

MARTY SENDER GREENWAY RESTORATION PHASE 2
MASSTRAILS GRANT APPLICATION PROPOSAL

CHARLES RIVER
RESERVATION



CITY OF NEWTON
METROPOLITAN DISTRICT
COMMISSION

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MARTY SENDER GREENWAY RESTORATION

Project Narrative

The Marty Sender Greenway is a 3700-foot-long section of the Blue Heron Trail, aptly referred to as the 'Riverwalk'. Named for the journalist and environmental activist Marty Sender, this exciting project will allow a heavily used section of the Blue Heron Trail along the Charles River to adapt to increasingly frequent flooding and allow universal access to numerous, multi-seasonal recreational opportunities and scenic vistas of the Charles to many Newtonians, residents of the Commonwealth and visitors from beyond. The current trail is generally level, with some areas requiring minor grading to ensure accessibility. Overall, grades within this project are appropriate to satisfy MAAB Regulations (521 CMR) with minimal regrading required. The existing trail is widely popular and loved by many residents of Newton and adjacent communities. However, the trail's popularity, coupled with changing hydrology, have rendered this portion of the riverfront trail inaccessible and impassible in some sections. It is the city's goal to convert the popular trail into a pathway network that is inclusive to all users. With the help of this MassTrails Grant, the city will be able to design and install a second phase of improvements along 1200 feet of the Marty Sender Greenway which will include a 550-foot-long, 12-foot wide, fully accessible boardwalk. This project will complement the Phase 1 work – 1320-feet of accessibility improvements on the northern end of the trail – to be completed by the city in the Spring of 2022.

Phase 1 of the Marty Sender Greenway Restoration Project, funded by the City of Newton in 2020 using Community Development Block Grant (CDBG) funds, was delayed by the COVID-19 pandemic, but has been publicly bid for construction and will be completed in the Spring of 2022. Phase 1 will upgrade the existing degraded path by creating a 10-foot-wide tread of stabilized stone dust with 1-foot-wide tactile shoulders. Phase 1 restoration construction bid came in at just over \$66,000 to make the primary treadway and supporting wooded outlooks wheelchair accessible using stabilized stone dust. The city has designed and will manage construction for this phase.

Phase 2 of the Marty Sender Greenway Restoration Project will upgrade 1200-feet of the existing, degraded, shared-use path. The goal is to complete accessibility and safety improvements over the entirety of this 3700-foot-long section of the Blue Heron Trail that passes through parkland owned by the City of Newton. The phase 2 project will improve and enhance the hydrologic connection between the river and the wetlands within the park, expand wildlife habitat and vegetated wetland, and reestablish natural ebb and flow within the flood plain. The city is also planning to replace a sewer line through portions of the limit of work for Phase 2 in the Spring and Summer of 2022. The Parks, Recreation & Culture Department will be coordinating design of the boardwalk very closely with the city's DPW and their consultant to ensure both infrastructure and pathway can coexist.

MARTY SENDER GREENWAY RESTORATION

Project Narrative Cont'd

Given the current conditions, the ever-worsening flood events secondary to climate change, and anticipated increased use this trail with the construction of the Commonwealth Avenue Carriageway scheduled for implementation in 2023-24, there is a critical need to complete these upgrades in the next two years.

The grant will fund the work on the 1200-foot (Phase 2) of the trail starting at the entrance on Commonwealth Ave to the start of the Phase 1 work at the Chaske Rd access road. The design work for this phase will include a topographic survey, environmental permitting, wetland and flood zone flagging, geotechnical studies, final design, and construction administration. The design and reconstruction of the existing shared use path will be consistent with Mass Highway Standards. The scope of this work includes:

- (1) conversion of the higher portions of the unimproved trail tread into an ADA compliant surface with tactile shoulders,
- (2) installation of a 500-foot-long boardwalk above the flood elevation,
- (3) minor grading to provide compensatory flood storage capacity and to remove the existing trail “berm” that has for decades blocked the flow of stormwater and disconnected wetlands from the floodplain; and
- (4) converting roughly 3000 SF of existing turf into a native wetland area.

Two-thirds of the Phase 2 portion of the shared use trail abuts wooded wetlands and traverses the FEMA 100-year flood elevation in this area at 38-feet-NAVD88. Approximately 550-feet of the path are currently below that level and flood frequently. Flooding conditions make the existing trail impassable after significant rain events forcing users to seek alternate routes through abutting woodlands and construct makeshift “boardwalks”. Because federal wetland regulations discourage and/or prohibit the use of fill to address flooding conditions, the construction of a 500 -foot-long boardwalk will be a required measure to ensure the project does not negatively impact the area’s hydrology. The balance of the 700 feet of trail outside the flood zone will be constructed using the material specifications developed for the Phase 1 work.

This existing condition is in part due to the original construction of the trail, formerly a dirt road known as Forest Grove, present on the 1917 maps of the area. It appears construction introduced significant fill to raise the height of the trail leading to obstruction of flow. Much of the current flood water represents runoff from Commonwealth Ave. and the playing field above the trail, compounded by a high-water table, approximately 3-feet below grade, reflecting the approximate water level in the adjacent Charles River. Poor drainage conditions are further exacerbated by compacted, organic soil within the turf area at Lyons Park.

MARTY SENDER GREENWAY RESTORATION

Project Narrative Cont'd

Determining the exact length of the boardwalk needed will require a survey extending the date from the sewer installation. This analysis must reconcile the varied elevations: the city's Lidar 1-foot contours, FEMA NACD88, and the existing sewer survey. This is necessary to set the lower level of the boardwalk above the FEAM 100-year-flood level to limit the extent of compensatory flood storage. Fill will be required to bring the trail grade to the level of the boardwalk. A portion of this fill will require compensatory flood storage; the cut material will be removed from beneath the new boardwalk at the current 'berm' created by fill added to originally construct the trail. This will bring back free flow of flood waters from the park to the river and reestablish wetland conditions which will be replanted with native wetland plant species.

The selection of the optimal system used for footings to support the boardwalk will require geotechnical analysis; the likely options for supporting the stringers include diamond piers or helical piles. The options considered for the structural framing of the boardwalk included pressure treated wood or protruded fiberglass beams; PT was chosen because of the lower cost and eventual ease of replacing. Decking must meet ADA and safety requirements and be easy to maintain. Options include composite wood decking or protruded fiberglass grate systems with ≤ 0.5 -inch openings. The anticipated height of the boardwalk is less than 30-inches above grade below and will only require a curb with a minimum of 2.5 inches in height. It is not anticipated that a guardrail will be required.

The restoration process offers an opportunity - environmental and aesthetic- to convert a significant area of existing grass to its original wetland state to promote a free and natural hydrologic connection to Ware's Cove. This goal would be achieved by the removal of the existing path material under the boardwalk which obstructs water from flowing unimpeded into the wetlands and the river. This restoration process will include revegetation with native wetland plants, with the added benefit of reducing the city's maintenance costs to mow this area. This aligns with the City's goals to increase habitats for native pollinators.

For the reasons stated above, the City of Newton is excited to bring this project proposal for consideration as a 2022 Mass Trails Grant recipient. The project will allow the heavily used section of the Blue Heron Trail along the Charles River to adapt to increasing flooding and provide universal access to an array of multi-seasonal recreational opportunities and views of the Charles to many Newtonians, and residents of the Commonwealth.

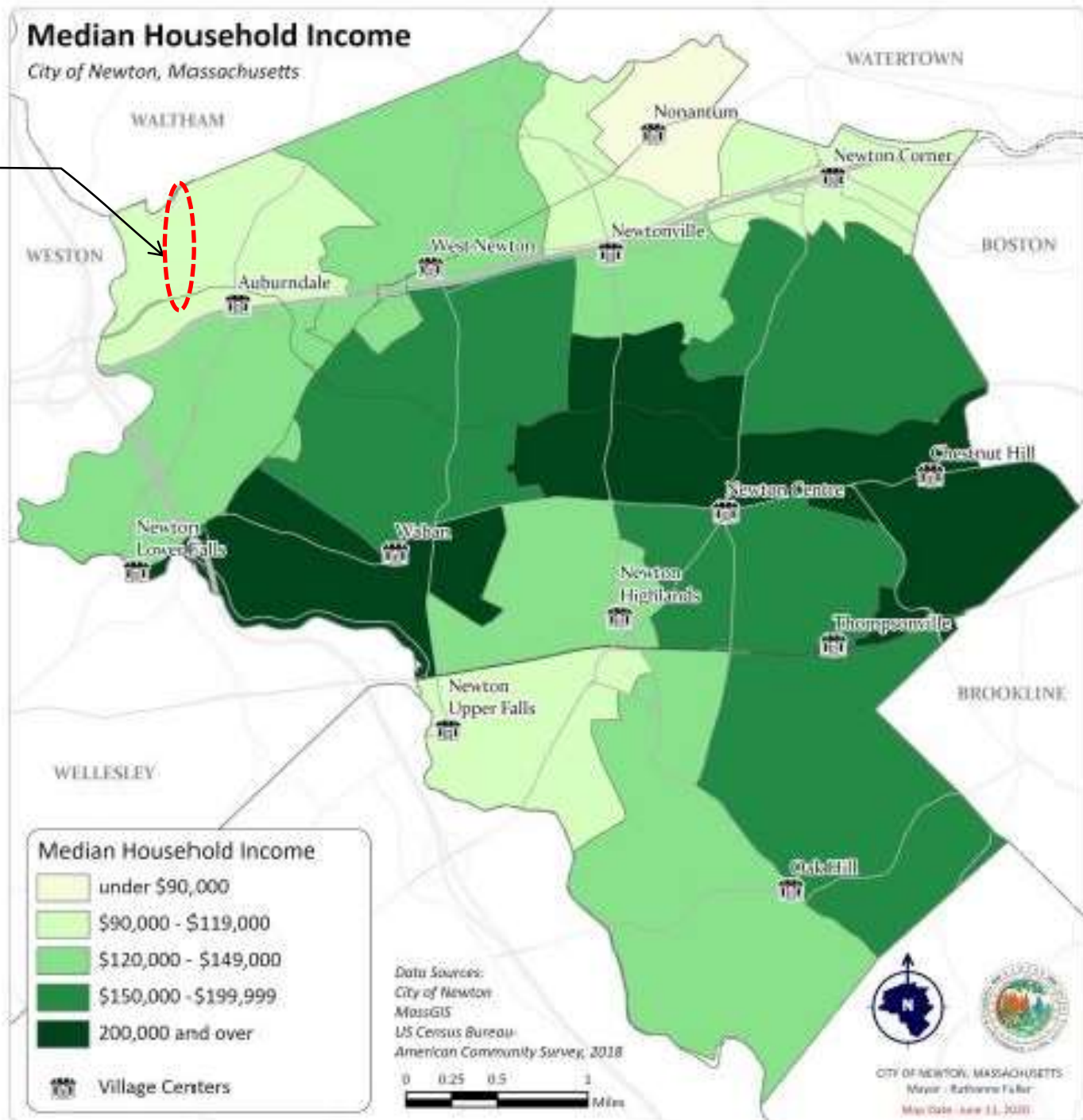
MARTY SENDER GREENWAY RESTORATION Regional Trail Context



