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Green Infrastructure for Framingham, Massachusetts: Greenway Planning and Cultural Landscape Design

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University of Massachusetts- Amherst
Department of Landscape Architecture and Regional Planning
Spring, 2015
LandArch 494LI: Senior Capstone Studio

Green Infrastructure for Framingham, Massachusetts: Greenway Planning and Cultural Landscape Design

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Cover Rendering by John Milos

Acknowledgements:

Thanks to the staff at the Town of Framingham who assisted us with this project including:

Town of Framingham
Erika Oliver Jerram, Deputy Director, Community and Economic Development
Marianne Iarossi, Town Planner
Arthur Robert, Director, Community and Economic Development
Peter A. Sellers, Director, Public Works
Katherine Weeks, Director of Project Development and ROW Acquisition Engineering and Transportation Division, Department of Public Works
James Duane, Director of Parks and Recreation Department

Thanks to Annie Murphy, Director, Framingham History Center for the tour of her facilities and assistance with class projects.

UMass Department of Landscape Architecture and Regional Planning
Principal Investigator: Dr. Mark Hamin
Project Research Assistant: Karl Allen

Studio Background

The senior undergraduate, Bachelors of Landscape Architecture studio at the University of Massachusetts, Amherst developed a town-wide greenway plan for the Town of Framingham's Department of Community and Economic Development. This conceptual plan connects the town's natural, cultural, and recreational resources through a network of pedestrian and bike trails. This plan also seeks to connect the diverse neighborhoods within the Town to these resources and provide alternative means of local residents to access jobs, schools, and retail centers. The greenway plan builds on Framingham's Open Space and Recreation Plan (2013), which identified the need for a regional greenway system to link the town to the many local and regional recreational, cultural, ecological, and economic resources.

This capstone planning and design studio began with an analysis and assessment of the Town of Framingham's natural, recreational, cultural, and transportation/land use resources. Teams of students developed alternative greenway plans for the town and region, respectively. These plans were synthesized halfway through the class to produce the composite greenway plan shown in this report. For the second half of the class, individual students developed neighborhood and site specific greenway and park designs for key linkages within the greenway network in the rural northeast section of Framingham, industrial village of Saxonville, historic Framingham Center, the Tech Park, and downtown Framingham. These detailed designs form the body of this report.











The Town of Framingham, Massachusetts is a hub of the rapidly urbanizing MetroWest region due to its strategic location at the crossroads of the Massachusetts Turnpike and I-495 between Worcester and Boston. Framingham continues to be an economic powerhouse with corporate headquarters for major firms, such as Staples and TJMAX; as well as the major retail shopping hub, called the "Golden Mile" along the Natick border (Framingham Preservation Plan, 2008). This economic development has come with a cost, intense traffic pressure on the major arterials throughout the town. Served by the MBTA commuter rail, the Town is seeking to explore its alternative transportation options.

Despite this recent development, the town has four distinct historic centers; including the historic downtown, as well the historic villages of Saxonville, Framingham Center, and Nobscot (Framingham OSRP, 2013). There are several historic districts in the downtown area where the hub of cultural resources is located. In addition, the town is home to Framingham State University and other educational institutions.

With a population of 68,318 (2010), the town has a diverse population with approximately 10% Hispanic, Brazilian and other Latin American residents, and 5% Asian residents (Framingham OSRP, 2013). The town is highly developed, with major unprotected open space parcels existing on the periphery, such as the Garden in the Woods. In addition, Framingham has been developing a public trails network by building sections of the regional Bay Circuit Trail and Bruce Freeman Rail Trail, as well as the Cochituate Rail Trail connecting Saxonville to Natick Center. The Town also has several aqueducts serving the MWRA regional water supply that are potential open space connectors, such as the Weston Aqueduct Greenway and Trail System (Framingham OSRP, 2013).

The town is drained by the Sudbury River and its tributaries. Two major dams on the river created historic drinking water reservoirs for the metropolitan Boston (MWRA) system which were discontinued with the opening of the Quabbin Reservoir system. Downstream portions of the Sudbury River have been designated as a Wild and Scenic River by the federal government. In addition to Lake Cochituate on the Sudbury River, the town has seven ponds that contribute valuable aquatic habitat and recreational areas for the town. However, the large areas of impervious surfaces in this highly developed town have caused concerns over the impact of polluted stormwater runoff into the town's rivers and ponds, which should be addressed in a comprehensive green infrastructure system.

Framingham, MA



Source: chooseframingham.com

Worcester, MA

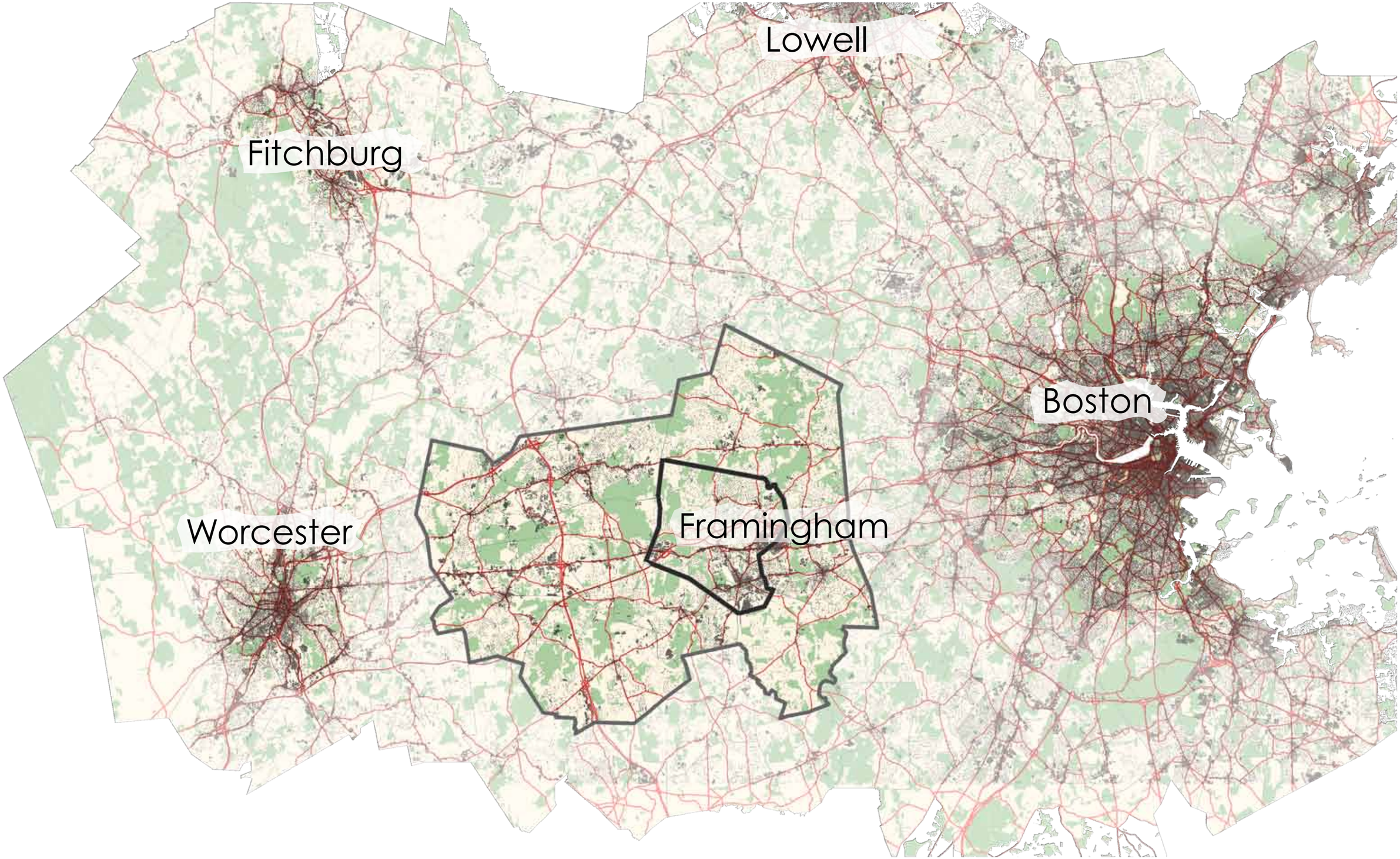


Source: ronsaari.com

Boston, MA



Source: bostonguides.com



Source: mass.gov/MGIS

Natural System Analysis

The major components of any natural system are the waterbodies: streams river and ponds along with the various types of upland and lowland forest and meadow ecosystems.

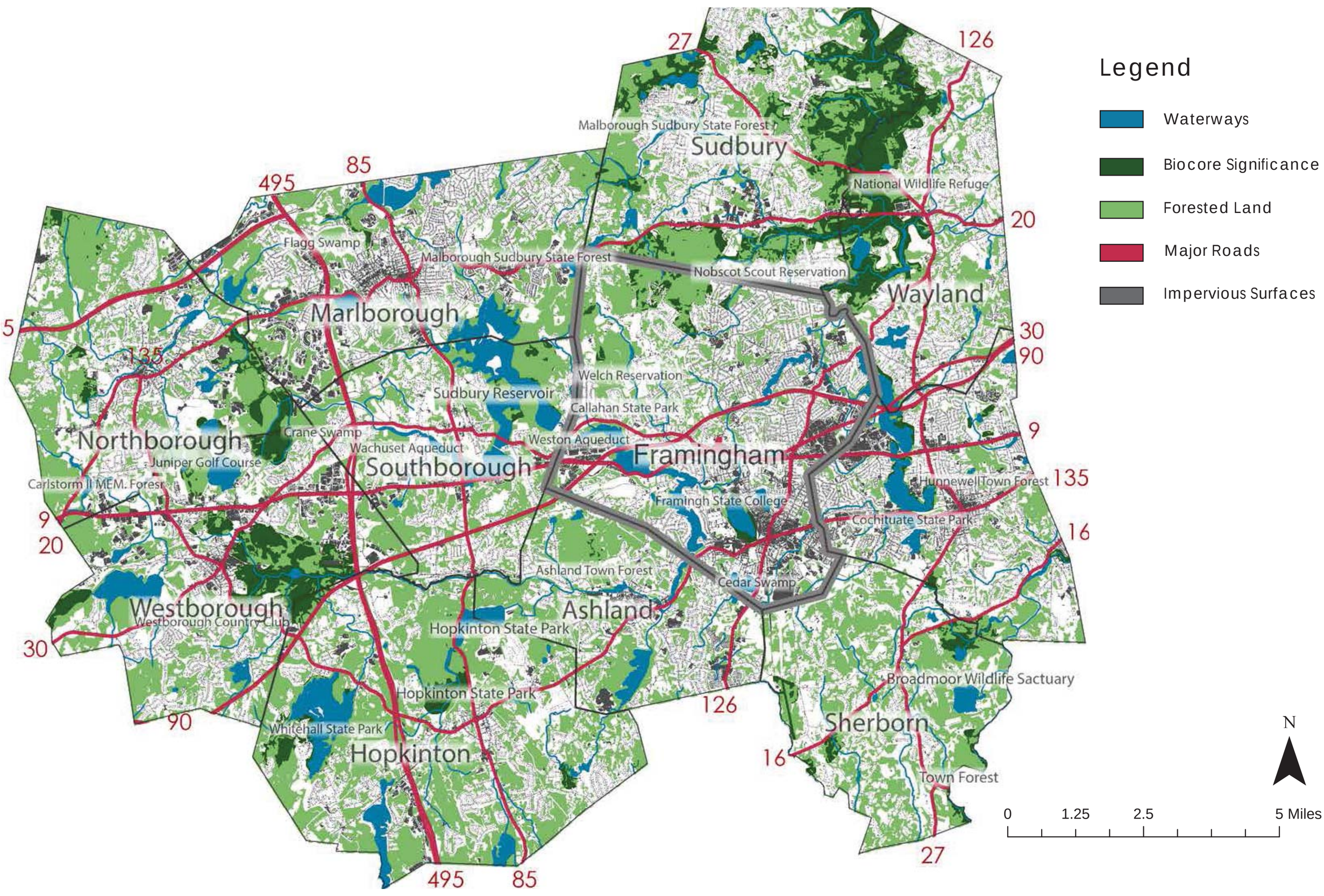
In this region of the state there are large swaths of protected open space in the form of state parks and conservation reserves juxtapose against contrary large swaths of impervious surfaces.



Source: Sudbury Reservoir






Legend
Waterways
Biocore Significance
Forested Land
Major Roads
Impervious Surfaces
27
126
Malborough Sudbury State Forest
Sudbury
85
495
National Wildlife Refuge
20
Flagg Swamp
Malborough Sudbury State Forest
Nobscot Scout Reservation
Wayland
5
Marlborough
30
90
135
Welch Reservation
Sudbury Reservoir
Callahan State Park
Crane Swamp
Weston Aqueduct
9
Northborough
Wachuset Aqueduct
Framingham
Juniper Golf Course
Southborough
Hunnewell Town Forest
135
Carlstorm II MEM. Forest
Framingh State College
Cochituate State Park
9
16
20
Ashland Town Forest
Cedar Swamp
Westborough
Westborough Country Club
Ashland
Hopkinton State Park
30
Broadmoor Wildlife Sactuary
Hopkinton State Park
126
90
Sherborn
Whitehall State Park
16
Hopkinton
Town Forest
27
495
85
N
0
1.25
2.5
5 Miles

Historical & Cultural Analysis

- Reservoirs and Aqueducts
- Regional Transportation Hub
- Ethnic Diversity in Marlborough and Framingham
- Hopkington Center for the Arts, Technology Park, Golden Triangle



Source: Historic Wayside Inn



Source: Brazillian Soccer



Source: Hopkinton Center for the Arts

Sudbury

Marlborough

Wayland

Northborough

Framingham

Southborough

Westborough

Natick

Ashland

Sherborn

Hopkinton

290

90

9

Legend

- Greenway Plan
- Major Roads
- Open Space
- Prime Forest
- Historical Districts
- Aqueducts
- Trails
- Cultural Hubs

N

0 1.25 2.5 5

1 inch = 1.5 miles

Natural System Greenway

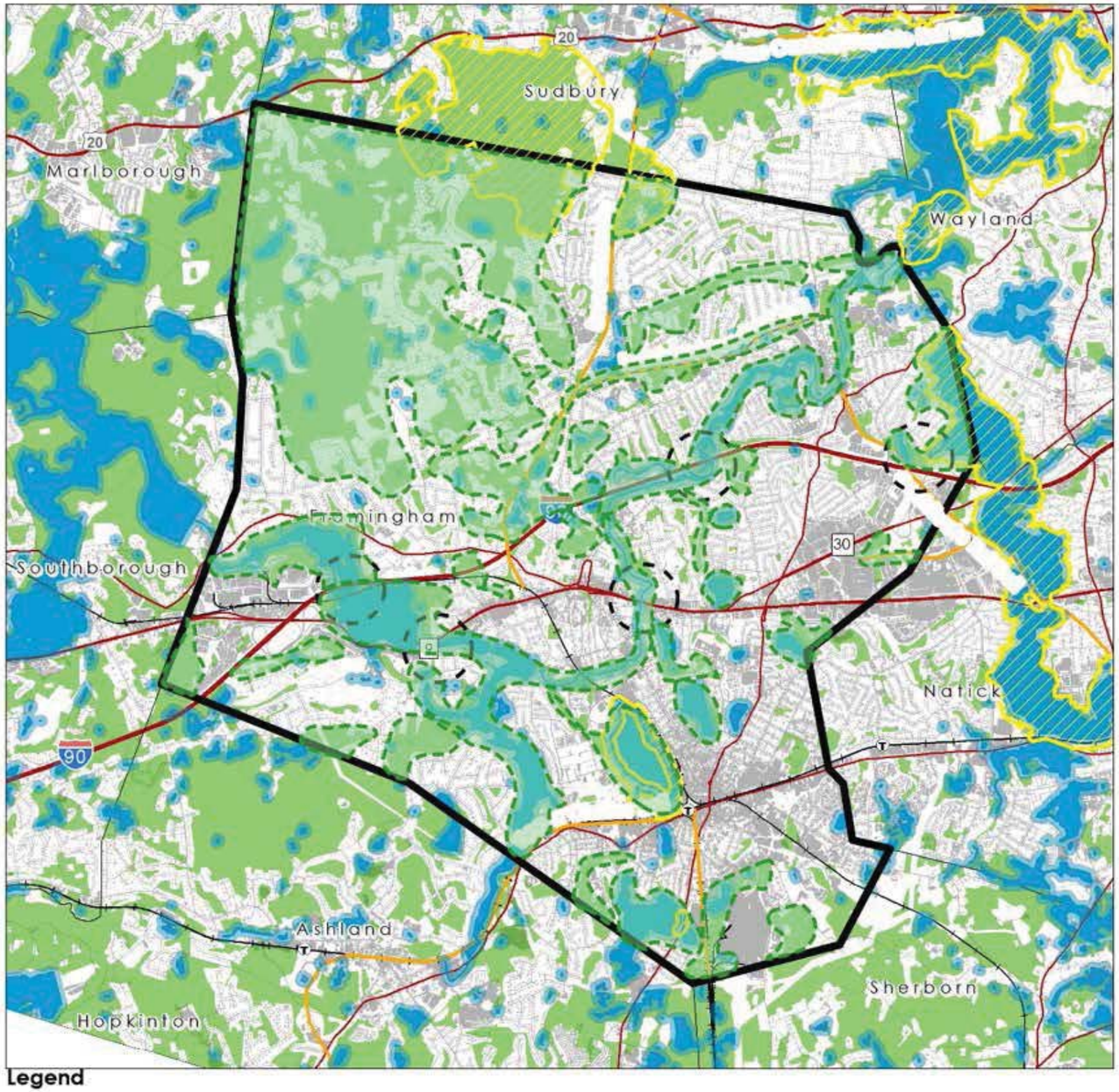
- Habitat Fragmentation
- Improve Water Quality
- Environmental Impacts Due to Development







Natural Systems
Framingham, MA



Legend

- Habitat
- Hydrology Buffer
- Hydrology
- Commuter Station
- Bicycle Trails
  - Existing
  - Potential
- Interstate
- U.S. Highway
- State Route
- Active Rail Service

University of Massachusetts Amherst
Landscape Architecture and Regional Planning Department
Senior Capstone Studio: LANDARCH497L
Professors: Robert Ryan & Peter Flinker
Teaching Assistant: Alyssandra Black
Map Provided by: Caroline Fay

MASS GIS Data Layers

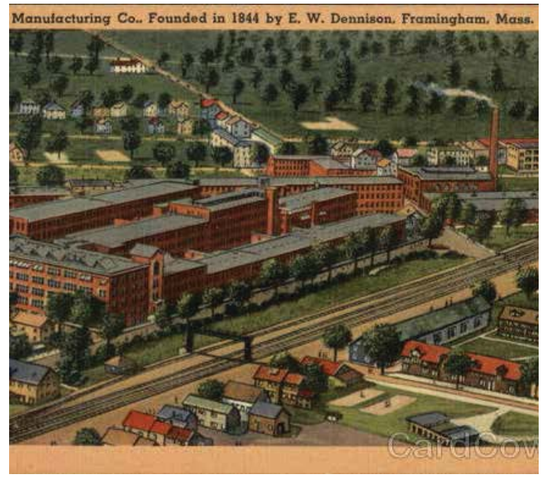
N

0 0.5 1 2 Miles

Historical/Cultural Greenway

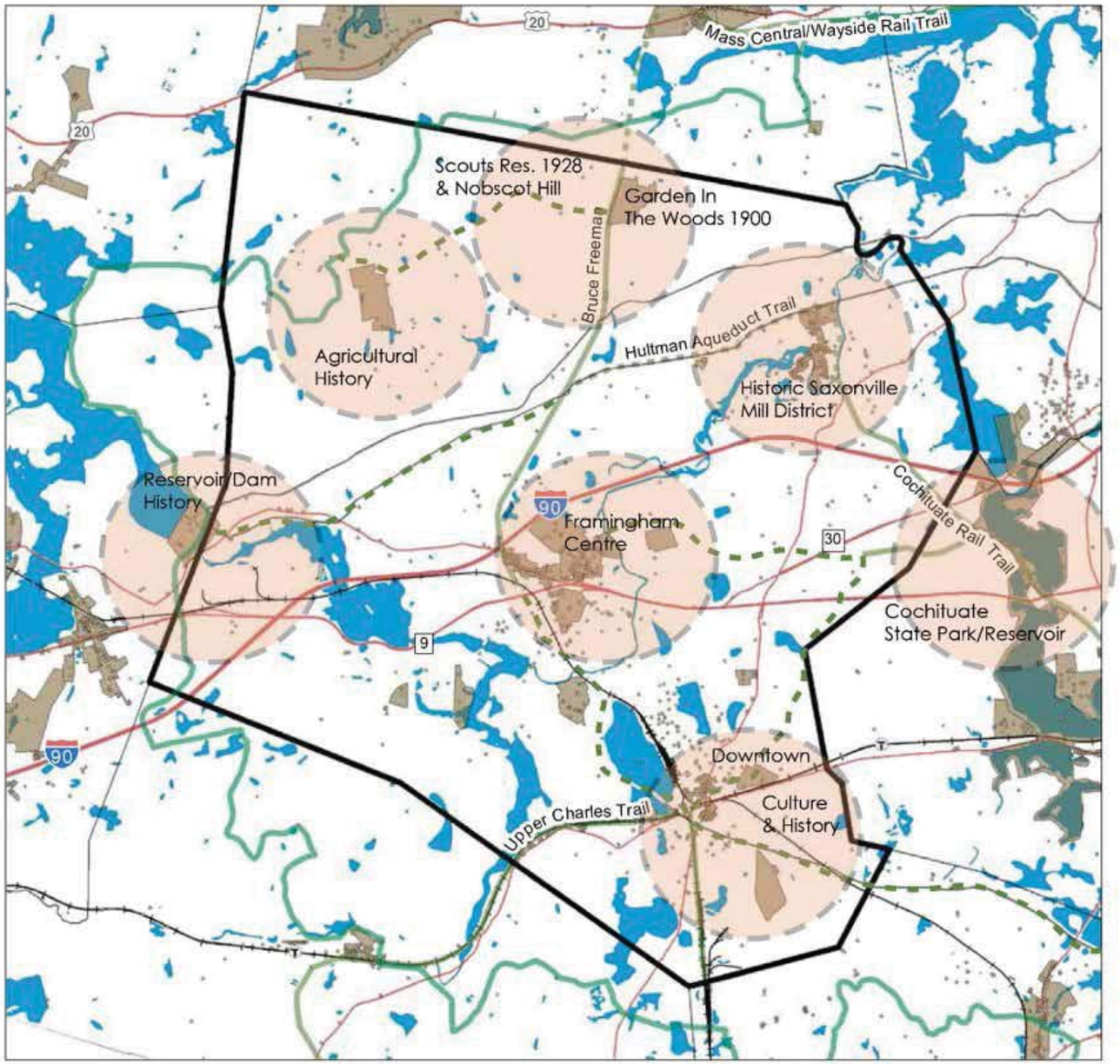
- 4 Distinct Historic Centers
- 8 Cultural Districts
- Diverse Population
- Water is an Asset







Historic & Cultural Analysis
Framingham, MA



Legend

Major Roads
- Interstate
- U.S. Highway
- State Route

Bicycle Trails
- Existing
- Potential
- LONGDISTTRAILS_ARC

Railroads
- Active Rail Service
- Commuter Station

- Hydrology
- Historics Sites
- Historic Disricts

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MASS GIS Data Layers

N

0 0.5 1 2 Miles

Transportation/Land Use Greenway

- Accesible by 2 Major Higways
- Extensive Bus System
- Diverse Land Use
- Major Destinations Include Tech Park, Downtown, Adessa, Golden Triangle, and Framingham State University

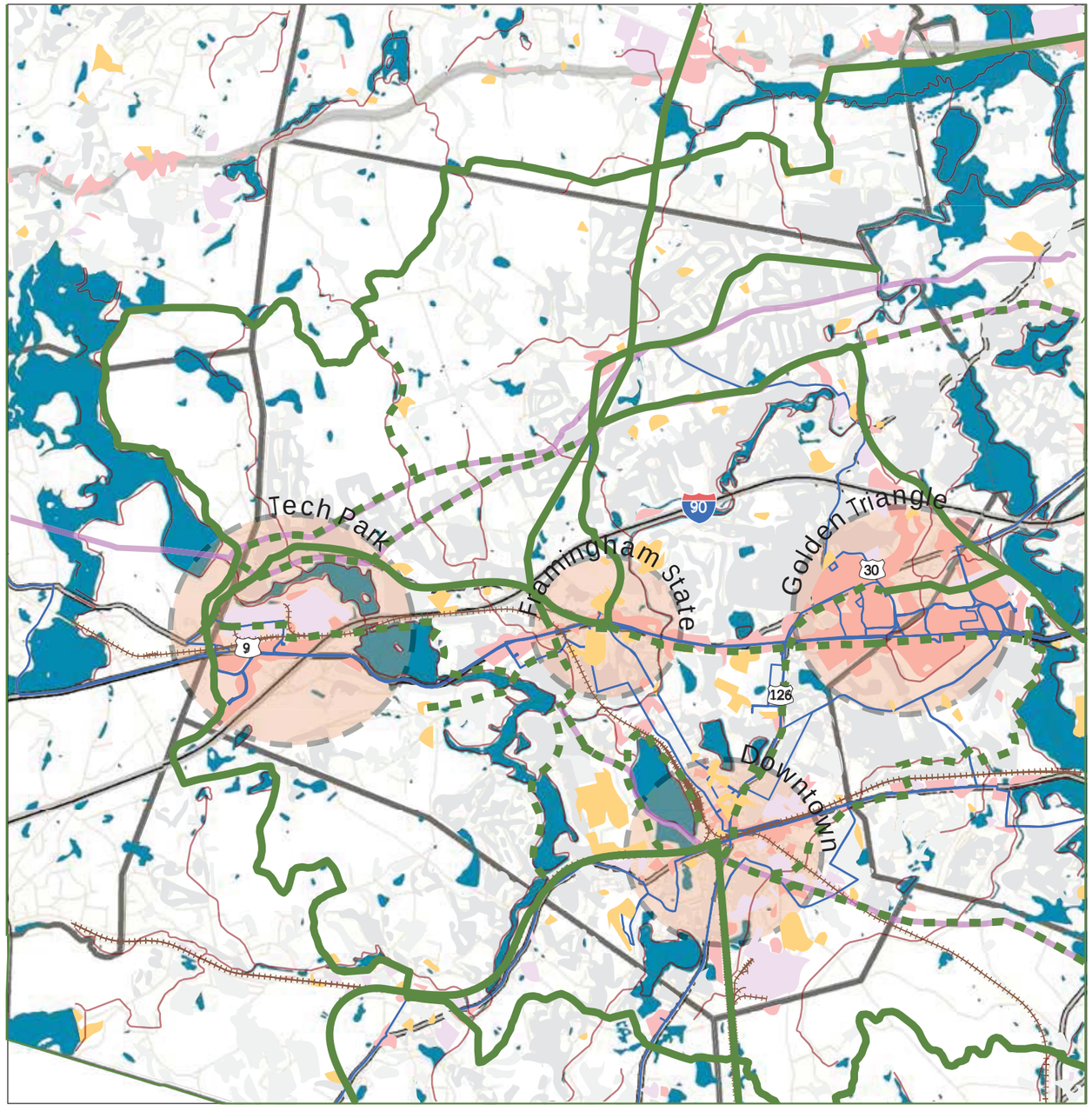






Transportation & Land Use Greenway

Framingham, MA



Legend

Major Roads
- Interstate
- U.S. Highway
- State Route

Bicycle Trails
- Existing
- Potential

Railroads
- Active Rail Service
- Commuter Station

Hydrology

MWRTA Bus Routes
- Bus Routes

Land Use
- Commercial
- Residential
- Industrial
- Institutional

Undevelopable Land
- Wet Soils & Steep Slopes

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MASS GIS Data Layers

N

0 0.5 1 2

Recreation/Open Space Greenway

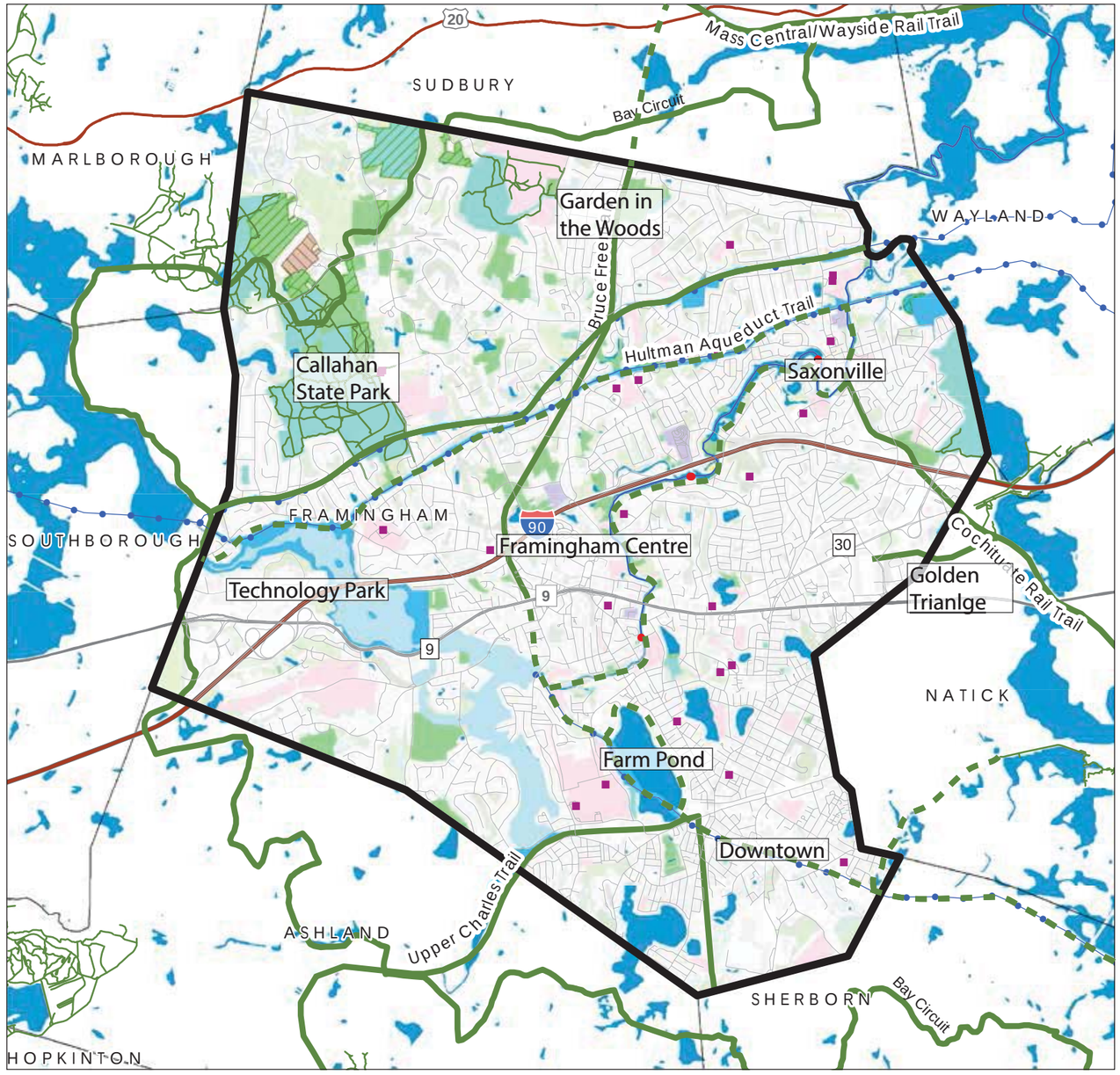
- Opportunities to Connect Existing Trails
- Many Water-Based Recreational Activities
- Large Parks and Open Space in Northern Framingham
- Lack of Connectivity to Open Space in Southern Framingham







Recreation & Open Space
Framingham, MA



Legend

- school
- Aqueducts
- Long Distance Trail
- Hydrology
- Building
- Canoe Access Points
- Canoe trips
- Conservation Restriction
- Agricultural Preservation Restriction
- Conservation
- Recreation
- Recreation and Conservation
- Agriculture
- Historical/Cultural
- Water Supply
- Underwater
- Other

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Teaching Assistant: Alyssandra Black
Map Provided by: Jing Pan

MASS GIS Data Layers

N

0 0.5 1 2 Miles

Composite Greenway

- Connect existing trails to make comprehensive system
- Promote walkability and bikeability
- Connect destinations and resources across Framingham
- Protect and Rehabilitate Natural Resources
- Promote and Enhance Recreation Opportunities
- Preserve historical and cultural sites







Composite Greenway Plan

This studio project developed a comprehensive greenway network that knits together the town's natural, recreational, historic/cultural, and community/ economic resources.
The composite greenway plan is a synthesis of proposals from the three town-scale greenway teams and regional team.

