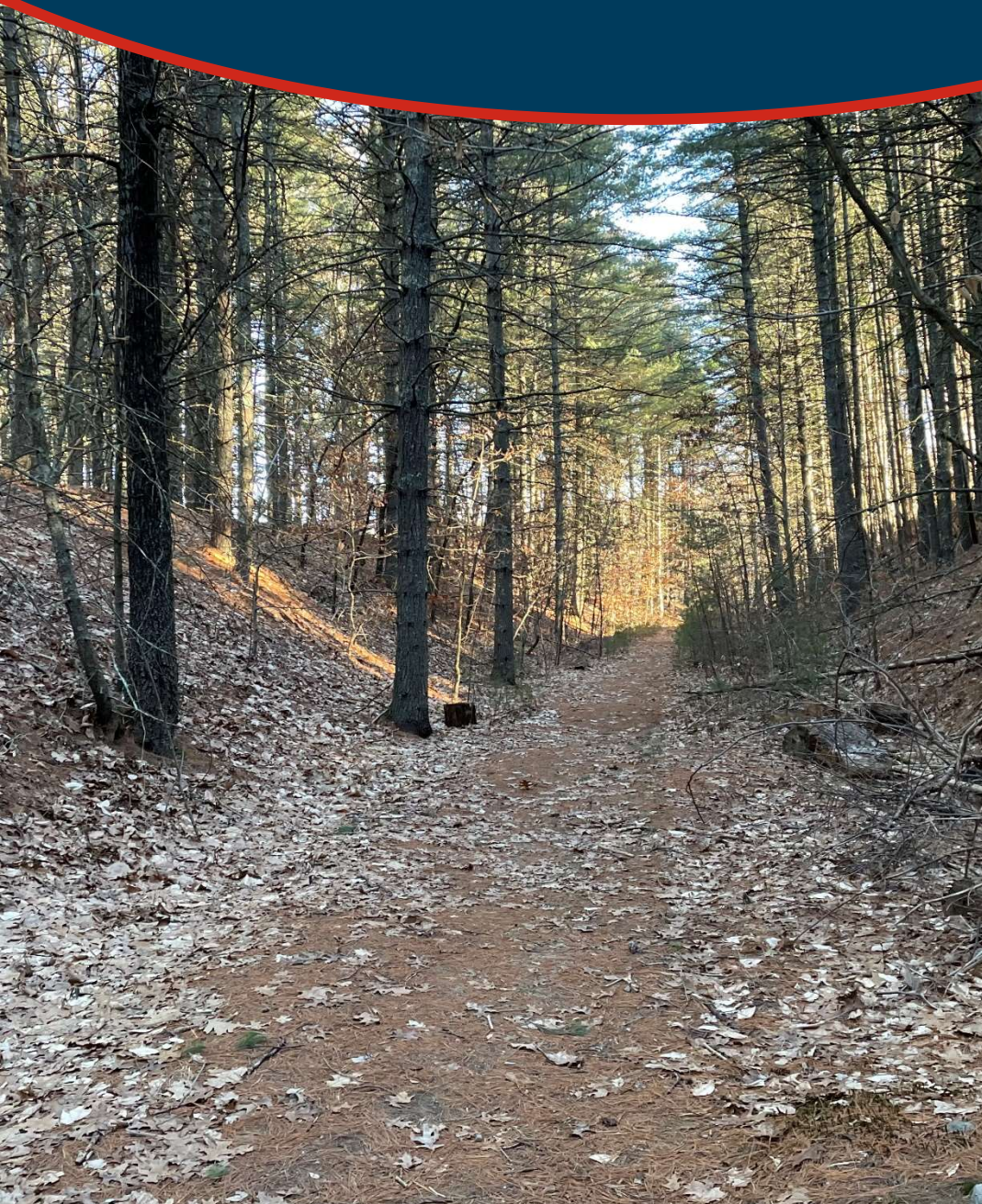


Town of Norfolk, Massachusetts

Metacomet Greenway -Norfolk Feasibility Study



DRAFT



Prepared For:
Town of Norfolk
Land Use Department/
Town Planner
One Liberty Lane
Norfolk, MA 02056



Prepared by:
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701 George Washington
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April 2022

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EXECUTIVE SUMMARY

BETA Group, Inc (BETA) was contracted to prepare a Feasibility Study for the Metacomet Greenway (Greenway) along the former Old Colony Rail corridor in the Town of Norfolk (Town) between the Wrentham and the Walpole Town Lines. The proposed Greenway segment in Norfolk will be one piece (1.5 miles) of the overall vision for the 18-mile bicycle and pedestrian facility between the towns of Attleboro and Walpole, MA.

A feasibility study assesses the existing conditions along the proposed corridor, explains the engineering design parameters for the proposed facility and provides a conceptual evaluation and estimate of project impacts, cost and implementation considerations. The feasibility study will provide the Town with the information they need to make decisions regarding the future pursuit of the Greenway development that may include design and construction.

PROJECT AREA ASSESSMENT

The Feasibility Study details the study's methodology and findings. The following is a summary of potential impacts that were identified within the Project Area:

- Right of Way
- Environmental Resources – Natural and Cultural
- Environmental Hazardous Materials

For additional details on the project area assessment please refer to **Sections 1-3** of the Feasibility Study including **Figure 1: Overview Map** and **Figure 2: Site Area Existing Conditions and Resource Areas Map**.

KEY RECOMMENDATIONS

Below is a limited set of recommendations from the report for the complete list, refer full report.

- Town should consider engaging with the owners of the three subject parcels as well as any parcel identified on the plans to be impacted by the proposed project. A value appraisal should be done to determine the anticipated funding required and a feasible arrangement negotiated in each case.
- Town should consider the corridor identified here as well as possible additional access points and pathways to the trail not yet identified.
- Town should consider coordinating further planning of the Greenway with the adjoining towns of Wrentham and Walpole to ensure that their proposed Greenway segments will align the Town's preferred alignment.
- All possible alternatives will require some impact within the Old Pond – Valley – Hill Streets Inventoried Historic District (NOR.I) and will likely require alteration or removal of the historic railroad bridge abutments, which are contributing structures to the Old Pond – Valley – Hill Streets Inventoried Historic District. Early coordination with Massachusetts Historical Commission is recommended prior to substantial design efforts to the Greenway corridor.
- Town should coordinate planning for proposed Greenway north of Hill Street with the ongoing Phase II Investigation and the LSP at Southwood Hospital Site. Once the Investigation and action plan have been finalized, it may be possible to isolate the subject parcel (Parcel 3) for acquisition.

- Fully accessible public access to the proposed alignment may be limited to the sidewalk on the north side of Pine Street where Alternatives 1A and 1B would provide equal accommodation for all users. If parking or additional access points are provided, the Town shall make reasonable accommodations to comply with ADA accessibility standards.
- Bridge crossings of Pine Street and Hill Street would eliminate potential user conflicts with motor vehicles and would provide the highest level of safety of the alternatives along the proposed corridor. At-grade crossings are a less costly alternative and can meet and can meet an acceptable level of safety by prioritizing pedestrian safety with warranted traffic control measures, advanced warning signage, and lighting of path approaches.
- It is anticipated that the Town will select a preferred alignment that will be based on the disposition of the Hill Street stone abutments, findings of the Southwood Hospital Remediation Plan and the available funds for construction.
- Town should consider waiting until the Phase II investigation of the Southwood Hospital is complete prior to committing funds to the proposed Greenway corridor as described above. Phase II investigation is scheduled to be complete by March 2026.
- Town should consider the potential disturbance on the north side of Hill Street on Parcel 3 before determining the crossing treatment at Hill Street. Town should coordinate all potential disturbance with the responsible LSP assigned to the Southwood Hospital site prior to final design and construction.
- Funding and implementation of the Metacomet Greenway should be coordinated between the Town and the organizers of the Metacomet Greenway.
- Town should look to State and Federal sources for possible design and construction funding of some or all of the proposed Greenway within Norfolk.
- The use of local funding vs state/federal funding will affect the overall project timeline, permitting burden, required design elements, and overall project cost. The Town should consider working with the Metacomet Greenway organization and participating municipalities to discuss the overall vision, priorities, and respective funding opportunities and challenges.
- Construction cost is estimated to range from **\$2.3M** to **\$6.0M** based on four possible alternative alignments.