MARTY SENDER GREENWAY RESTORATION

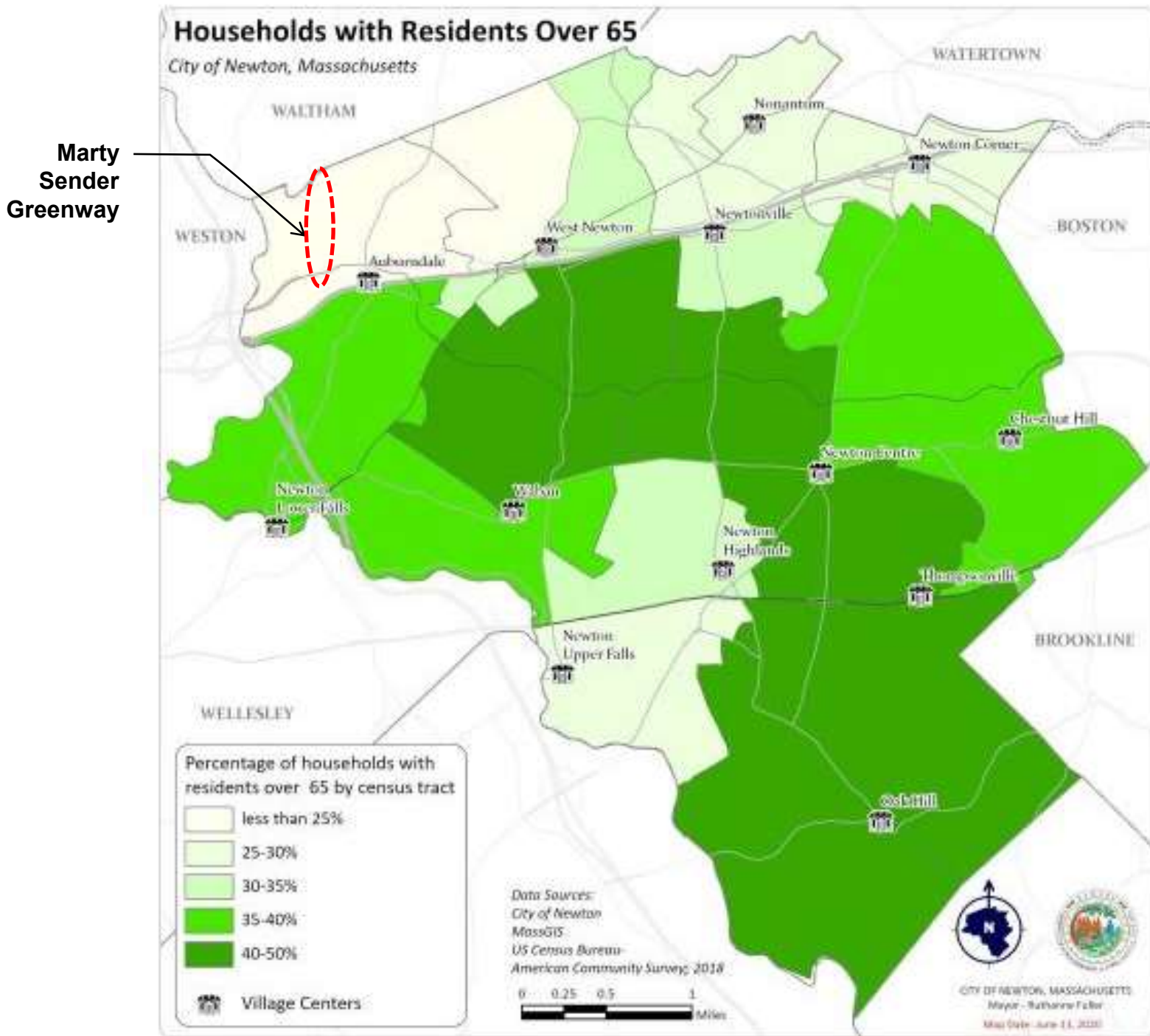
Local Context – Economic Composition

Marty Sender Greenway



MARTY SENDER GREENWAY RESTORATION

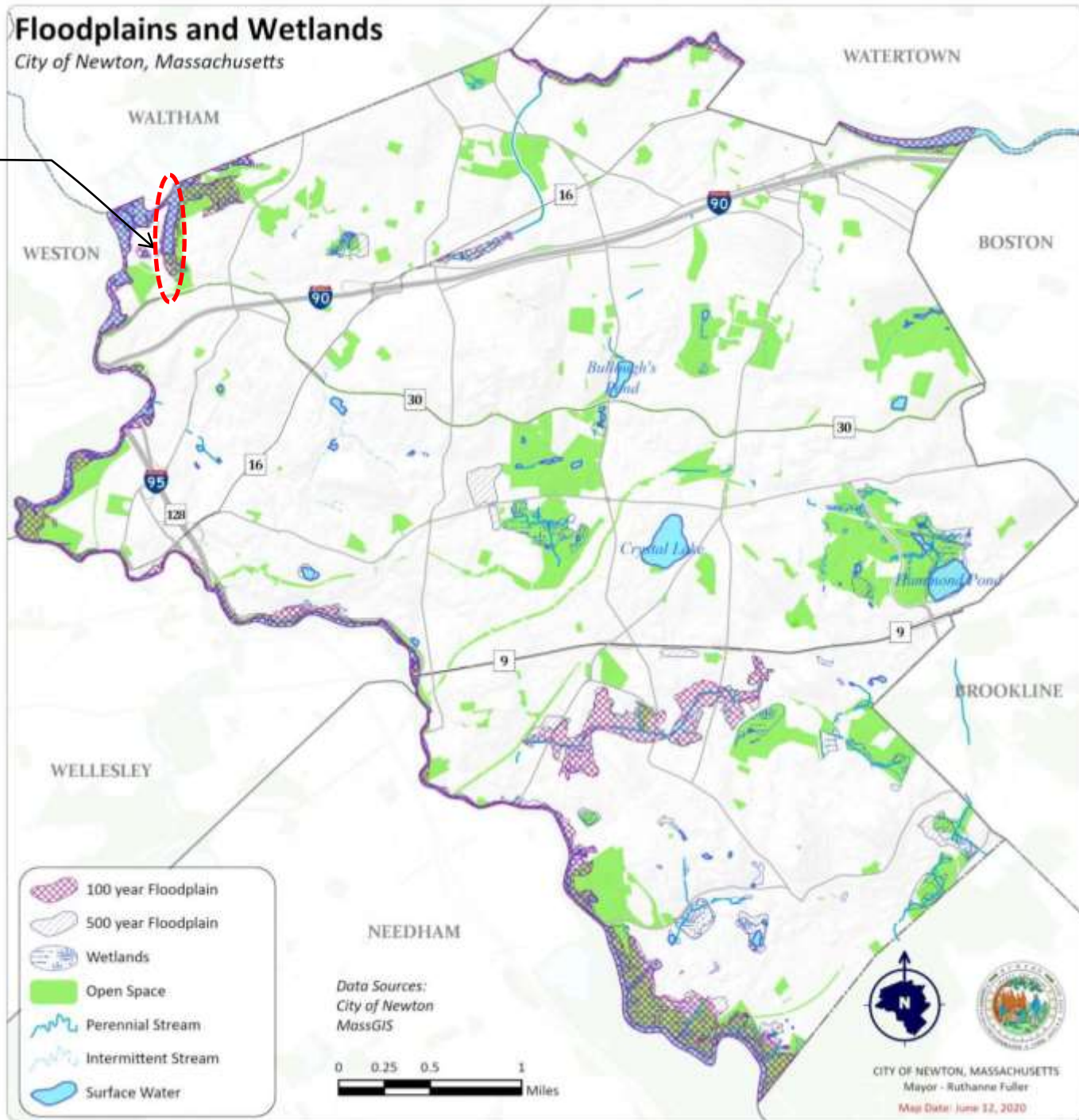
Local Context – Age distribution



MARTY SENDER GREENWAY RESTORATION

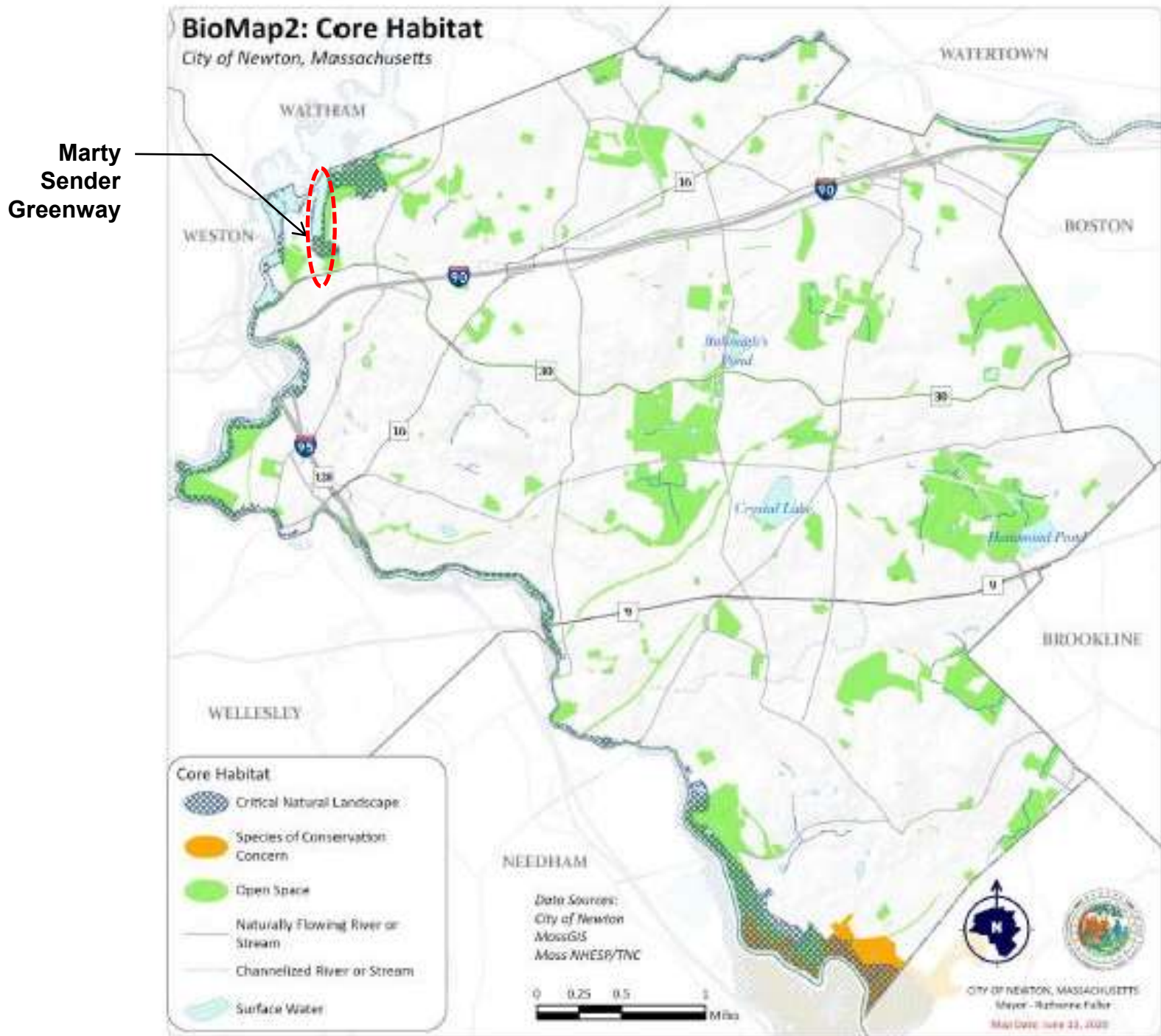