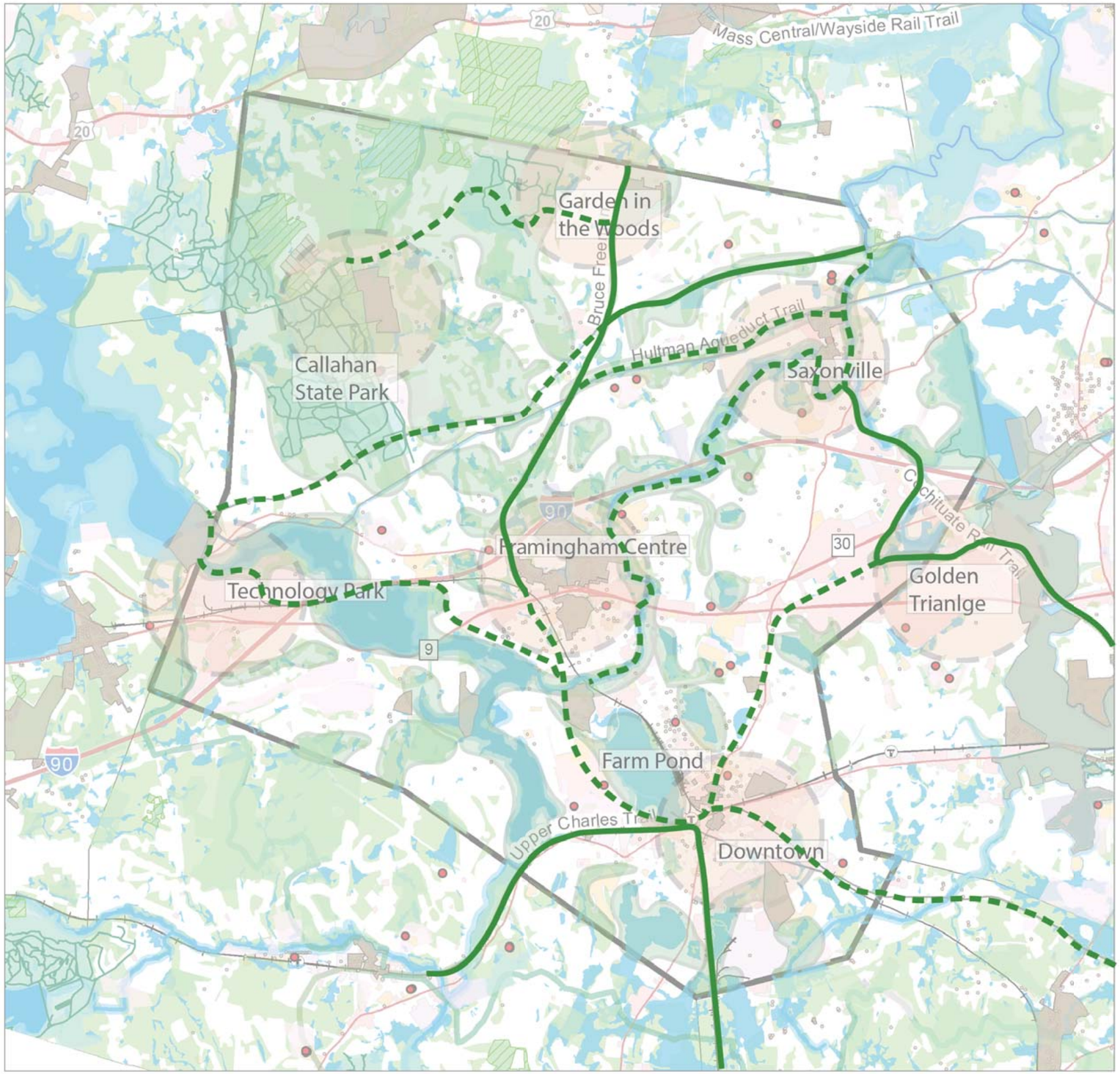
This plan protects and rehabilitates the town's natural resources. In the northwest quadrant of the town around Callahan State Park, it proposes that the town look to protect large parcels that create connectivity between other regional resources including the Garden in the Woods. Along the Sudbury River and its tributaries, it proposed restoration of riparian habitat and preservation of the water's edge. Along Beaver Dam Brook, the plan details recommendations for riparian restoration where possible to provide much needed stream access in densely populated South Framingham.

The greenway plan promotes and enhances recreation opportunities by connecting existing and proposed trails, such as the Cochituate Rail Trail and Bruce Freeman Trail to make a comprehensive system. It also uses the Weston Aqueduct Trail and proposes additional trails along the Hultman Aqueduct. The plan promotes walkability and bikability by creating complete streets where off-road trails are not feasible. A riverwalk is proposed along sections of the Sudbury River and Farm Pond as part of an effort to increase public access and visibility to the town's scenic water resources. It also proposes new and renovated park areas, particularly in South Framingham, which is the most diverse, yet undeserved area of town with regard to open space.

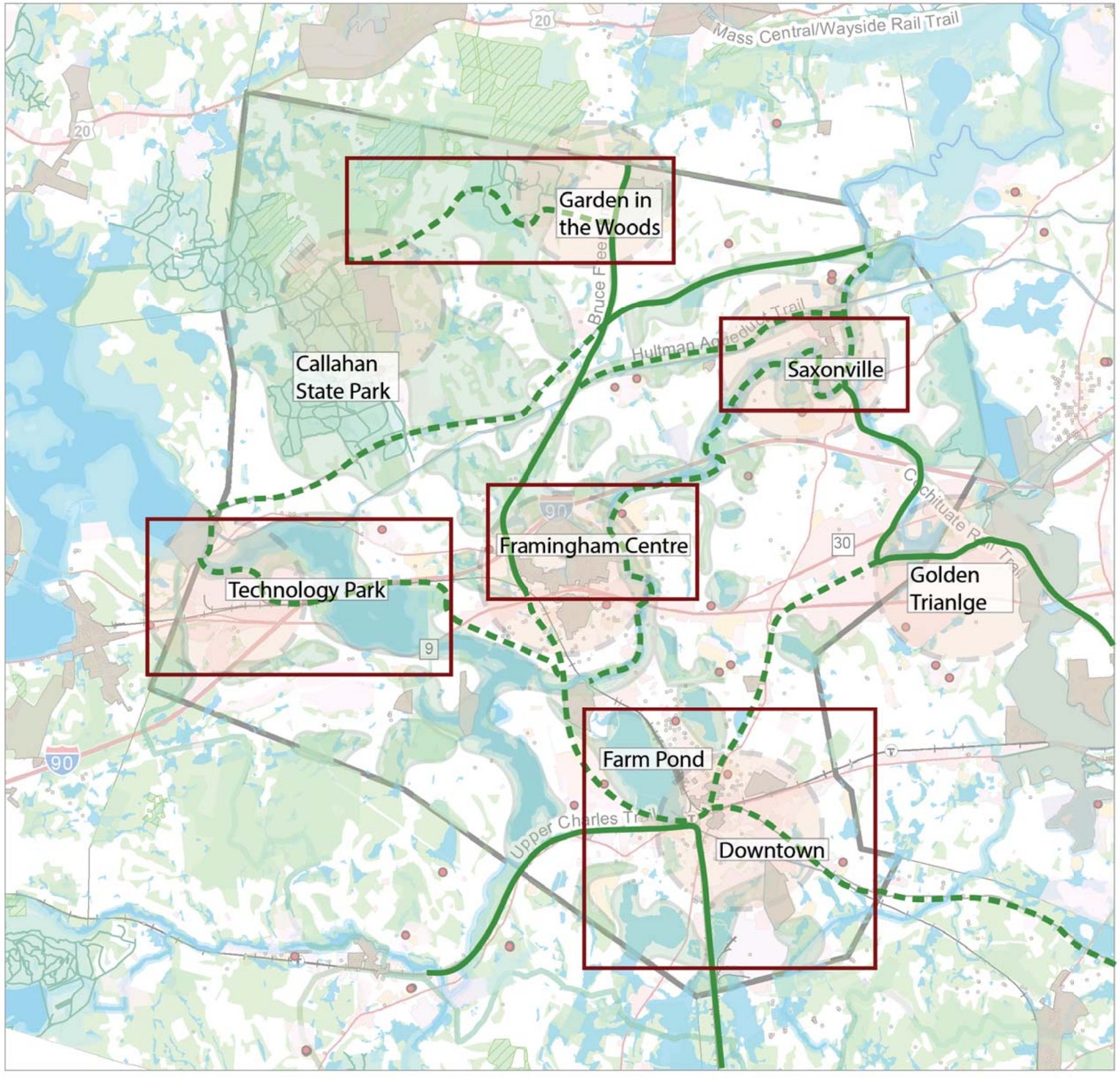
This greenway plan also provides alternative transportation by connecting the major employment and education centers of the Golden Triangle, Tech Park, Framingham State University, and downtown Framingham. In addition, it strives to preserve and interpret historic and cultural sites by connecting resources such as the historic Framingham Center Common to the rest of town. The historic Harmony Grove area is proposed to be rehabilitated from rail yards to a new park. Within historic Saxonville increased access to the Sudbury River is provided using a riverwalk and scenic overlooks along with historic interpretation.

The greenway plan provides a holistic vision for the future of Framingham that preserves the Town's unique natural, historic, and cultural resources, while providing a framework for sustainable open space development and alternative transportation.

Composite Greenway Plan



Focus Areas


Mass Central/Wayside Rail Trail
Garden in the Woods
Callahan State Park
Saxonville
Framingham Centre
Technology Park
Golden Trianlge
Farm Pond
Downtown
Bruce Freeman Trail
Hultman Aqueduct Trail
Cochituate Rail Trail
Upper Charles Trail
20
90
9
30
N
0
0.5
1
2 Miles

North Framingham

Team Members: Becky Walton and Dan Kiersted

- Connections between existing open spaces
- Connecting Garden in the Woods to Callahan and Nobscot to the west
- Hiram Road: residential/neighborhood greenway
- Hanson Farm: connection to surrounding open spaces
- Connecting East & West Callahan State Parks
- Connecting to Nobscot Hill and Scouts Reservation








Wittenburg Woods
Nobscot Scout Reservation
Hiram Road
Hanson Farm
Edmands Road
Garden in the Woods
Harrington Fields
Edgell Road
Callahan State Park
0
1,000
2,000
4,000
6,000
8,000 Feet
N

West Framingham

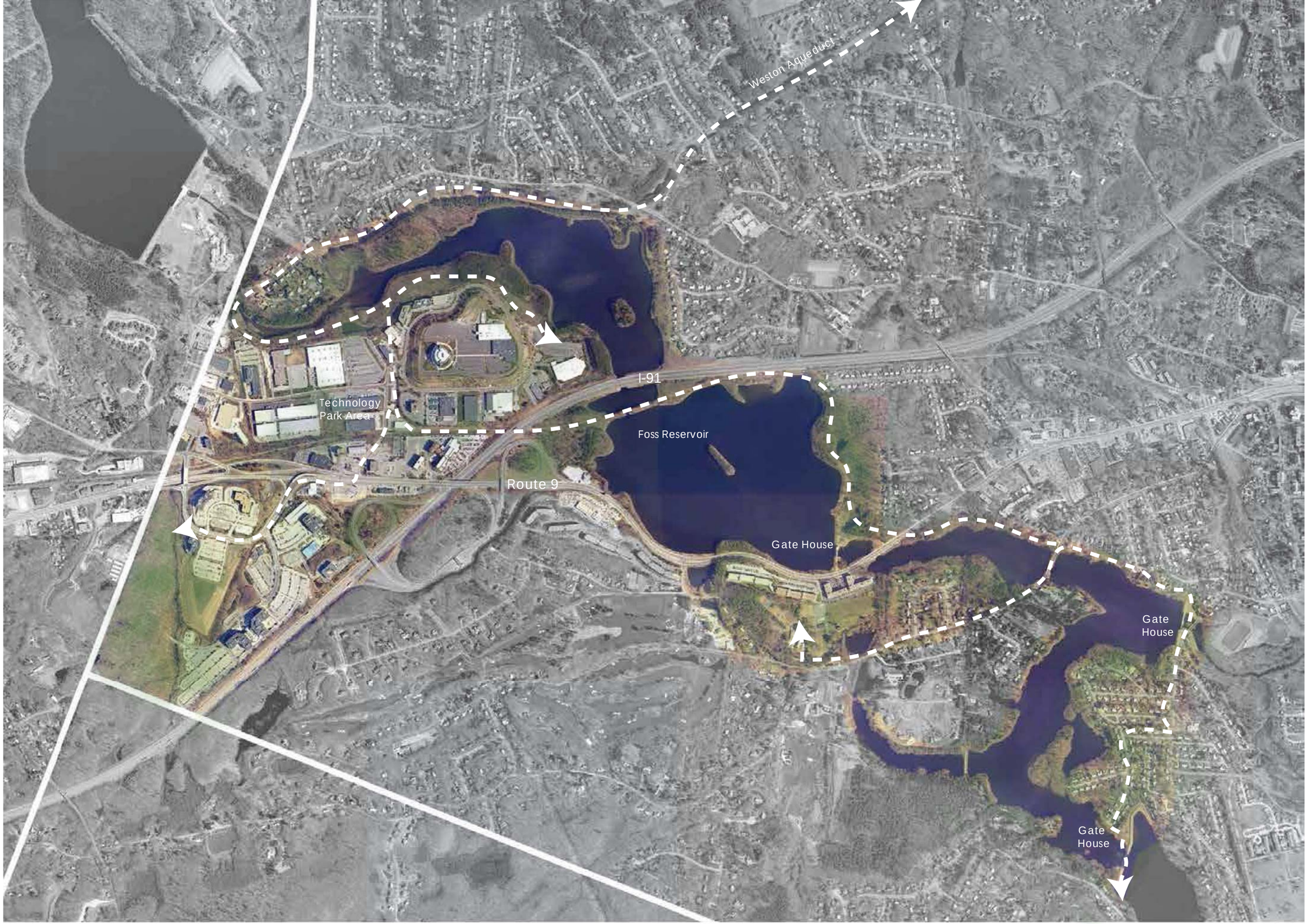
Team Members: John Milos and Pepo Pan

- Revitalize historic ecology by linking 19th century gatehouses and dams
- Create vital community connections between downtown and job centers/commercial hubs
- Support local buisness by connecting a variety of profitable land uses
- Promote bikeability
- Encourage wildlife habitat








Weston Aqueduct
I-91
Technology
Park Area
Foss Reservoir
Route 9
Gate House
Gate
House
Gate
House
0
0.25
0.5
1 Miles
N

East Framingham

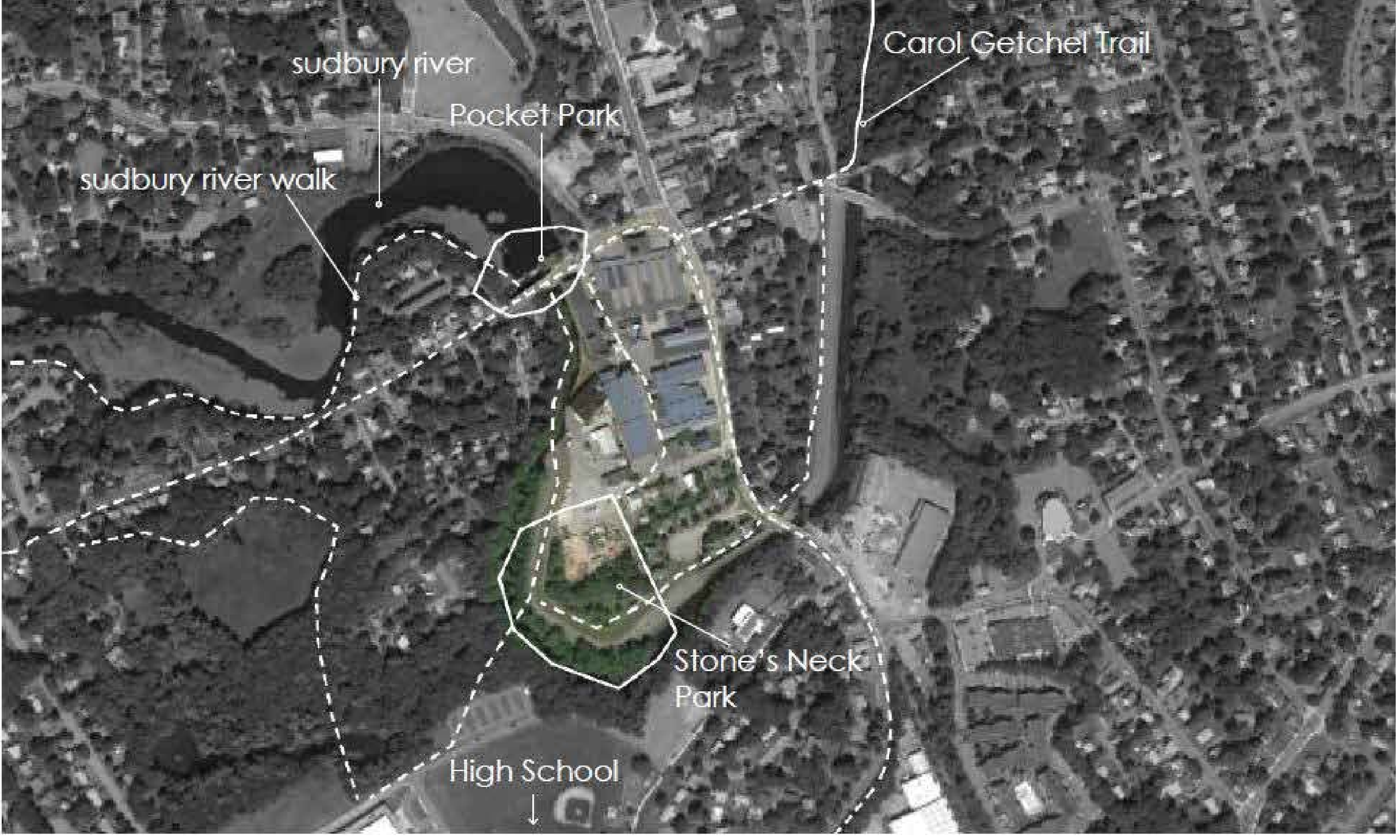
Team Members: Benjamin Perrett and Adam Fearing

- Recognize Saxonville as a significant historic community center
- Choose significant historic mill buiildings and use grant funding to repurpose the buildings for community use
- Design a pocket park at the Sudbury River Dam providing a view of the Sudbury River wetland
- connect these two parks with a path system through the historic center
- connect Framingham Highschool to the center as well as the surrounding natural and built landscape








sudbury river
Pocket Park
Carol Getchel Trail
sudbury river walk
Stone's Neck
Park
High School
↓

South Framingham

Team Members: Mark Gullifer, Chris Johnston, Russ Greene, Valerie DeGroote, Caroline Fay, Matt Crosby, Elyse Couture

- Revitalize historic ecology
- Create vital community connections between downtown and job centers/commercial hubs
- Support local buisness by connecting a variety of profitable land uses
- Promote non-motorized travel
- Improve quality of life for marginalized population
- Encourage wildlife habitat








Learned Pond
Gleason Pond
Bishop Street
Waverly Street/
Rt. 135
Rt. 126
Farm Pond
Reservoir
Number
Two
Upper Charles
Trail
Waushakum Pond

Central Framingham

Team Members: Andrew Duncan, Aqsa Butt. Justin Cooper, Blad Hernandez

- Connect existing destinations with new greenway trails
- Expand on existing trails to make a complete greenway system
- Make it easier to navigate in and around central Framingham
- Connect area residents and visitors to natural and historic resources
- Connect Framingham State students and the neighborhood in the area to destinations while encouraging non-motorized travel








Metrowest- Knox Trail Corridor
Learning Center for the Deaf
Framingham Centre Common
Historic District
Sudbury River
Cochituate Rail Trail
Victory Fields
The Golden Triangle
Bruce Freeman Rail Trail
Framingham State University
Framingham Centre
Rt 9. Worcester Rd.
Athletic Fields
Farm Pond
0 550 1,100 2,200 3,300 4,400 Feet
N

Conclusion

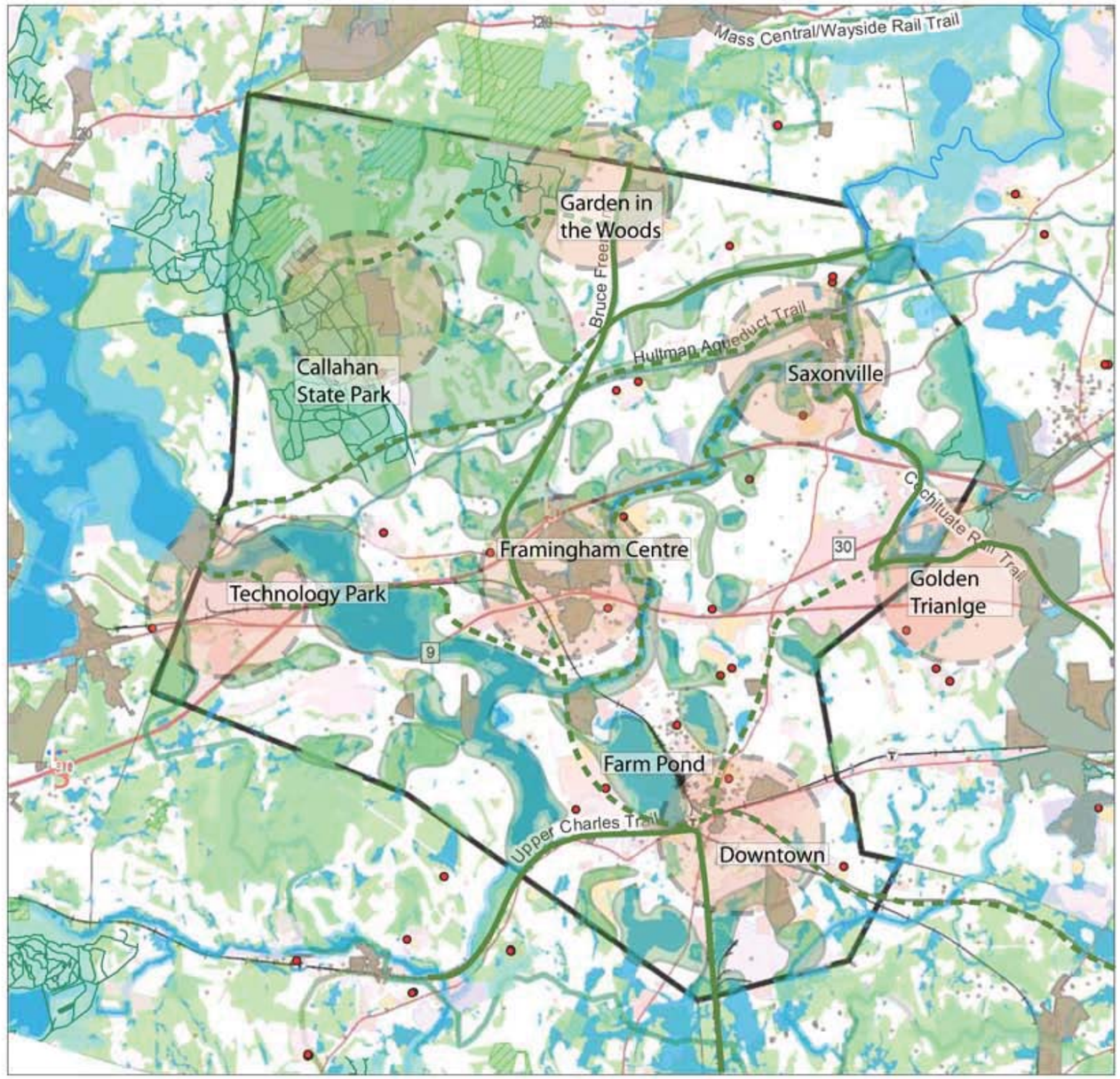
- Continued research
- Case studies
- Contiune collaboration with Framingham town offices







Composite Greenway
Framingham, MA



Legend

Major Roads
- Interstate
- U.S. Highway
- State Route

Railroads
- Active Rail Service
- Historics Sites
- Historic Disricts

- School
- DCR Trails
- Canoe Trip

Land Use
- Commercial
- Industrial
- Institutional
- Conservation
- Recreation
- Recreation and Conservation
- Agriculture
- Historical/Cultural
- Water Supply
- Wetlands
- Pond buffer
- Streams buffer
- Rivers and Streams
- Lakes and Ponds

Bicycle Trails
- Existing
- Potential
- LONGDISTTRAILS_AF
- Commuter Station

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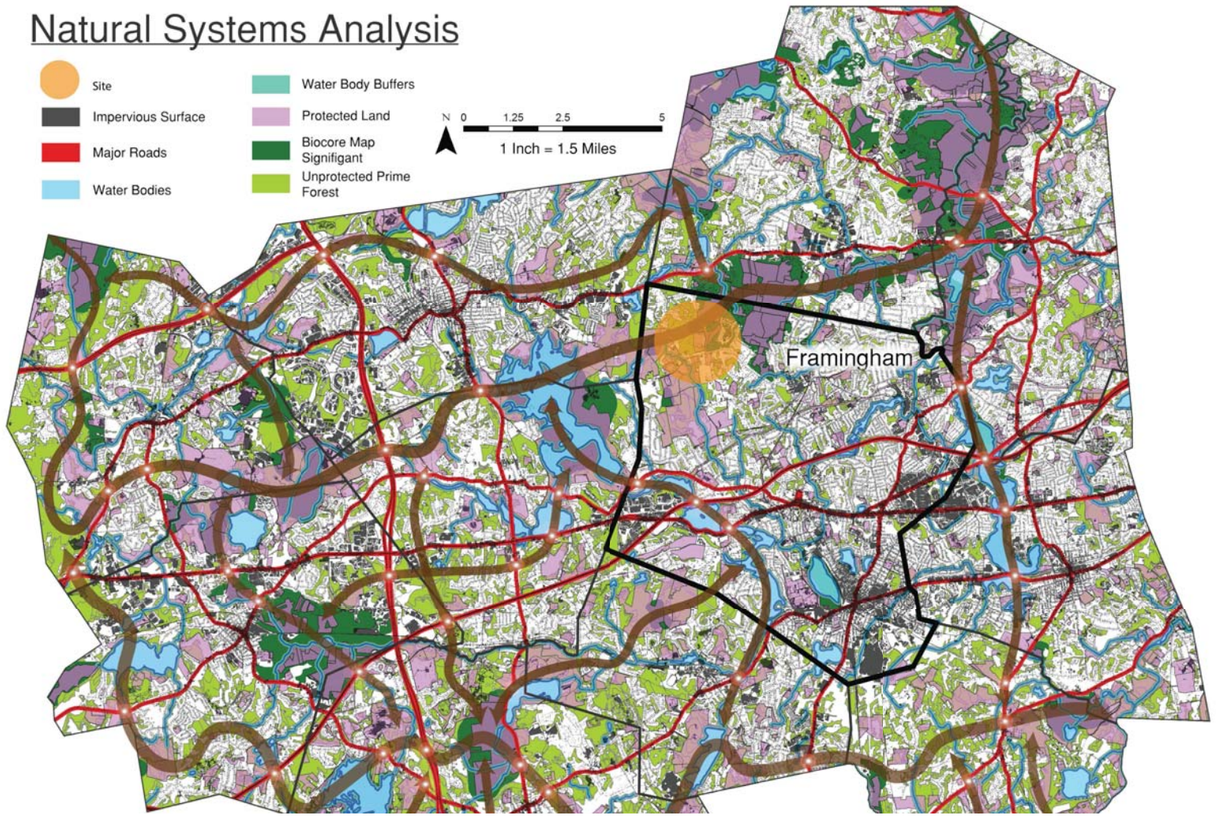
MASS GIS Data Layers

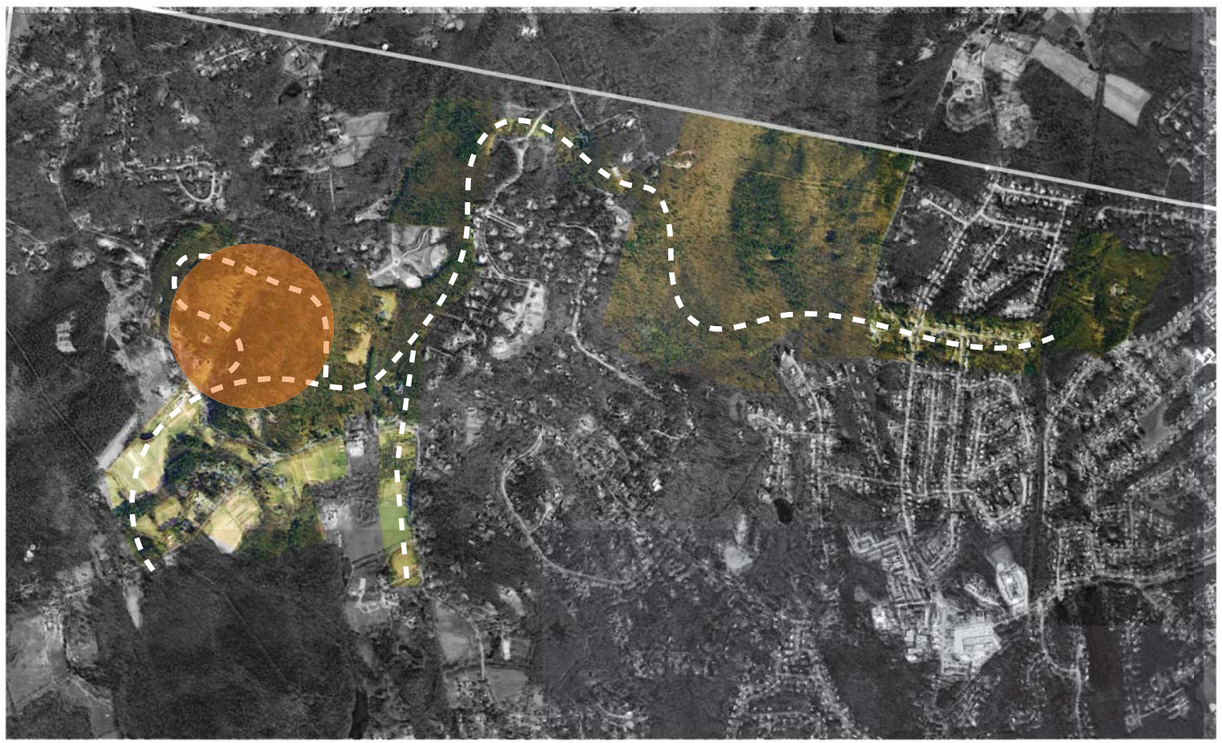
N

0 0.5 1 2 Miles

Sustainable Development: Preserving Framingham's Northwest Quadrant

A Project By: Daniel Keirstead





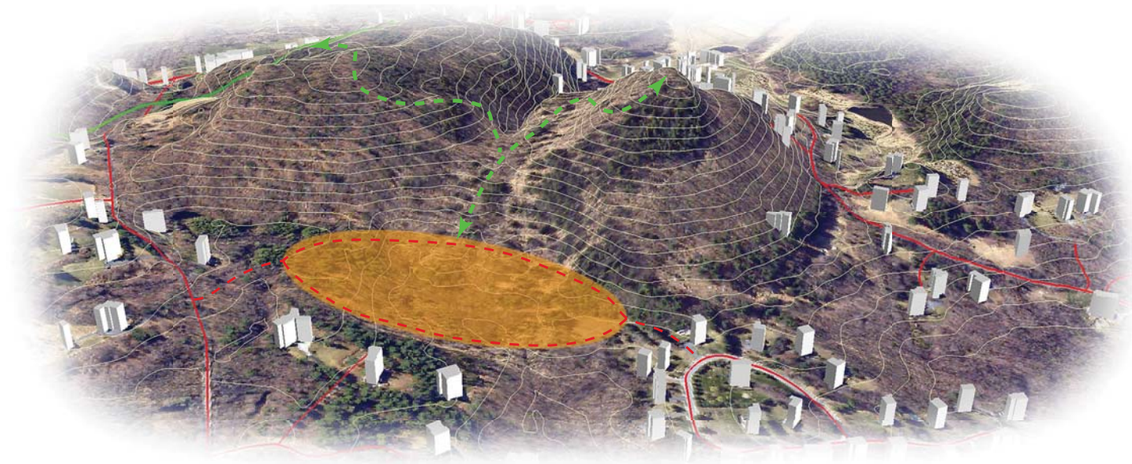
Design Narrative:

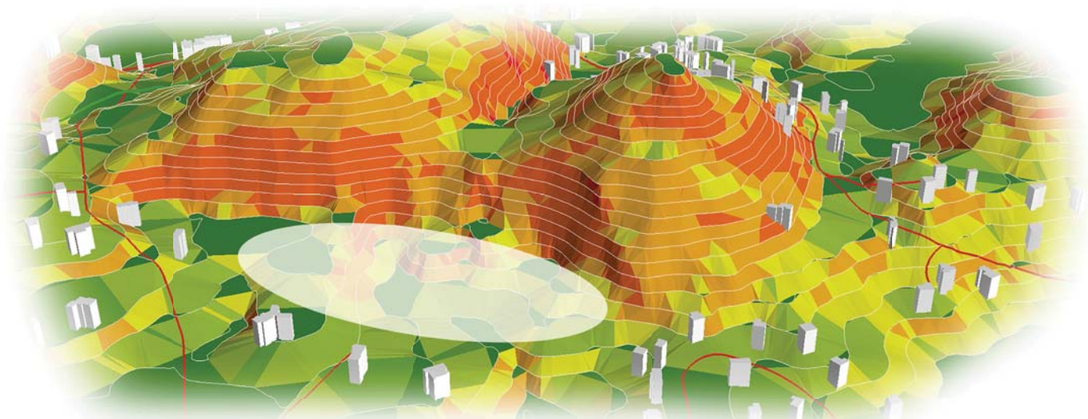
These maps start at the regional scale and zoom in on the design site in question for this project beginning with the map in the top left corner and moving in a counter-clockwise direction around the page. The first map shows a natural systems analysis of the region and in it the brown lines signify important habitat movement corridors. The most intact and important corridor passes directly through this site and was one of the major reasons for moving forward with this idea. The second map shows how this site relates to my partner, Becky Walton's. Both designs seek to incorporate preservation of land with access from surrounding neighborhoods.