For additional details on the proposed Greenway alternatives and potential impacts please refer to **Sections 4-5** of the Feasibility Study including **Table 1: Summary of Findings** and **Figure 3: Proposed Alignment and Alternative Review**. A complete list of recommendations and potential funding can be found in **Section 6 and 7**. **Section 8** contains backup information including parcel maps and deed descriptions of the subject parcels as well as detailed development of the cost estimate.

CONCLUSION

The Feasibility Study of the Metacomet Greenway in Norfolk has identified certain opportunities and constraints along the proposed corridor, but overall, the Greenway is a feasible project. In this report BETA has identified the key components, steps, and considerations that the Town should make prior to moving the project into design and construction. By coordinating with the identified agencies, stakeholders and the local community, the Metacomet Greenway in Norfolk will provide enjoyable transportation and recreation facility for years to come.

1. INTRODUCTION

BETA Group, Inc (BETA) was contracted to prepare a Feasibility Study for the Metacomet Greenway (Greenway) along the former Old Colony Rail corridor in the Town of Norfolk (Town) between the Wrentham and the Walpole Town Lines. A feasibility study explains the engineering design parameters for the proposed facility and provides a conceptual evaluation and estimate of project impacts, cost and implementation considerations including possible funding. The study will verify that the proposed facility is consistent with the applicable design parameters and that the project impacts, environmental permitting forecast, right-of-way requirements, costs and schedule for the project reflect actual conditions. These potential impacts include:

- Right-of-way impacts and required actions (easements and/or permanent acquisitions)
- Wetland impacts and environmental permitting
- Cultural and historic resource impacts
- Impacts to regulated oil and hazardous material (OHM) contaminated sites
- Traffic and user safety
- Public access
- Impacts to existing public utilities
- Conceptual project cost estimates
- Funding Considerations

Additionally, the study will document the various decisions that may need to be made by local and state jurisdictions before the project progresses to the design, permitting and construction phases. Refer to Overview Map Figure 1.

2. PROJECT DESCRIPTION

PURPOSE AND NEED

The purpose of the Greenway is to provide a safe, efficient, and continuous facility that encourages non-motorized multi-modal transportation and passive recreation along the original transportation route of the former Old Colony Rail between Cumberland, Rhode Island and Walpole, Massachusetts. The Greenway will also connect historic sites, municipal centers, state and local parks, recreational facilities, and scenic locations along the corridor.

Within the limits of the Town, the proposed shared use path will provide an attractive transportation and recreation facility appropriate for a wide range of ages and abilities. When considered in the context of the larger 18-mile corridor, the facility will provide users from the Norfolk community with a non-motorized alternative to making meaningful connections to attractions along the Route 1/1A corridor.

PROJECT BACKGROUND

The Metacomet Greenway is the vision of a volunteer-based organization whose mission is to develop a recreational trail along the former Walpole and Wrentham Branch of the Old Colony Rail corridor (Old Colony Rail) from Cumberland RI to Walpole, MA, a distance of 18 miles. The Towns along the corridor include Attleboro, Plainville, Wrentham Norfolk and Walpole. In 2021, the Town of Norfolk hired BETA

to conduct a feasibility study of the proposed Greenway through their Town. Similar efforts simultaneously were underway in Wrentham and Plainville at that time.

STUDY AREA DESCRIPTION

The segment of the proposed Greenway in Norfolk is aligned with the former railroad which runs in a generally north-south direction approximately between and parallel to Routes 1 (to the east) and 1A (to the West). The corridor extends approximately 1 mile from the Wrentham town line to the Walpole town line and consists of three (3) privately owned parcels. The subject parcels appear to remain intact from the dimensions of the prior rail ownership; however, each are now in individual private ownership. The parcels range in width from approximately 50 feet to approximately 80 feet. The rails and most of the ties have been removed from the former rail bed.

3. INVENTORY OF EXISTING CONDITIONS

PROPERTY RESEARCH

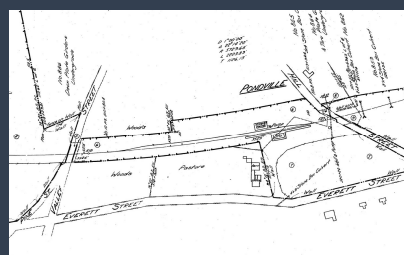
Property research was conducted by Lighthouse Land Surveying, LLC. The documents reviewed include assessors' maps, deed records and railroad valuation plans. Copies of these documents have been included in the appendix.

Railroad Valuation Plans that cover the section of former railroad right of way running through the Town of Norfolk have been reviewed. These plans depict the former right of way width and a schedule of title to the historical land acquisitions. Historically, the railroad acquired parcels primarily by easement or in fee. When acquired by easement, it is possible that abutters to those parcels could later claim a legal right to a portion of the former railroad corridor. The plans reviewed indicate that the corridor for the rail was acquired in fee as opposed to by easement. While a thorough title review would still need to be completed by the Town's Counsel prior to any right of way acquisitions, the Valuation Plan information supports the fact that the Railroad most likely had clear title to the corridor.

Figure 1 shows the proposed Metacomet Greenway corridor. The subject parcels included in the study area identified by the Town of Norfolk include:

Rail History of the Greenway Corridor in Norfolk

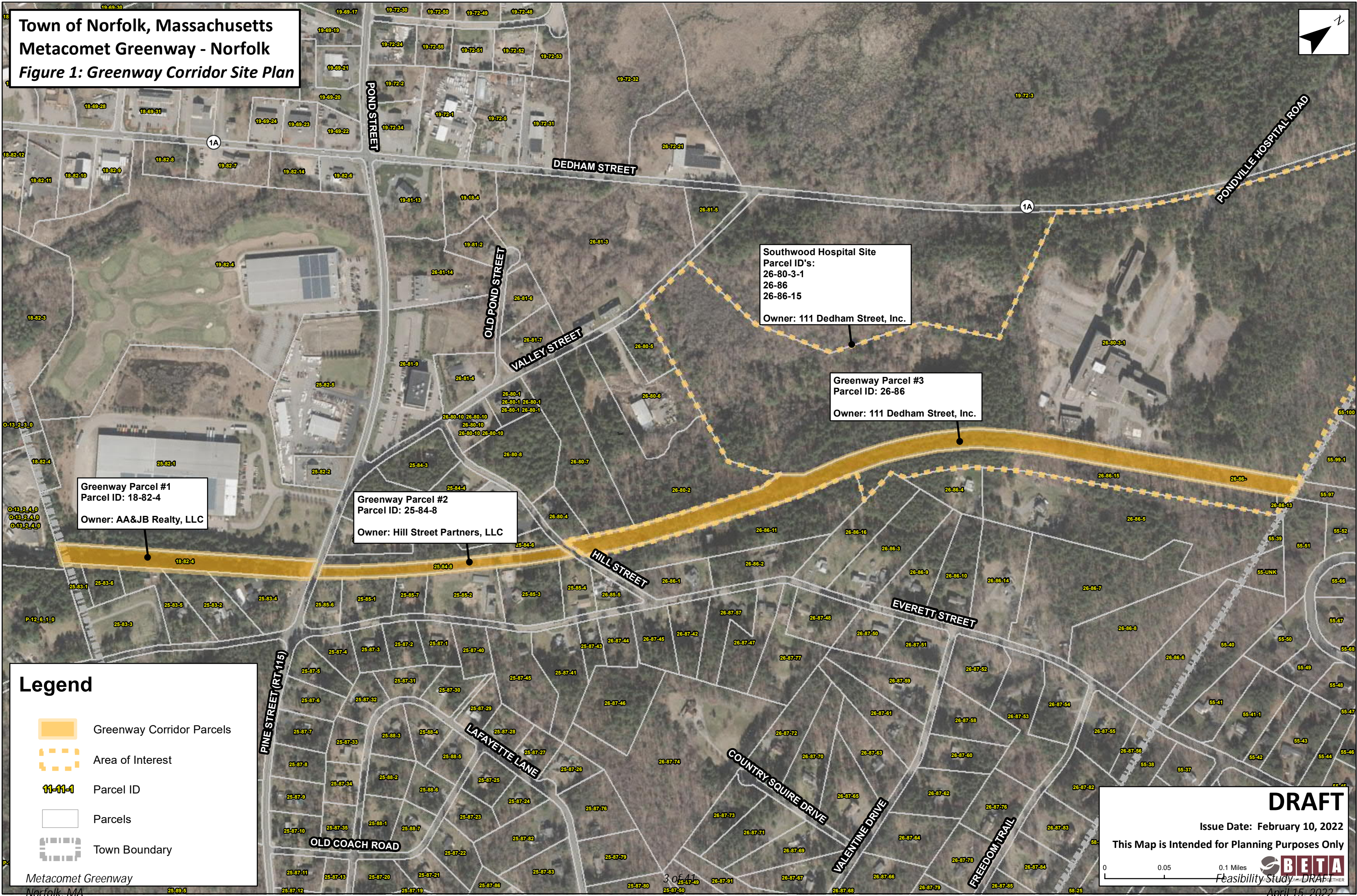
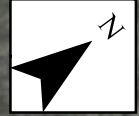
By the late 1800's railroads, including several lines owned by Old Colony Railroad, traversed the region between Boston and Providence for both passenger and freight services. In 1890, Old Colony built a single-track line from Walpole Junction to North Attleboro through Norfolk. From North Attleboro, trains could connect with the Boston to Providence main line as well as others of regional significance.¹