Local Context - Hydrology

Marty Sender Greenway

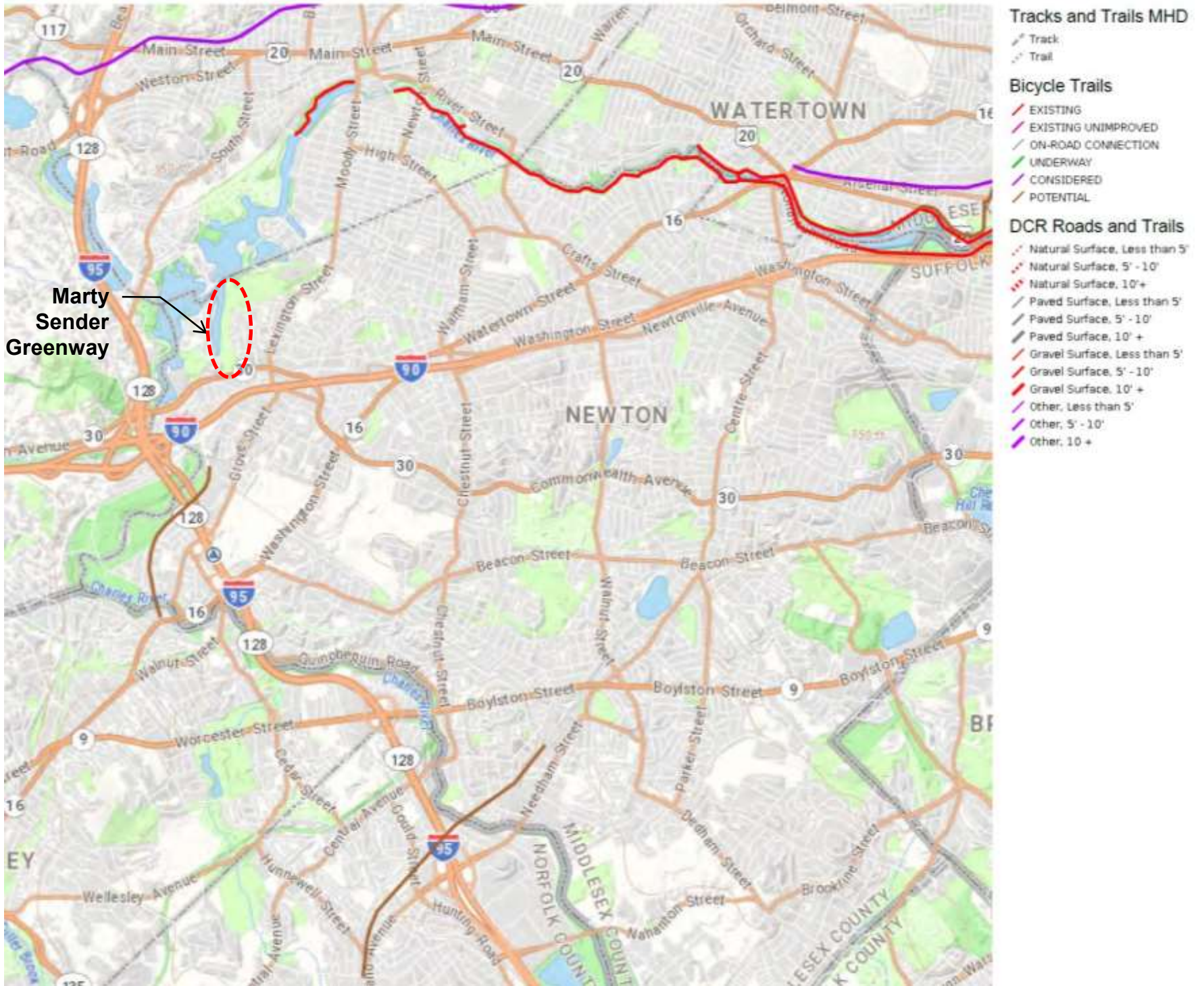


MARTY SENDER GREENWAY RESTORATION

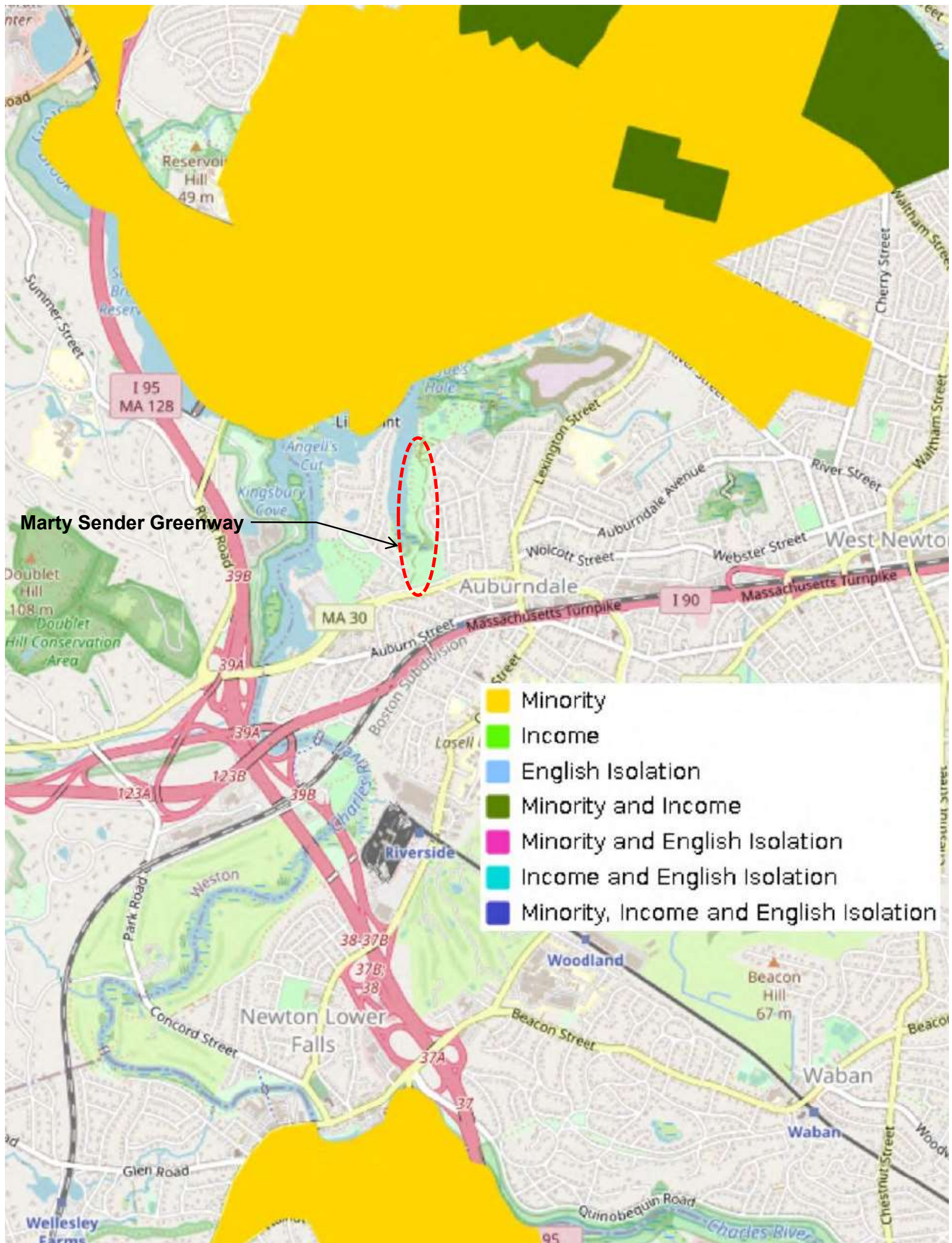
Local Context -- Habitats



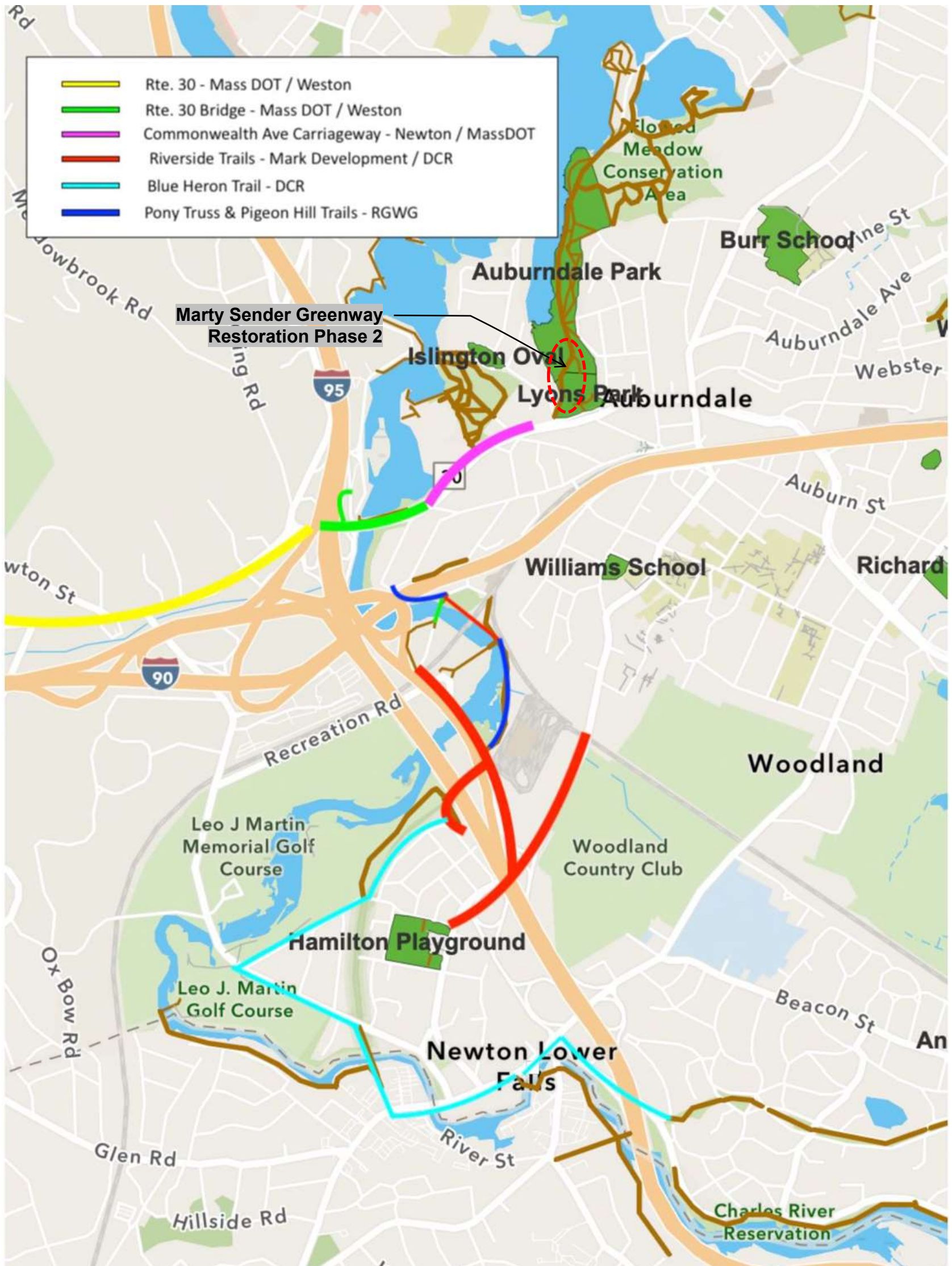
MARTY SENDER GREENWAY RESTORATION Phase 2 and The Blue Heron Trail