In order to achieve a conservation effort for this 100 acre site a smart growth development plan is proposed. The two maps below show the site in context to its topographical surroundings which are of great significance. This proposal is clustered to the foot of the two large hills on the site and a proposed trail, show below in dashed green will lead from the new development both to the summit of the two peaks but also to the "Bay Circuit Trail" which passes through the southern portion of the land. This connection and recreation opportunity is the spear head of this preservation effort. By connecting the new residents to the land around them they will be spurred to involvement and this progressive mindset. Although much of the surrounding open lands are already protected this remaining parcel is of crucial importance to the local ecosystem and wildlife.t

To begin major goals and objectives were identified as such:

- Preserve the majority of the 100 acre site by creating a cluster development rather than a traditionally zoned neighborhood.
- Connect people to the surrounding trails to engage them with their natural surroundings.
- Make sure the majority of this effort is accomplished by a developer rather than the town to save tax payer money.
- Incorporate a community parking area in order to open the new recreational opportunities to those from other parts of town.
- Bring awareness to the habitat migration corridor and natural system connection which runs through this part of town.
- Bolster community awareness and involvement in the natural recreational opportunities which are available to them.
- Conserve these lands for the sake of historical and cultural reference for future generations.
- Maintain ecological habitat lands for the plethora of animals that inhabit the area.t





Sustainable Development: Preserving Framingham's Northwest Quadrant

A Project By: Daniel Keirstead

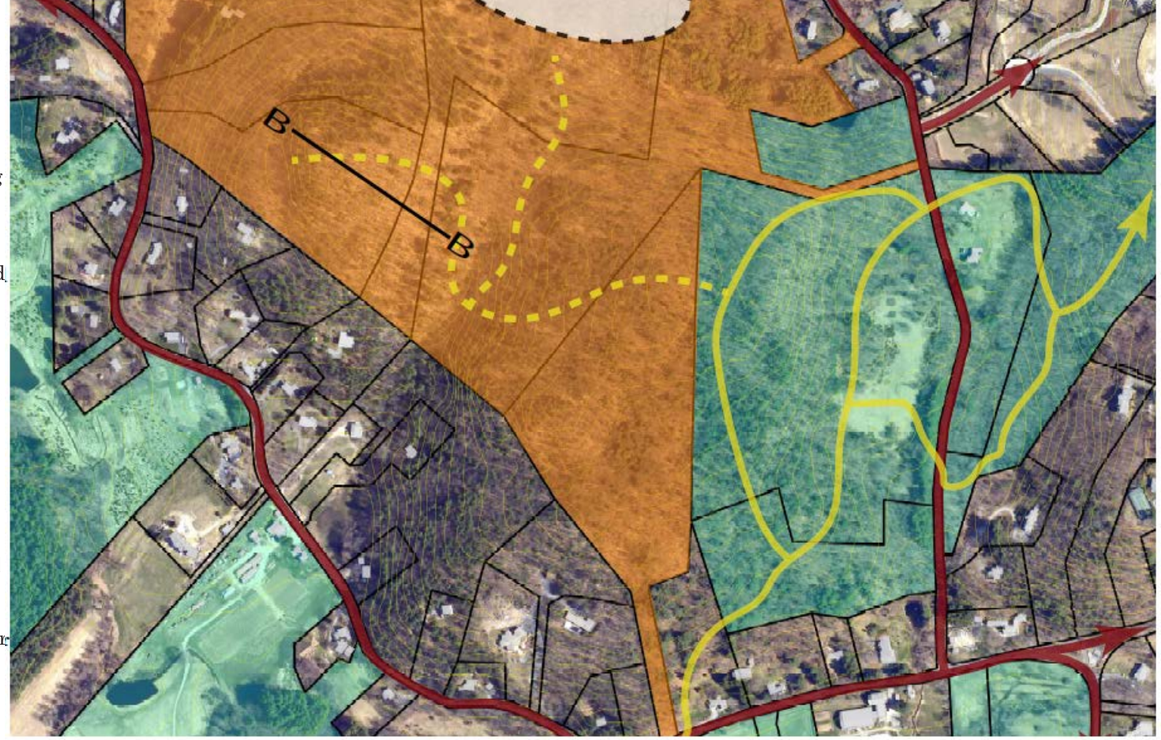


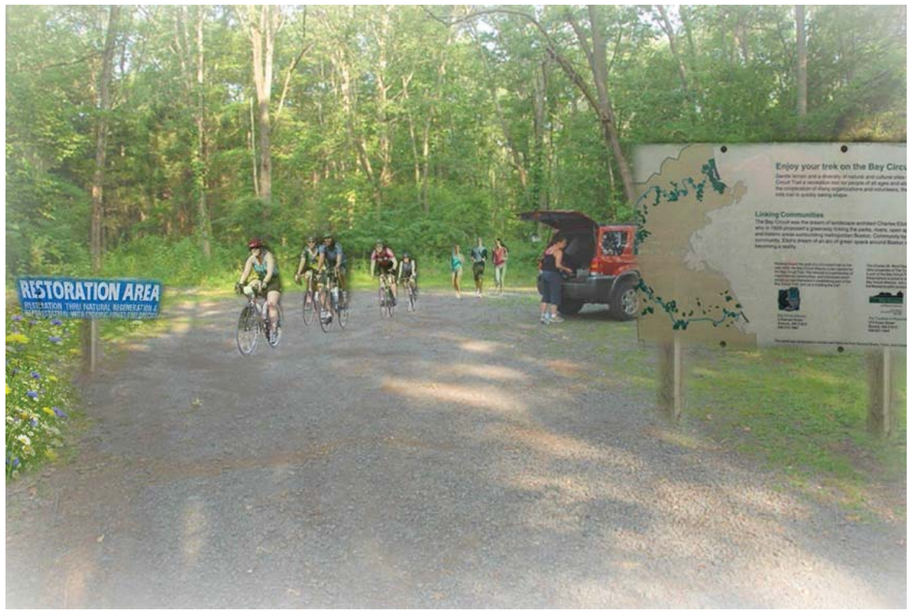
Connecting to Nature:

This is not the first effort in conservation in this part of town. Organizations like the Sudbury Valley Trustees own large tracts of land directly surrounding this site. Shown in orange is the 100 acre site which is undeveloped and yet unprotected. With a cluster development plan the majority of the land can be preserved as recreational and cultural open space for the town while still generating revenue in home-owner taxes, and bringing new residents to town.

The map to the right shows the site at a scale of 1" = 125'. This fits it into the surrounding contextual properties. Upon an assessment of the site it is found there are seven separate tax parcels which make up the 100 acres. This design proposes that any potential developer must purchase the entirety of the lots for any construction to take place, developing only in the identified white ellipse. This specific part of the site was chosen for development because it sits adjacent to two existing roads and near already broad patches of neighborhood development. Also this is the only portion of the site which is not extremely steep, meaning that minimal grading could take place to implement a design keeping bulldozing to a minimum.

The two renderings on this board show a vision for the future recreational amenities which will come from the development. The section line along the top of the page shows the section outlined "B -- B." This would be an enjoyable hike to the summit of one of the two peaks. Also proposed is a summit watch tower for visitors to climb and be able to see out to the great views of the area. By incorporating destinations like this it is possible to engage more people with the trails.





Connectintg to Nature:

In order to accommodate for all residents of town there will be a separate parking lot dedicated to the trail head which will then connect into the "Bay Circuit Trail." The dashed yellow lines on the context map show the proposed trails connecting into the solid yellow lines which are existing. Where this dashed line meets the white project site is the location of this trail head parking lot. By opening this trail to hikers, bikers, and joggers it will help to promote the cause for preservation. Often without access people will be dissuaded from moving forward with conservation efforts. These trails will be the spokesmen for the cause.

When bringing visitors into the forest it is important to distinguish the lands important to native species. By using signage like that in the rendering above in areas such as small species habitat and vernal pools people can be notified to not disturb such areas. The parking lots in this area can be of impervious material such as gravel also to reduce the impact of people on the forest ecosystem. The harmony of engaging human visitors with this wonderful forest ecosystem is the over-arching goal of this project.

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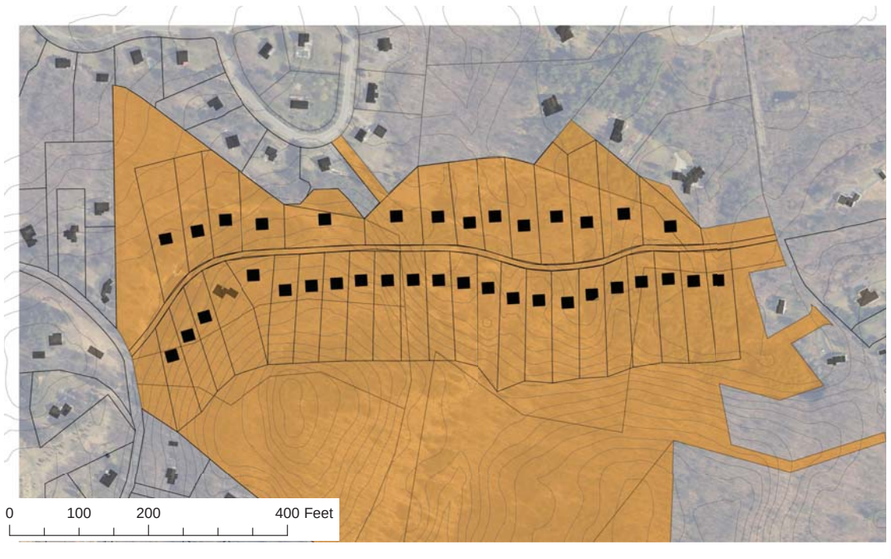


Two Styles:

After determining the amount of available lots on site a cluster plan could be developed. The diagram above shows the outlined idea for the town to follow with. The access road connects to Way Side Inn road on the east and Dartmouth Road which is a neighborhood road to the north with an available right of way. Parking units for the development include community parking lots and on street parking. The residential structures themselves are three-unit row houses organized around a town green. This development will break from the mold of the highly wealthy single family residential zoning pattern which surrounds the area. Residents will have access to both a large community green space and a wealth of undisturbed forest surrounding their dwellings.

Hopefully this can serve as a model for the future of development in both Framingham and surrounding communities. The idea of fitting development into a strong multi-family housing plan is often scoffed at in such settings. However this plan seeks to outline the benefits of such a community. Each unit will have a private lawn and garden space separated from the larger communal green. A series of paved paths will make the space accessible to all members of the community with a lawn graded at less than five percent to extended that universal access will help build strong community character.





Two Styles:

The first step in determining the portion of the site to build on was to think through the mind of a capitalist developer because before the cluster plan could be designed a traditional zoning plan showing the number of R-4 zoned lots that could fit on the site was required as a basis.

These are 1 acre lots with a minimum of 100 feet of road frontage. To fit as many lots as possible a new street be tween Nixon road and Way Side Inn road was sited. The road would require significant grading but would bring the most house lots. Because of the geometry of the site the lots would be skinny and long leaving the home owners with large parcels of privately owned land reaching back into the forest. Essentially this is the worst case scenario for the cultural, historical, and ecological character of the land. With this as the basis for challenge the cluster development plan offers the sustainable alternative.

HIRAM ROAD CONNECTOR:
A TRIFECTA OF GREENWAY PLANS

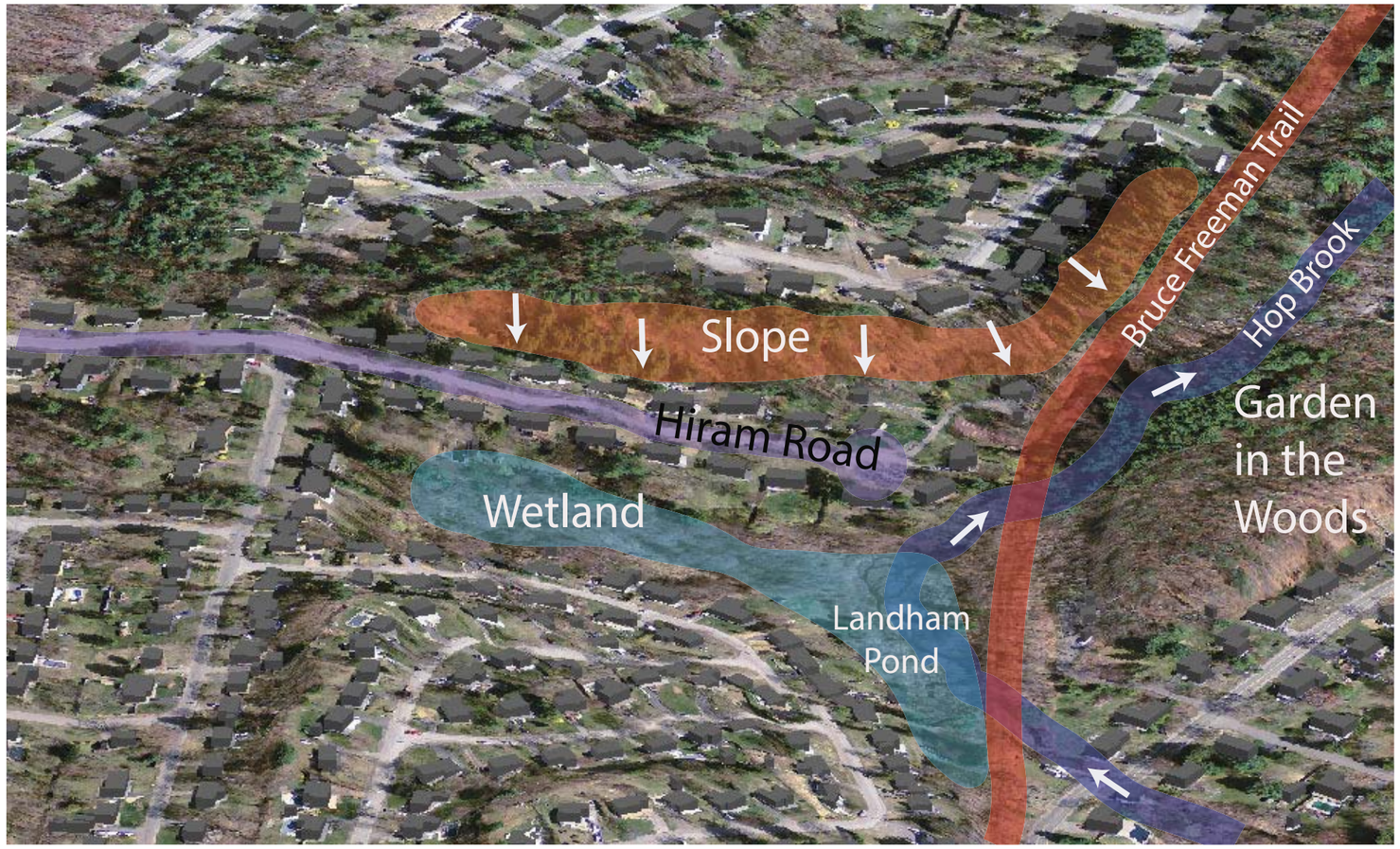
-Rebecca Walton



North Framingham Greenway

This portion of the greenway connects the historic, agricultural assets in the west with the Nobscot Boyscout Reservation, the eastern section of Callahan State park, and the Garden in the Woods, using corridors created through developed residential neighborhoods. The goal is to create a model for making greenway connections through residential areas that can be replicated in similarly developed locations.

SITE ANALYSIS AND ASSESSMENT: IMPORTANT EXISTING CONDITIONS THAT INFORM DESIGN
-Rebecca Walton





Culvert Under Rail Lines
Erosion and Deterioration of Structure



Landham Pond Sediment Build-up
Natural Wetland Vegetation Reestablishing



Typical Single Family Residential
Neighborhood; Hiram Road North

North Framingham is topographically challenging with steep slopes as well as flat wetlands, yet it has become heavily developed with suburban neighborhoods of primarily single family dwellings on one or two acre lots. There is a steep slope just north of Hiram Road that is heavily vegetated with primarily coniferous trees. The Bruce Freeman Trail runs just east of the site. This abandoned rail line has an opportunity in the future to become an accessible public bikeway; sections of it in towns to the north are already being developed. The Hop Brook (Landham Brook) runs from the south to the north, running under the rail line in several places. These culverts have become washed out and are in need of repair. The former Landham Pond has receded in capacity due to several breeches in the 70-year-old dam. Sediment and erosion from upstream have filled the basin as much as three feet in some areas. Some natural stream vegetation has begun to reestablish itself along the edges of the waterway. The protected wetland just to the west is owned by the town and heavily vegetated but without excessive undergrowth. This wetland has abutters on three sides touching the back property lines of about two dozen homes. Hiram Road itself in sloped from west to east and acts as a valley to the sloping lawns on either side. Storm water runs down the street to the end of the cul de sac to the drainage easement between the last two houses.

In assessing where design intervention would facilitate the overall greenway plan, it was determined that there are three viable options to create a connection, as well as mitigate or improve environmental impacts. Any of these three options involve gaining easements from private property owners. Rights of way between houses or along property lines would need to be negotiated. Community involvement and workshops would be essential from the onset of any project.

THREE CONCEPTS: IDEAS FOR MOVING PEOPLE AND MOVING WATER
-Rebecca Walton



Nobscot Boyscout Reservation
& the eastern most portion of Callahan State Park

+



Garden in the Woods 1900
New England Wildflower Society





Hiram Road
Residential Cul De Sac

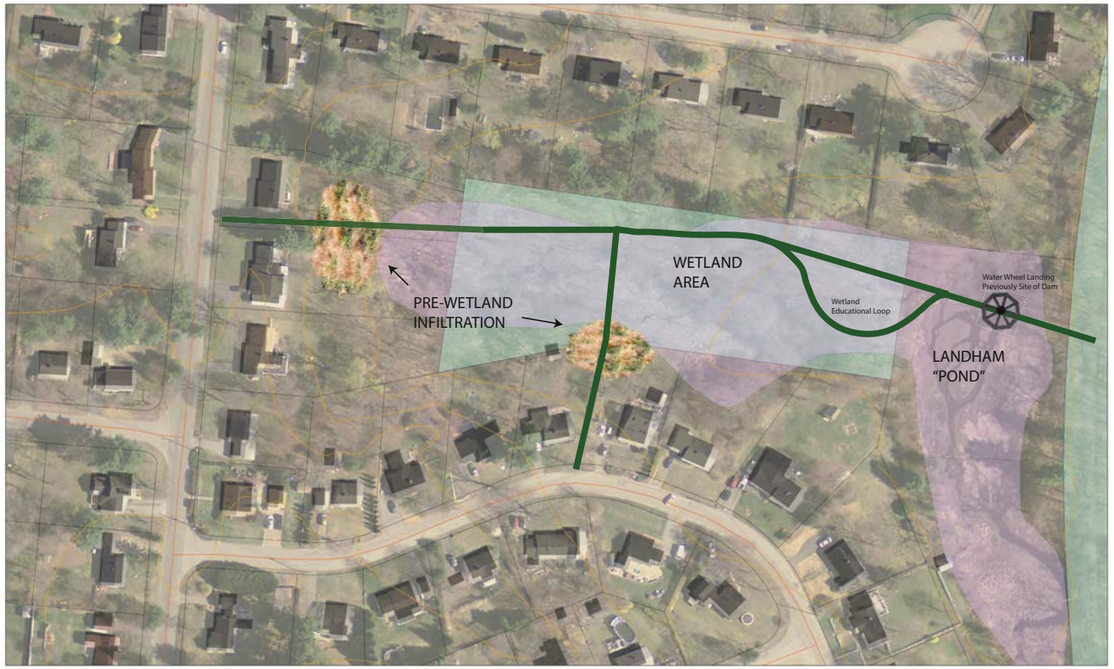


Landham Pond Dam
Removal & Stream Restoration In Planning



Bruce Freeman Rail Trail
Potential Future Bikeway Connector

Option #1
Wetland Greenway
-Rebecca Walton



OPTION 1
WETLAND TRAIL

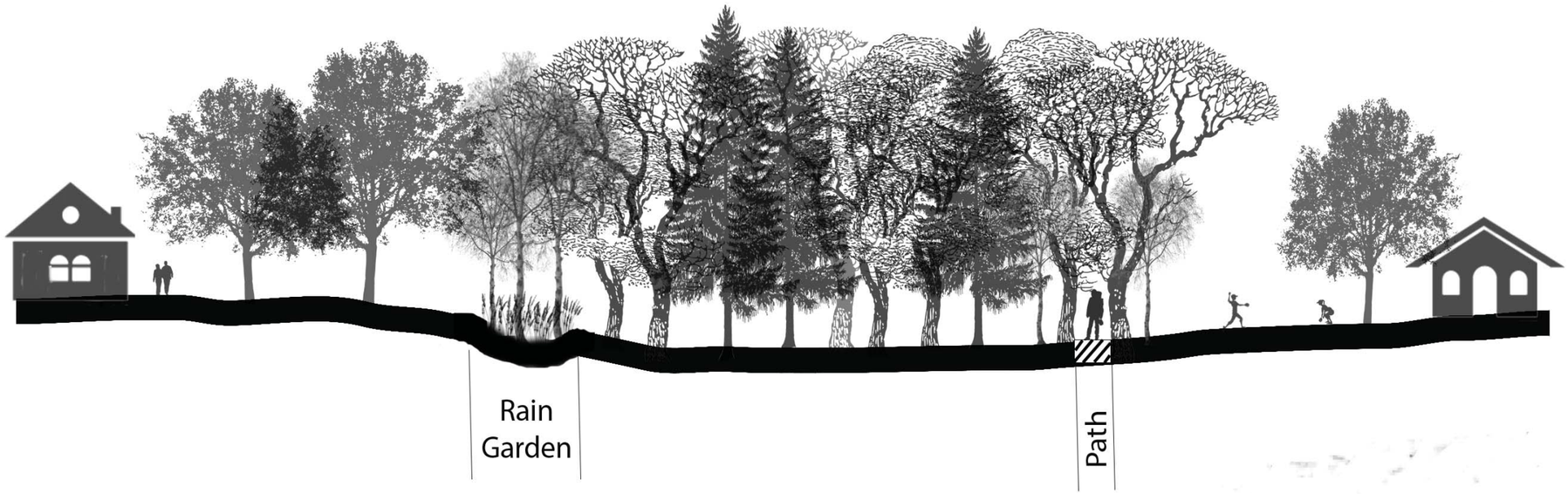
Legend
OPEN SPACE
STRUCTURES
WETLANDS

N
0 40 80 120 160
Feet



Landham Pond Dam Restoration
The water wheels of the mill district and the intersection of major rail lines through the hub of Framingham are referenced in this Hop Brook overlook.





Option #2
Residential Greenway
-Rebecca Walton



OPTION 2
RESIDENTIAL NEIGHBORHOOD GREENWAY

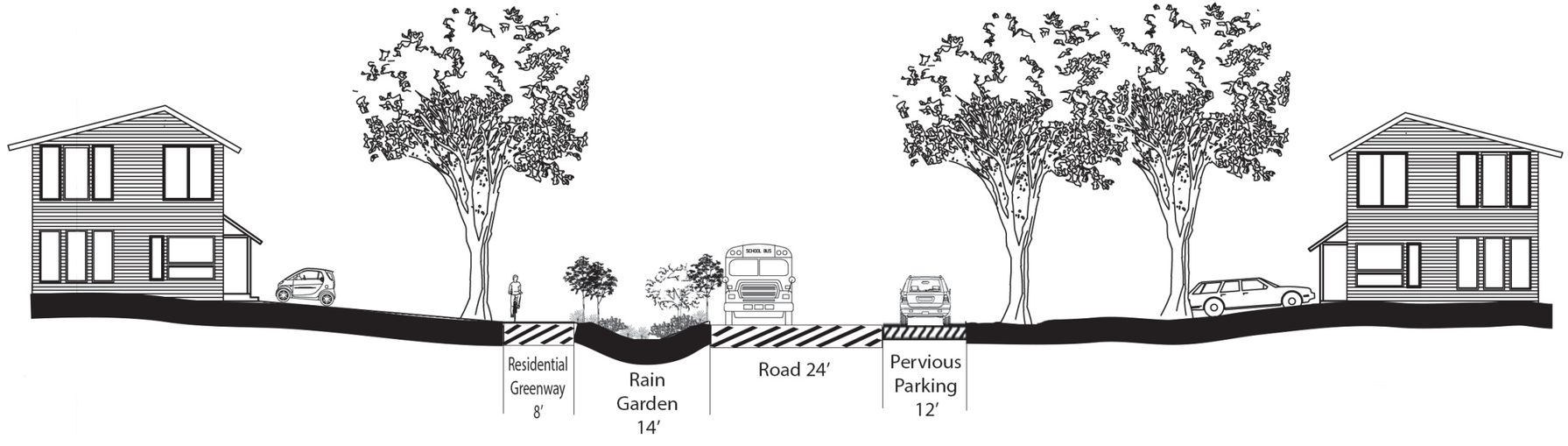
N

0 20 40 80 120 160 Feet



Hiram Street Greenway
Rain gardens and pervious on-street parking catch runoff and promote infiltration before it reaches the brook. Neighborhood beautification unites the community and increases property values, as well as civic pride.

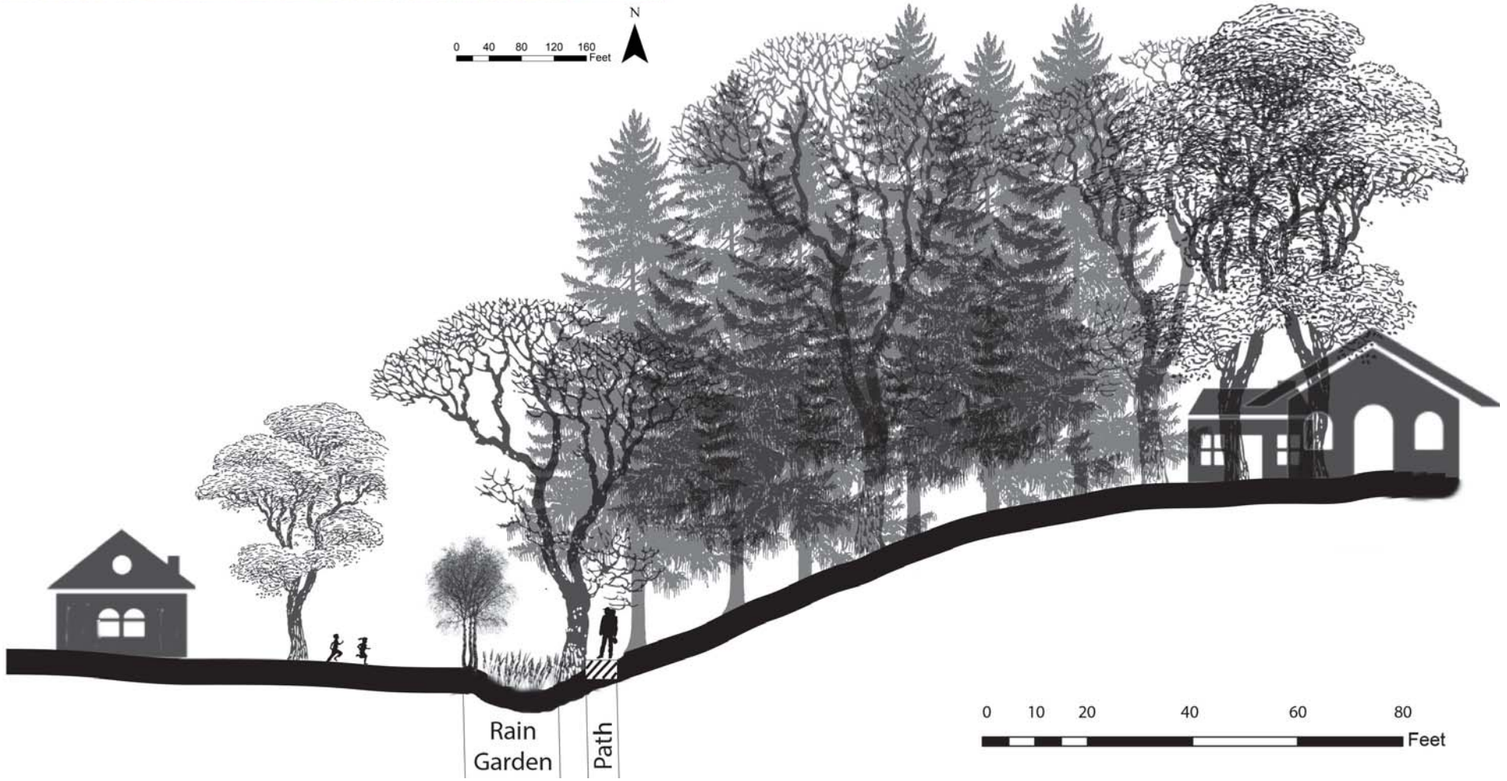




0 8 16 32 64 128 Feet

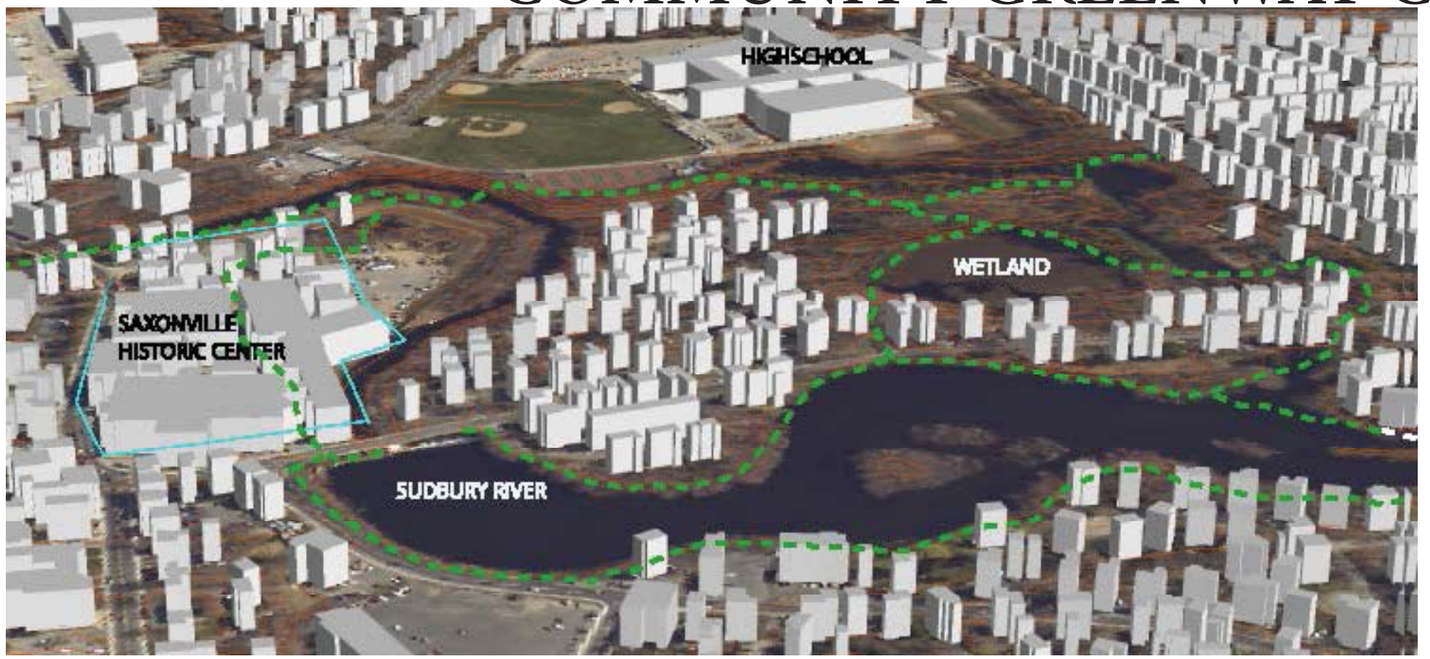


OPTION 3
RIDGE LINE GREENWAY & RAIN GARDEN

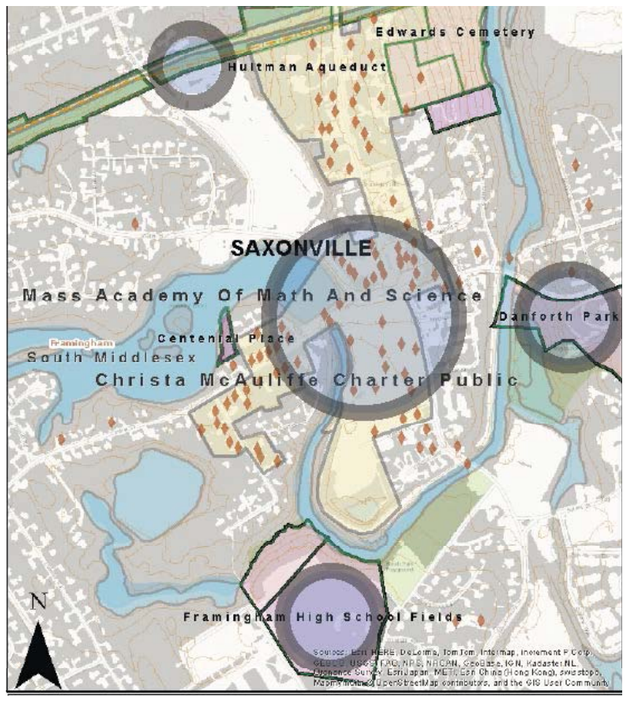


COMMUNITY GREENWAY CONCEPT PLAN

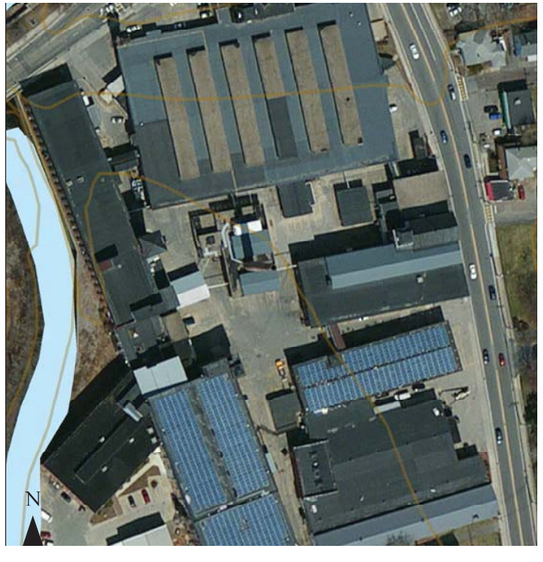
By: Benjamin Perrett



LEFT: shows the historic center of saxonville along with the sudbury river, forsted areas and the highschool which are all key elements of greenway connection for design. the greenway is represented in dashed lines. the community greenway starst and ends in saxonville historic center as a loop around the community leading down the sudbury conection to all of framingham.