From "Right of Way and Track Map Old Colony RR Co." at Pondville dated 1915. Note the station location along east side.

By 1903 an additional connections had enabled regular runs along this line between Boston and Providence including two commuter trains in the morning and two in the afternoon. The local Pondville station was a flag stop. Each morning a train would stop at Pondville Hospital to pick up milk. The former Pondville Station was accessed from a driveway at the current 46 Everett Street. The Station was moved sometime after passenger service was discontinued around 1939. Freight service continued until the 1960's, and the rails were removed in the 1970's.¹

Town of Norfolk, Massachusetts
Metacomet Greenway - Norfolk
Figure 1: Greenway Corridor Site Plan






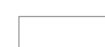

Greenway Parcel #1
 Parcel ID: 18-82-4
 Owner: AA&JB Realty, LLC

Greenway Parcel #2
 Parcel ID: 25-84-8
 Owner: Hill Street Partners, LLC

Southwood Hospital Site
 Parcel ID's:
 26-80-3-1
 26-86
 26-86-15
 Owner: 111 Dedham Street, Inc.

Greenway Parcel #3
 Parcel ID: 26-86
 Owner: 111 Dedham Street, Inc.

Legend

-  Greenway Corridor Parcels
-  Area of Interest
-  Parcel ID
-  Parcels
-  Town Boundary

Metacomet Greenway
 Norfolk, MA

DRAFT

Issue Date: February 10, 2022

This Map is Intended for Planning Purposes Only

0 0.05 0.1 Miles

BETA
 Feasibility Study DRIFT
 April 15, 2022

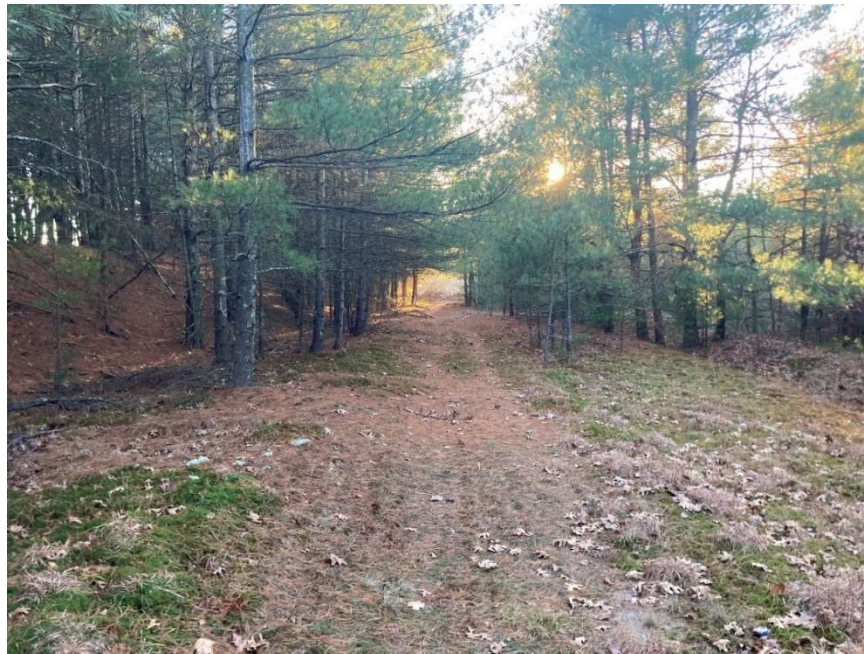
Parcel 1

18-82-4 (PID 100242/ Book 24263/ Page 0481/ Current Owner (NF): AA&JB Realty, LLC).

This parcel is approximately 80'-wide and extends from the Wrentham Town line to Pine Street, a distance of approximately 1,100 feet. The corridor is thickly wooded along both the easterly and westerly sides. Along the eastern boundary are residential house lots and the historic Pondview Cemetery with frontage along Everett Street. The cemetery is listed on the National Register of Historic Places (NRHP).

The former railbed remains intact and well drained with some evidence of minor disturbances and piles of debris. On the Pine Street end, the grade slopes sharply downward to the west onto the adjoining parcel which is occupied by a single commercial building which is currently used for warehousing.

Parcel 1, located on the southern end of the corridor at the Wrentham Town line, is associated with an adjacent commercial operation that is currently stockpiling construction materials. At the northern end, the parcel intersects with the Pine Street Right of Way where the elevation drops steeply to the roadway level. The Old colony line formerly passed over Pine Street on a bridge. The elevation difference from the former bridge abutment for the railbed to the road surface is approximately 20 feet. Record plans at this location show bridge abutments, since removed, where the former railroad crossed Pine Street.



Former Old Colony Rail corridor south of Pine Street facing south (Greenway Parcel 1).

Parcel 2

25-84-8 (PID 3353/ Book 39672/ Page 13/ Current Owner (NF): Hill Street Partners, LLC).

This lot is approximately 50'-wide and extends from Pine Street to Hill Street, a distance of approximately 1,100 feet. The corridor is thickly wooded along both the easterly and westerly sides. Along the eastern boundary are residential house lots with frontage along Everett Street.

The former railbed remains intact and well drained with some degree of cut and fill along its length. On the Pine Street end, the grade slopes sharply downward from the former location of the easterly bridge abutment to the Pine Street Right of Way and to the west onto the adjoining parcels which are occupied by residential house lots along Pine Street. The elevation difference from the railbed to the road surface at the crossing is approximately 20 feet where the northerly abutments of the former Pine Street Bridge have been removed.

On the Hill Street end, there are Commercial buildings along the western boundary of the parcel with frontage along Hill Street. The northern end of the parcel terminates at Hill Street where the stone abutment of the former railroad bridge once crossed. There is a wooden sign of unknown age on the embankment at Hill Street which reads “Pondville”. From this point west along Hill Street toward Valley Street is the “Old Pond -Valley -Hill Street Area” which appears in the Massachusetts Historic Commission Inventory. The stone bridge abutments on either side of Hill Street are included in the MHCD inventory as well.

According to town staff, the owners of Parcel 25-84-8 have indicated an intent to develop a planned multi-lot residential development on this parcel. While no formal application has been submitted, the Town has provided a Concept Plan from the owner dated 2019 which shows proposed improvements on the subject lot as well as the adjacent lot to the west, Parcel 25-84-6. The plan identifies a continuous 20’-wide trail easement along the eastern boundary of the subject parcel from the Pine Street to Hill Street right of way boundaries. The easement is within the 30’-wide green belt required in the R-3 zoning district to the east. The proposed site access is shown at Pine Street with a 20’-wide bituminous concrete roadway separated from the Trail easement by a 10’-wide buffer. Town staff have indicated that there have been no additional efforts to move this plan forward since 2019.