MARTY SENDER GREENWAY RESTORATION Phase 2 and Environmental Justice Communities

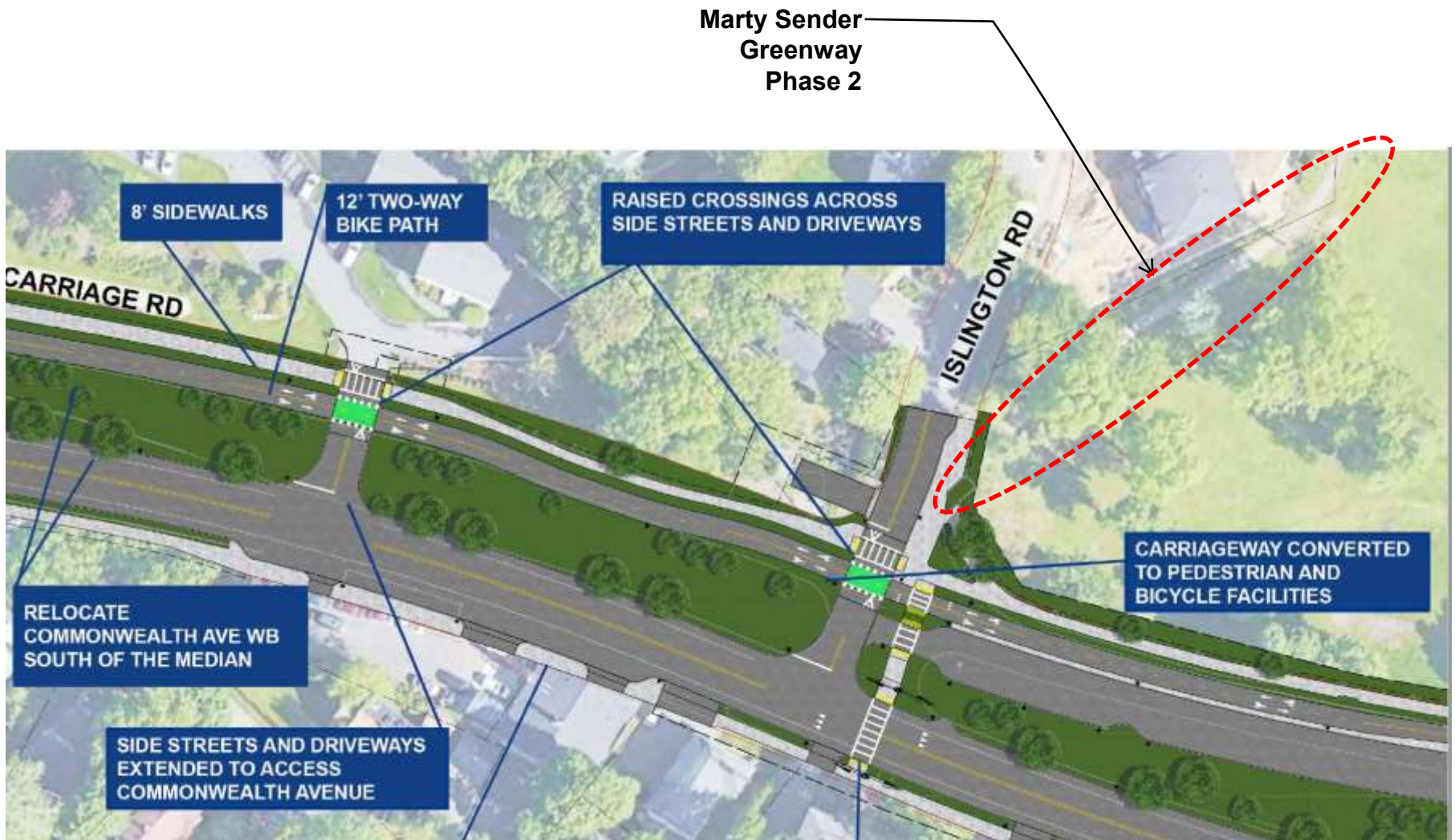


MARTY SENDER GREENWAY RESTORATION Phase 2 Adjacent Projects

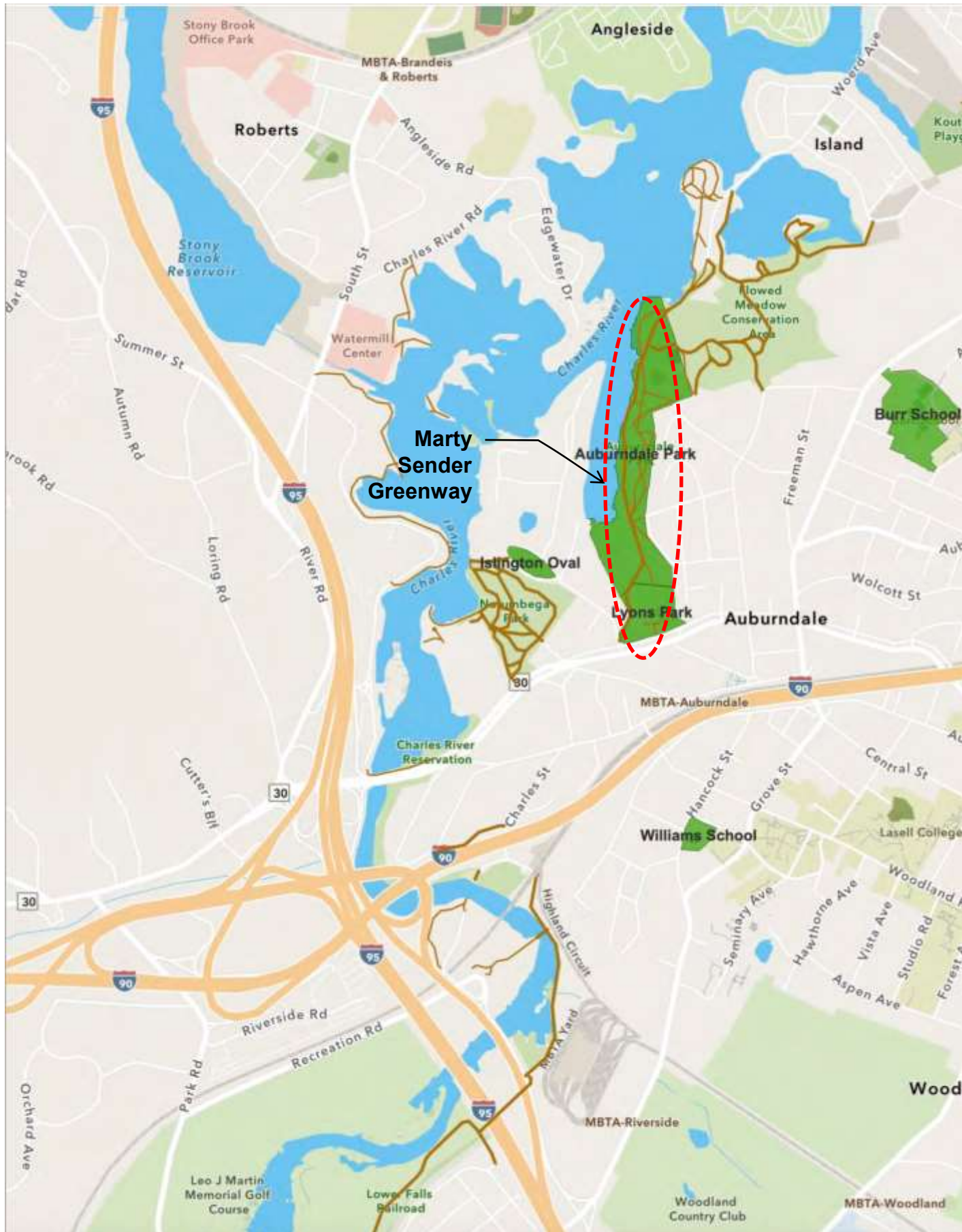


MARTY SENDER GREENWAY RESTORATION

Adjacent Projects – Commonwealth Avenue Carriageway



MARTY SENDER GREENWAY RESTORATION Phase 2 Local Parks and Trails



MARTY SENDER GREENWAY RESTORATION

Project Phasing Approach



The Newton Parks, Recreation & Culture Department (PRC), partnered with the Planning Department, the Commission on Disabilities, the Riverside Greenway Working Group, the Solomon foundation and the Newton Conservators has identified the Marty Sender Greenway with great potential for incorporating an all-person's trail in Newton. The restoration will be multi-phased, implemented over several years.

Project Scope:

Overall Scope of trail improvements consistent with Mass Highway shared-use trail criteria extends from the park's Field House through Lyons Park to Commonwealth Avenue, a total distance of approximately $\frac{3}{4}$ Miles or 3,700 feet.

Phase 1: ● - - - - ●

From the field house to the intersection aligned with Chaske Avenue, 1320 feet including improved access to 4 outlook areas facing the cove. To be completed Spring 2022.

Phase 2: ◆ - - - - ◆

From the Chaske Avenue intersection to Commonwealth Avenue, 1200 feet traversing the FEMA 100-yr flood plain at the rear of Lyons Park, requiring the installation requires the installation of 500-feet of boardwalk. 2022 MassTrails Grant, with construction in 2023.

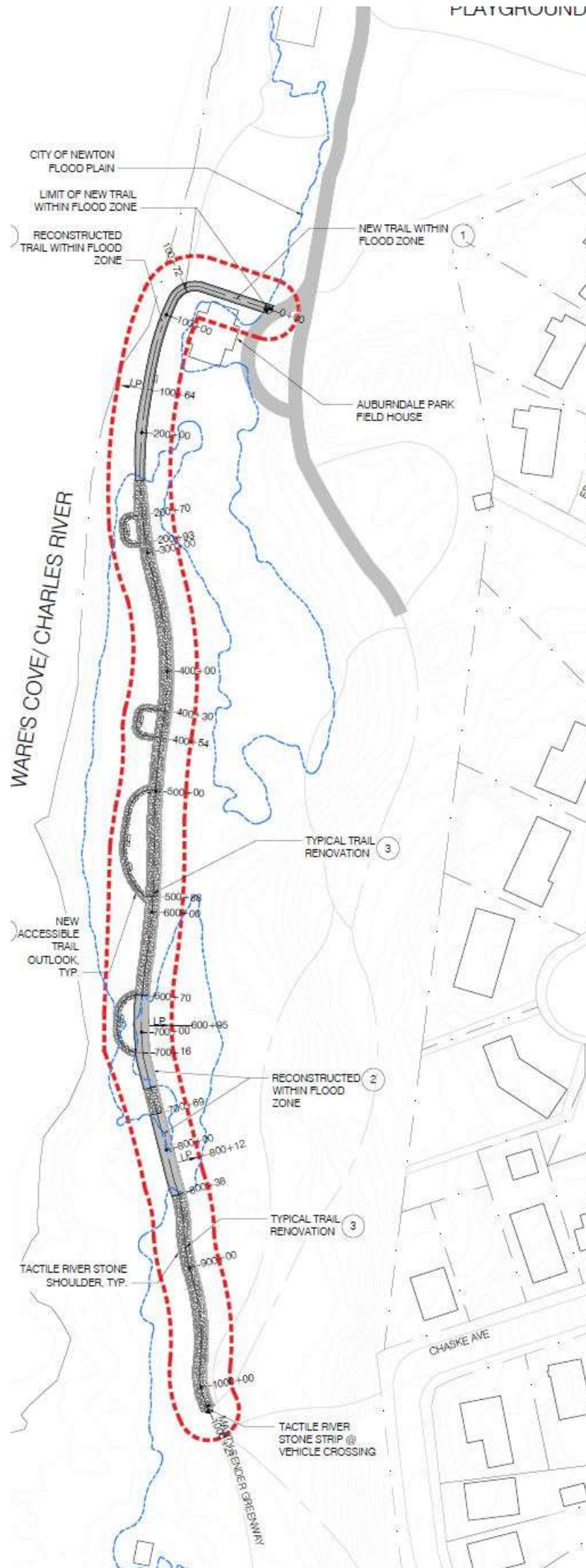
Phase 3: ● - - - - ●

From the Chaske Avenue intersection to the Waltham line.