LEFT: aerial view of historic buildings in saxonville center showing the plaza interior before design.



aerial view of historic buildings in saxonville center showing the plaza interior before design.

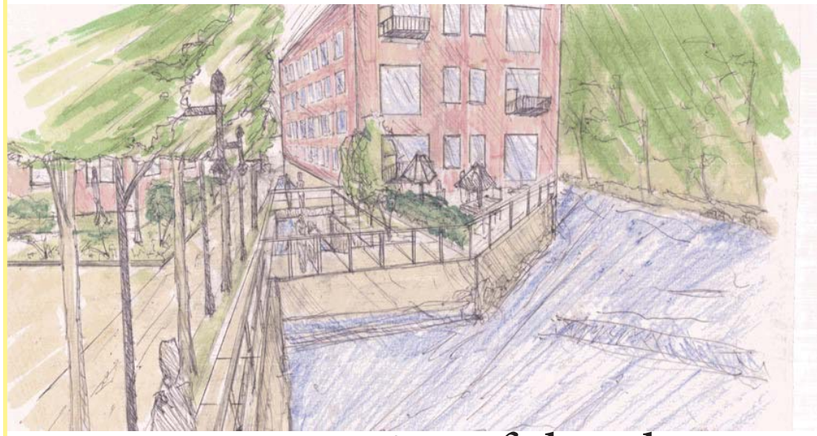


ABOVE: base map of Saxonville Center and existing open space. the importance of connecting and

SAXONVILLE MILLS PLAZA



LEFT: rendered plan showing the Saxonville Mill Plaza as well as the site entrances and path system. The plaza contains a rain/ sculpture garden. Steel “I” beams run overhead across the site that are strung with lights and catch water from the roof tops which then empty into the sculpture and trickles down into the rain garden creating a spectacle within the space as well as providing a solution for impervious surface run off from the site



ABOVE: perspective of the plaza entrance from the sudbury river dam entrance.



LEFT: perspective of the plaza entrance from the sudbury river dam entrance.



By: Benjamin Perrett

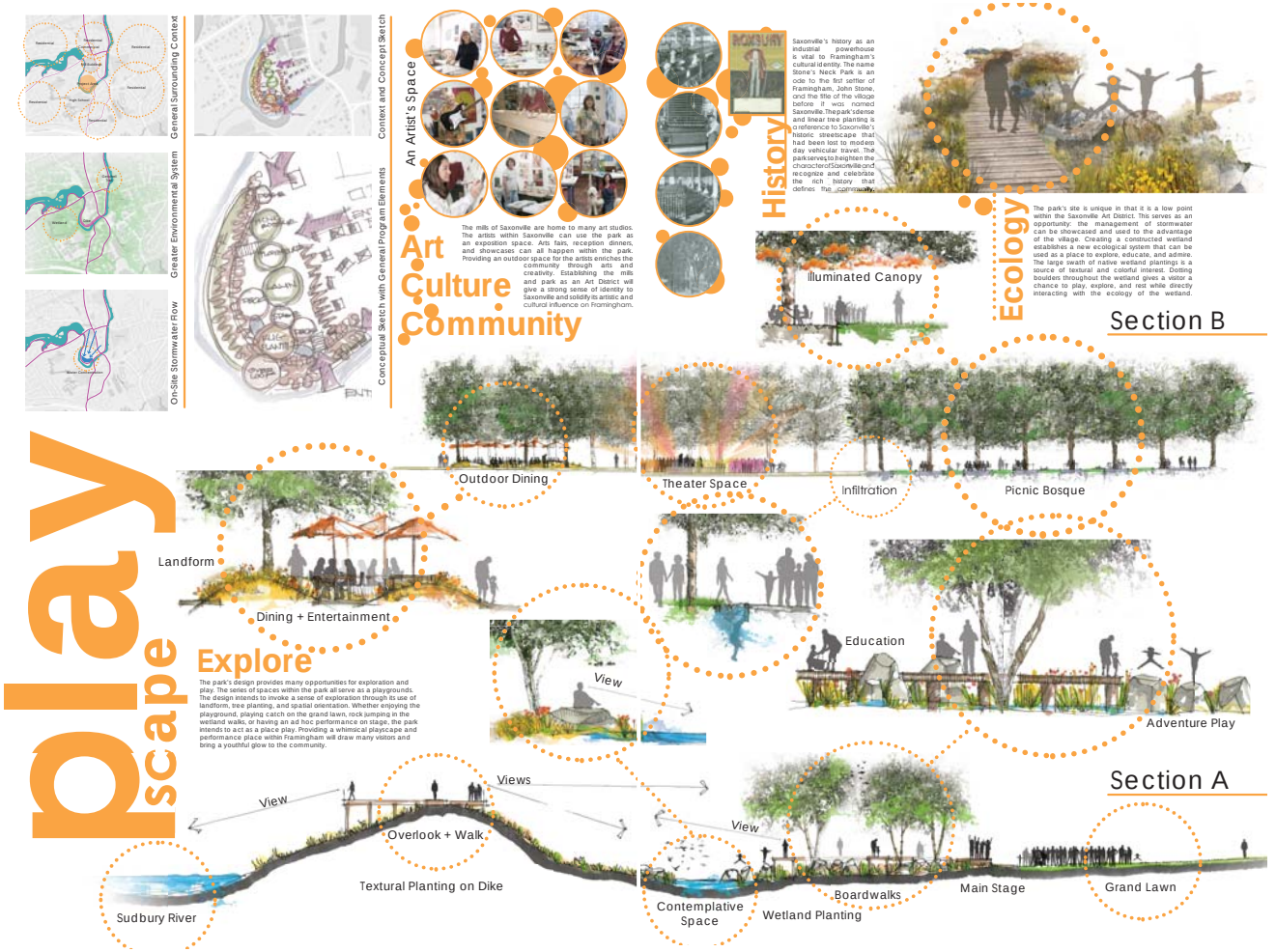
THE SAXONVILLE ART DISTRICT

Re-Imaging Framingham's Saxonville
A Project By Adam Fearing

Original Board Layouts



Board 1



Board 2

Board 3



THE SAXONVILLE ART DISTRICT

A Cultural and Artistic Endeavor

Concept

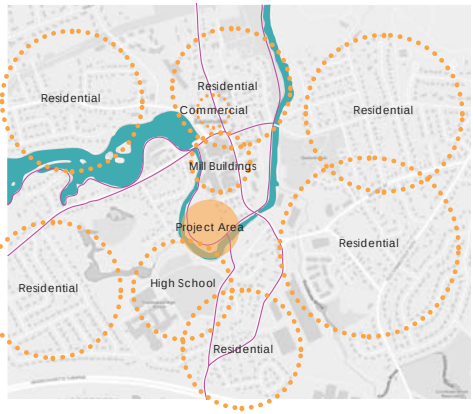
Stone's Neck Park serves as a cultural hub for Saxonville's new Art District. The park is a beacon within Framingham, drawing visitors to Saxonville to experience the rich history, arts, and community that define the village. The choreography of the park's spatial arrangement aims to completely immerse a visitor. Moving from the urban plazas, to the playground, to the grand lawn, to the more wild wetland walks, a visitor experiences a range of social, active, and contemplative landscapes. The park aims to enrich Framingham through community based design principles. The overall goal is to provide a unique and exciting space within Framingham that provides a place for the community to gather, play, and explore.

Context



Site Program

1 entry road
2 dining plaza
3 concert plaza
4 market plaza
5 picnic bosque
6 dike
7 playground
8 adventure play
9 market plaza
10 grand lawn
11 wetland walks
12 deck plaza
13 main stage
14 buffered edge
15 deck plaza
16 wetland walks
17 textural plantings
18 wetland pool
19 dike
20 dike walk
21 dike overlook



General Surrounding Context



Greater Environmental System



On-Site Stormwater Flow



Context and Concept Sketch



Conceptual Sketch with General Program Elements



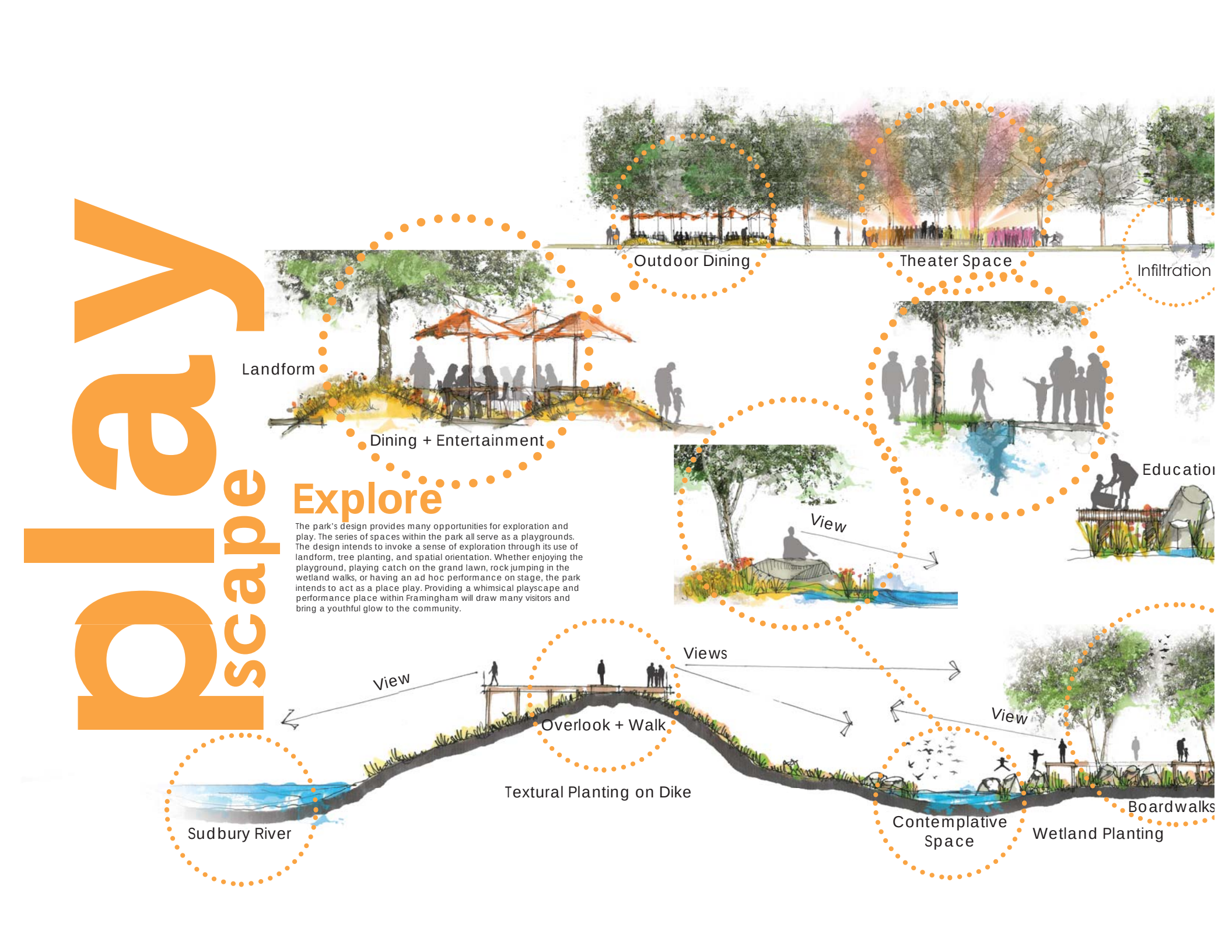
Art Culture Community

The mills of Saxonville are home to many art studios. The artists within Saxonville can use the park as an exposition space. Arts fairs, reception dinners, and showcases can all happen within the park. Providing an outdoor space for the artists enriches the community through arts and creativity. Establishing the mills and park as an Art District will give a strong sense of identity to Saxonville and solidify its artistic and cultural influence on Framingham.

playscape

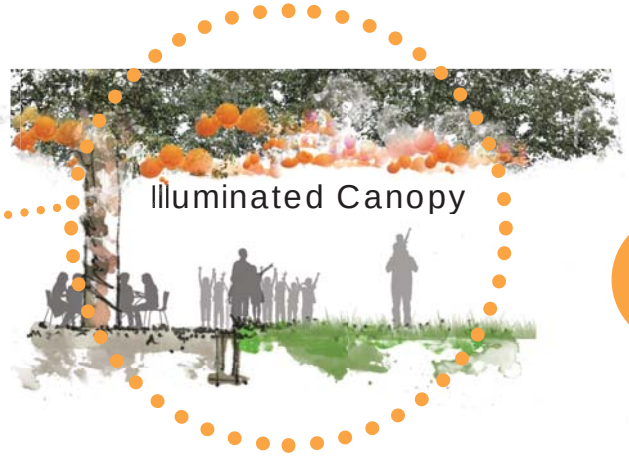
Explore

The park's design provides many opportunities for exploration and play. The series of spaces within the park all serve as a playgrounds. The design intends to invoke a sense of exploration through its use of landform, tree planting, and spatial orientation. Whether enjoying the playground, playing catch on the grand lawn, rock jumping in the wetland walks, or having an ad hoc performance on stage, the park intends to act as a place play. Providing a whimsical playscape and performance place within Framingham will draw many visitors and bring a youthful glow to the community.





Picnic Bosque



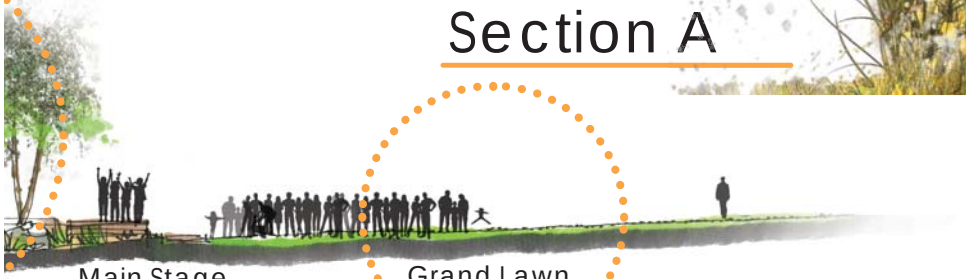
Illuminated Canopy

Section B



Adventure Play

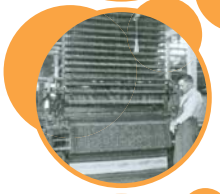
Section A

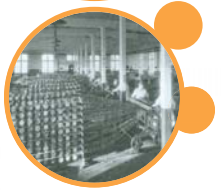


Main Stage

Grand Lawn









History

Saxonville's history as an industrial powerhouse is vital to Framingham's cultural identity. The name Stone's Neck Park is an ode to the first settler of Framingham, John Stone, and the title of the village before it was named Saxonville. The park's dense and linear tree planting is a reference to Saxonville's historic streetscape that had been lost to modern day vehicular travel. The park serves to heighten the character of Saxonville and recognize and celebrate the rich history that defines the community.



Ecology

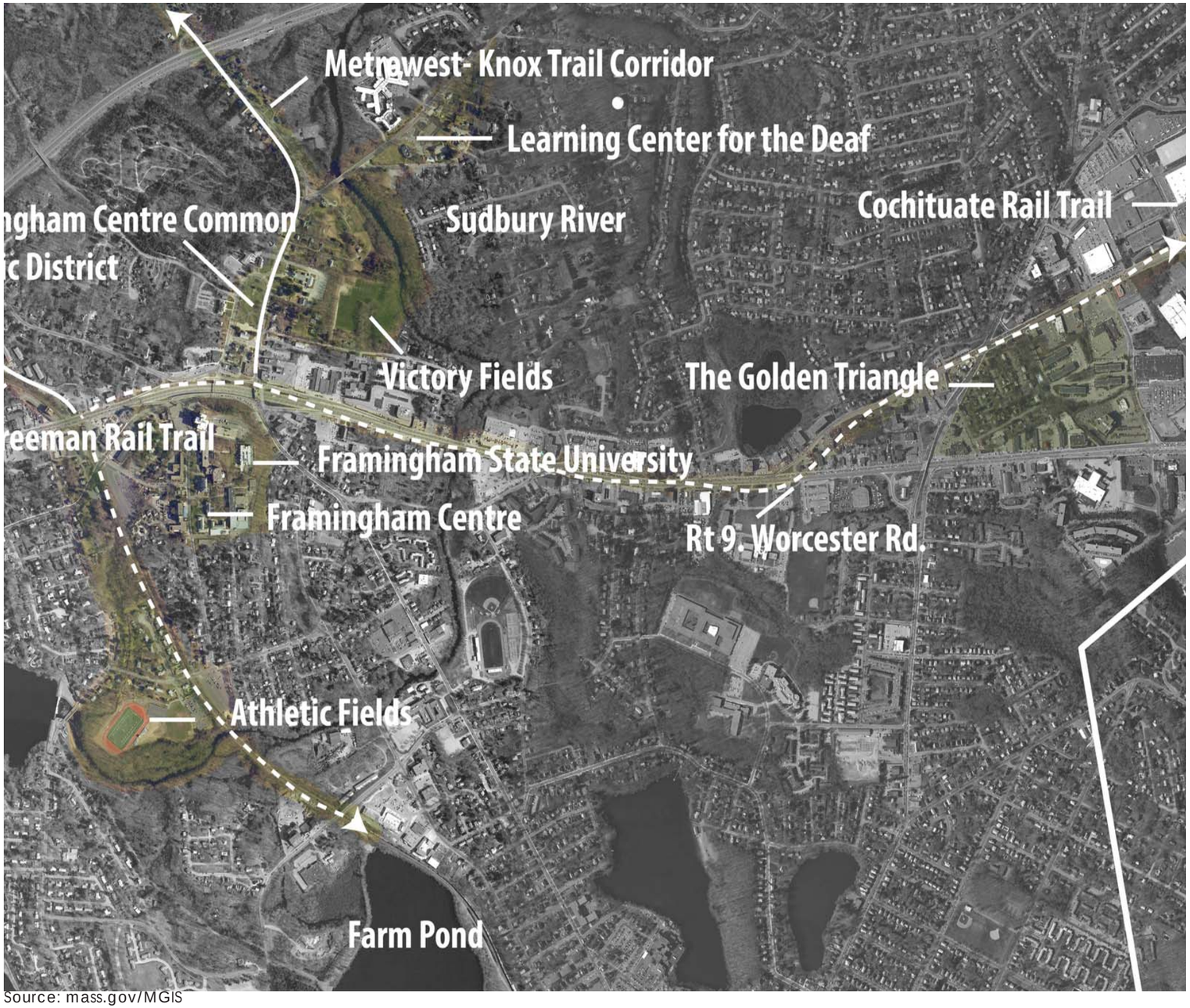
The park's site is unique in that it is a low point within the Saxonville Art District. This serves as an opportunity: the management of stormwater can be showcased and used to the advantage of the village. Creating a constructed wetland establishes a new ecological system that can be used as a place to explore, educate, and admire. The large swath of native wetland plantings is a source of textural and colorful interest. Dotting boulders throughout the wetland gives a visitor a chance to play, explore, and rest while directly interacting with the ecology of the wetland.

FRAMINGHAM DECK PARK

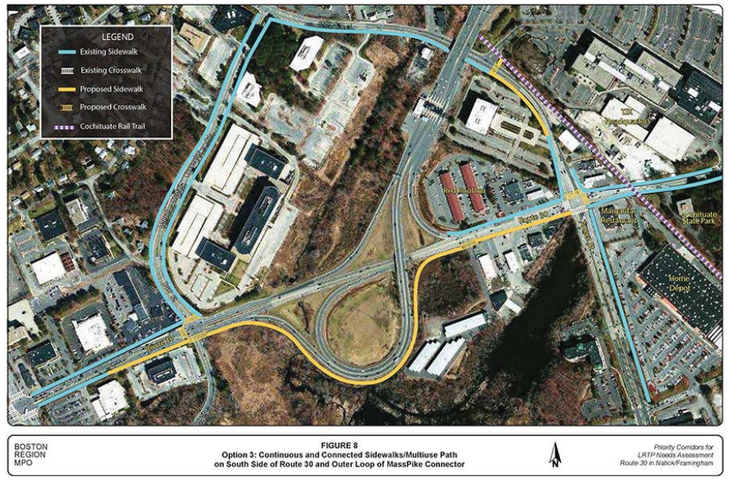
REINFORCING A SOCIAL BOND BETWEEN INSTITUTIONS

By: Aqsa Butt

The goal of this project is to enhance the connection between Bruce Freeman Rail Trail and Cochituate Rail Trail along Route 9. The Framingham State Park serves as a center of gravity between center common, retail along route 9, and Framingham State University. The programming of the proposed park creates unification of land use though functional spaces and reinforces the bond between historical, commercial, recreational, and institutional land use. The distribution of spaces differentiate activities, while responding to the overall character of the site by corresponding irregular shapes. Major roads that link Framingham Deck Park are Route 30 along retail and Hight Street along Framingham State University.

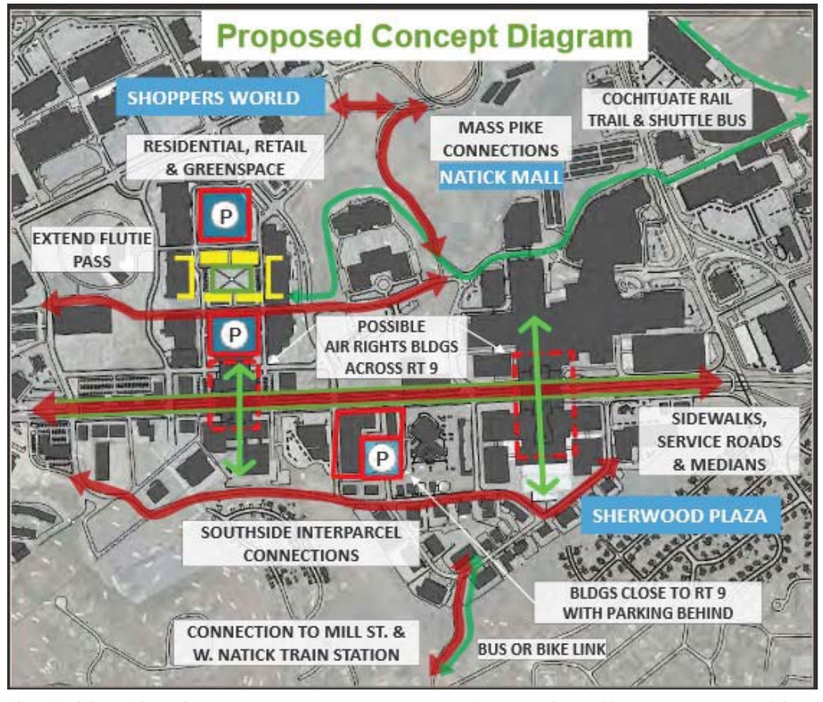


Source: mass.gov/MGIS



Existing and Proposed Sidewalks

Source: ctps.org/Drupal/Data



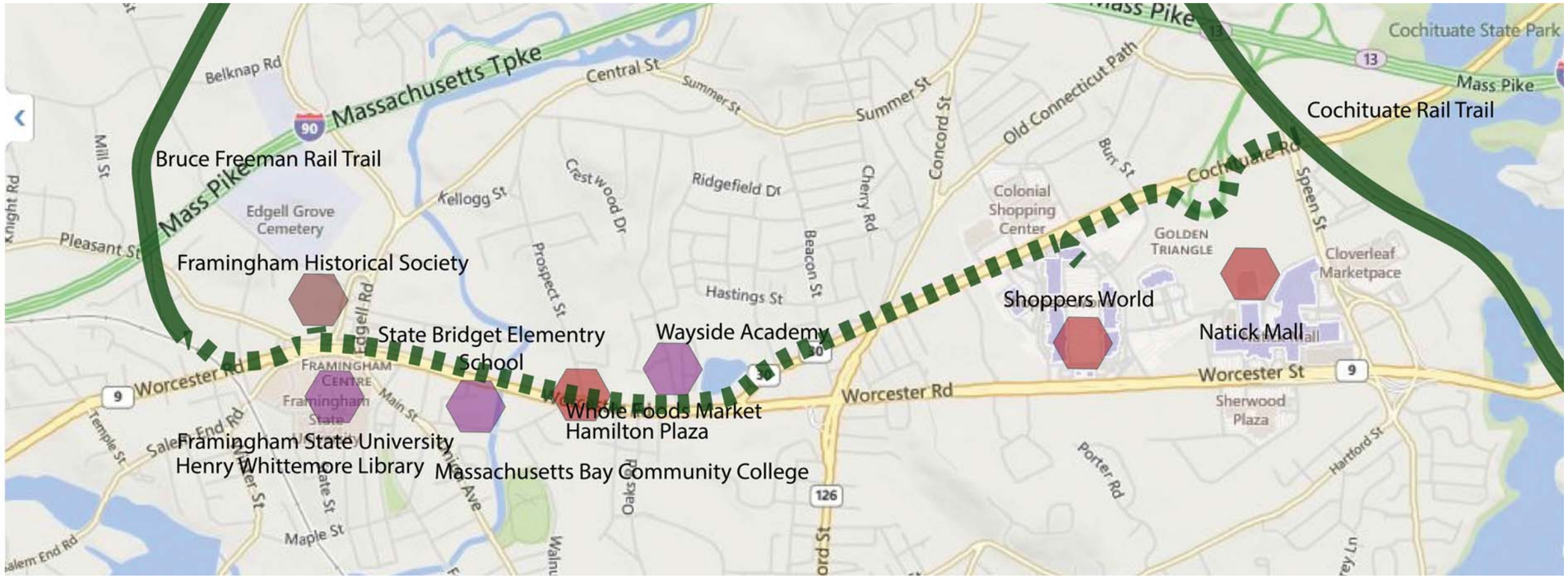
The Golden Triangle

Source: http://www.mapc.org/sites

Context Map

By: Aqsa Butt

Metropolitan Area Planning Council has called for a Smart Growth 10 year plan. The plan includes compact, mixed use development along the highway that would be pedestrian and bicycle friendly, interconnectivity withparcels of land.



Concept Diagram

Enhancing the connection between Bruce Freeman Rail Trail and Cochituate Rail Trail along Route 9



Before Framingham Deck Park



After Framingham Deck Park

FRAMINGHAM DECK PARK

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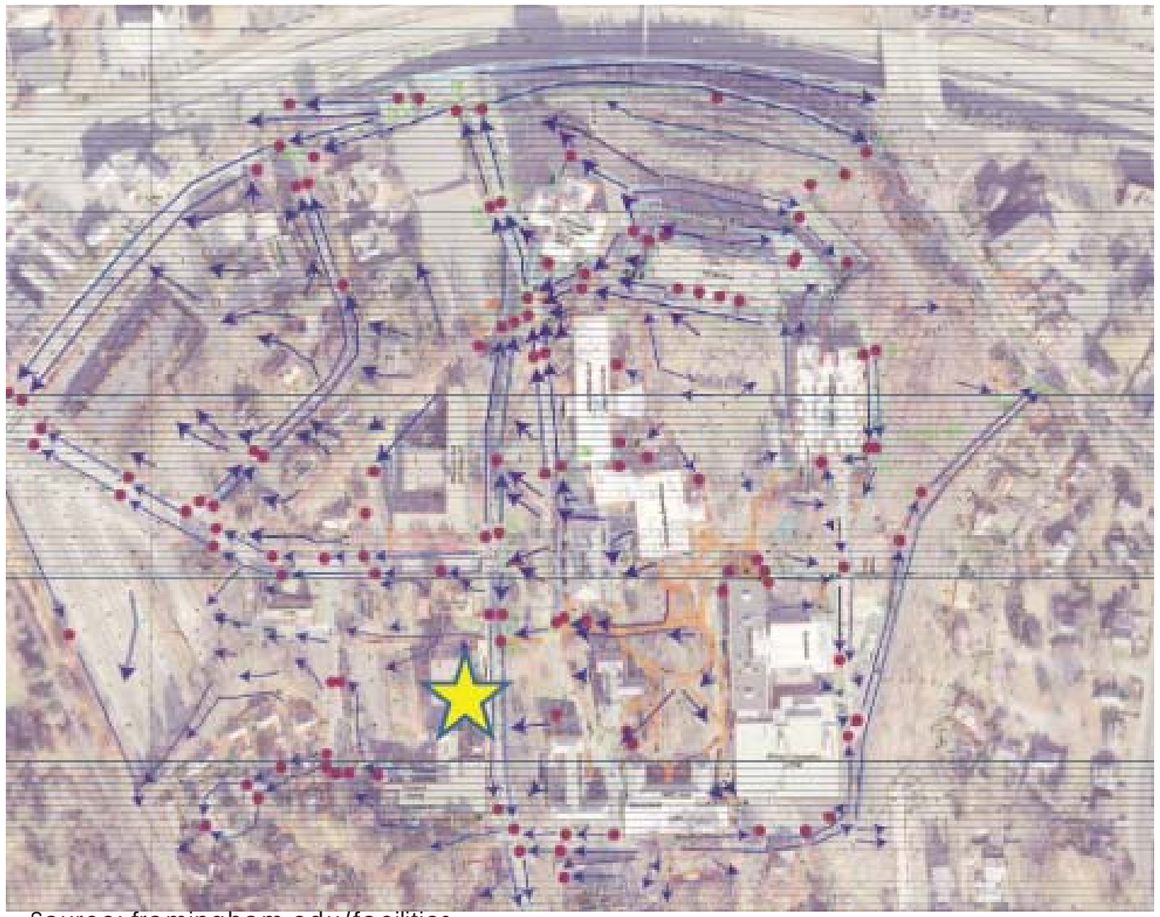
Historical and Social Context

The land at top of Framingham State University drumlin was originally maintained for agriculture.

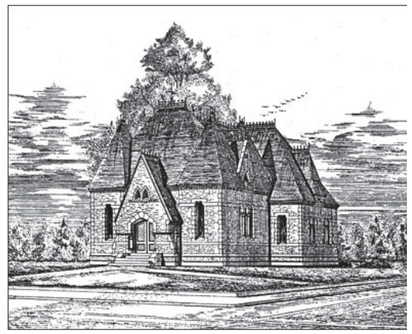
"Today, despite the campus's proximity to busy roads, people comment on the college's feeling of quiet New England."

Source: framingham.edu/facilities

More of this classic New England Village Look can be seen through south of route 9. Historical properties exist on main streets, and the center common (The Village Hall, The Old Academy, and the Edgell Memorial Library).The proposed park will link these buildings, anchoring Victorian Gothic/ historic sense of place.



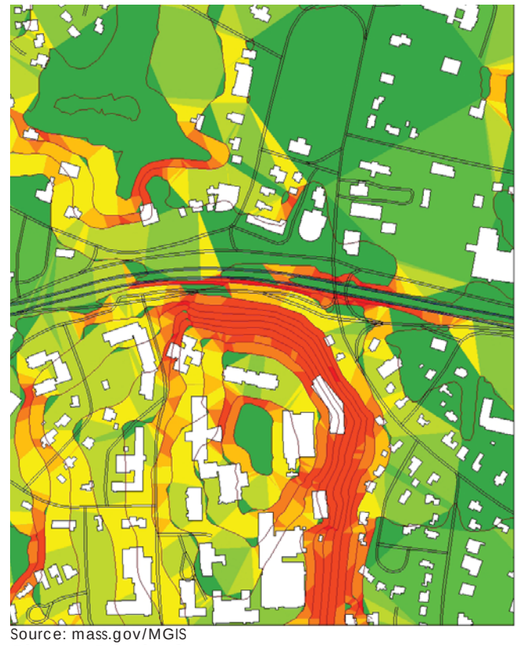
Source: framingham.edu/facilities



Source: framinghamhistory.org/historic-buildings



Source: http://www.loopnet.com/Listing



Source: mass.gov/MGIS

Slope Analysis

Framingham State University is locates on a glacial drumlin: an elongated hill resulting from melting glacial ice.

Source: framingham.edu/facilities

Drainage and Water Movement

Framingham state university is uphill from reservoirs, aquifers, and wetlands (approx. 400').

Impervious roads, paths, and parking lots can contribute to non-point-source surface runoff. Red dots represent storm drains, while the blue arrows represent water movement.

Source: framingham.edu/facilities

Ecological Context

The Society of American Foresters (SAF) has generated Forest Vegetation Zones that suggest the type of forests present prior to European settlement are likely to develop in this area in
absence of disturbance.

Framingham State University is located between two zones, the Transitional and Central Hardwoods. The zone consists mainly of oak trees, pines, and hickories.