Former Old Colony Rail corridor south of Hill Street facing south (Greenway Parcel 2).

Parcel 3

26-86 (PID Unknown/ Book 39063/ Page 210/ Current Owner (NF): 111 Dedham Street, INC) -

This lot is approximately 80'-wide and extends from Hill Street to the Walpole Town line, a distance of approximately 3,300 feet. The corridor is thickly wooded along both the east and the west sides with some residential structures visible on the east side. The former railbed remains intact and well drained with alternating cut and fill sections defined by steep side slopes in certain places. There are 5 existing stone block culverts along this segment of the corridor that were most likely constructed when the original rail line was built. Drainage flow appears to be from east to west.

On the Hill Street end, the parcel terminates abruptly where the stone abutment of a former rail bridge crossed Hill Street. The elevation difference from the railbed to the road surface at the crossing is approximately 8 feet. The Hill Street Right of Way is approximately 30 feet wide at the former rail bed intersection. The distance between the abutments across the roadway here measures approximately 15 feet

Along the eastern boundary are residential house lots primarily with frontage along Everett Street. The western boundary is heavily wooded along most of its length. At the northern end is the former Southwood Hospital site which is immediately adjacent to the proposed Greenway alignment. The Southwood Hospital Site is currently abandoned and is an active state-listed hazardous waste site. While the Southwood Hospital is located on a separate parcel, it is associated with the subject parcel by deed.



Former Old Colony Rail corridor north of Hill Street facing north (Greenway Parcel 3).

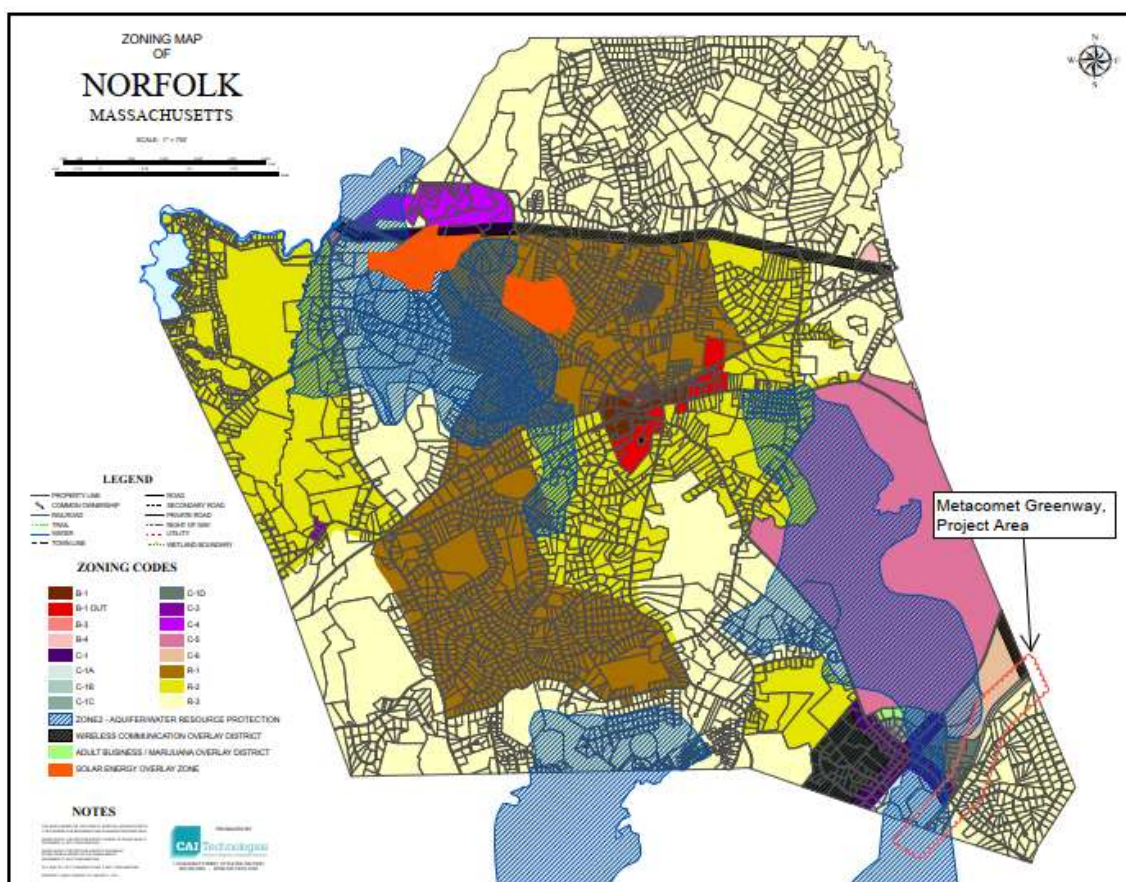
PROJECT AREA GENERAL LAND USE AND ZONING

The Town’s zoning bylaw was reviewed within the project area and adjacent surrounding areas. The subject parcels traverse the boundary between a Residential Zone, to the east, and Commercial Zones to the west. The boundary is drawn down the longitudinal center of the alignment’s full length. From the Towns Zoning Bylaws:

C.2.i. When a district boundary line divides any LOT in one ownership of record at the time such line is adopted, a use that is permitted on one portion of the LOT may be extended 30 feet into the other portion provided the first portion includes the required FRONTAGE¹.

Along the western boundary of the project area, parcels are zoned Commercial (C-1, C-1a, C-1d, and C-6). The parcels within the project area and along the eastern boundary are within Zone R-3².

A portion of the project area, located on Parcel 1, is within the Town’s Watershed Protection District.



Town of Norfolk Zoning Map (2021) showing the project area.

¹ Zoning Bylaws with Amendments through May 2021 Including Flood Plain/Wetland Protection District, Town of Norfolk May 8, 2021. Section C.2.i (pg. 20)

² Zoning Map, Town of Norfolk, 2019

PREVIOUS PLANNING EFFORTS

The proposed Greenway through Norfolk is consistent with the following goals and objectives identified in the Town’s 2007 Master Plan³ including:

- Recreation Goals and Objectives (pg. 7)
 - Goal 1: Add outdoor recreation areas, improve-expand existing outdoor recreation areas and increase indoor recreational opportunities in Norfolk with added active and passive recreational opportunities in support of the Town’s growth.
 - Recommended Policy: Utilize the resources of the Recreation Commission and other local Boards including the Community Preservation Committee to identify and purchase recreation land using the resources of the Community Preservation Fund and pursue development of additional active recreation areas for organized games and activities