- resurfacing 2000 feet thru the playground
- stabilized stone dust bike route (large dots) 530 feet.
- Pedestrian river path (small dots) 632 feet

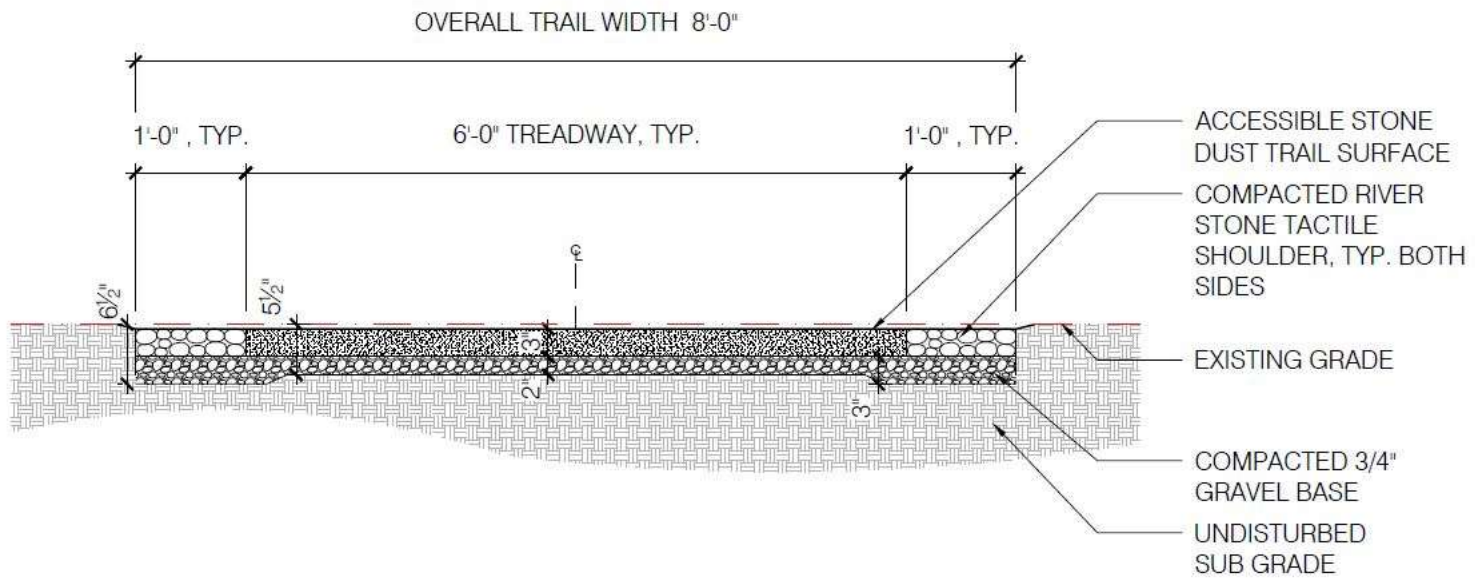
MARTY SENDER GREENWAY RESTORATION

Phase 1 Plan Overview



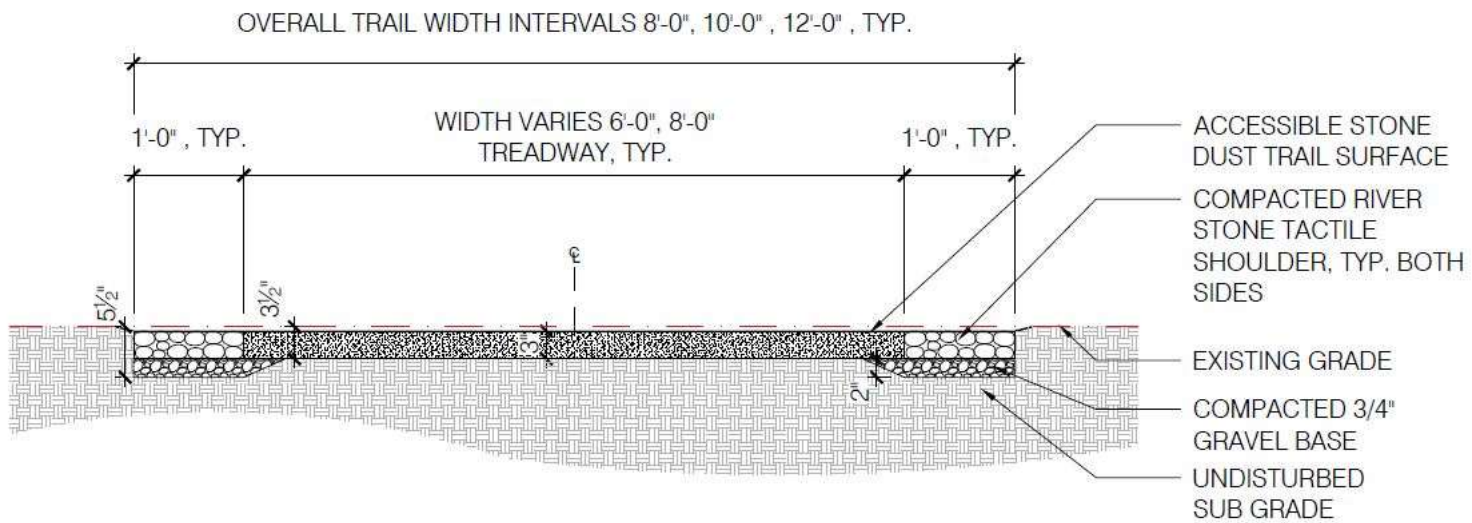
MARTY SENDER GREENWAY RESTORATION

Phase 1 Plan Typical Trail Sections



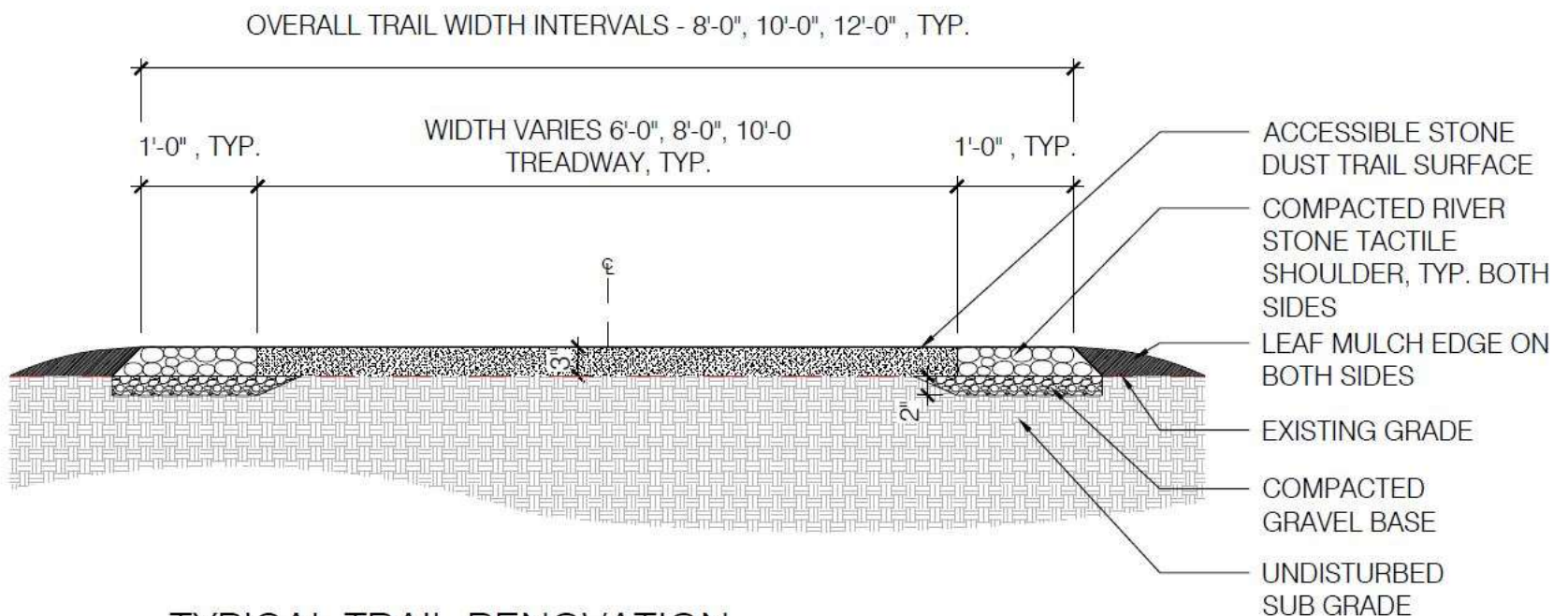
NEW TRAIL WITHIN FLOOD ZONE

SCALE: 3/4" = 1'-0"



RECONSTRUCTED TRAIL WITHIN FLOOD ZONE

SCALE: 3/4" = 1'-0"