Source: framingham.edu/facilities

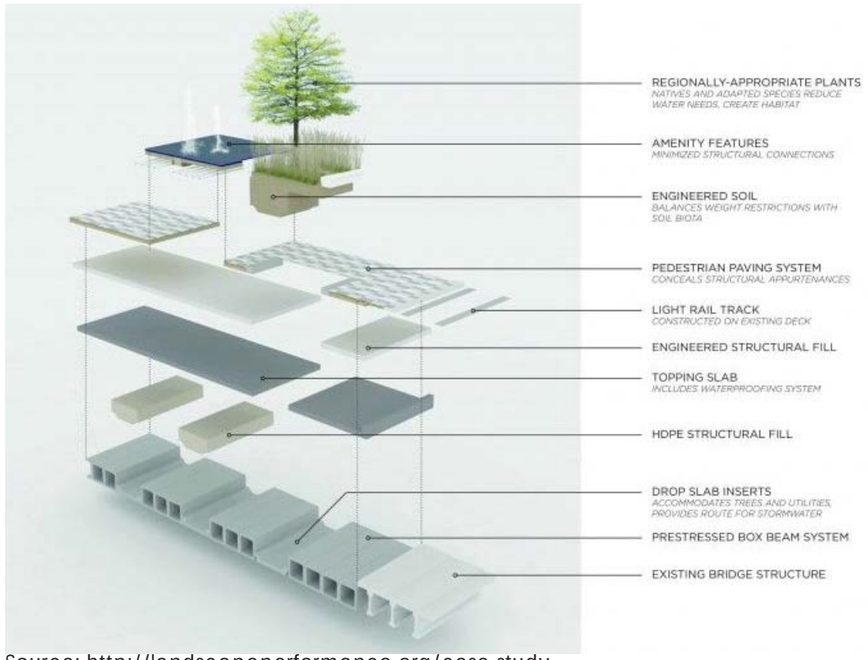


Source: http://landscapeperformance.org/case-study

The Klyde Warren Park Site Plan

Klyde Warren Park is a central landmark which bridging Dallas' Uptown and provides a new programmed public space that physically, socially, and culturally connects two bustling districts

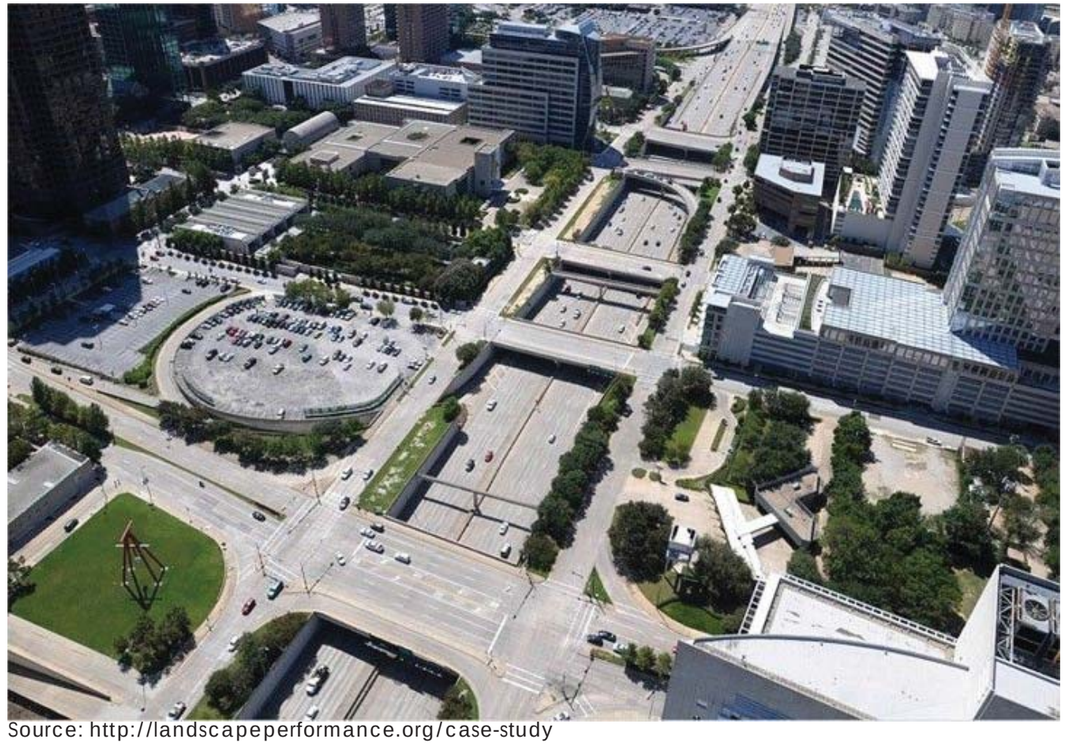
Source: http://landscapeperformance.org/case-study



Source: http://landscapeperformance.org/case-study

The Parks Structural System

Bridge, amenity structures, and plantings



Source: http://landscapeperformance.org/case-study

Before Klyde Warren Park



Source: http://landscapeperformance.org/case-study

After Klyde Warren Park

By: Aqsa Butt

FRAMINGHAM DECK PARK

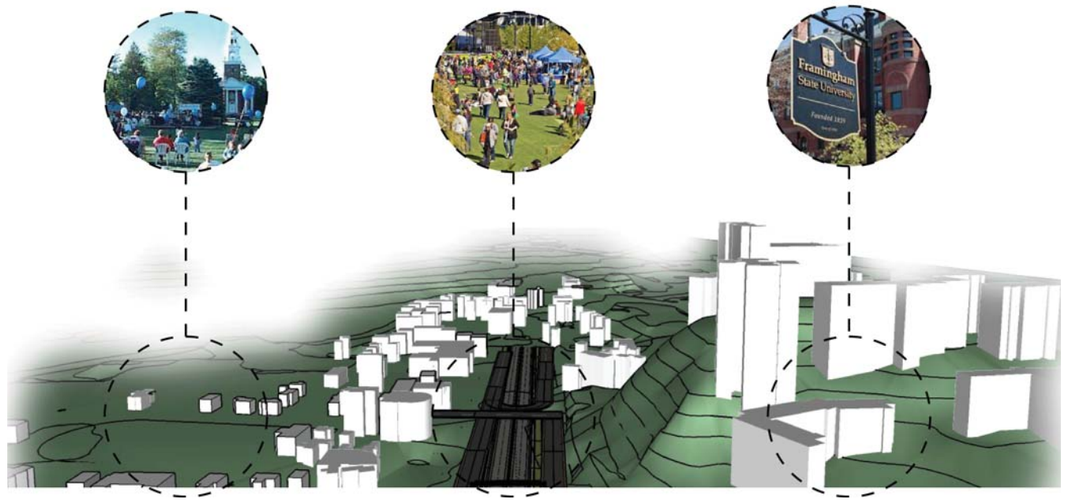
REINFORCING A SOCIAL BOND BETWEEN INSTITUTIONS

By: Aqsa Butt

The goal of this project is to enhance the connection between Bruce Freeman Rail Trail and Cochituate Rail Trail along Route 9. The Framingham State Park serves as a center of gravity between center common, retail along route 9, and Framingham State University. The programming of the proposed park creates unification of land use though functional spaces and reinforces the bond between historical, commercial, recreational, and institutional land use. The distribution of spaces differentiate activities, while responding to the overall character of the site by corresponding irregular shapes. Major roads that link Framingham Deck Park are Route 30 along retail and Hight Street along Framingham State University.



Plan View
Relationship between Framingham Deck Park and Ortho



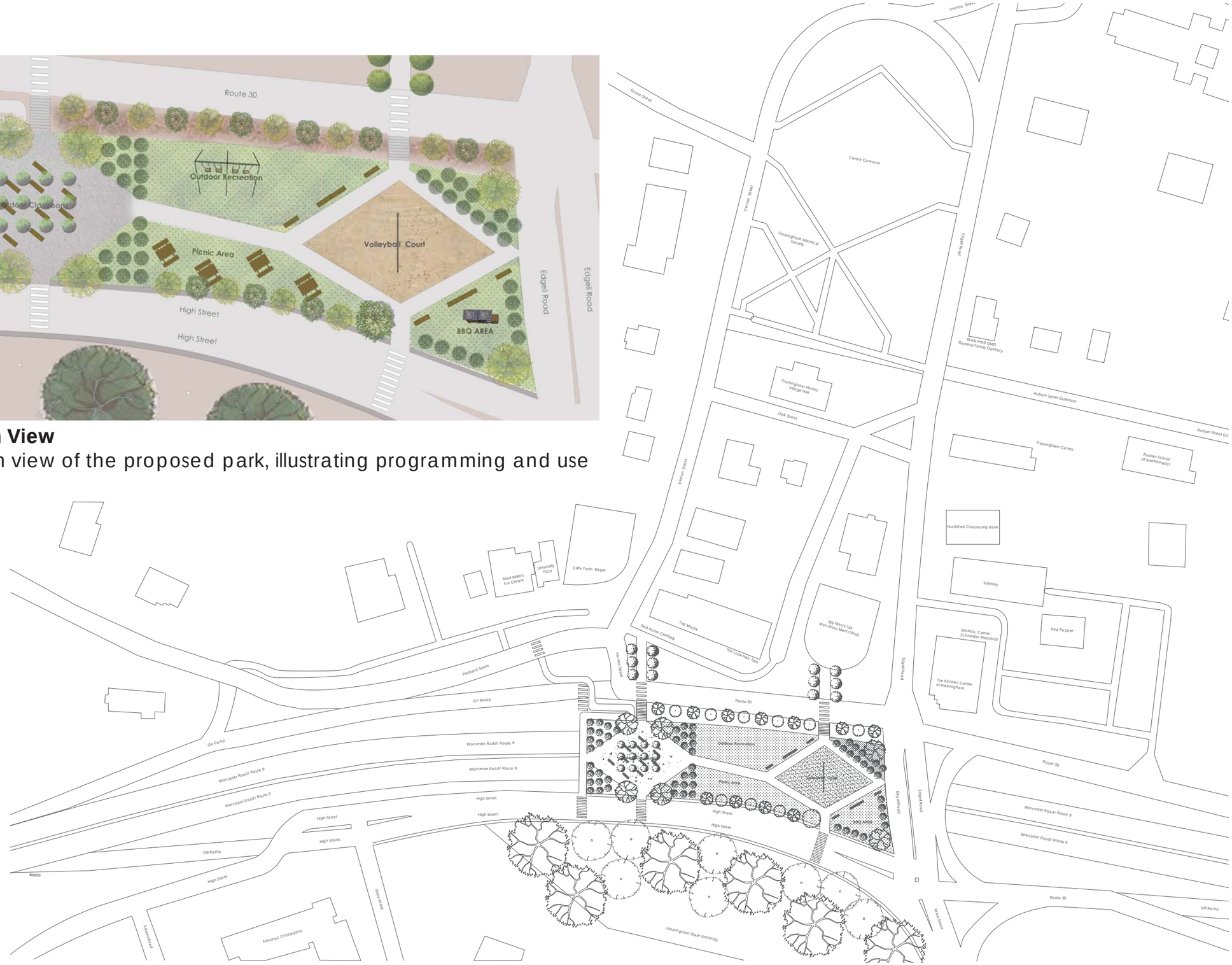
Axonometric 3D Projection
Relationship between Land Use and Institutions



Section Perspective
Relationship between programming, Edgell Road, Rroute 30, High Street and Pedestrian Bridge



Rendered Plan View
Rendered plan view of the proposed park, illustrating programming and use of material



Technical Plan View
Plan view of the, illustrating programming and material of the proposed park and relationship to roads, institutions, and land use

By: Aqsa Butt

Green Infrastructure For

Framingham

Andrew Duncan

Framingham State is a major hub of central Framingham. Campus growth and new construction is hindered due to the dense nature of its location. Pedestrian travel is also disconnected from the rest of the town. The goal of this design is to work with these issues to connect on campus students, commuters, faculty and employees to the surrounding resources and destinations in a more pedestrian friendly way.



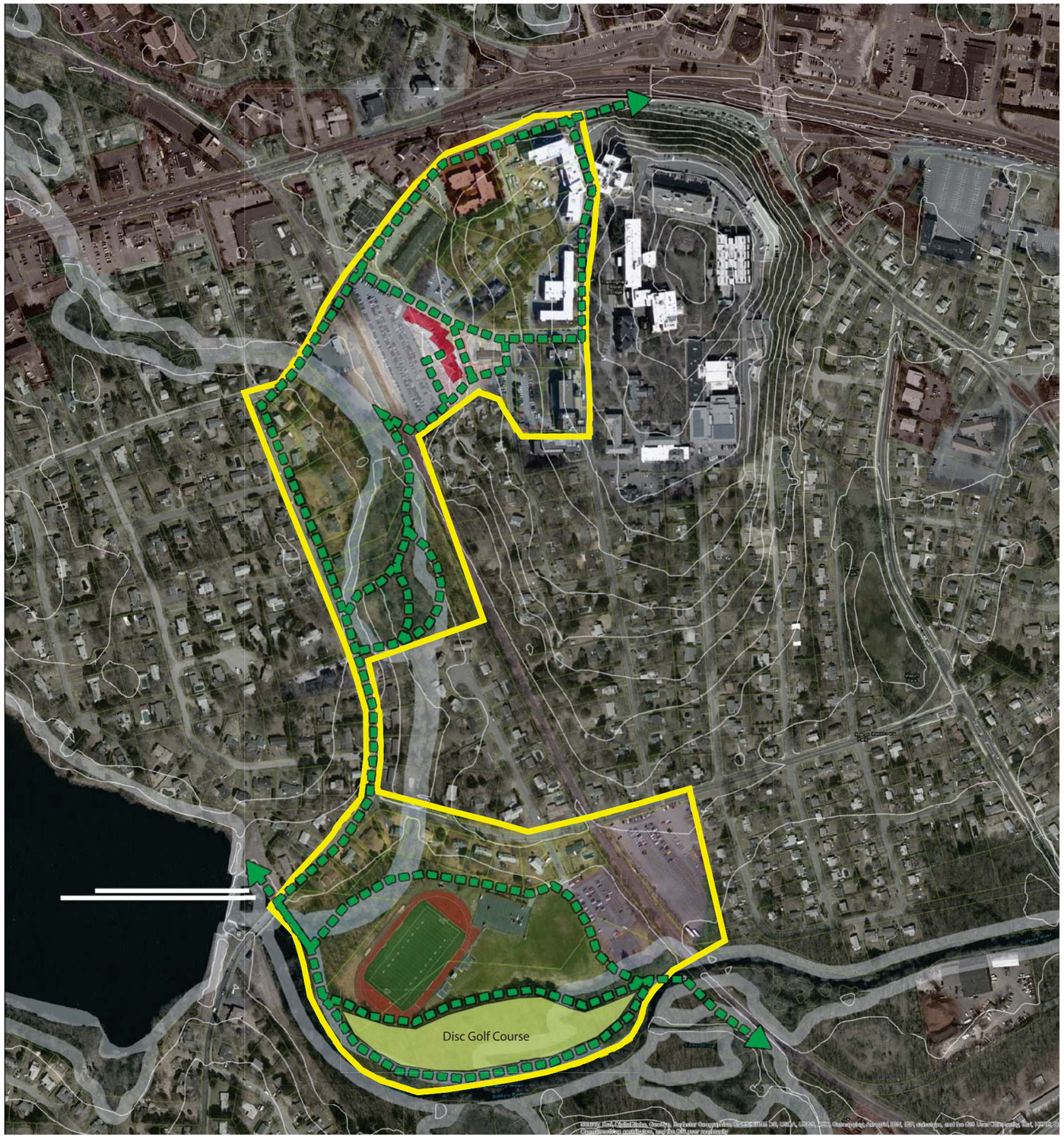
Rt. 9 Traffic



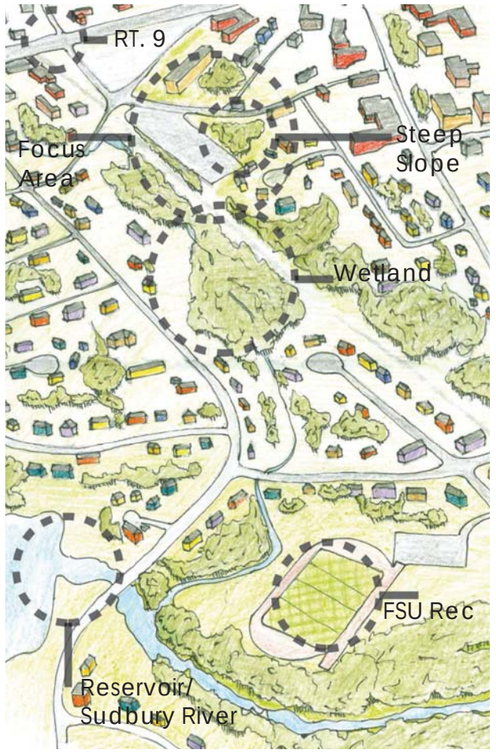
Sudbury River



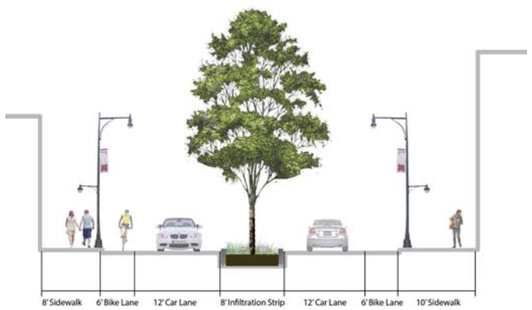
Framingham State



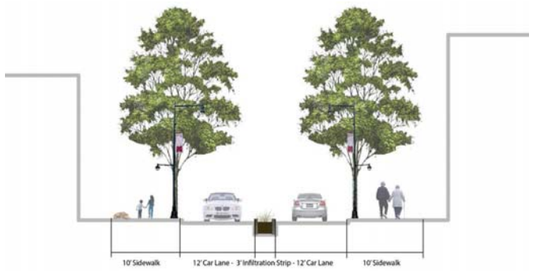
Masterplan



Analysis



Salem End Road



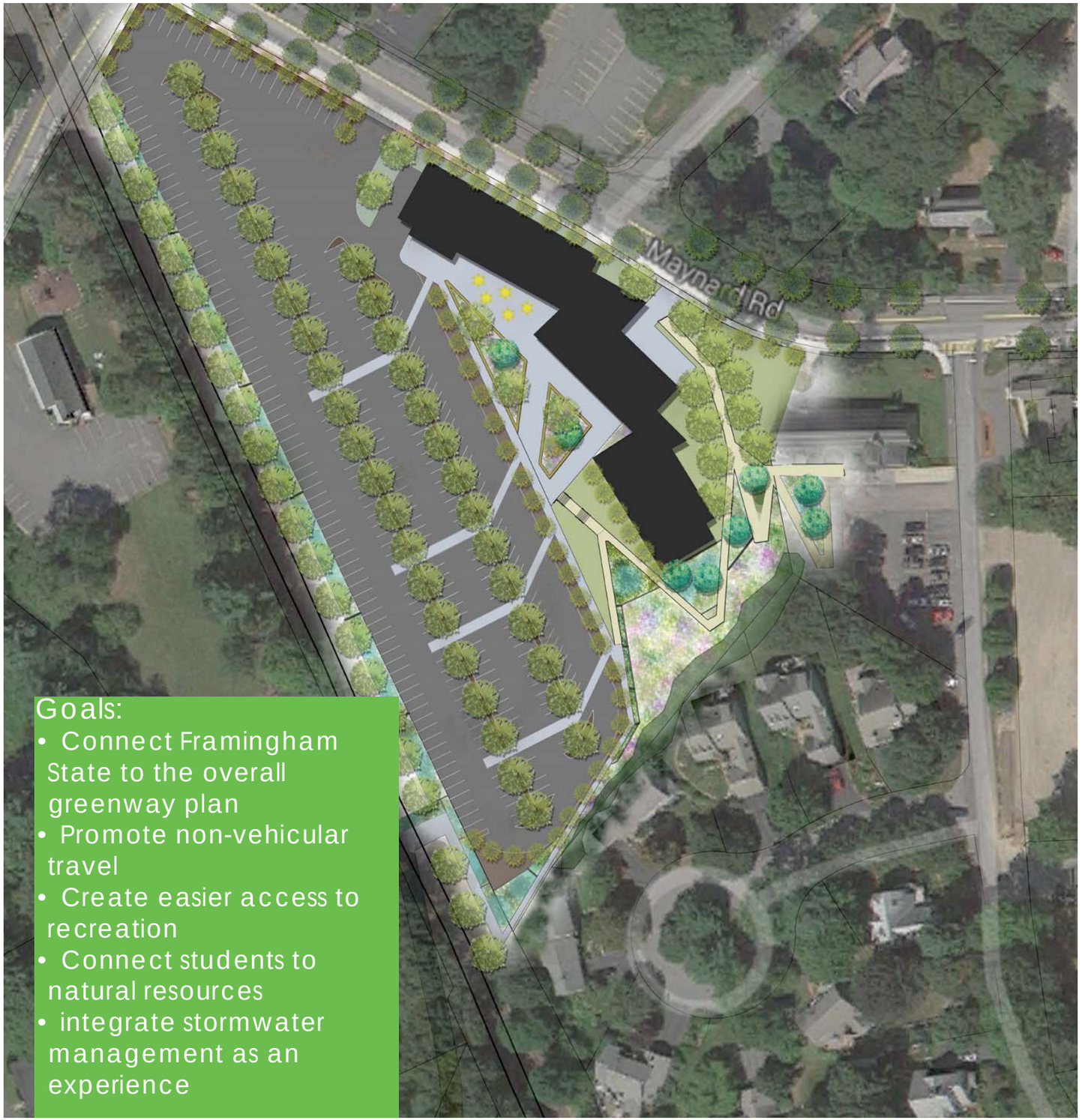
Maynard Road

Complete Streets Program

Creating an Integrated Environment for

Framingham State

Andrew Duncan



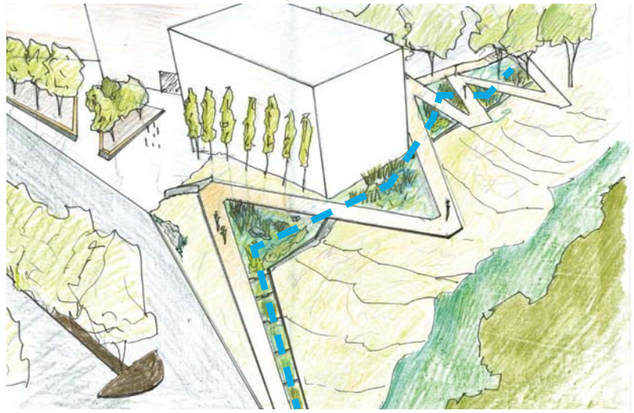
Goals:

- Connect Framingham State to the overall greenway plan
- Promote non-vehicular travel
- Create easier access to recreation
- Connect students to natural resources
- integrate stormwater management as an experience

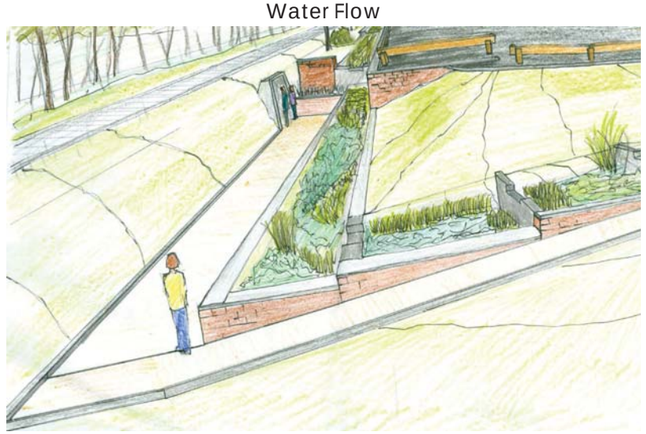
Focus Area



Uphill Path



Water Flow



Train Underpass

Perspectives









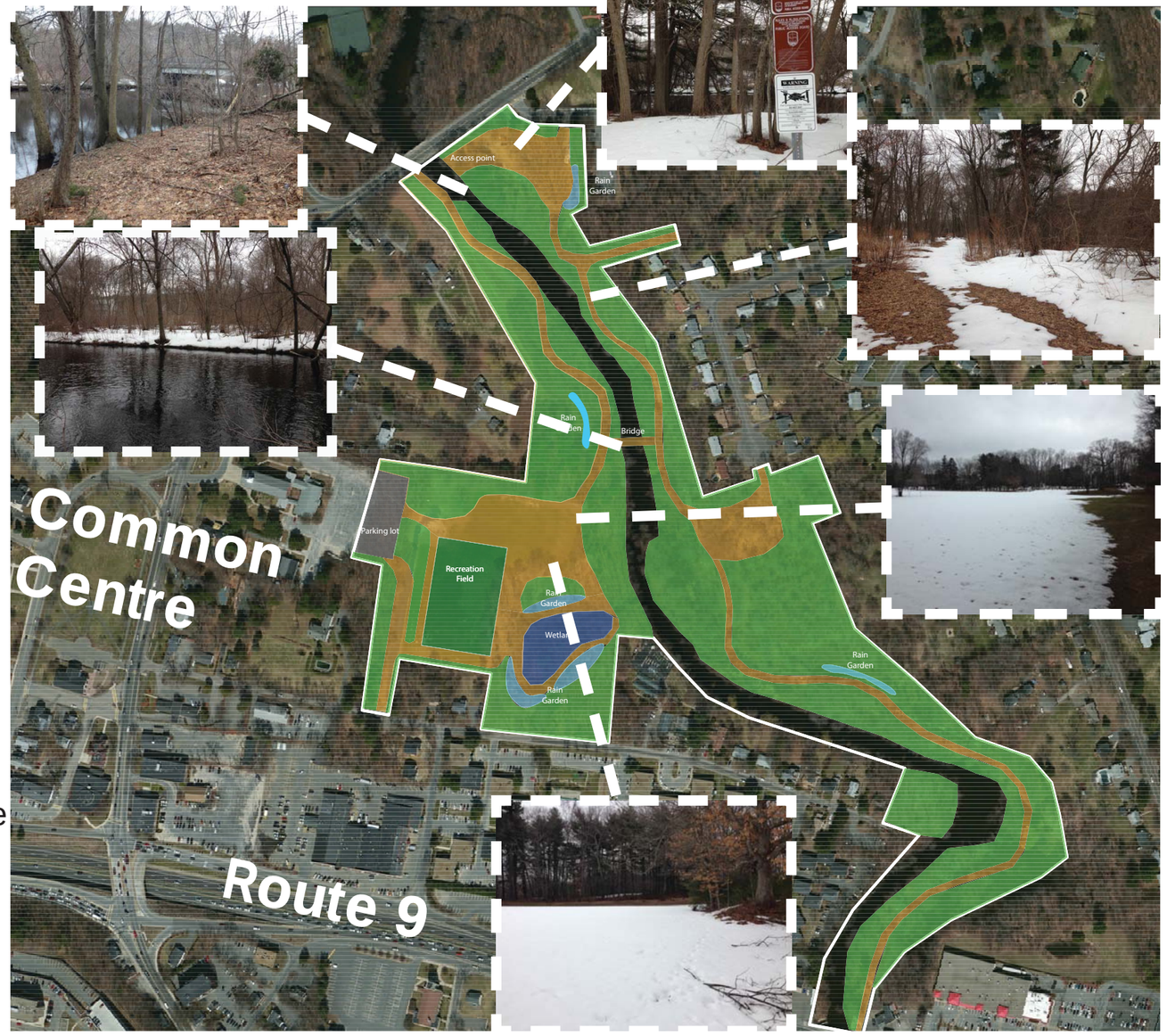


Architect's Renderings

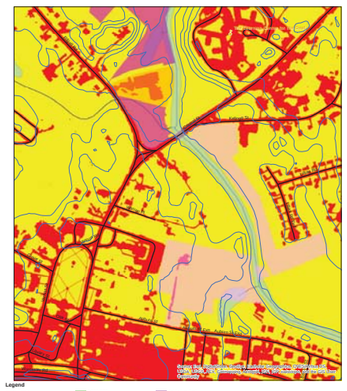
The Victory Loop: Framingham's Greenway Project

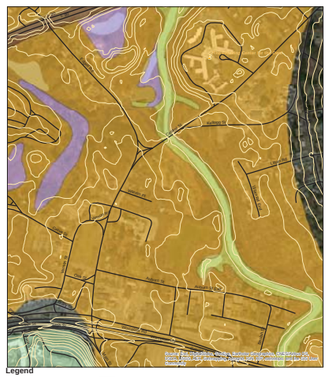
Green Infrastructure for Framingham, Massachusetts: Greenway Planning and Cultural Landscape Design

LandArch 494LI: Senior Capstone Studio Spring 2015
Justin Cooper
Professors: Peter Flinker and Robert L. Ryan
T.A: Alyssandra Black



Site Analysis







Case Studies

Richmond Canal Walk
Richmond, Virginia





Renaissance Park
Chattanooga, Tennessee





The town of Framingham has several historic districts; such as, Framing¬ham Centre Common, Concord Square, and Saxonville. Framingham State University, and several other notable areas are included within the districts. Multiple recreational fields are scattered throughout the town. Most of the historic and recreational areas are located in Framingham Centre and South Framingham. The areas and districts are in clusters throughout Framingham. One of the biggest issues is lack of strong connections from one district to another. Another disconnect is the lack of connections of trails themselves. Most of the existing trails do not have a "loop", or a circulation trail that will allow people to walk back to their destination area. The problem is that the districts and the areas such as Victory Field and Riverside Park are disconnected by the Sudbury River and not visible to visitors and residents alike. A very low number of citizens use these areas on a daily basis. The cultural character and beauty of the town are often overlooked due to a lack of connection within the historical areas in Framingham Common District. This proposed greenway will showcase and interpret the town's historic and recreational resources.

The design scenario will be beneficial to the town of Framingham's Greenway to connect other greenway plans and existing trails. The scenario is to have an open and clear gateway entrances to Victory Field and Riverside Park and a bridge at the Sudbury River which connects both sites. The recreational area invites residents and visitors from all directions such as; residential and commercial areas, Framingham State University and Learning Center for the Deaf to walk through the site. The site offers a serene circulation walk on the trail throughout the whole site. The walking trail goes through Victory Field's athletic field, multiple conservation areas including Victory Field's wetland, and Riverside Park's Canoe Access area.

The Victory Loop: Framingham's Greenway Project

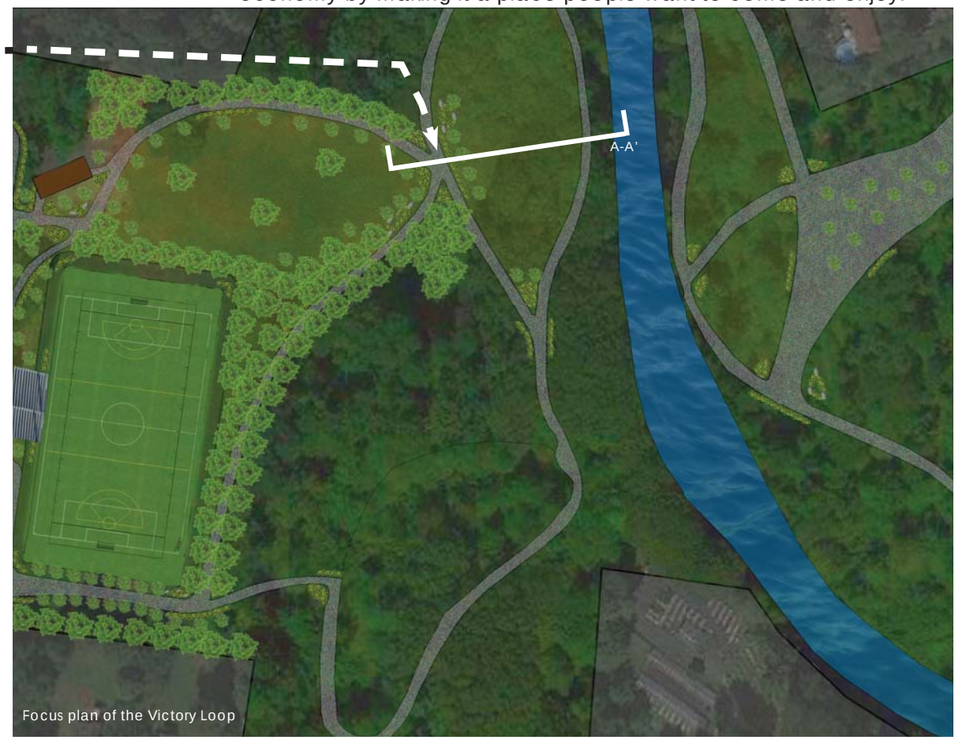
The town of Framingham is a town that has deep roots in history and its' culture is influenced by the Metrowest region. The town of Framingham prides itself on its' history and culture. Visitors and residents who are not familiar with the town's history and culture need a greenway that will not only highlight the history and culture of the town but provide beautiful recreational areas that will be enjoyed for years to come. In addition, the greenway will improve the town's economy by making it a place people want to come and enjoy.



Master plan of the Victory Loop







Focus plan of the Victory Loop


A bridge over Sudbury River to connect path from Victory Field to Riverside Park


Victory Field provided a recreational field and a large lawn to socialize and relax.