EXISTING CONDITIONS - STUDY AREA ENVIRONMENTAL RESOURCES

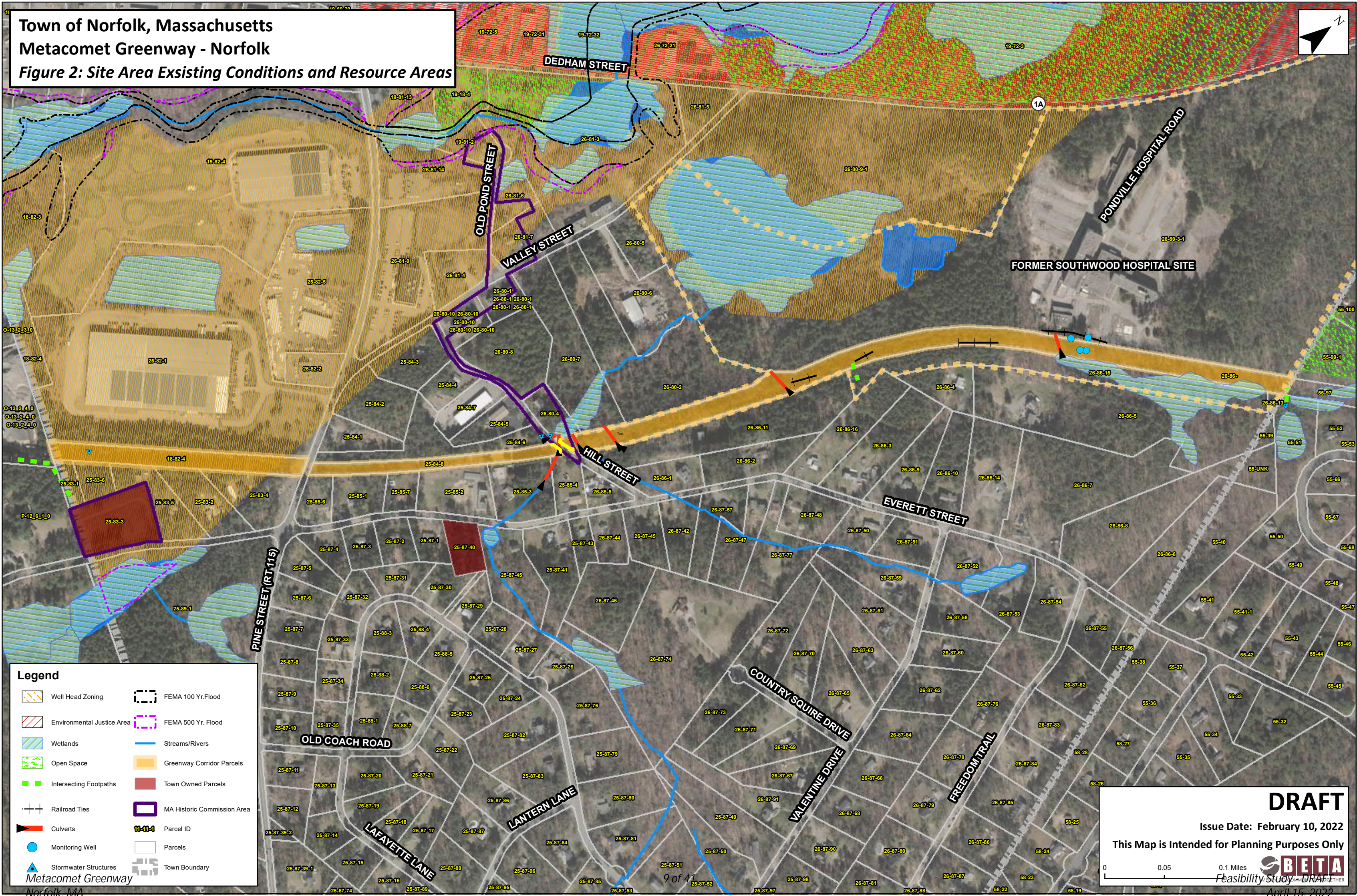
The MassGIS database was used as the initial step in identifying critical areas and environmental resources on or within proximity of the Greenway that will be examined more closely as the Project progresses toward permitting. The table below describes selected environmentally critical categories as determined through MassGIS.

| Metacomet Greenway – Norfolk Mapped Resource on or Within Proximity to Site | Anticipated Impacts | |
|--|---------------------|----|
| | Yes | No |
| Area of Critical Environmental Concern | | ✓ |
| MassDEP/NWI Wetlands and Streams | ✓ | |
| NHESP Certified Vernal Pool | | ✓ |
| NHESP Potential Vernal Pool | | ✓ |
| Coldwater Fisheries Resource | | ✓ |
| NHESP Estimated Habitat of Rare Wildlife | | ✓ |
| NHESP Priority Habitat of Rare Species | | ✓ |
| Outstanding Resource Waters | | ✓ |
| FEMA Flood Zones | | ✓ |
| Surface Water Protection Area (Zones A and B) | | ✓ |
| Interim Wellhead Protection Area | | ✓ |
| Zone I Wellhead Protection Area | | ✓ |
| Zone II Wellhead Protection Area | ✓ | |
| MACRIS Historic Sites | ✓ | |

Selected MassGIS Environmental Data Layers (Source: MassGIS)

³ <http://www.virtualnorfolk.org/assets/files/boards-and-committees/planning/master-plan.pdf>

Town of Norfolk, Massachusetts
Metacomet Greenway - Norfolk
Figure 2: Site Area Existing Conditions and Resource Areas



Legend

| | |
|----------------------------|-----------------------------|
| Well Head Zoning | FEMA 100 Yr. Flood |
| Environmental Justice Area | FEMA 500 Yr. Flood |
| Wetlands | Streams/Rivers |
| Open Space | Greenway Corridor Parcels |
| Intersecting Footpaths | Town Owned Parcels |
| Railroad Ties | MA Historic Commission Area |
| Culverts | Parcel ID |
| Monitoring Well | Parcels |
| Stormwater Structures | Town Boundary |

DRAFT
 Issue Date: February 10, 2022
 This Map is Intended for Planning Purposes Only

0 0.05 0.1 Miles

BETA
 Feasibility Study DRAFT

April 15, 2022

Following the initial GIS Site review, a BETA Environmental / Wetland Scientist conducted a Site inspection on January 5, 2022, to review existing environmental conditions along the Greenway. The section below presents BETA's assessment of the existing environmental resources within and along the Greenway.

General Environmental Site Conditions

The Greenway consists of an approximately 1-mile abandoned railbed extending from the Wrentham Town Line to the Walpole Town Line. As previously described in this report, the railbed generally travels through forested areas. The forested areas immediately adjacent to the railbed are generally vegetated with oak (*Quercus sp.*), American beech (*Fagus grandifolia*), and white pine (*Pinus strobus*).

According to the USDA Natural Resources Conservation Service – Soil Survey, mapped soils on the Greenway, and its vicinity, are classified primarily as Hinckley loamy sand, Woodbridge fine sandy loam, Canton fine sandy loam, and sand and gravel. Our field work generally confirmed these soil types.

Land use near the Greenway consists primarily of low-density residential and forested areas, with commercial development present at the southwestern limit of the corridor off Pine Street and along Hill Street. The western boundary of the Greenway abuts commercial properties including the former Southwood Hospital Site (See Figure 2).

Wetlands and Waterways

On January 5, 2022, a BETA Environmental / Wetland Scientist conducted a site inspection to review existing conditions and determine whether the GIS-mapped resource area boundaries on and within 100 feet of the Greenway limits were consistent with field conditions. Resource areas subject to protection under the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131 Section 40 - the Act), the federal Clean Water Act (33 U.S.C. §1251 et seq (1972)), the Massachusetts Clean Waters Act (MGL Chapter 21 Section 26-53), and the Norfolk Wetland Protection Bylaw (Article VII, Section 2 – the Bylaw) were identified, but not delineated in accordance with applicable procedures, definitions, and guidelines.

State and local jurisdictional resource areas identified along the Greenway include Bank (to intermittent streams); Bordering Vegetated Wetland (BVW); Land Under Water (LUW); and the 100-foot Buffer Zone to Bank and BVW⁴.

“Stream-Stats” analyses were completed for the “intermittent” streams flowing onsite to determine whether they could meet the definition of perennial under the Act at 310 CMR 10.58(2)(1). Based on this analysis, no observed or mapped streams have the requisite watershed size or flow rate at the 99% flow duration to be considered a perennial stream.

Figure 2 shows the extent of mapped wetlands according to the US Fish and Wildlife Service National Wetlands Inventory “Wetlands Mapper” and the MassDEP Detailed Wetlands data layer (both accessed March 28, 2022).

⁴ The 100-foot Buffer Zone to Wetlands (Isolated and Bordering), Vernal Pools, and Bank is considered a resource area under the Bylaw.

Based on BETA' site inspection BVW is located generally in two (2) areas along the Greenway: North of the Hill Street crossing and west of the Greenway, as well as east and west of the railbed in the vicinity of the Southwood Hospital Property (See Figure 2).

Bank and LUW are located along the Greenway where five (5) intermittent streams are conveyed beneath the railbed through cross-culverts. These intermittent streams flow to the westly toward a larger wetlands system No streams present along the Greenway are navigable and are, therefore, not Subject to Jurisdiction under Chapter 91.

The wetlands and intermittent streams located on the Site are also "waters of the United States," and are therefore subject to the federal Clean Water Act, 33 U.S.C. §1251 et seq (1972). The boundary to "waters of the United States" is the vegetated wetlands boundary, or, in the absence of vegetated wetlands, is the Ordinary High-Water Mark (OHWM) for non-tidal rivers and streams, as specified at 33 CFR §328.4.

FEMA Floodplain

No portion of the Greenway or areas within 100 feet of the Greenway are located within a mapped FEMA Flood Hazard Area (See Figure 2).

