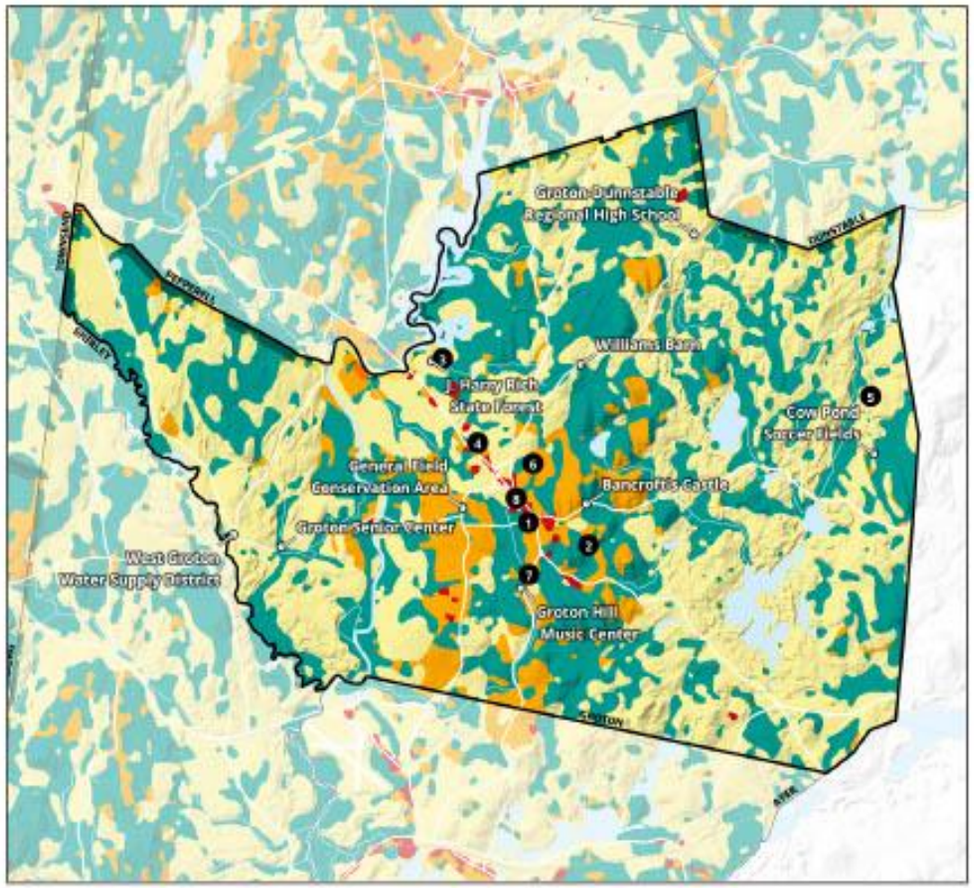
Better management of turf, lawns, gardens, and farms.

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	Broad Meadow		◆	◆	
2	Groton Country Club	◆	◆	◆	
3	Nod Road			◆	
4	Middle School Parking	◆			
5	Cow Pond Brook/Playing Fields & Highway Dept.			◆	
6	Willowdale		◆	◆	◆
7	James Brook				◆
8	Groton Town Hall	◆			

Soil Functions for Resilience



	Groton
High Performance Soils & High Carbon Soils	8,314 ac (38.5%)
Average Function Soils	11,315 ac (52.3%)
Degraded Soils with High Regeneration Potential	1,849 ac (8.6%)
Highly Degraded Soils	138 ac (0.6%)

○ Landmarks

❶ Sites Considered for Nature-based Solutions

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

Nature-based Solutions Opportunity Table Groton: Cow Pond Brook/Playing Fields & Highway Dept

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	Cow Pond Brook/Playing Fields & Highway Dept
	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	
6	Pond creation/ elimination / alteration	
7	Stream flow alteration	
8	Pollinator hedgerow buffer	**mid**
10	Soil management or restoration	**mid***
	** see Healthy Soils Report	

NbS Template #	Nature-based Solution Description	Cow Pond Brook/Playing Fields & Highway Dept
	Built Environment Restructuring	
11	Stormwater treatment wetlands	**mid**
12	Daylighting of streams	
13	Upstream BMPs rain-garden, bio-swale, etc.	**low**
14	Shade-habitat/ Infiltration tree plantings	**high**
15	MSCS culvert improvement	
16	Dam modification / controls	
17	Pervious parking walking areas	
19	Lighting modifications / upgrades	**mid**
20	Species crossing protections	**high**
22	High-performance soil specifications	

Nature-based Solutions Opportunity Table Groton:
Cow Pond Brook/Playing Fields & Highway Dept, 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

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Feasibility is based on property ownership or technical access

NbS Template#	Nature-based Solution Description	Cow Pond Brook/Playing Fields & Highway Dept
	Ecological Awareness & Access Projects	
24	Outdoor classroom/ Nature-play	**high**
25	Food production and forage	
26	Apply Indigenous knowledge	**mid**
27	Soft trail	
29	Soil protection-puncheon-boardwalk	
30	Pedestrian safety and bike access	**mid**
	Architectural Projects to Consider	
49	Nature-based recreational opportunities	**mid**

NbS Template #	Nature-based Solution Description	Cow Pond Brook/Playing Fields & Highway Dept
	Value Added Features on Projects	
50	Analysis and study projects	
52	Educational Interpretation	**low**
53	Furnishings / gathering space	**mid**
56	Volunteer opportunities	**high**
58	Invasive species management	**mid**
60	Habitat enhancements	**mid**

Photo top left: Cow Pond Playing Fields parking area. To the right of the red line is the infiltration trench that may be silted up preventing infiltration.

Photo top right: Erosion of the slope from Cow Pond Brook Road to the parking area.

Photo bottom left: Cow Pond Playing Fields parking area.

Photo bottom right: Expansive under vegetated grounds at the Highway Department site.

Photos by Nancy Lebedzinski

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.

Executive Office of Energy and Environmental Affairs

MVP
Municipal Vulnerability Preparedness

CITY OF FITCHBURG
A TOWN 1764 - A CITY 1872

NASHUA RIVER WATERSHED ASSOCIATION

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