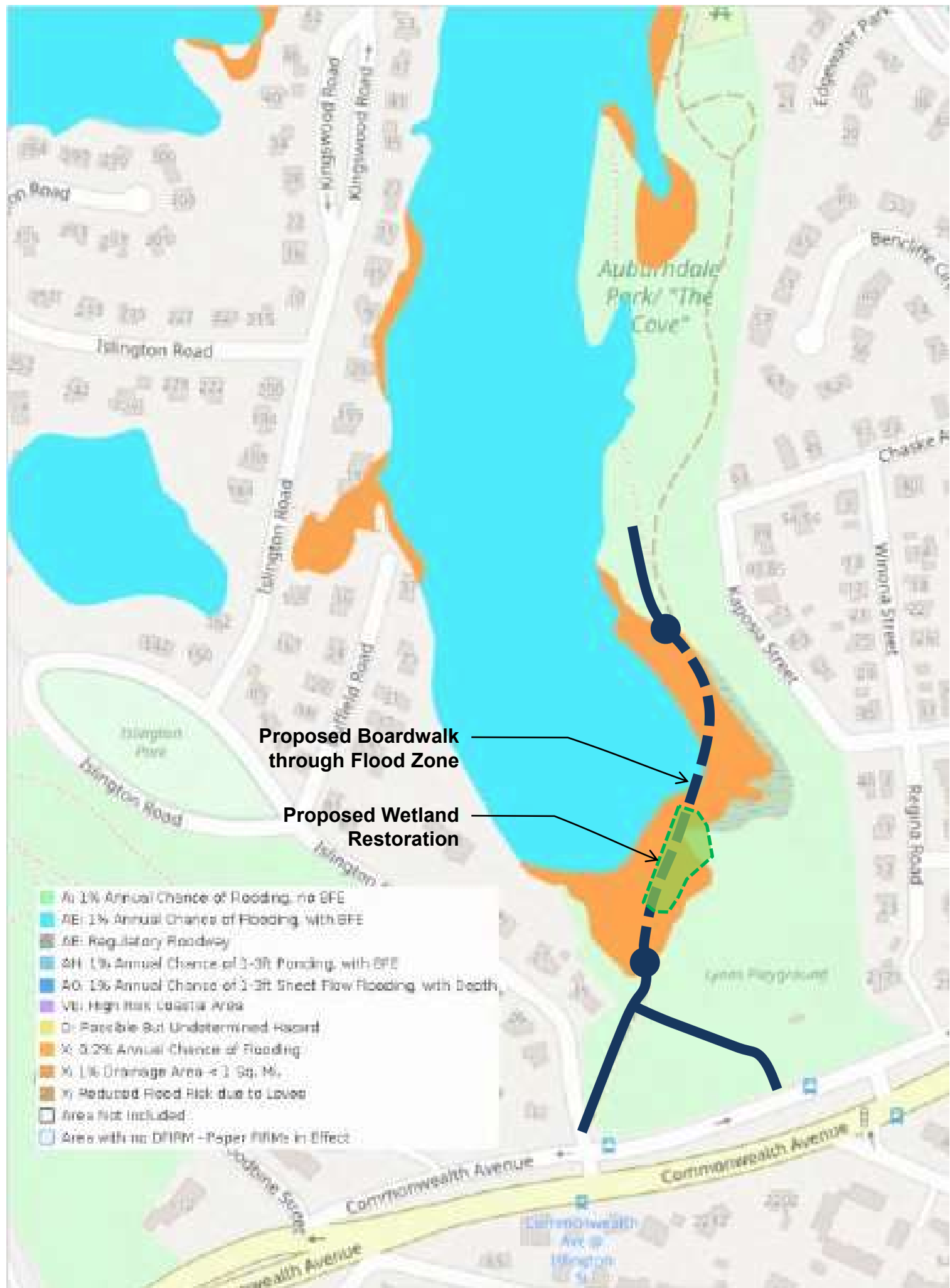


TYPICAL TRAIL RENOVATION

SCALE: 3/4" = 1'-0"