Stormwater Critical Areas

No portion of the Greenway is located within a Zone A or Zone B of a surface drinking water supply, and no streams present along the Greenway are mapped as Coldwater Fisheries Resources. There are also no public swimming beaches or shellfish growing areas within or adjacent to the Greenway.

While no portion of the Greenway is located with a Zone I of a Groundwater Supply or an Interim Wellhead Protection Area (WPA), the railbed southwest of Pine Street is located within a Zone II of a Wellhead Protection Area (Figure 2). Accordingly, the southwestern portion of the Greenway is located within a Stormwater Critical Area.

Vernal Pools and other Sensitive Habitats

No NHESP Certified or NHESP Mapped Potential Vernal Pools, US Army Corps of Engineers Special Aquatic Sites (salt marsh, tidal flats, vegetated shallows, etc.), Essential Fish Habitat, or Areas of Critical Environmental Concern (ACECs) are present within or near the Greenway.

While there are no mapped Vernal Pools in the vicinity of the Greenway, BETA's Scientist identified an area beyond the northeast extent of the Greenway in the Town of Walpole that appears to provide conditions suitable for breeding habitat for vernal pool species. While no evidence of the presence of these species was observed, this could be due to the time of year of the site inspection. During the permitting process this area should be further evaluated to determine if the 100-foot buffer zone extends within the project area in Norfolk.

Outstanding Resource Waters

No portion of the Greenway is located within mapped Outstanding Resource Waters, however, if certified, Vernal Pools are considered an Outstanding Resource Water and are afforded the same protections as mapped Outstanding Resource Waters.

Threatened or Endangered Species/Habitat

The Greenway is located outside the limits of state-mapped Natural Heritage & Endangered Species Program (NHESP) Priority Habitat and Estimated Habitat mapped areas and Areas of Critical Environmental Concern.

Review of the U.S. Fish and Wildlife Service's *Federally Listed Endangered and Threatened Species in Massachusetts* lists the Monarch Butterfly (*Danaus plexippus*) and Northern Long-eared Bat (*Myotis septentrionalis*) (NLEB) range within the vicinity of the Greenway; however, these species are mapped throughout the State of Massachusetts. The closest known Maternity Roost Tree is approximately 47 miles away and closest known hibernacula is 13 miles away from the Site.

While there are no known NLEB hibernacula or roost trees along the Greenway, suitable summer habitat for the NLEB is present in the vicinity of the Greenway. In addition, there are areas that appear to provide upland wildflower meadow habitat along the Greenway, which may support the Monarch Butterfly.

Environmental Justice

There is one (1) Environmental Justice (EJ) population mapped within the Town of Norfolk that is located within one (1) mile of the Greenway (Block Group 3, Census Tract 4091.01). This area is categorized as a Minority EJ populations. According to the 2019 American Community Survey, the population of this Block Group / Census Tract consists of the following: 59.5% White, 25.9% Black, 0.3% Native American, 0.1% Asian, 10.9% "Other", and 3.3% two or more.

There are an additional four (4) EJ populations within five (5) miles of the Project located in Foxboro, Sharon, and Walpole. The EJ Census Block Groups within five (5) miles of the Greenway are classified as Minority EJ communities.

Cultural and Historic Resources

The Massachusetts Cultural Resource Information System (MACRIS) was searched to locate cultural and historic resources along the Greenway. A portion of the Greenway travels through the Old Pond – Valley – Hill Streets Inventoried Historic District (NOR.I) with three (3) historical properties within or adjacent to the Greenway:

- New York, New Haven and Hartford Railroad Freight House (NOR.215) – 9 Hill Street
- Old Colony Railroad Bridge Abutments (NOR.927) – Northern Abutment - Hill Street
- Old Colony Railroad Bridge Abutments (NOR.928) – Southern Abutment - Hill Street



Hill Street facing west. Note stone structures on both sides of road at corridor crossing. The abutments from the former railroad bridge are listed on the MHC inventory of historic structures.

In addition, the Greenway is located to the north of the Pondville Cemetery (NOR.N), which is listed on the National Register of Historic Places.

EXISTING CONDITIONS - STUDY AREA POTENTIAL FOR HAZARDOUS MATERIALS

A field visit was conducted by a BETA Licensed Site Professional (LSP) on January 26, 2022, to observe site conditions.

General Observations

The corridor is mainly surrounded by undeveloped woodlands and wetlands with the exception of some adjacent developed properties such as the former Southwood Hospital and several residential and commercial properties. BETA observed minor solid waste dumping such as tires, chairs, and metal scraps throughout the corridor.

Because of its railroad history, there is the potential for soil contamination from various petrol chemicals, creosote and other hazardous materials. Following guidelines found in *Best Management Practices for Controlling Exposure to Soil during the Development of Rail Trails* (MassDEP), field crews looked for evidence of possible contamination from the rail. While reportedly the rails were removed in the 1970's, several ties were observed remaining in the ground within the subject parcels and noted in the existing conditions inventory (see Figure 2). No other indications of possible contamination were observed.

BETA also observed four groundwater monitoring wells associated with the abandoned Southwood Hospital property. To the extent feasible, BETA examined the grounds surrounding the hospital that abuts the corridor and did not observe any foul smells or visual evidence of ground surface staining, distressed vegetation, or other indicators of potential environmental contamination within the area.

Former Southwood Hospital Site

BETA's review of files maintained by the Massachusetts Department of Environmental Protection (MassDEP) revealed that the former Southwood Hospital property at 111 Dedham Street in Norfolk is an active state-listed hazardous waste site currently undergoing remedial and/or assessment activities in accordance with the Massachusetts Contingency Plan (MCP). This property is under private ownership and its extent includes the northern portion of the Metacomet Greenway corridor. The former hospital buildings and wastewater filtration beds are located adjacent to the western side of the former rail corridor. The primary MassDEP Release Tracking Number (RTN) for the property is RTN 2-3001694. This file includes multiple reports and correspondences dated 1996 to 2022 which document the property's environmental release history.

- Historical records indicate that the Southwood Hospital property was originally developed in 1912 and occupied in 1914 by Norfolk State Hospital, which provided residential care and treatment for alcoholism and drug addiction from 1912 to 1918 and then for those with mental illnesses from 1918 to 1924, including being leased by the Federal government for injured soldiers returning from World War I. The property was operated by the Commonwealth of Massachusetts Department of Public Health as Pondville Hospital from 1927 to 1981 for the treatment of cancer patients and for research on the prevention and cure for cancer. The cancer treatment and research included the use of radiologic materials. The hospital was operated as Southwood Community Hospital until 1997 and then as Caritas Southwood Hospital until 2003 when all operations ceased. Portions of the property were also operated as a landfill for solid waste, discarded medical waste and cancer medicines, wastewater treatment system filter beds, and waste incinerators.
- The area to the rear of the former engineering and maintenance building at the hospital abuts the proposed Metacomet Greenway. Subsurface soil and groundwater in this area is currently contaminated with residual fuel oil and measurable volumes of light non-aqueous phase liquid (LNAPL), likely No. 6 fuel oil, which has been identified in existing groundwater monitoring wells (Figure 2), including those monitoring points located within the proposed Metacomet Greenway corridor. Elevated radiation levels (Radium 226) have been discovered near the base of the wastewater filter bed system.
- MCP Comprehensive Remedial Actions (CRA) have been proposed by EnviroTrac Ltd. (EnviroTrac), the environmental consulting firm representing the owner of the Southwood Hospital property. These CRAs include monitored natural attenuation, demolition of the buildings followed by excavation and removal of the LNAPL and contaminated soil, and construction of an engineered cap for the landfill. The CRA may also include implementation of an Activity and Use Limitation (AUL) if complete removal of the fuel oil plume cannot be achieved. EnviroTrac has also contracted a specialized radiologic consultant (DDES, LLC) to complete a site visit, investigate the levels of radiation within the wastewater beds, screen radiation levels within interior portions of the buildings, and recommend steps for site remediation, if necessary.

ROADWAY CROSSING LOCATIONS

There are two locations where the proposed greenway corridor crosses existing roadways within the Town of Norfolk. These crossings are located at Pine Street (Route 115) and Hill Street. Evidence of former railroad bridges at each location remain.