Section A-A'


Section B-B'

The Sudbury River Walk: A Scenic Restoration

LA 494 Senior Capstone Studion/ Bladimir Hernandez



The Sudbury River Walk: Site Assesment

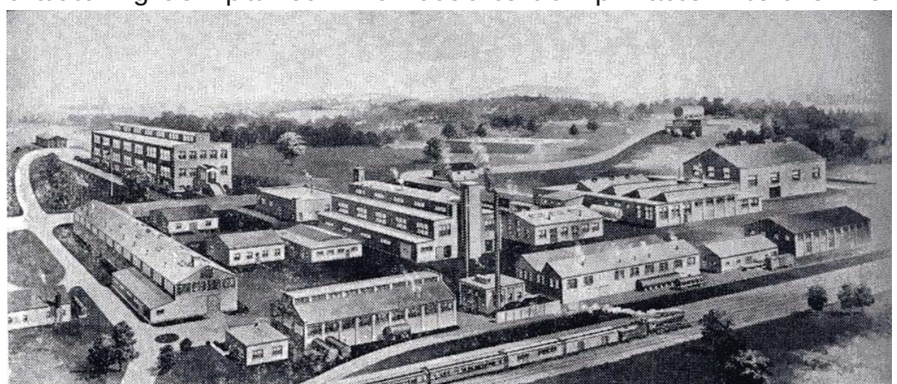
LA 494 Senior Capstone Studio/ Bladimir Hernandez



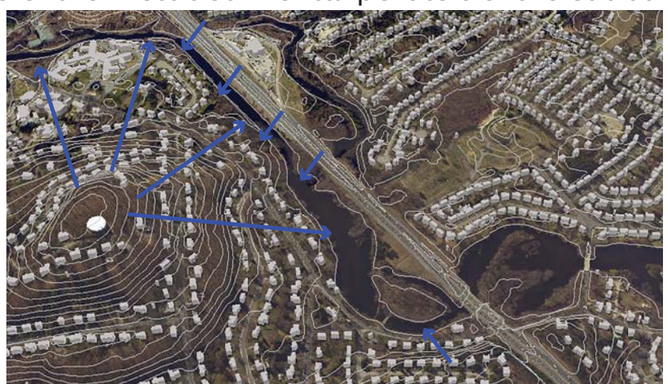


The Sudbury River's banks are heavily polluted by a large amount of mercury found in the sediment. This affects the ecosystem because the fish are contimated as well and are a source of food for the native wildlife. The mecury contaminates the food web.

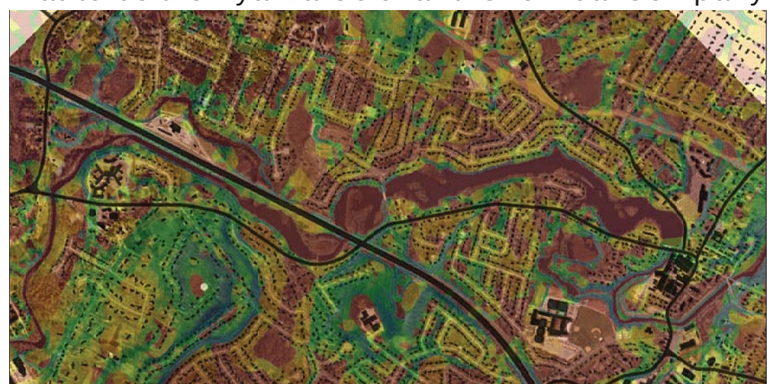
The Sudbury River is approximately a 33 mile long tributary of the Concord River that runs through the Middlesex County in Massachusetts. The Sudbury runs though Framingham for about 6 miles running alongside residential areas, major vehicular corridors, secondary vehicular corridors and parking lots. The pollution of the Sudbury River is due to water runoff of the urban development of Framingham which include; roads, lots and personal lawns. The Sudbury River is also heavily polluted by mercury due to its history with manufacturing companies which used to dump waste in to the river. One of the most detrimental polluters of the Sudbury River has to be the Nyanza Color and Chemical Company



The Nyanza Color & Chemical Company was identified as a hazard in 1971 when pollution was found in the nearby Sudbury River, once considered as a potential source of drinking water for the Boston area. In 1982 the site was put on the Superfund National Priority List. Groundwater were contaminated with heavy metals and chlorinated organics. Liquid wastes fouled nearby brooks and wetlands. Mercury-laden particles may have been blown into the air from exposed sludges.



3d Model created using Arc GIS and Arc Scene. These diagramitical blue arrows shows the sheet flow of the storm water run-off of Framingham. Not only does the surface run-off flow into the Sudbury River, but sewer run-off also leads into the Sudbury River



Slope analysis created on Arc GIS shows the steep slopes located next to the Sudbury River. The water of the river does not get a chance to rest and infiltrate anywhere adjacent to the river banks.

The Sudbury River Walk: A Scenic Restoration

LA 494 Senior Capstone Studio/ Bladimir Hernandez



The design of my River's Edge walk will focus on the restoring the health of the river banks. In order for this to work the town of Framingham has to come together with the community especially those who have the Sudbury River in their backyard to discuss, and hopefully come to compromise that will allow the use of a small area of the parcel of their property. The discussion should include the point that it will not only help with the restoration of the river's health but it will also provide each residential unit with a beautiful river edge that they will enjoy

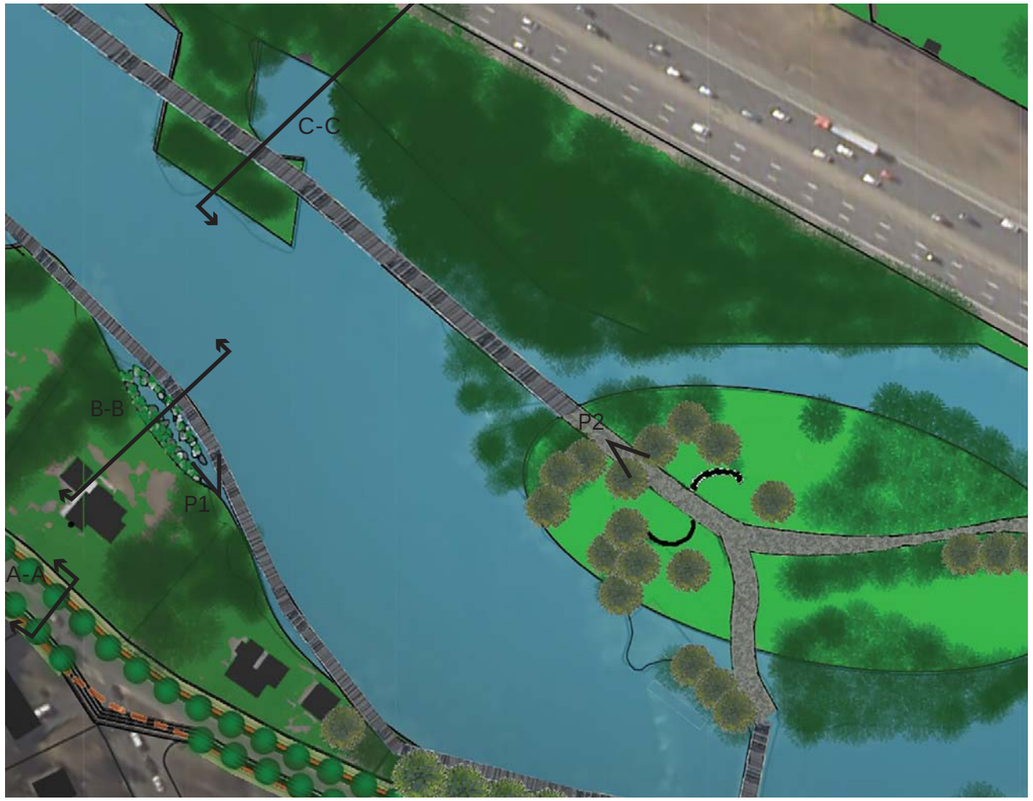
Goals and Objectives:

In order to successfully devise a plan to not only connect the community of Framingham to the Sudbury River, restoring the health of the Sudbury is a major goal in this part of the Greenway for Framingham

- Adding bike lanes on Central Street to promote alternate methods of transportation that will connect to the greater Greenway Network
- Designing a low impact boardwalk on Riverbanks to let people enjoy the scenic views of the Sudbury River
- Implementing bioswales to handle some of the storm-water run-off to prevent further pollution of the Sudbury River
- Introducing pervious surfaces to areas in close proximity to the Sudbury River
- Regrading of river banks to increase floodplains and for oppurtunity to create retention swales for phytoremediation

The Sudbury River Walk: A Scenic Restoration

LA 494 Senior Capstone Studio/ Bladimir Hernandez



Focus Area: This is located by the Simpson Park. The boardwalk is designed to be able to sit on grade, or float on the water when water elevation rises. The boardwalks also turn into paths when they go on a grade that will not usually flood. This area is also located close to Central Street near a residential p



The current state of the Sudbury River is unhealthy,the amount of mercury in the sediment are high, and many invasive species of plants have taken over the the river's edge. This model helps with the visualization of the slope on the river banks



Rendered aerial perspective of the Sudbury River with wider floodplains, retention swales and the boardwalks that take people around the river's edge. Bringing back the native plants and wildlife to the Sudbury will increase the aesthetic values and will show the improveed health of the Sudbury River. This also shows how this design will affect residential property parcels.

The Sudbury River Walk: A Scenic Restoration

LA 494 Senior Capstone Studio/ Bladimir Hernandez



Central Street before



Simpson Park before

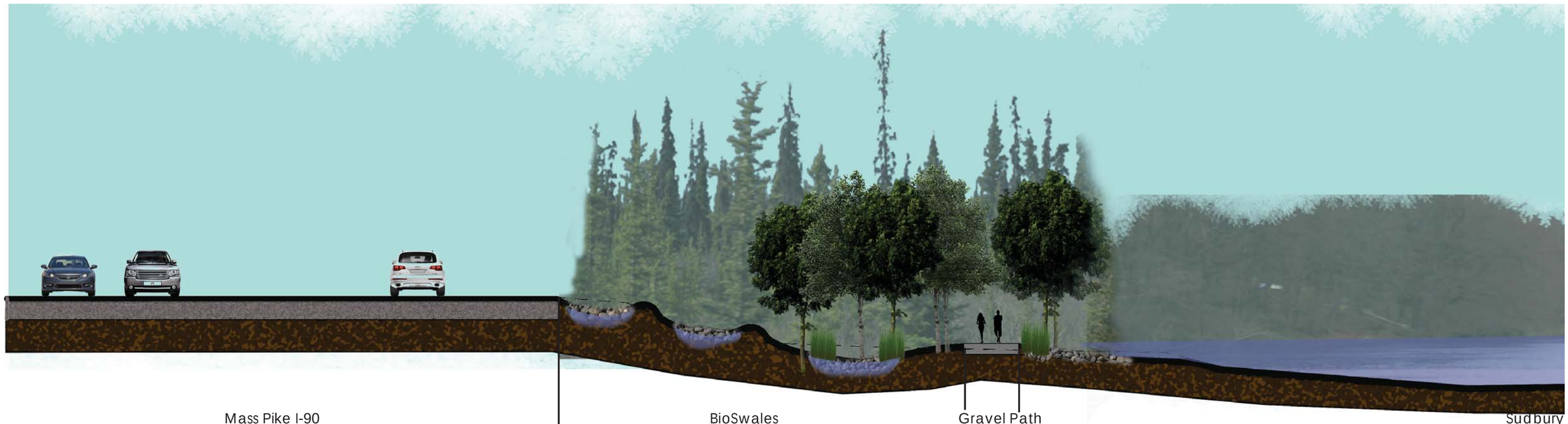


Sudbury River bank before



Sidewalk Bike lane BioSwale Central Street BioSwale Bike lane Sidewalk

Central Street after: In order to protect the Sudbury from more pollution the streets should be a pervious surface, this section bike lanes, sidewalks and the streets are a pervious paving with the addition of bioswales



Mass Pike I-90 BioSwales Gravel Path Sudbury

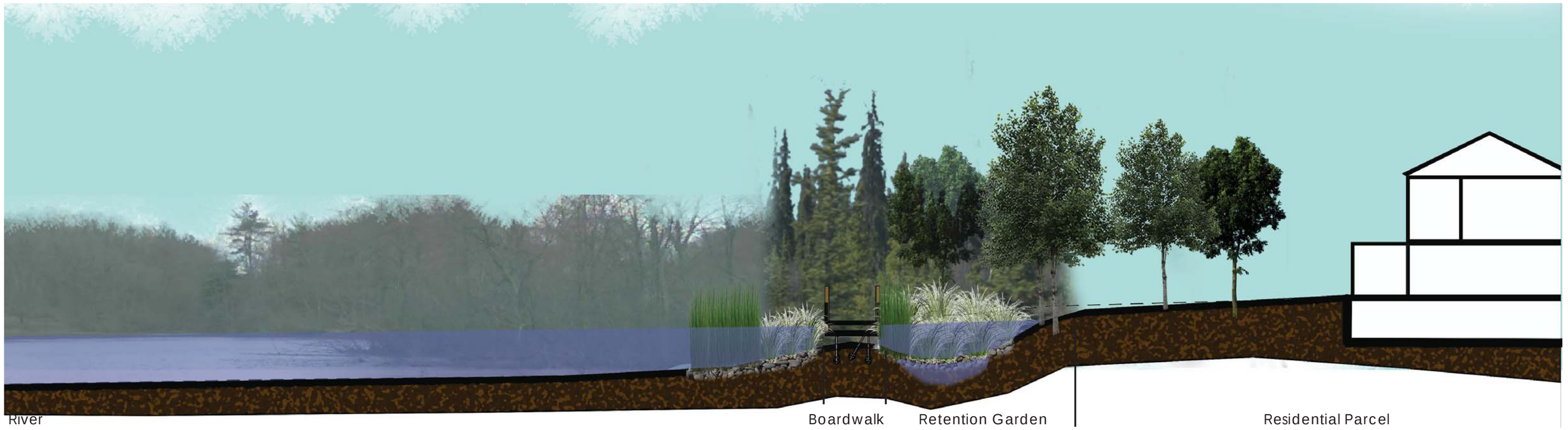
Section cut shows the terrace bioswale system that helps the storm water run-off of the MassPike infiltrate and get cleaned instead of further polluting the Sudbury River, the boardwalk to the left is set on a set frame but the boardwalk itself can float and rise with the water elevation, the increased flood plain retains and cleans the water via phytoremediation



Simpson Park after- this island park located on the Sudbury River would be planted with a natural scheme with an open space where people could stop and rest, all the impervious surface has been removed



Sudbury River bank after- To the left of the boardwalk is the phytoremediation garden that increases the floodplain and retains water to help infiltrate and get cleaned



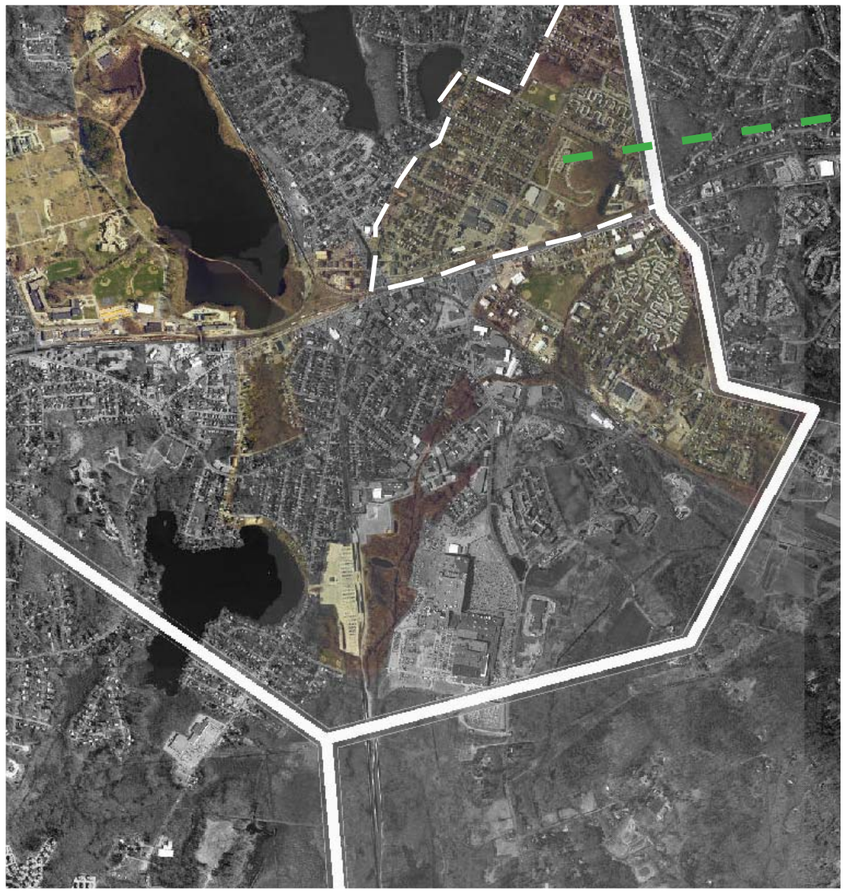
Bishop Street Corridor

By: Russ Greene

The Bishop Street Corridor exists in South Framingham between Howard and Wilson Street. The surrounding area is highly urbanized, however it is flanked by two heavily forested areas: the Learned Pond area to the northeast, and the Clark Hill area to the southwest. Another important ecological resource in the area is the Beaver Dam Brook and the small streams and wetlands that feed into it. These hydrological resources are in close proximity to residential, commercial, and institutional uses, and are therefore in jeopardy of becoming compromised.

Many areas of the Bishop Street neighborhood, as well as South Framingham as a whole, have varying levels of brownfield contamination. Some brownfield sites in the area have been directly affected by Framingham's industrial past. Other sites, such as Bishop Terrace condominiums, have been affected by improper storage of toxic materials like petroleum.

After the development of the Route 9 commercial corridor in the 1960's and 70's over 100 local businesses in South Framingham closed, which later led to high vacancy rates in the area. Adding to this high level of vacancy was the closing of two major manufacturing plants: the Dennison and General Motors plants. The left over available and affordable housing led to an influx of immigrants to the town of Framingham, mostly Brazilian. Framingham houses the largest concentration of Brazilian immigrants in the commonwealth. Many of these immigrants live in South Framingham along the Bishop Street corridor.





Goals and Objectives

By: Russ Greene

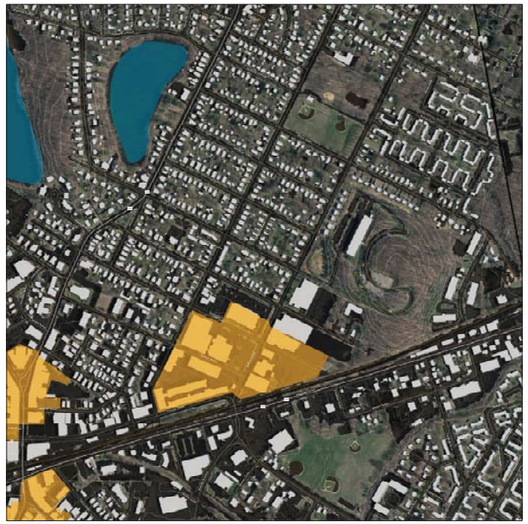
- To improve quality of life for the residents of South Framingham
- To give residents improved access to Framinghams open space resources
- To connect South Framingham to the commercial center of the Golden Triangle
- To maintain and enhance ecological processes in the area



Industrial
Forest
Instituitional
Med/Den Residential
Multi-fam Residential
Commercial



Minority
Minority/English
Minority/English/Income
Minority/Income



Historic Districts



Gleason Pond/Dennison Building and Road Section

By: Russ Greene



The use of flowering plants such as fennel, various asters, and alyssum will be ubiquitous along the Bishop Street Corridor. These flowering plants will not only add aesthetically to this portion of the Framingham Greenway, but will also serve the function of attracting bees and butterflies. These insects are important pollinators, and will increase the crop yield produced by local farms in the area as well as in smaller, privately owned gardens. The added insect population could also be consider an asset as a form of watchable wildlife.





This road section illustrates an improved pedestrian experience along Bishop Street. Design elements include: widened 8ft side walks, narrower 10ft travel lanes for automobiles, an added 8ft wide parking lane by Butterworth Park, 5ft bike lanes, and 5ft vegetated swales for storm water run-off. Flowering plants will again be used for their aesthetic value and function as bee and butterfly attractors.

Bishop Terrace and Butterworth Park

Before





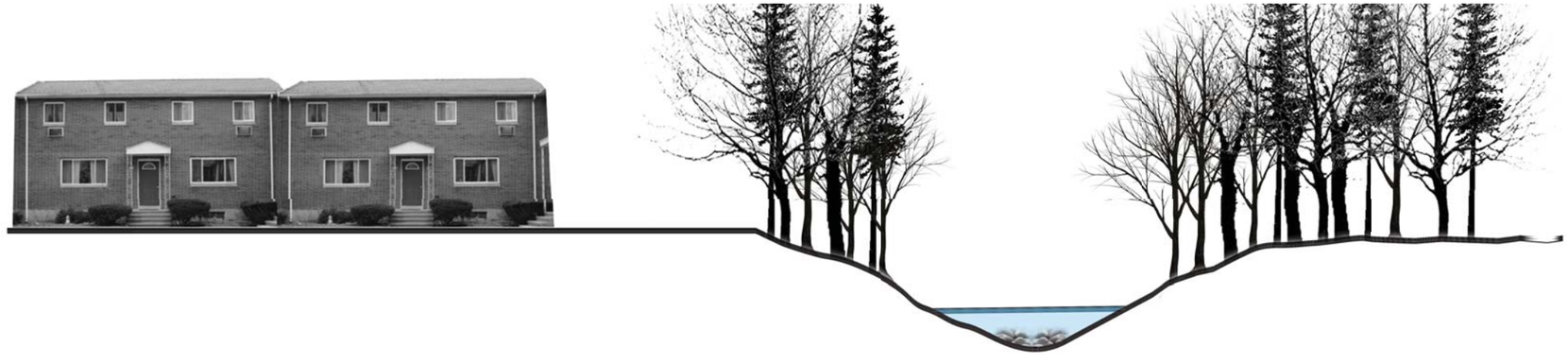


After









Top Left: A turkey grit path is added in place of a worn foot path. A new fence is installed for visual interest and to allow for easier migration of small animals through the site. A vegetated swale is installed to catch storm water over compacted soils before running into the stream bellow. Permeable patios are also installed.

Top Middle: New street lamps with lunar meters that adjust light levels with the luminescence of the moon allow for better migration of nocturnal animals, and reduce the level of energy consumed. Varying stages of phytoremediation will be implemented to clean Bishop Terrace of petroleum contamination.

Top Right: Replacing one of the two baseball fields with open lawn that can be use for other outdoor sports such as: soccer, football, and Frisbee. Installation of large pergola bordering the park to add visual interest and identity to the park, as well serving as a habitat for birds. The pergola will also serve as a trellis for vining plants. Replace graffiti with murals painted by local artists, inspired by Brazilian folk art.

By: Russ Greene

The Dennison Manufacturing District

Framingham, Massachusetts

By: Mark Gullifer

Focus Area Concept Diagram



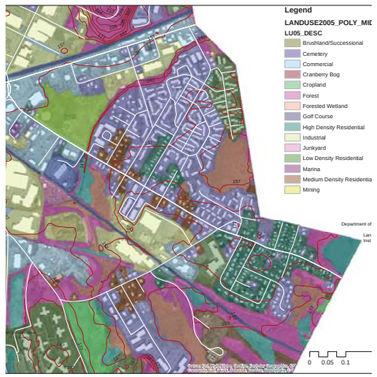
1/4 - 1/2 - 1 Mile radius



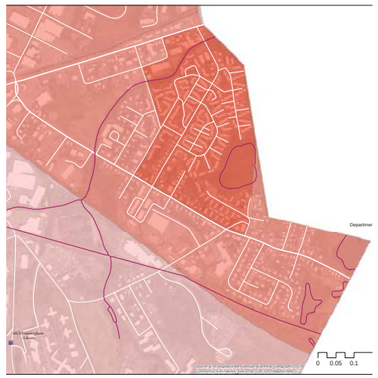
Population

	0.25 mile	0.5 mile	1 mile
Total Population	3,148	6,631	19,060
White Alone	45.8%	52.6%	59.1%
Black Alone	17.2%	11.9%	8.6%
American Indian Alone	0.6%	0.4%	0.4%
Asian Alone	1.1%	6.0%	6.7%
Pacific Islander Alone	0.0%	0.0%	0.2%
Some Other Race Alone	27.9%	21.7%	17.5%
Two or More Races	7.4%	7.4%	7.5%
Hispanic Origin	57.1%	36.5%	23.9%
Diversity Index	87.8	84.2	77.0

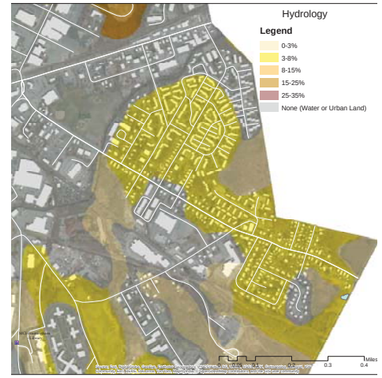
Land Use



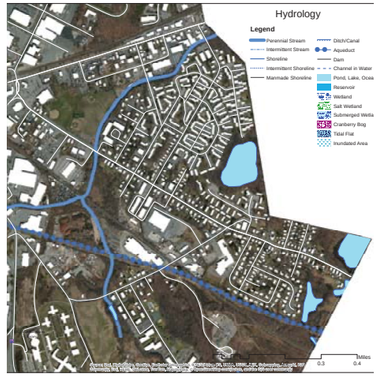
Population Density



Slope



Hydrology



Site Issues

Business/Industry

-Contains a mix of residential and commercial uses hindering the opportunity for walkable neighborhoods

-Large amount of automobiles businesses, and salvage yards

Demographics

-47.3 percent of residents who reside in this area have only a high school diploma or GED

-Individuals without high education forced to find service jobs.

-Service jobs within this area are limited.

-Low employment rate directly relates with educational achievements

Housing

-Non owner occupied housing creates issues with safe, appealing living options

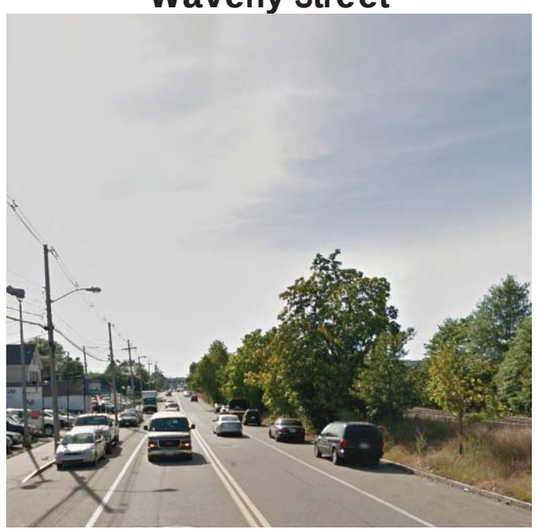
Location

-This area contains about 10 percent of Framingham's entire population.

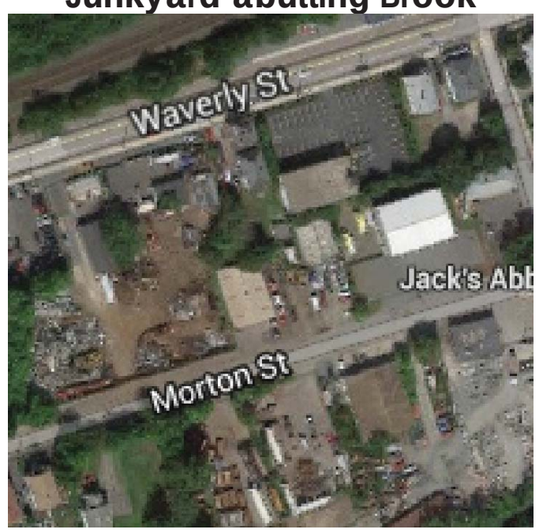
-Lack of services offered

- -open space
- -pharmacies
- -dentist, doctors, etc
- -Access to fresh and healthy food

Waverly Street



Junkyard abutting Brook



Pelham Apartments



The Dennison Manufacturing District

Framingham, Massachusetts

By:Mark Gullifer

Master Plan



1. *Mixed Use Development*
2. *Picinic Area*
3. *Community Garden*
4. *Childrens Natural Playscape*
5. *Combo Soccer/Football Field*
6. *Open Meadow*
7. *Night Lit Basketball Courts (4)*
8. *Night LitSoftball/Baseball Field*
9. *Retention Basin*
10. *Improved Mary Dennison park Parking Lot*
11. *Improved Beaver Dam Brook/Dennison Sculpture Walk*
12. *Waverly Complete Street*
13. *Forrested Wetland Boardwalk*

Goals

-Create a neighborhood identity

-Improve Mary Dennison Park
- -Access
- -Phytoremediation
- -Programmatic elements

-Provide safe, multimodal transportation routes

-Implement mixed use development that will provide jobs and community services for the nearby residential areas

-Improve the Beaver Dam Brook
- -water quality
- -aesthetics
- -flood storage

Waverly Street Perspective





Design Narrative

Currently, this area faces a number of issues including the absence of: a neighborhood identity, safe, multimodal forms of transportation connecting to downtown, successful parks/open space, and modern/smart growth zoning areas that allow for basic community services.

To create a neighborhood identity, The SEFSA will be branded as the Dennison Manufacturing District. The newly branded district will showcase aspects of the towns manufacturing history through education, memorabilia, public art, and design details. Incorporating the town's history into this design will create a greater sense of place to the people of Framingham and visitors alike.

In order for pedestrians to travel safely around the Southeast Framingham Manufacturing District, a complete streets approach was taken along Waverly Street, and bike lanes/ sidewalks will be added to Second Street, Morton Street, and Teralli Terrace accordingly. Adding safer ways for pedestrian travel throughout these streets will increase connections to downtown.

Removing the junk yards abutting The Beaver Dam Brook will help with improving the water quality within the area, while providing space for mixed use development. The mixed use development will have a mix of condo and rental opportunities. The businesses that inhabit the first floor of these mixed use buildings will provides community services such as: doctors' offices, dental offices, pharmacies, etc. Providing

Mary Dennison Park will include sculptures of Dennison memorabilia throughout, while increasing the amount of programmatic elements. The is now home to: 4 basketball courts, 1 mixed used soccer field, One of the existing baseball fields, a playground, community gardens, and picnic areas. Along with the added activities, The Beaver Dam Brook has been improved. The new brook allows for more flood storage, while creating an elegant riverwalk with sculpture pertaining to the Dennison Manufacturing Company. A large detention basin has been placed south of the large parking area. This detention basin will collect polluted stormwater from Waverly Street and nearby parking lots.