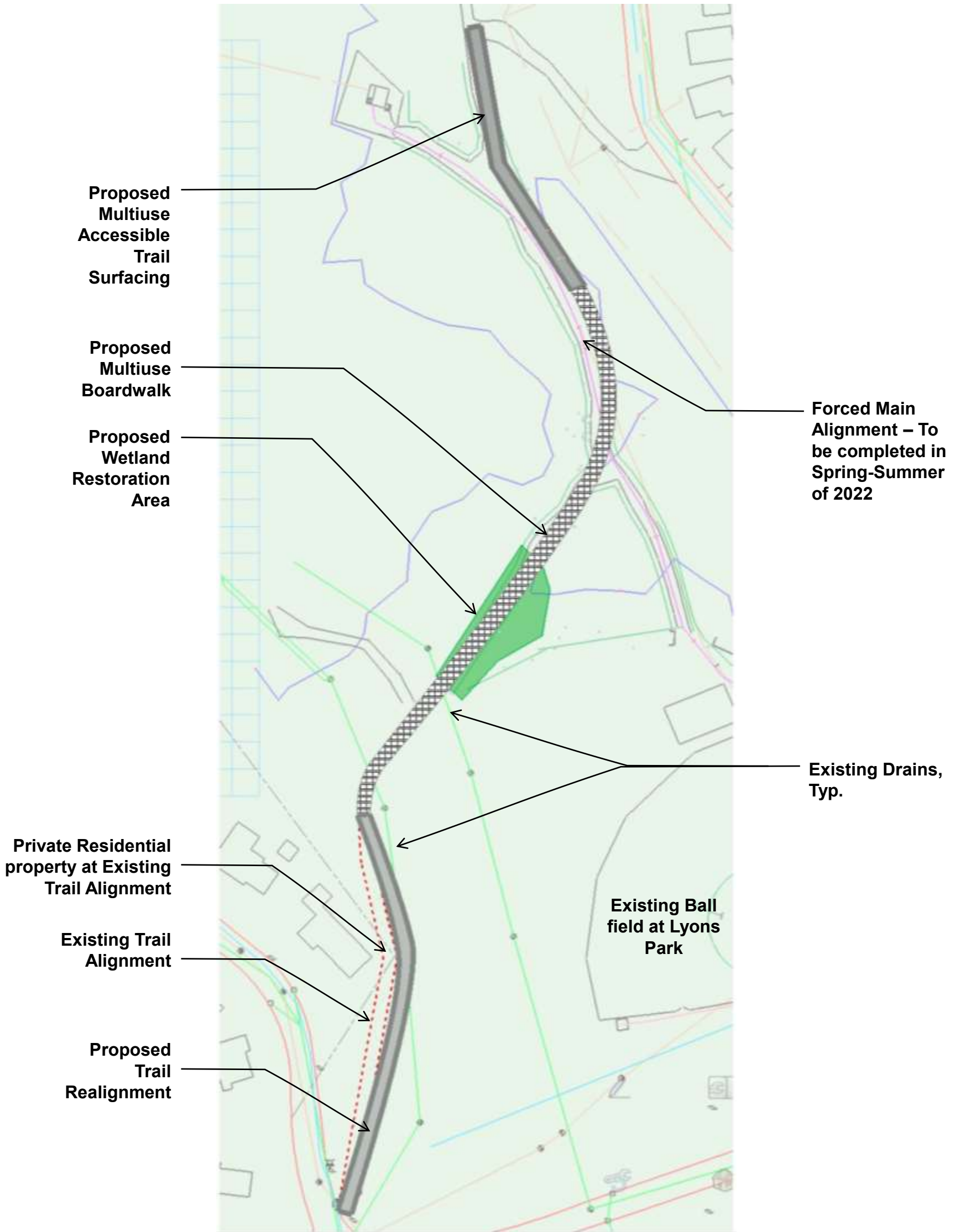
MARTY SENDER GREENWAY RESTORATION

Phase 2 Plan Overview



MARTY SENDER GREENWAY RESTORATION

Phase 2 Plan Overview

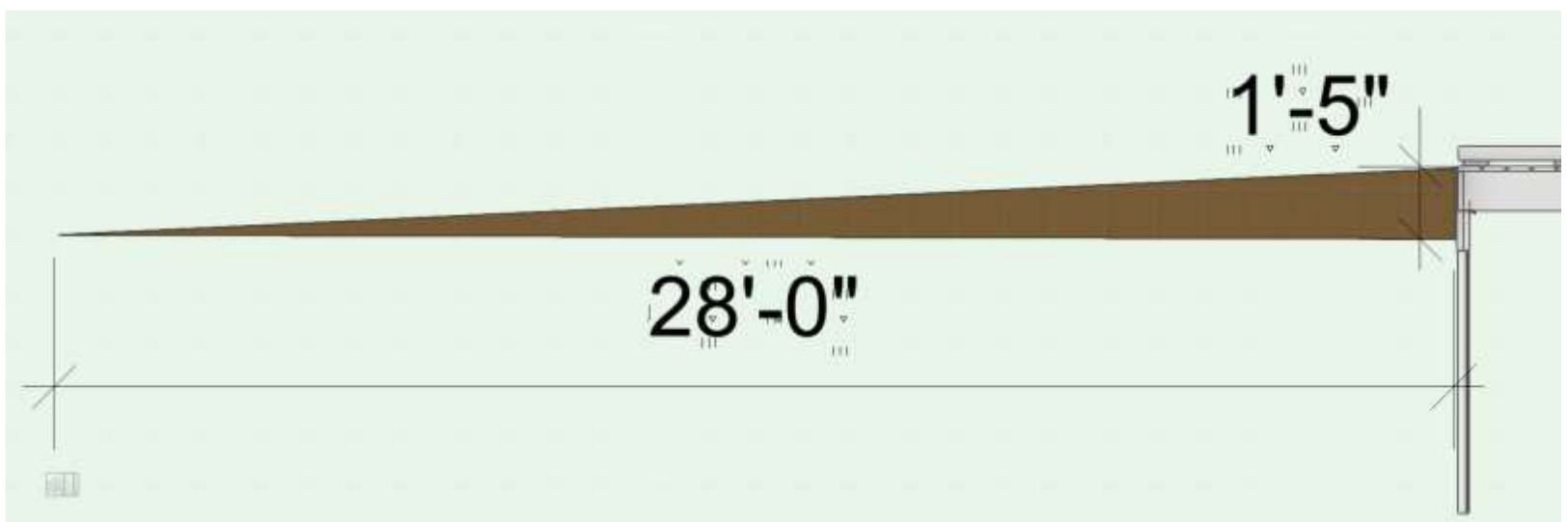


MARTY SENDER GREENWAY RESTORATION

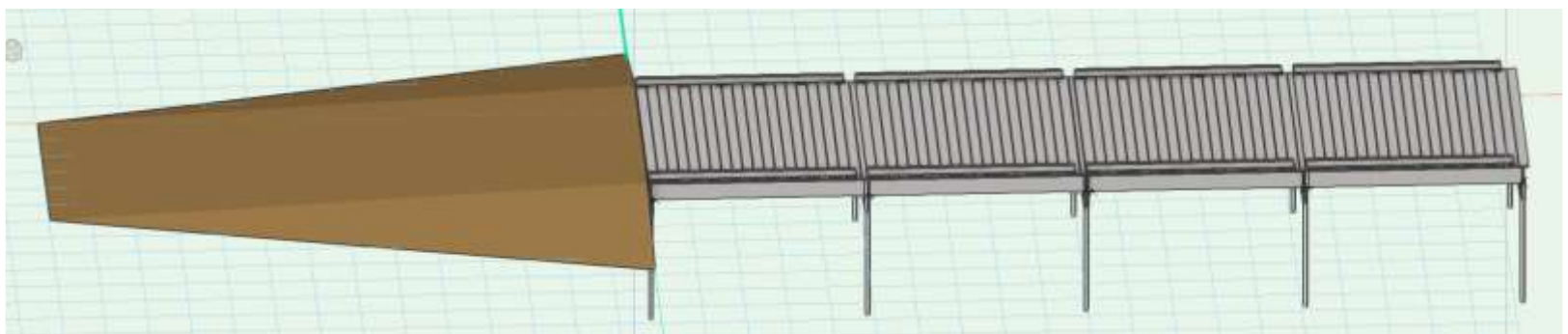
Phase 2 – Conceptual Boardwalk Elevation Relative to FEMA 100-Year Flood Elevation



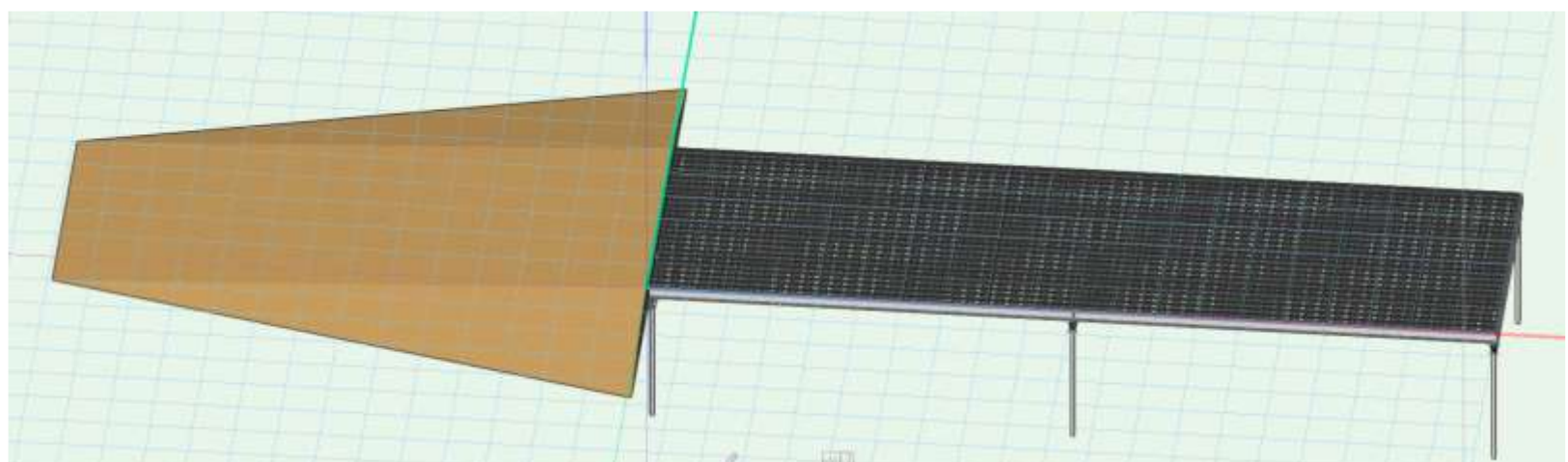
Height of boardwalk structure set above FEMA 110-year flood level



Boardwalk ramp from trail existing grade to boardwalk tread 17" minimum ramp length 28 feet



Trex decking



Minimesh pultruded fiberglass decking – 40% light transmission

MARTY SENDER GREENWAY RESTORATION

Phase 2 –Boardwalk Design Ideas and Considerations



Example Boardwalks on Diamond Piers or Helical Piles

MARTY SENDER GREENWAY RESTORATION

Phase 2 – Conceptual Boardwalk Footings, Decking and structure considerations

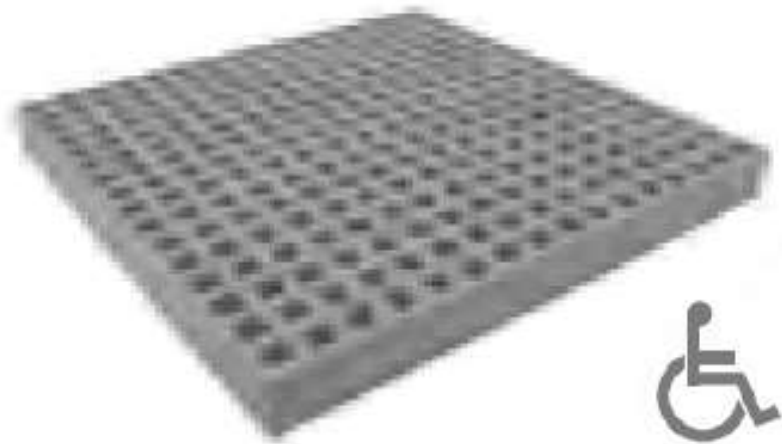
1.5" x 0.75" x 0.75"

Square Grid

1.5" Thick

44% Open

Minimesh



Composite Decking



Diamond Piers



Helical Piles

MARTY SENDER GREENWAY RESTORATION

Phase 2 – Wetland restoration considerations



Removal of fill below the boardwalk and adjacent field (sod), which was added to build the original trail will remove the existing obstruction to drainage restoring wetland continuity and an opportunity f to restore native plants. This cut provide compensatory flood storage to match the fill added for ramps and tread restoration elsewhere on the trail.