The crossings may represent the only locations along the corridor where the public will be able to access the proposed Greenway corridor. Accommodations must be made at these access points for full accessibility as required by the Americans with Disability Act (ADA) and Massachusetts Law (521 CMR) including pedestrian access routes, appropriate traffic controls, and detectable warning surfaces.

PINE STREET (ROUTE 115)

Pine Street (Route 115) is a Town-accepted urban minor arterial generally running east/west between the Town of Holliston and Route 1 in Foxborough. The Metacomet Greenway would cross Pine Street approximately 270 feet west of Everett Street and 530 feet east of Valley Street in the Town of Norfolk. Within the study area, Pine Street is approximately 32-foot wide and provides one vehicular travel lane in each direction separated by double yellow center line. Four-foot-wide shoulders are striped along both sides of the roadway. Asphalt berm defines the eastern side of the road. The western side is defined by granite curbing, a two-to-three-foot-wide grass strip, and a five-foot-wide asphalt sidewalk. Utility poles are generally located along the eastern side of the roadway off the back of sidewalk. Dedicated bicycle facilities are not defined. The right of way for Pine Street is approximately 50 feet wide.

According to the MassDOT Roadway Inventory Database, Pine Street has an Average Annual Daily Traffic (AADT) of approximately 6,269 vehicles per day (vpd) as obtained in 2020. The posted speed limit for the roadway is 35 miles per hour (mph) with the nearest sign located south of Everett Street.

According to IMPACT, MassDOT's Crash Data Visualization Tool, three (3) crashes occurred within the vicinity of the Metacomet Greenway crossing in the last 10 years (2011-2021). This includes one rear-end collision in March 2011, one head-on collision in January 2014, and one single vehicle crash in August 2016. All three collisions occurred between 2:00 PM and 6:00 PM. The Head-On collision reportedly involved three vehicles, resulted in Injury, and occurred during snowy conditions. The report defines "driving too fast for conditions" as a contributing circumstance. The Single Vehicle Crash involved two vehicles, though one vehicle reportedly struck a light pole. There were no reported crashes in years following 2016.

HILL STREET

Hill Street is a Town-accepted local roadway generally running east/west between Valley Street and Everett Street in the Town of Norfolk. The Metacomet Greenway would cross Hill Street approximately 485 feet west of Everett Street. Hill Street is generally 17-foot wide and accommodates vehicular travel in both directions with no roadway striping. Roadway edging is not provided. Sidewalks and bicycle accommodation are not provided. Utility poles are generally located along the southern side of the roadway. At the proposed crossing, the roadway is flanked by stone block bridge abutments. The bridge has long been removed, though a sign defines "PONDVILLE" on the top of the northern abutment. This area, in addition to several segments of fencing and vegetation, narrows the effective width of the roadway, supporting slower speeds and lower volumes.

According to the MassDOT Roadway Inventory Database, Hill Street has an AADT of approximately 1,154 vpd. There is no posted speed limit, though “No Thru Trucks” signs are posted on both sides of the roadway at terminus intersections. The relevant truck exclusion was not defined on MassDOT’s Trucking Network Map.

There were zero crashes reported in the last ten years as according to IMPACT.

EXISTING UTILITIES

There were no existing underground utilities observed within the subject parcels. Overhead wires were observed along the north side of Pine Street and the south side of Hill Street. Individual overhead service wires were observed in proximity to the proposed corridor.

4. THE PROPOSED METACOMET GREENWAY IN NORFOLK

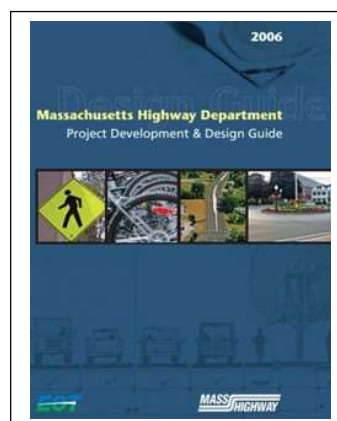
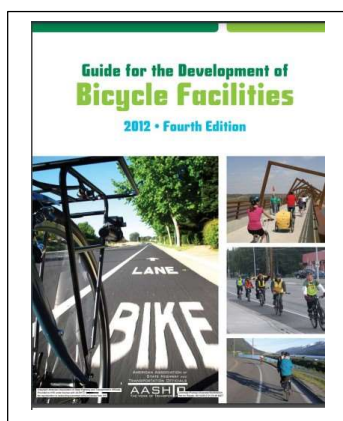
DESIGN POLICY AND CRITERIA

Facility Type

The Town, along with the Metacomet Greenway, has identified a shared use path along the abandoned rail corridor as its preferred facility type. The proposed trail is meant for passive recreation and non-motorized transportation for users of all ages and abilities. There are many local examples of former rail corridors being repurposed for similar successful trail development. According to the FHWA Bikeway Selection Guide, “if an existing space reallocation strategy results in a sufficient space for the preferred bikeway to be installed with preferred design values, the bikeway can be installed. There is no need to consider other bikeway types or parallel routes.”

Design Criteria

No other segments of the Metacomet Greenway are yet constructed, and the Town has not identified specific design criteria. Federal and State guidelines for the design of shared use paths are available including AASHTO Guide for the Development of Bicycle Facilities (2012) MassDOT Project Development and Design Guide and others.



Shared use paths are used primarily by walkers, joggers, and bike riders of varying abilities so speed differential is always a factor in proper design. One relatively new user group are E-bikes. Although motorized vehicles are prohibited on shared use path facilities by law, the State of Massachusetts

currently does not have a law that excludes bicycles that are equipped with an assist motor. The bicycle industry has identified 3 types of E-bikes: Class 1, which provides assistance only when the rider pedals and is traveling less than 20mph. Class 2, which includes a throttle and does not exceed 20mph, and Class 3 which provides assistance only when the rider pedals and is traveling less than 28mph.

It is anticipated that over the coming years, lower speed E-bikes (Class 1 and 2) will be treated like regular bicycles and the Higher speed ones (Class 3) may be restricted on separated bicycle and pedestrian facilities at the discretion of State, Towns and local Trail Managers.

Shared use path design criteria are based on a combination of design speed, ADA accessibility requirements and other safety and operational considerations⁵. Potential design speed scenarios are shown below:

| Minimum Design Speed | | |
|--|------|--|
| Design Speed (mph) | 12 | |
| Horizontal curve radii (min.) | 27' | |
| Typical Design Speed - Up to Class 2 E-Bike | | |
| Design Speed (mph) | 20 | |
| Horizontal curve radii (min.) | 72' | |
| Maximum Design Speed - Up to Class 3 E-Bike | | |
| Design Speed (mph) | 30 | |
| Horizontal curve radii (min.) | 166' | |

Final design criteria will be confirmed by the engineer responsible for developing the final design and construction documents. Design criteria may be affected by the funding source and evolving federal standards, but potential design criteria are shown here:

| Design Criteria - Metacomet Greenway | | |
|---|---------|-----------|
| Design Speed (mph) | 20 | |
| Path Width | 10'-12' | (8' min.) |
| Running Slope (max.) | 5% | |
| Cross Slope (max.) | 2% | |
| Shoulder clear width (min.) | 2.0' | |
| Shoulder cross slope (max.) | 1V:6H | |
| Vertical Clearance (min.) | 8.0' | |
| Safety Railing Height (min) | 42" | |

Table 2: Possible design criteria

Surface Material

Selection of surface material should consider maintenance, safety, cost (initial and future maintenance) and accessibility to all users. Surfaces consisting of hot mix asphalt are most common and ensure a

⁵ AASHTO Guide for the Development of Bicycle Facilities (2012)

stable, slip resistant surface with long term durability that will ensure conformance with ADA standards. Unpaved surfaces such as crushed stone or stone dust can be implemented and graded to meet ADA standards. While the initial construction cost may be less than that of a paved surface, long term maintenance is more intensive to replace damage that may occur due to use or stormwater runoff and erosion. Use of materials that are easily accessible to the entity responsible for maintenance should be considered. Crushed stone or stone dust surfaces are generally not conducive to use by inline skaters or cyclists who wish to travel at higher speeds.