The Dennison Manufacturing District

Framingham, Massachusetts By: Mark Gullifer

Improved Beaver Dam Brook/Dennison Sculpture Walk



Mary Dennison Park Section

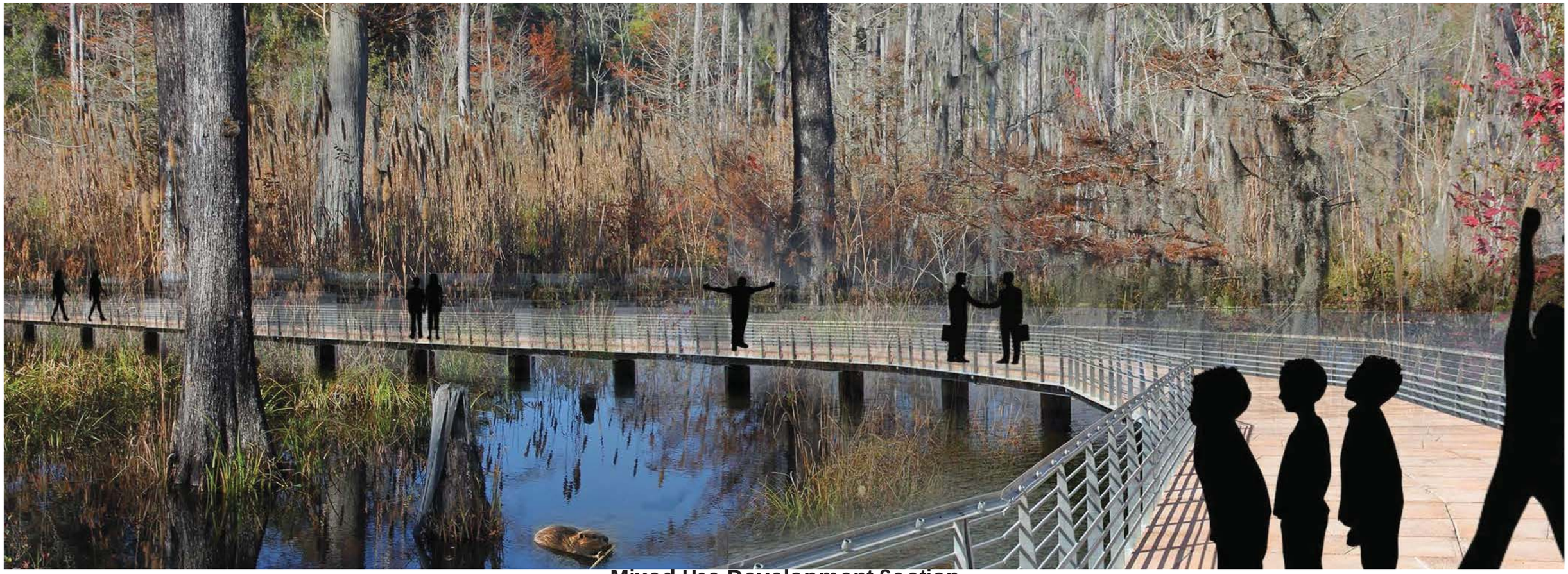


Residential Area *Improved Beaver Dam Brook* *Path* *Community Garden* *Path* *Community Garden* *Path* *Picinic Area* *Mixed Use Development* *Path* *Morton Street* *Path*

The Dennison Manufacturing District

Framingham, Massachusetts By: Mark Gullifer

Improved Beaver Dam Brook/Dennison Sculpture Walk

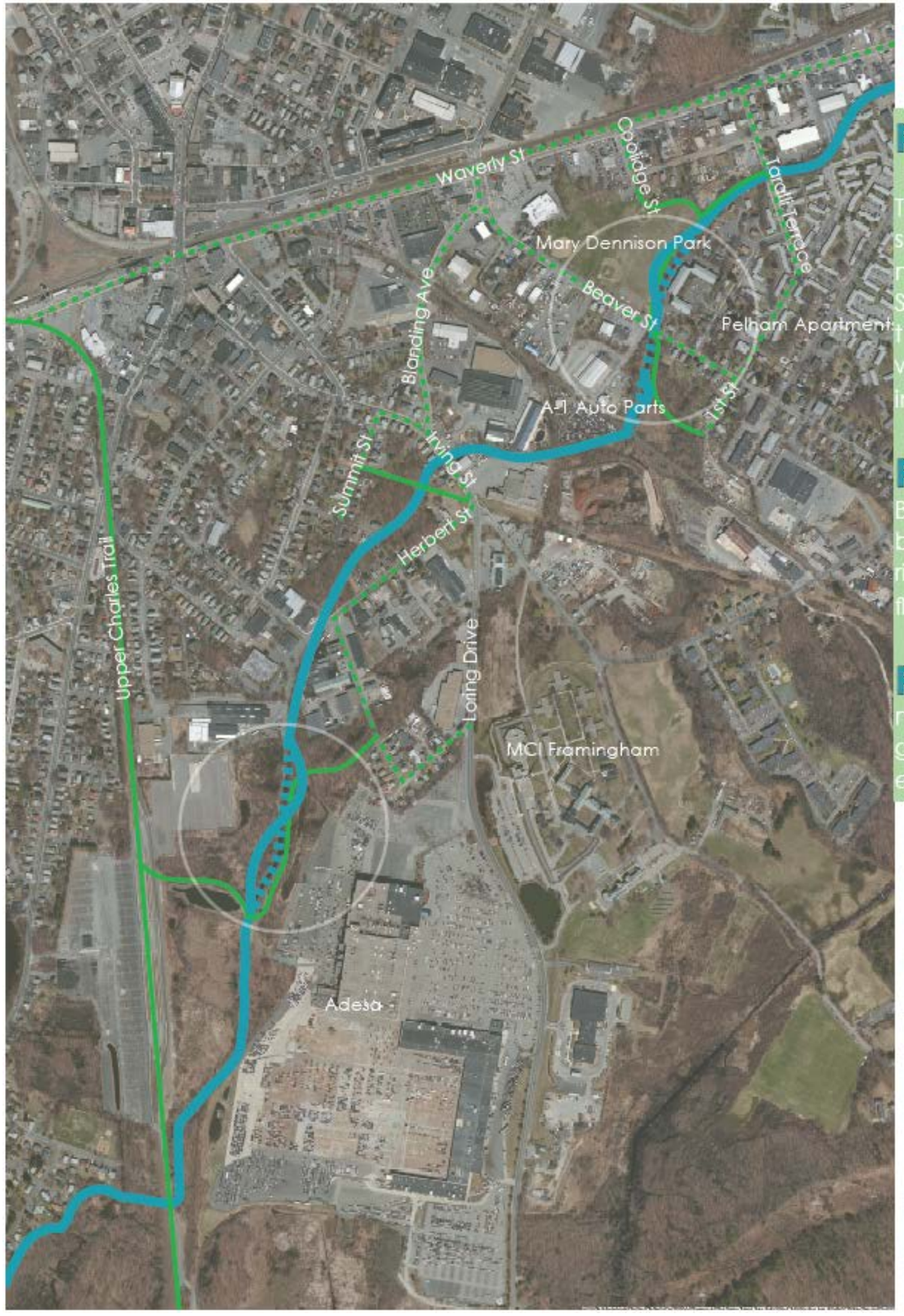


Mixed Use Development Section



Beaver Dam Brook Blueway

By: Caroline Fay

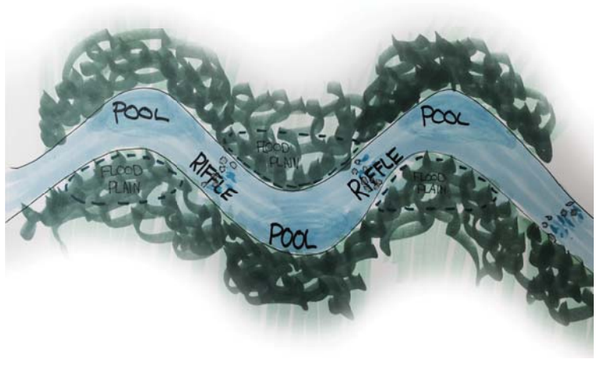


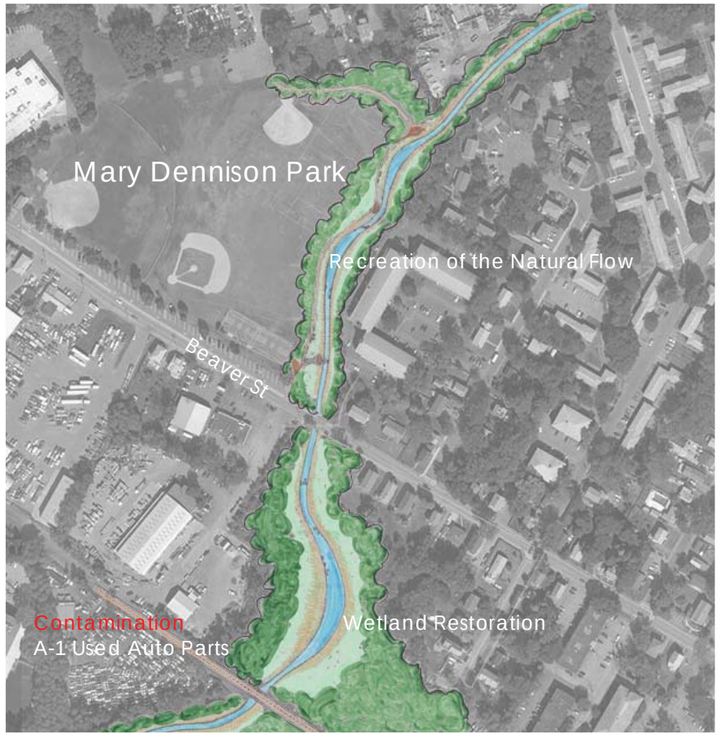
Restore & Reconnect

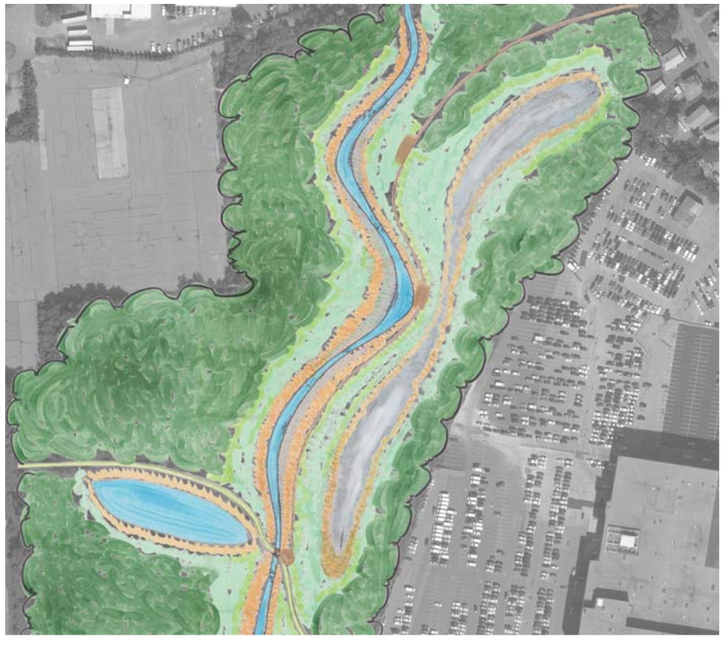
The Beaver Dam Brook is located in the south east portion of Framingham, flowing northeast from Waushakum Pond to the Sudbury River. This corridor is running through areas of environmental injustice with contamination sites effecting the interaction with the Beaver Dam Brook.

Restore the natural qualities of the Beaver Dam Brook. Improve water quality by restoring wetlands, increasing the riparian corridors, and restoring the native flow of the stream.

Reconnect the surrounding neighborhoods in South Framingham to green space by using interactive and educational trail systems.





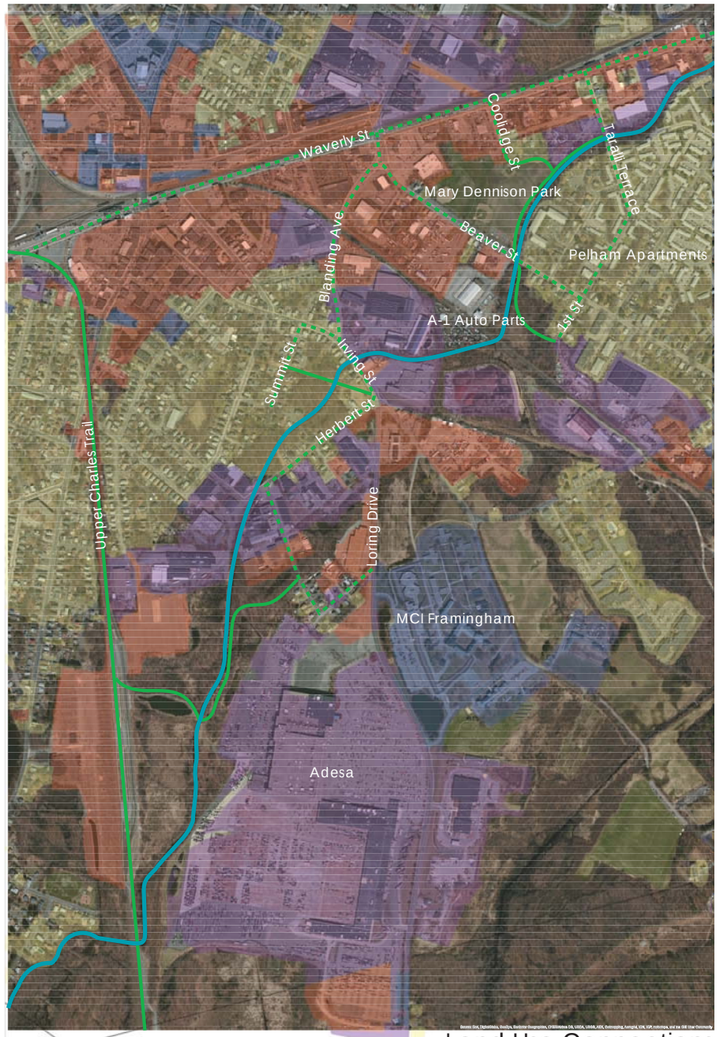




Contamination & Water Quality

The Beaver Dam Brook meanders through the most heavily populated and developed area of Framingham. 40% of the sub-basin watershed is impervious surface that directly relates to the stream corridor. Junk yards, stormwater runoff, sedimentation, flood storage, and erosion are the major issues that contribute to the contamination of the Beaver Dam Brook.

Creating a series of storm water management sites and multiple stream restoration corridors the over all quality of water for the entire stream is improved. Addressing the contaminated sites will have be done site by site, but the high proportionality sites are General St Used Auto Parts, A-1 Used Auto Parts, and the Beaver Dam Settling Basins.



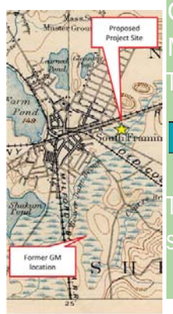
Land Use Connections
Scale 1:3000











1894

Connection

By using the Beaver Dam Brook as a back bone to this greenway, connections are made from residential neighborhoods in South Framingham to green spaces, recreational trails and environmental education opportunities.

Creating one continuous trail along the Beaver Dam Brook is not doable, so enhancing the key access points through Mary Dennison Park and surrounding wetlands, Irving Street, and the Upper Charles Trail will bring people to the Brook. These initial efforts will be a great way to incorporate recreation into the Beaver Dam Brook.

History

The Beaver Dam Brook was historically a rural watershed that transformed into an urban and industrialized location starting with the GM facility in 1945

By: Caroline Fay

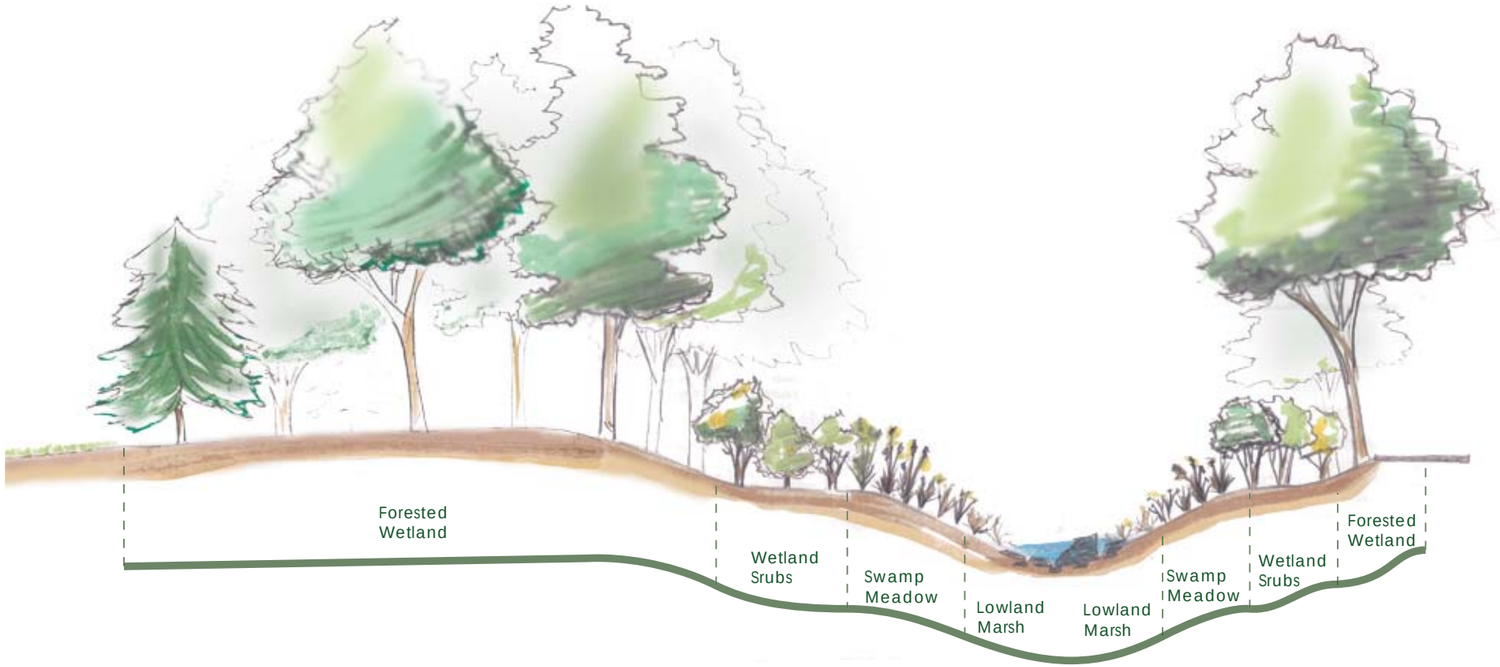


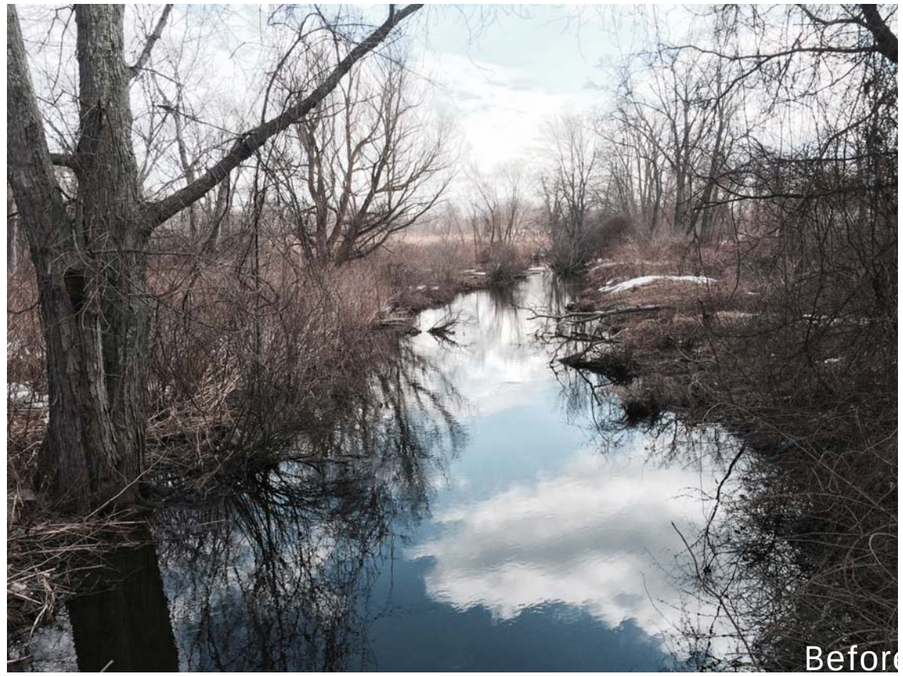
Stream Restoration & Design Vocabulary

Restoring the natural flow of the stream and widening the riparian corridor, allows for healthy water quality. Restoring the native flow of a stream will create pools, riffles and weirs that encourage healthy vegetation growth and good water quality. Widening the riparian corridor will catch storm water runoff and collect sediments and trash before entering the Brook. Taking out invasive species and replacing with layers of native species will encourage biodiversity and healthy ecosystems.

This design of the stream corridor and trail system applies to multiple points along the Beaver Dam Brook. It incorporates recreation, education, and the community.







By: Caroline Fay

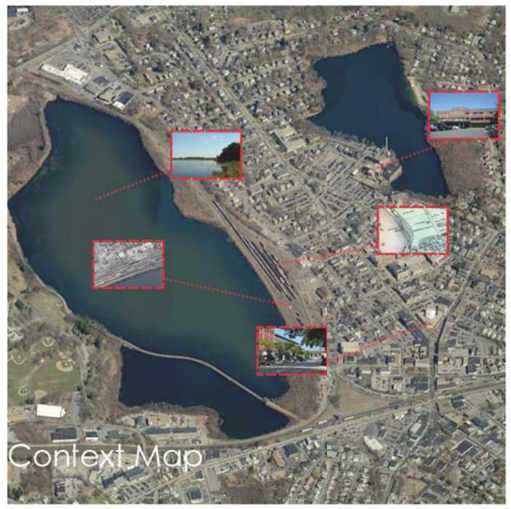
Green Infrastructure For

Framingham, Mass

Farm Pond Focus Area

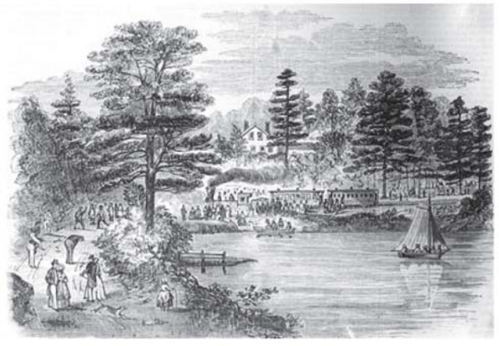
Chris Johnston

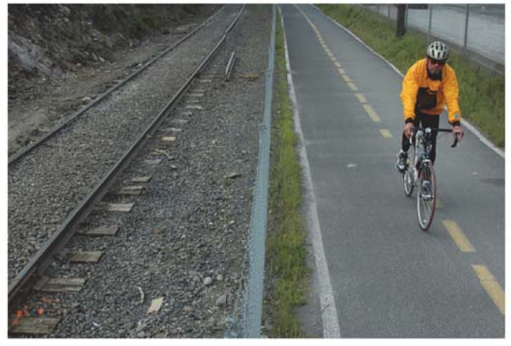

Greenway Plan


Context Map


Land Use


Impervious Surfaces









SITE LOCATION ASSESMENT AND CONTEXT

A CSX rail yard sits east of Framingham's Farm Pond in downtown Framingham. This rail yard is one of three owned by CSX in Framingham. This area is Northwest of downtown Framingham and West of Metrwest Medical Center. It lies amongst high density residential and a strong commercial area. However, due to this land use there is a lot of impervious surfaces that does not allow for maximum water infiltration.

This area was once home to a significant greenspace in town that was both a cultural hub and a diverse ecosystem. However, when the railroad was built in 1869 the connection between the town and this popular spot, known as Harmony Grove, was severly disrupted. Harmony Grove was a significant spot for abolishionist talks in the 1850's due to its large amphitheater that held nearly 1,000 people. Harmony Grove was also a popular spot for picnicing, boating, and holding large town events. Harmony Groves landscape was diverse. There were large swaths or forested land scattered with open meadows and trails.



Green Infrastructure For Framingham, Mass

Farm Pond Focus Area

Chris Johnston



The Farm Pond Focus Area proposal is to relocate the CSX rail yard to the currently vacant lot near Washukum Pond. This proposal is due to the lack of connection to Farm Pond to the surrounding community. Using this areas historical and cultural landscape, the design goal is to reinstate some of the historical elements, such as the amphitheater, the extensive wooded areas, and the proposed path system replicating the historic rail line. Also within the design are two large rain gardens to help to manage the stormwater runoff from the surrounding impervious surfaces.The area that directly affects the stormwater runoff of this site is roughly 12 acres. Of this 12 acres, 73% is impervious. This means that in order to manage a rain storm of 2 inches of rainfall, a rain garden pond of nearly 60,000 cubic feet would be needed. There are two rain garden ponds on this site. The larger, in the North, is home to an overlook deck to encourage endocation and interaction.


Rain Garden Pond Overlook


Rail with Trail Section

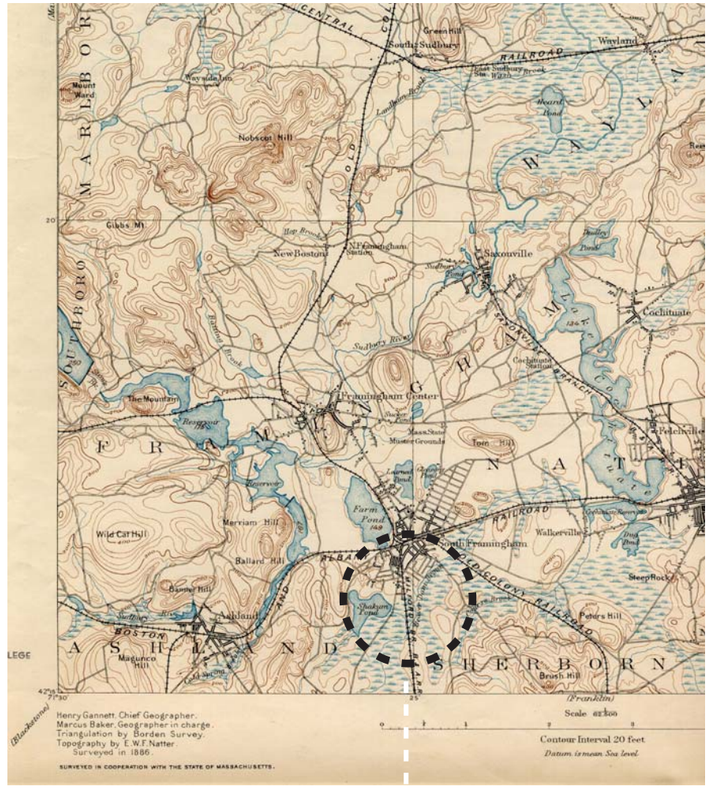

Amphitheater Section


Path Section


Amphitheater Perspective

Reconnecting Cedar Swamp to Farm Pond and Waushkaum Beach

By: Valerie Degroote



Clean Up Trash/Waste



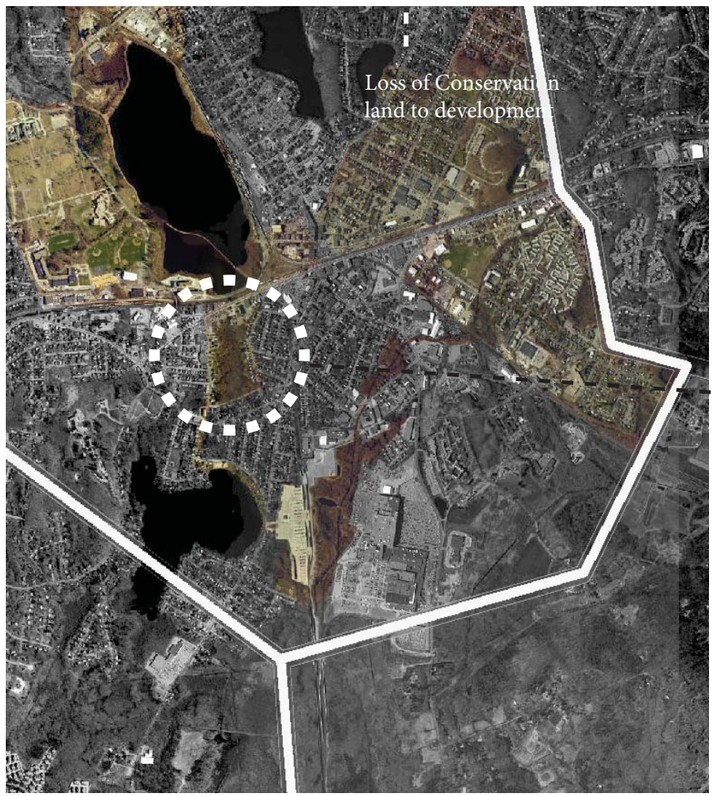
Remove Invasive Species/ Create Accessibility Through Swamp



Restore the Swamp to a Functional State



Stormwater Issues









This design reconnects Cedar Swamp with Farm Pond to the north, and Waushakum Beach to the south. Historically, these three sites were connected by conservation land, but with time, the area surrounding Cedar Swamp was greatly developed. By recreating this connection, the residents of South Framingham will have non-motorized access to Downtown. In addition to accessibility, the creation of the Cedar Swamp Trail provides recreational value, and green space. The degradation of the site gives opportunity for ecological restoration.

Zooming in to the parcel on the corner of Mellen St. and Waverly St, we are given the opportunity to provide an arrival space for Cedar Swamp. Taking advantage of this space, this design provides an arrival plaza, a gathering space, an overlook that allows visitors to experience the swamp, and a clear route that will take you through the swamp.





By: Valerie Degroote


SILTON GLASS
Google

WAUSHAKUM
FOOT GOLF COURSE

RAIL YARD PARK

MATTHEW CROSBY

CLAY MODEL STUDIES






HOLLIS STREET CONNECTOR PERSPECTIVE





SECTION B-B THROUGH SOUTHERN MOST LANDFORM



WAUSHAKUM
FOOT GOLF COURSE

RAIL YARD PARK

MATTHEW CROSBY



LOCATION BACKGROUND

The southern abandoned CSX parking lot lies just next to an abandoned set of CSX rails, and behind a populated residential area on Hollis Street. This large parking lot use to be home to the GM plant where cars were stored and shipped on the nearby rail system. The GM plant moved their location, and thus had no further use for the space. CSX has maintained ownership of the lot, as well as the right of way on the rail lines. Freight is no longer moved on the tracks, however, and they are currently abandoned. The tracks continue north into a more populated area, and meet up with Farm Pond and its surroundings.

The community that surrounds the abandoned CSX depot is a rather happy one now that the rail line has been discontinued. It is made up of single, double, and multi-family housing, and is home to a large population of minorities, including one of the States highest concentrations of Brazilian immigrants. When the shipping yard was in full use, large freight trucks poured into the lot throughout the day to pick up and deliver cargo for trains to bring elsewhere. This continued until there was a 6am-6pm work curfew put on the heavy traffic, and then finally in 2009 the station was shut down. The surrounding community enjoys their now primarily residential street, and has gained closer ties because of it. Just across the street, the Waushakum Pond community enjoys mutual waterfront privileges, and works hard to maintain a healthy a visually pleasing environment.

GOALS AND OBJECTIVES

* Make use an abandoned lot by way of an active and passive recreational space
* Re-mediate poor soil conditions
* Create a destination space in Southern Framingham
* Offer new views in an otherwise flat area
* Build a timeless space
* Connect to existing trails and destinations









BATES PARK ENTRANCE





HOLLIS STREET ENTRANCE



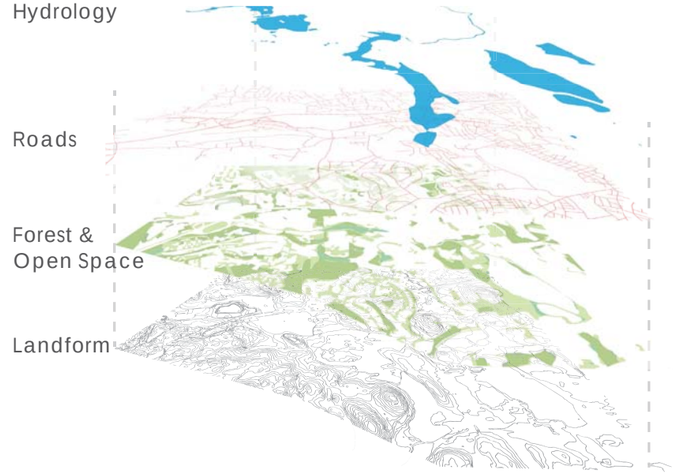


SECTION A-A THROUGH CENTER OF PARK



Framingham's Watercourse Spillway





Company Employees

Staples 3,215
Genzyme Corp. 2,375
Bose Corp. 1,536
CA Technologies 625
Cumberland Farms Inc. 400
MetroWest Daily News 325
Nestle Waters North America 200
Sheraton Framingham Hotel 160
Total 8,836

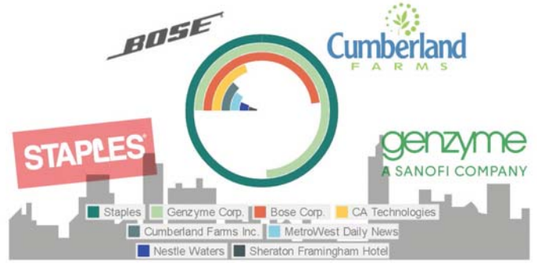
Our plan connects downtown Framingham to the technology park which straddles the mass pike and lies adjacent to route 9. It is important to consider people entering and commuting into Framingham for work and school five days a week and our greenway makes connections to the commuter T- rail station near farm pond.

Major Objectives

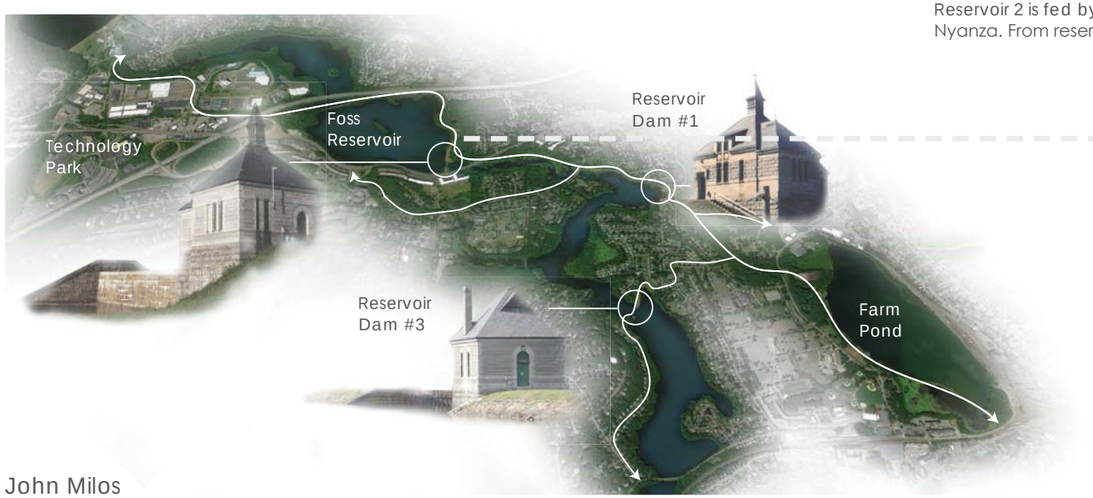
+ Revitalize Historic Ecology by linking the 19th century gatehouses and dams
+ Create Vital Community Connections between Downtown and job centers/commercial hubs
+ Support Local Business by connecting a variety of profitable land uses
+ Promote Bikability of the city of Framingham by making direct connections
+ Improve Water Quality of Foss Reservoir, making water-based recreation more accessible
+ Encourage Wildlife Habitat and Inspire Learning of natural features and processes

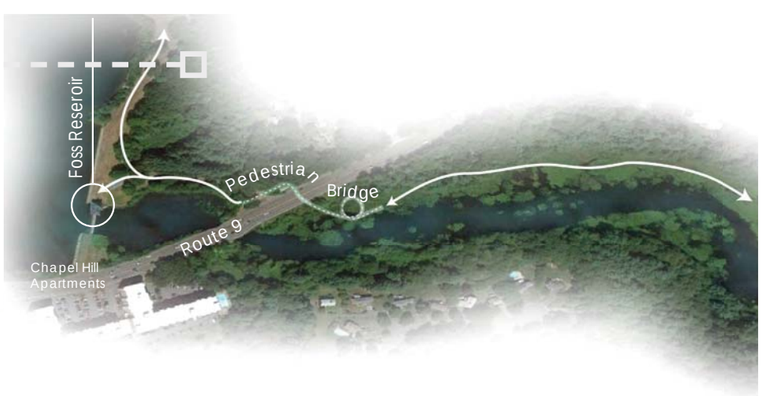


The image below illustrates the directions of water flow throughout the reservoir systems. Reservoir 3 and the Sudbury river flow southeast, linking into reservoir 1. Reservoir 2 is fed by the water systems in Ashland that are contaminated with Nyanza. From reservoir 1, the water combines and flow through the Sudbury



FTP's largest tenants include Genzyme (Science Center) and Bose (Corporate Center and R&D Center), each of which utilize multiple buildings that are fully occupied. Smaller tenants in the park include MetroWest Daily News, Penske Truck Rental, FedEx World Service Center, Nestle Wafers North America, and the Mountain Childcare Center with over 8,000 active employees.