Marty Sender Path - Phase 2 Wetland Planting

PLANT MATERIAL QUANTITY SUMMARY

Species	Common	WIS	Hgt	Spac"	Sun	Flower	LSP Flat Size	Source	Cost	#	Total
<i>Acslepius incarnata</i>	Swamp milkweed	OBL	3-5'	36	F,PS	J-A	50	Northcreek	\$ 77.00	1	\$ 77.00
<i>Aster novae-angeliae</i>	New England Aster	FACW	3-5'	30	F,PS	A-O	50	Northcreek	\$ 71.50	1	\$ 71.50
<i>Caltha palustris</i>	Yellow marsh marigold	OBL	8-12"	18	F,PS	M-Ap	50	Northcreek	\$ 68.50	3	\$ 205.50
<i>Eupatorium dubium</i> 'Little Joe'	Costal plain joe pye weed	FACW	4-5'	30	F,PS	J-A	32	Northcreek	\$ 54.94	1	\$ 54.94
<i>Lobelia cardinalis</i>	Cardinal Flower	FACW+	2-5'	15	F,PS	J-A	50	Northcreek	\$ 71.50	2	\$ 143.00
<i>Matteucia striathiopteris</i>	Ostrich fern	FACW	3-4'	30	F,PS	N/A	32	Northcreek	\$ 69.55	1	\$ 69.55
<i>Mertensia virginica</i>	Virginia Bluebells	FACW	18-24"	18	F,PS	Ap-May	32	Northcreek	\$ 107.36	3	\$ 322.08
<i>Osumunda cinnamomea</i>	Cinnamon fern	FACW	3-5'	30	F,PS	N/A	32	Northcreek	\$ 78.65	1	\$ 78.65
<i>Osumunda reaglis v. spectabalis</i>	Royal fern	OBL	4-6'	30	F,PS	N/A	32	Northcreek	\$ 78.65	1	\$ 78.65
<i>Rubekia lanciniata</i>	Cutleaf coneflower	FACW	5-8'	24	F	J-S	50	Northcreek	\$ 68.75	1	\$ 68.75
<i>Solidago semipervirens</i>	Seaside goldenrod	FACW	3-5'	30	F,PS	S-O	50	Northcreek	\$ 68.50	1	\$ 68.50
				26.5			674				\$ 1,238.12
Number of plants needed with a mean spacing 26.5" to plant 3000 sf above boardwalk		600	Aver x 0.2				Total plants				