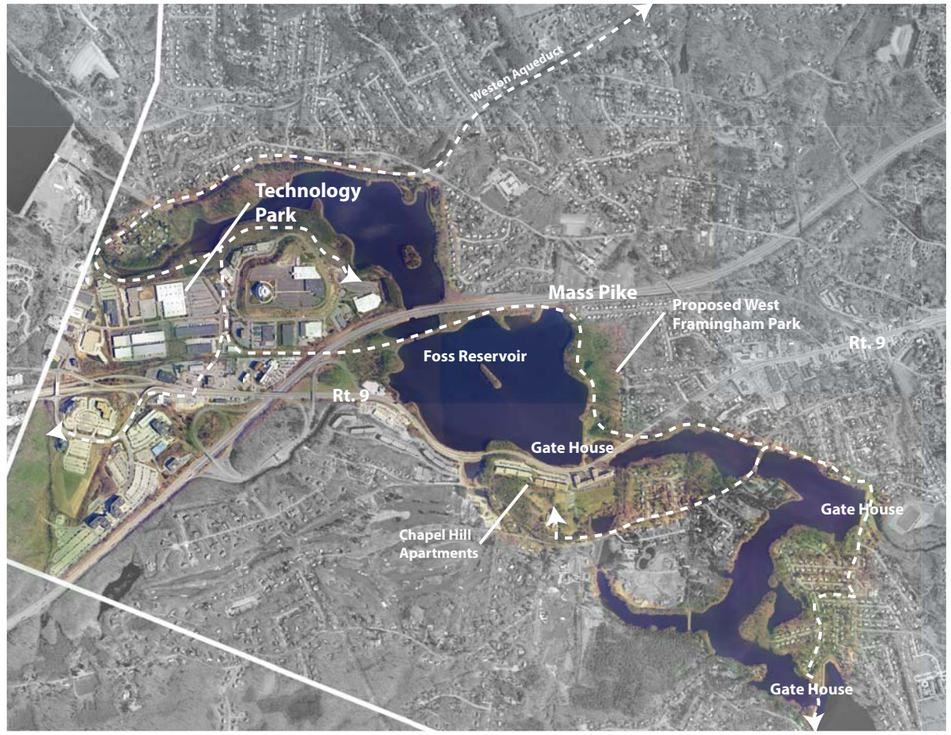
Greenway Branding Logo



This logo, highlighting middlesex county in red will be a recurring feature along the greenway and act as a method of wayfinding.

John Milos

West Framingham's Foss Park



Major Objectives

+ Revitalize Historic Gatehouse on Foss Reservoir
+ Develop a Destination Park for the Residents of West Framingham
+ Allow of Visitors to Interact and be a Part of the Spillway Dam
+ Employ Sustainable Practices and Natural Materials
+ Improve Water Quality of Foss Reservoir and Increase Accessibility of Water Recreation
+ Encourage Wetland Exploration and a Woodland Experience Within the City

The Sudbury River System was designed to provide fresh water to Boston and its metro area. Construction of this large scale civil engineering project took place between 1875 and 1878. Dams on the Stoney Brook and the Sudbury River created three large reservoirs: Reservoir Number One (Stearns), Reservoir Number Two (Brackett) and Reservoir Number Three (Foss). Reservoir Number Three is the biggest of the three with a one billion gallon capacity.

Gothic Victorian gate houses were built on each reservoir's dam and also on Farm Pond, which was tapped and linked to the network.

When the Quabbin Reservoir was built in the 1930s and 40s, it became Boston's main water supply, relegating the Sudbury River System to an emergency water source. Today, the Framingham reservoirs are pretty much offline. The Sudbury Reservoir and Reservoir Number Three are emergency backup supplies.

John Milos

Route 9 Crossing



The wood timber and steel bridge proposal get pedestrians and bicyclists over Route 9 in a safe and efficient manor along the greenway. The structure is a looping ramp that is ADA accessible. It is increases connectivity of south Framingham and north Framingham.

Spillway Overlook

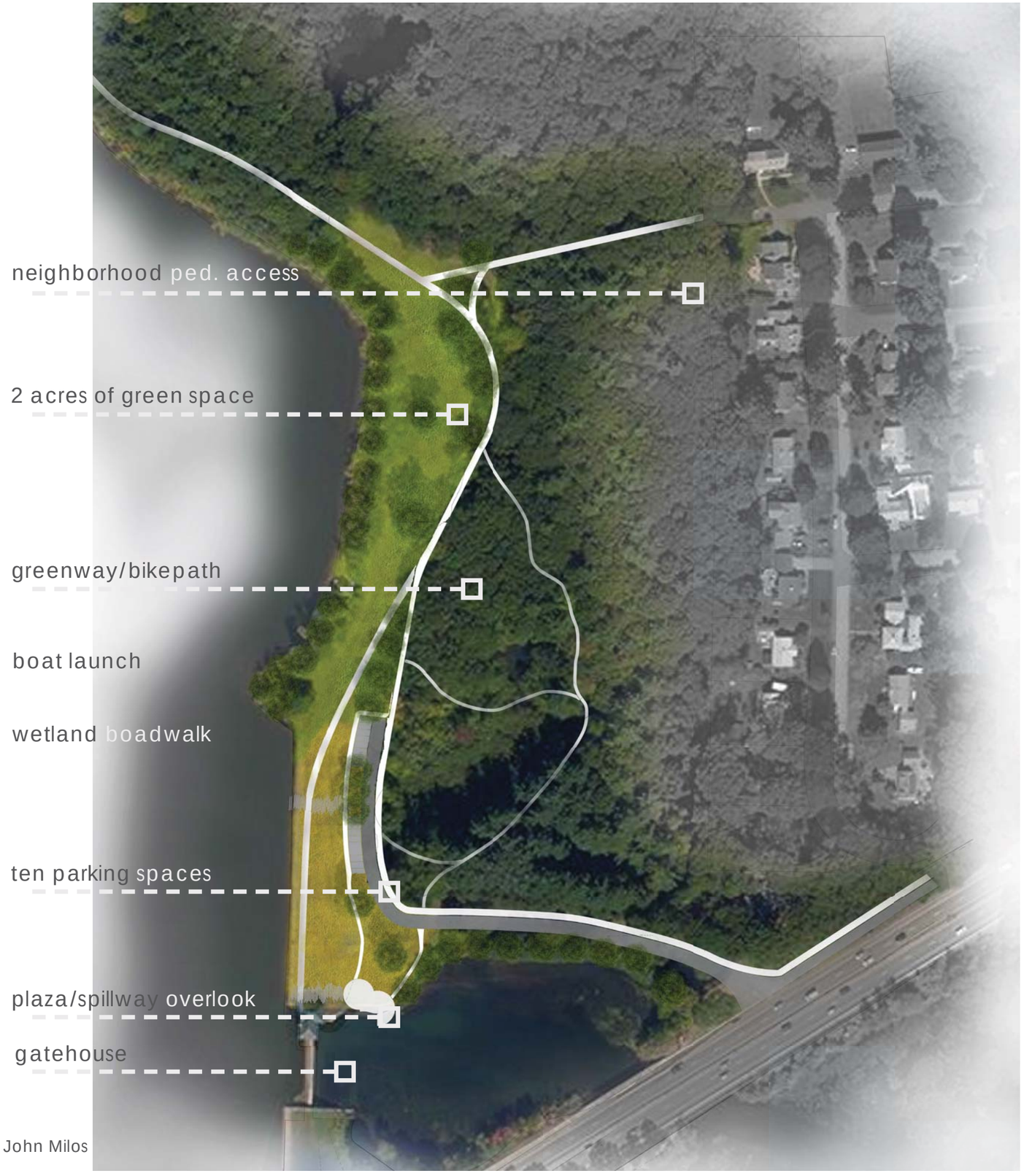


From your car you can meander a bioswale and mounds of billowing switch grass until you arrive at a plaza that extends over the water giving you an ultimate view of the spillway and gatehouse as well as the sweet sounds of the waterfall.

Dual Purpose Railline



The greenway meets up with the CSX rail line and runs parallel along the side of it with a route towards the Technology Park. This is where Jing's focus picks up.



John Milos

Granite Greenway



The steps run up the side of the hill with grass growing between them, increasing the beauty and mystery of the what is above, sit flush with the path on the top of levee and then descend back into the water symbolizing the connection of people and water in the town.

Wetland Boardwalk



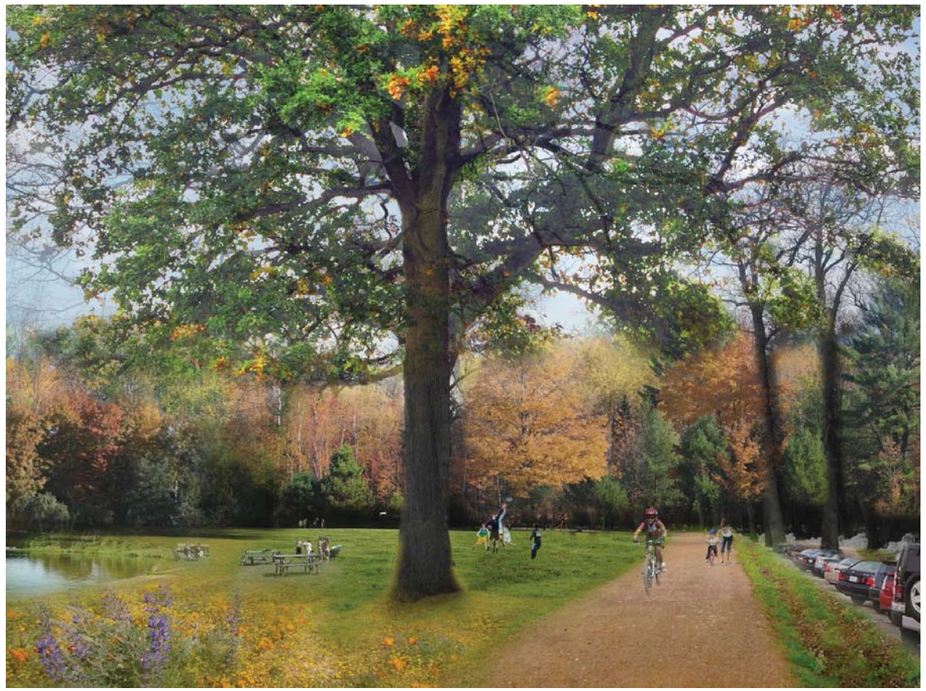
One of the objectives for the overall greenway plan is to connect the major cultural, economic, and living centers within the town of Framingham. The connnection between the population-dense downtown and the occupational hub of the Technology Park is of crucial importance. The Watercourse Spillway focus section creates this vital community connection in a quiet and direct fashion. Seen in the plan, the greenway attaches to the Mass Rail Trail at one end and the MBTA T-stations at the other, promoting alternative means of commuting and bikability of the entire town. The greenway plan also connects all of the 19th century gatehouses and dams, revitalizing historic ecology.

John Milos



Foss Park at Night

When creating Foss park I didn't just want to make it a destination during the day but thinking of it as a trademark and identifiable feature any time of the day. I focused sculptural letters that spell out the name "Foss Park" in the water and on uplighting of the base spillway and the gatehouse architecture itself as well as street lamps so it can be a place where people spend time whenever they choose.



Reservoir Play Space



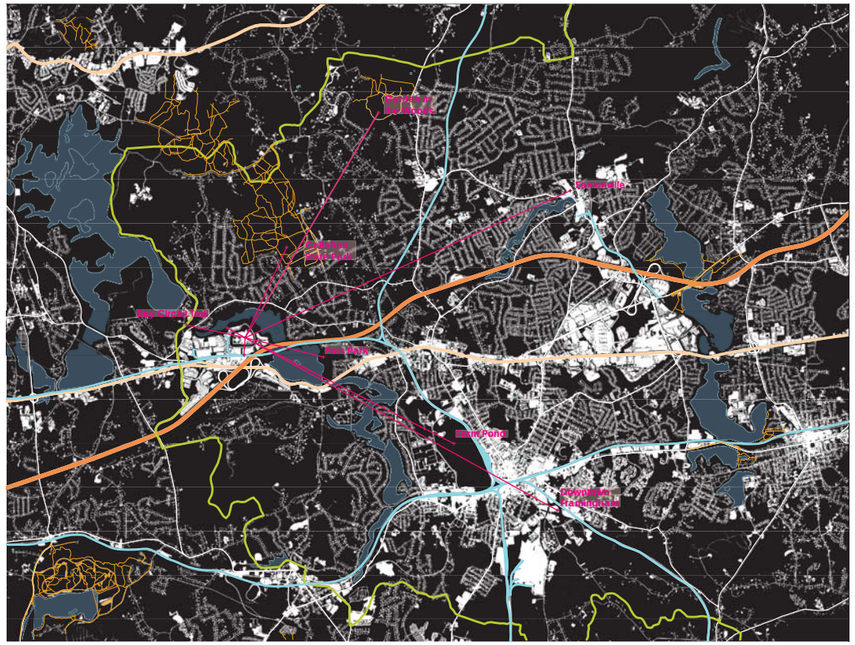
The park has 2 acres of open green space with prominent mature oak trees defining the edge of the space that also guide you along the greenway path heading north.



Frozen Foss

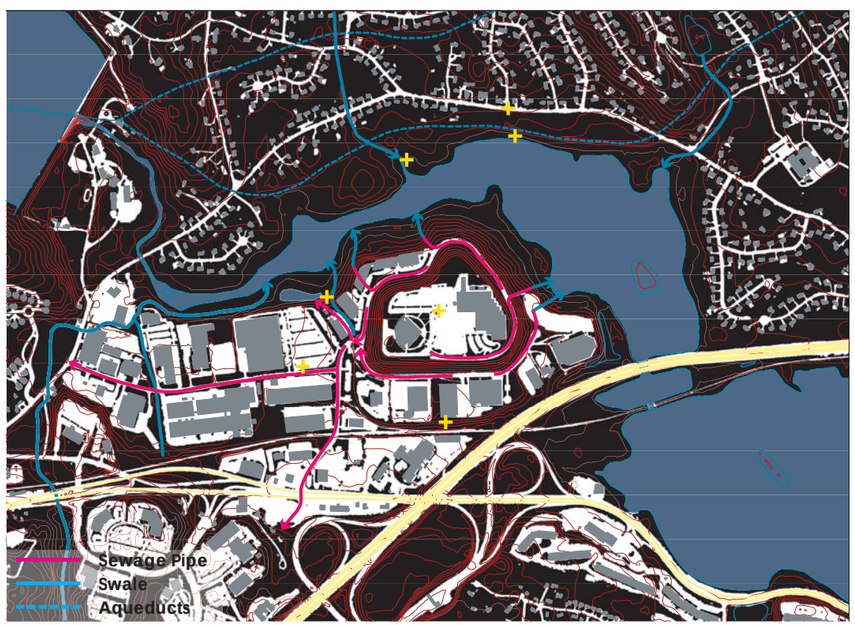
Technology Park Greenway

Professors: Robert Ryan, Peter Flinker Teaching Assistant: Alyssa Black
Student: Jing Pan



Site Context

Technology Park is located in the southern Framingham, having Interstate Highway 91 and Route 9 coming though it. Considered as one of the substantial job center in Metro West Corridor, there are approximately 9,000 employees working at the site at major employers such as Genzyme, Staples, Bose, and CA Technologies. Located next to Foss Reservoir, a great amount of species and wildlife habitats are lacking of identification and protection.

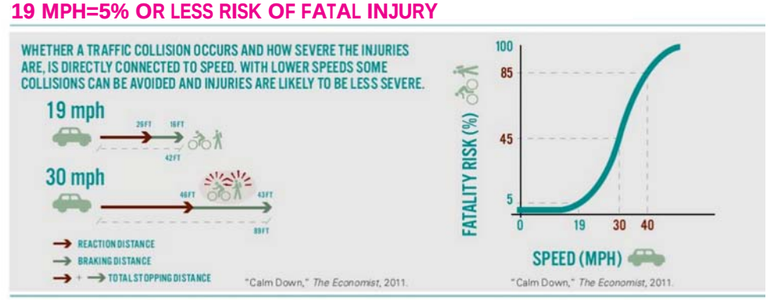


Stormwater Condition

According to the existing topography of the site, the majority of stormwater is collected by the catch basins along the streets and then flows directly to Foss Reservoir. A great amount of pervious surface at the Technology Park increases peak flow and consequently put more pressure on CSO(Combined Sewage Overflow). Several vital spots(indicated as yellow crosses) will be the experimental area to address storm water management.



According to the study conducted to measure the amount of CO2 emissions, the more people commute by walking or cycling, the less green house gas would be produce. Thus, the encouragement on greenway would help mitigate global warming efficiently.



The Severity of the injure caused by car collision directly depends on the speed of the traffic. Proposing a greenway in the neighborhood would slow down the speed significantly and create a much safer street environment.

Concept Plan



Technology Park Greenway System has the overall goal of connectivity with Callahan State Park and Downtown Framingham through Knox Rail Trail and Rail Line Trail. Pleasant Street is designated as Knox Rail Trail to connect Framingham History Center to Technology Park from West to East. A community green way is proposed at Fox Hill Road in order to connect Callahan State Park and Knox Rail Trail. At Technology Park, the overall goal is to promote urban development with social, cultural and ecological measures as basis for economic change in an industrial site.

Technology Park Natural Trail: The woodlands along Foss Reservoir is allocated for the development of a large park, thus creating an ecological corridor between cityscapes. Approximately 1 mile of natural trail extends from Bay Circuit Trail and penetrates into woodlands.

The Restoration of Foss Reservoir: Foss Reservoir is to be restored to near natural conditions, creating watercourses constituting aesthetic and natural amenity enriching the urban landscape. The restoration of Foss Reservoir is considered very important as it was vital for improving the environment of region and shows that it is possible to return lost habitats to nature.

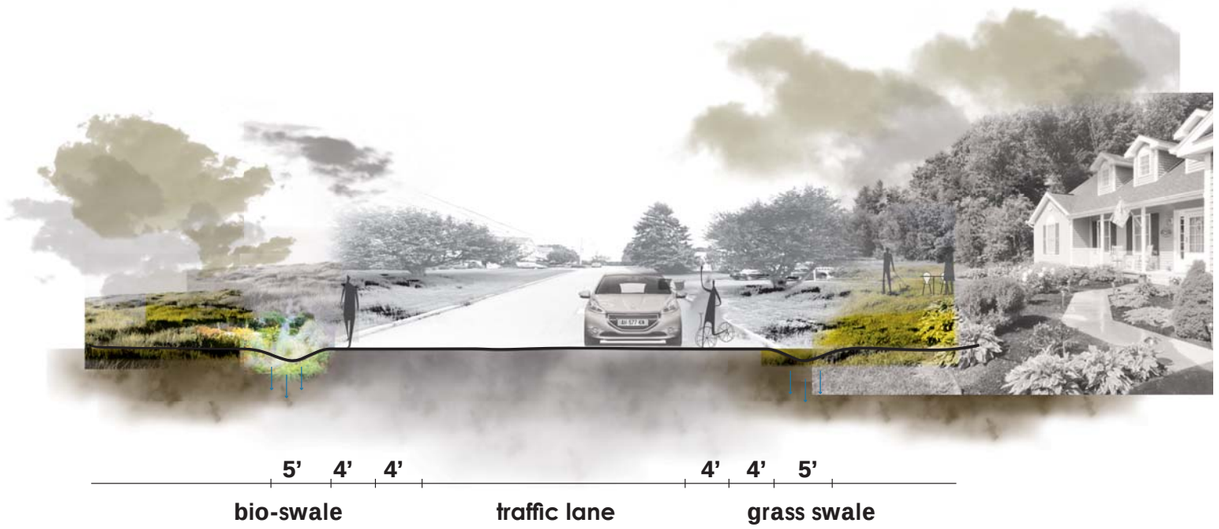
Mixed-use and Integrated Urban Development: The proposal seeks to take advantage of the abundance of underutilized building to re-purpose it as mixed-used buildings. Besides, mixed-use and residential components would fundamentally and positively shift how the Framingham Technology Park functions. Mixed-use development would provide desired services and amenities for both future residents and existing employees, including restaurants and pedestrian friendly grounds.

Focus Area I



① to Callahan State Park
② to technology park
③ to Framingham State University
④ overlook

A community greenway that goes along Fox Hill Road is proposed to connect Knox Rail Trail (Pleasant Street) and Callahan State Park. A winding board walk over wetland will lead visitors to an overlook spot that is created near Foss Reservoir.



Above is the section shows how bio-swale and grass swale fit in neighborhood.
Fox Hill Road provides connection between Knox Rail Trail and Callahan State Park. As a residential street, proposed side walk and bike lane would offer direct access for visitors to come to Western Framingham. Bio-swale is designed to collect water from street, as the same time, add aesthetic value to residents' properties. Grass swale is an alternative to reduce velocities and encourage settling and infiltration. Grass swales are an integral part of the Low Impact Development concept and could be used instead of a curb and gutter system.



Case Study: Fish House Cove Nature Walk Park
Location: Camden, Philadelphia
The Park is located at Delaware River with a great amount of wetland. The introduction of park well preserves the natural habitat with social, ecological and educational basis. It is a wonderful place to spend time at weekends. There are a plenty of programs provided at the site including birds watch, fishing, hiking and picnic. Above is a image of the board walk and overlook spot. All the amenities are well designed to increase human occupancy and covey the significance of wildlife protection.

Focus Area II

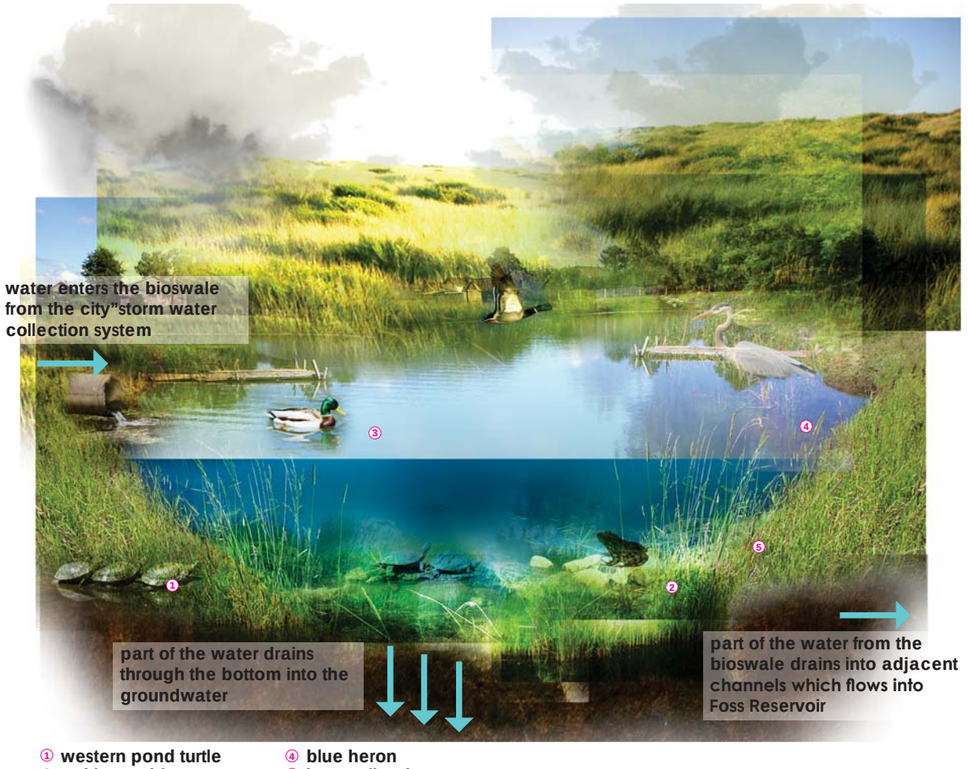


① visitor center
② playground
③ wetland
④ steps to trail
⑤ traffic node

The underutilized building (indicated as 1) is re-purposed as the visitor center. The existing outdoor turf would be redesigned as an outdoor playground for children. The abandoned rail line which is showed as green lines is redesigned as a rail trail greenway, connecting Foss Park to Technology Park. The existing inland pond will serve as a retention pond to address CSO(Combined Sewage Overflow). Steps are embedded in the landform in order to direct visitors to Technology Park Natural trail. The intersection at New York Avenue will renovated with several planting beds.

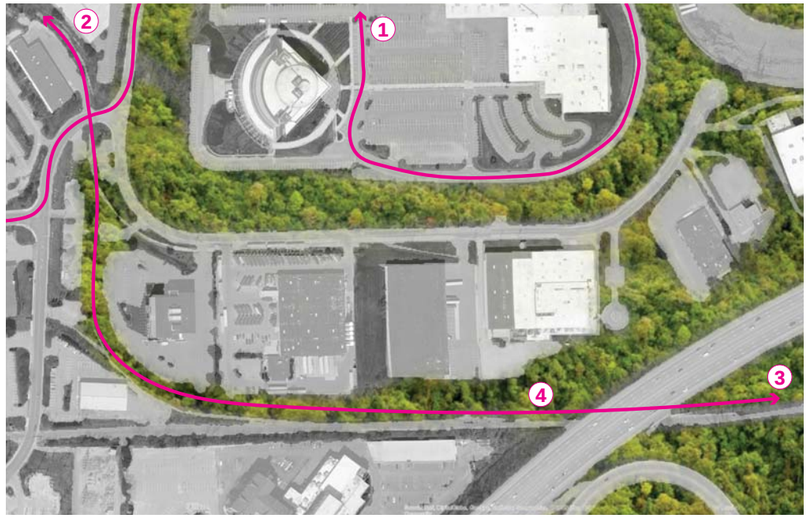


① **Flowerbed** - to separate bike lane and traffic lane
② **Cross walk** - raised cross walk slows down traffic speed to create a safe street experience
③ **Street tree** - to mitigate urban heat island effect and provide shade for passerby



① western pond turtle
② red legged frog
③ mallard duck
④ blue heron
⑤ horsetail rush

Focus Area III

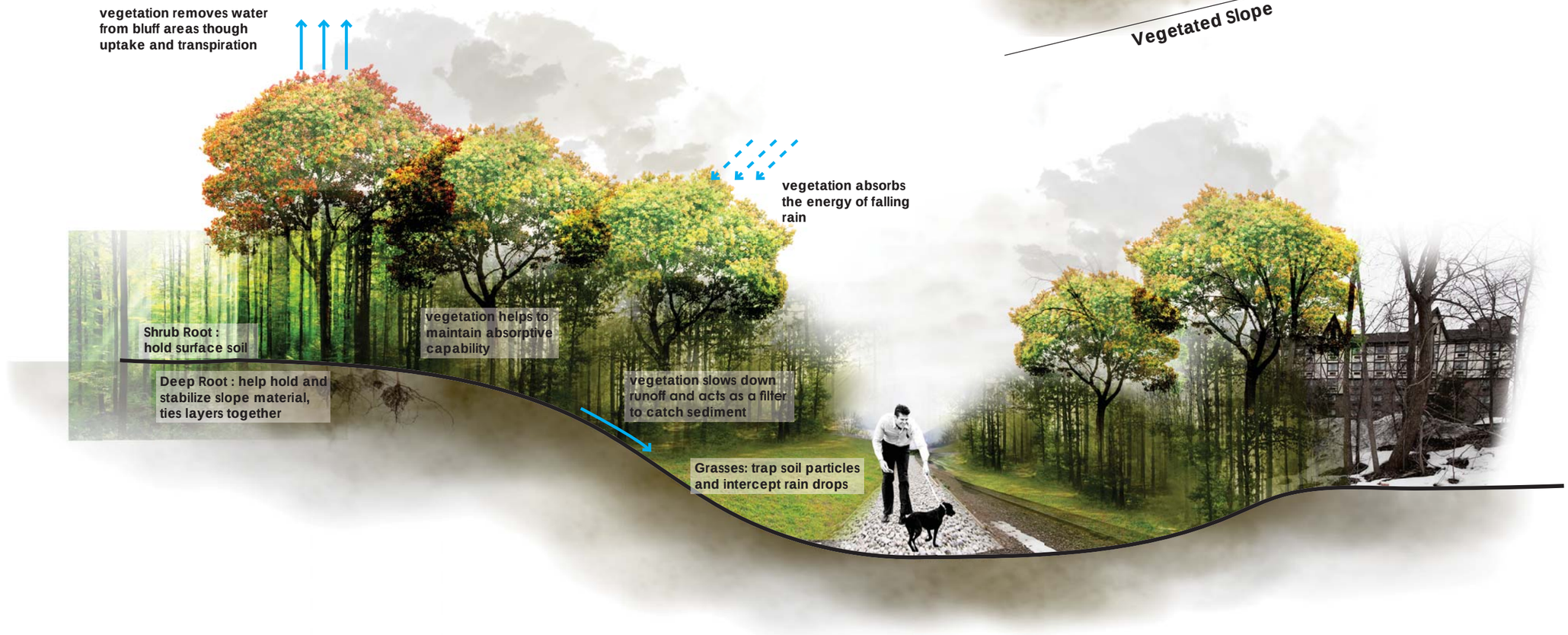


① to restaurant
② to natural trail
③ to Foss Park
④ slope stabilization study

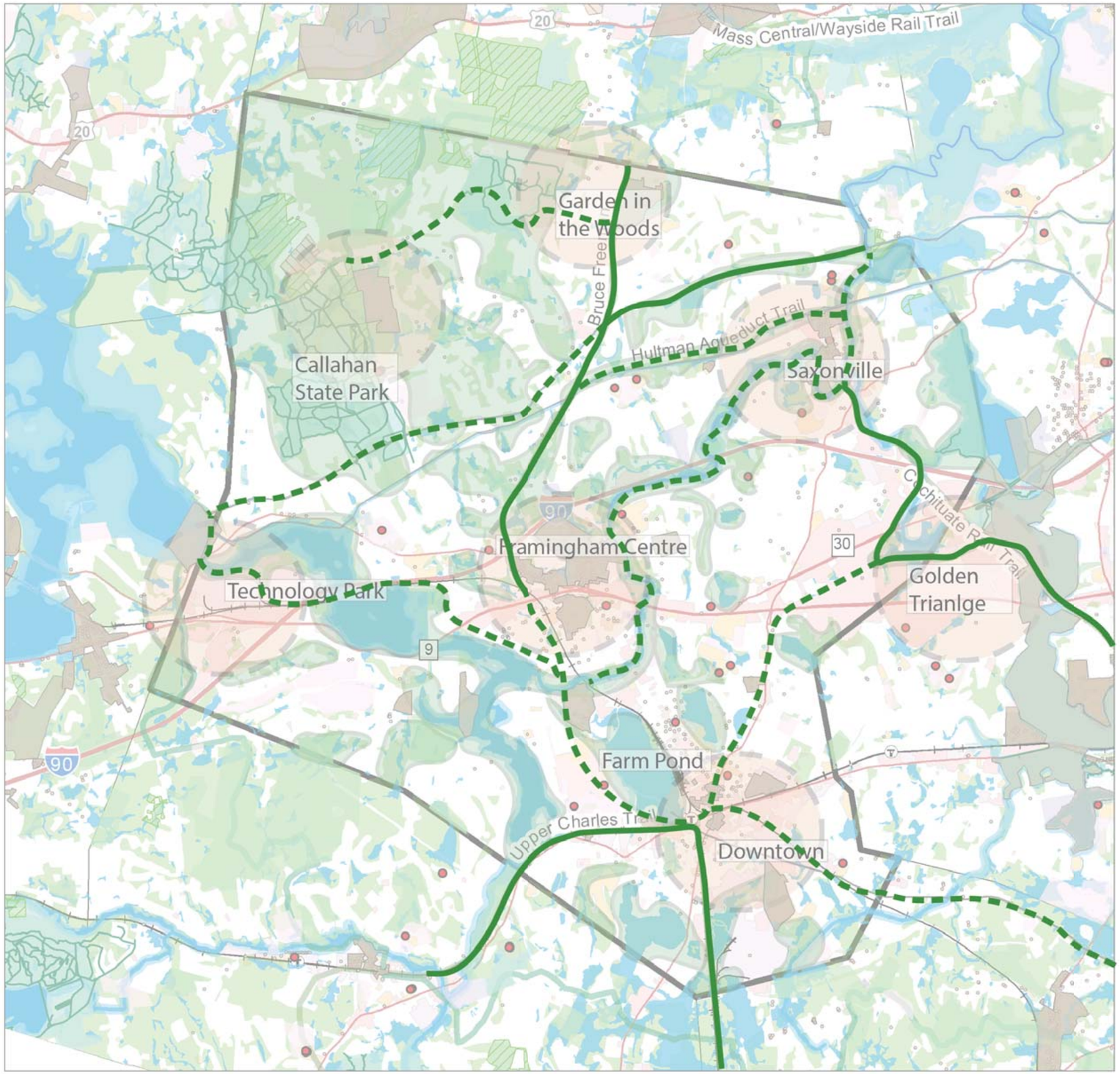
The proposed new restaurant will be located next Bose Headquarter so as to provide some amenities for future residents and current employees. The greenway goes around The Mountain would bring visitors to the top with a splendid view of Foss Reservoir. Besides, permeable paver and bio-swales are encouraged to installed at parking lot to decrease pervious surface, consequently reduces the peak runoff from roof top.

The partially abandoned rail line that goes underneath Interstate 91 is re-purposed as a rail line greenway. According to the site visit, the existing slope along the rail line is under poor condition with drain issue. Vegetation would be one of the best solution to stabilize the slope, at same time, control and mitigate the erosion issue. Moreover, there is clear trace of wildlife along the rail line. Additionally, vegetated slope would serve as a natural habitat to better protect the species in the cityscape.





Composite Greenway Plan



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