PROPOSED ALIGNMENT

Primary Alignment

The proposed shared use path should follow the alignment of the former rail facility to the greatest extent possible to take advantage of the steady, consistent grade, the suitability of the remaining base materials and the previous disturbance of the native soils and plant materials (See Figure 3) Staying centered within the existing cut and fill conditions along the corridor is advantageous to minimize impact to environmental resources, existing drainage patterns and to minimize costs due to materials, wall construction and impacts to adjacent properties.

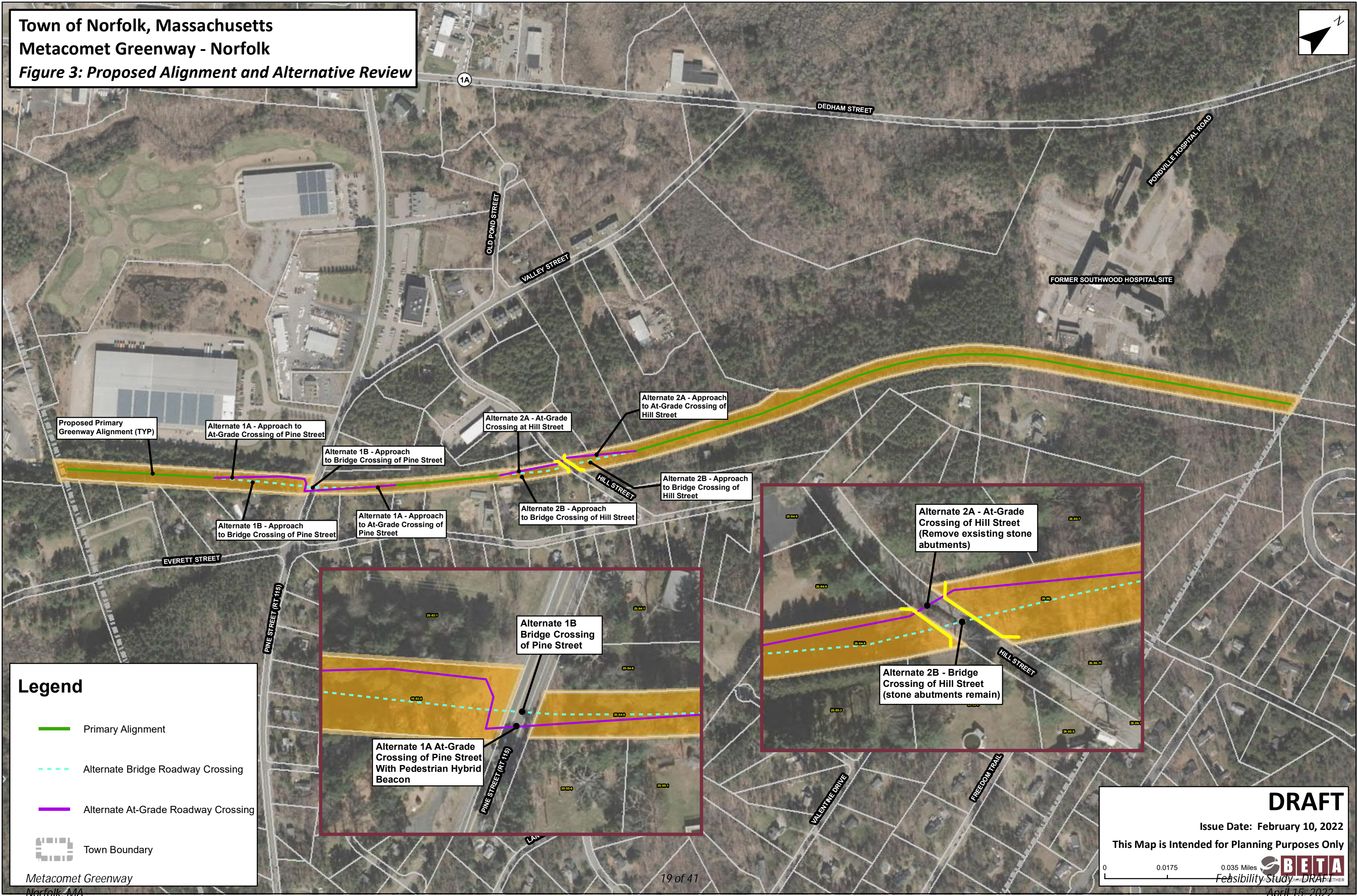
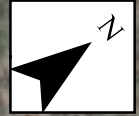


Where possible, the Metacomet Greenway will follow the alignment of the former rail facility.

The proposed Greenway should be between 10 and 12 feet wide with grassed shoulders. To define directional protocols, standard pavement markings should be applied per the MUTCD. Additional signage may be placed where warranted by particular hazards or when approaching roadways or other crossings where caution is needed. See the Alternatives Analysis for specific potential treatments where the Greenway crosses roadways at Pine Street and Hill Street.

Where opportunities present themselves, formal waysides should provide safe, comfortable areas for users to pull off the side of the path to allow users to slow or stop, letting others pass. Additional

Town of Norfolk, Massachusetts
Metacomet Greenway - Norfolk
Figure 3: Proposed Alignment and Alternative Review



Proposed Primary Greenway Alignment (TYP)

Alternate 1A - Approach to At-Grade Crossing of Pine Street

Alternate 1B - Approach to Bridge Crossing of Pine Street

Alternate 1B - Approach to Bridge Crossing of Pine Street

Alternate 1A - Approach to At-Grade Crossing of Pine Street

Alternate 2A - At-Grade Crossing at Hill Street

Alternate 2A - Approach to At-Grade Crossing of Hill Street

Alternate 2B - Approach to Bridge Crossing of Hill Street

Alternate 2B - Approach to Bridge Crossing of Hill Street

Alternate 1B Bridge Crossing of Pine Street

Alternate 1A At-Grade Crossing of Pine Street With Pedestrian Hybrid Beacon

Alternate 2A - At-Grade Crossing of Hill Street (Remove existing stone abutments)

Alternate 2B - Bridge Crossing of Hill Street (stone abutments remain)

Legend

- Primary Alignment
- - - Alternate Bridge Roadway Crossing
- Alternate At-Grade Roadway Crossing
- Town Boundary

Metacomet Greenway
Norfolk, MA

DRAFT

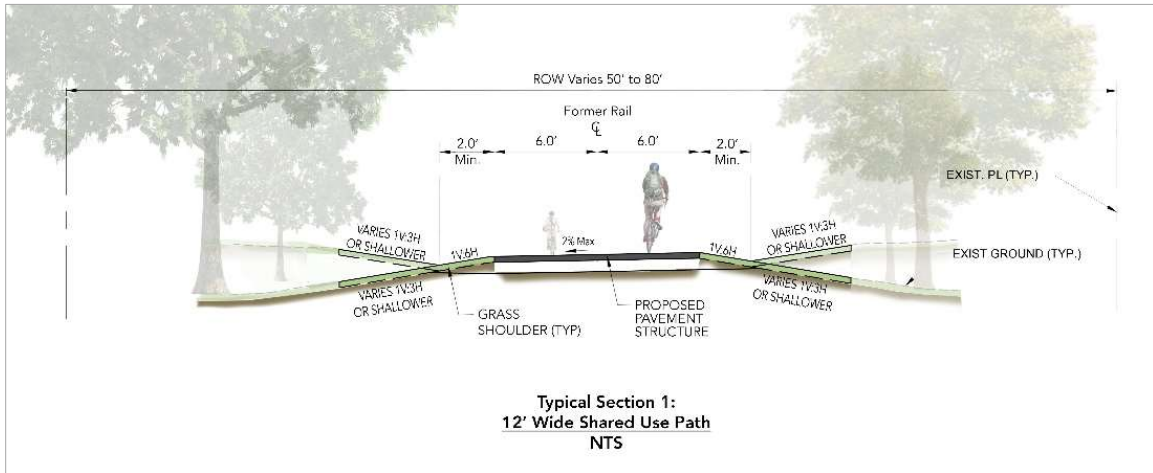
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 This Map is Intended for Planning Purposes Only

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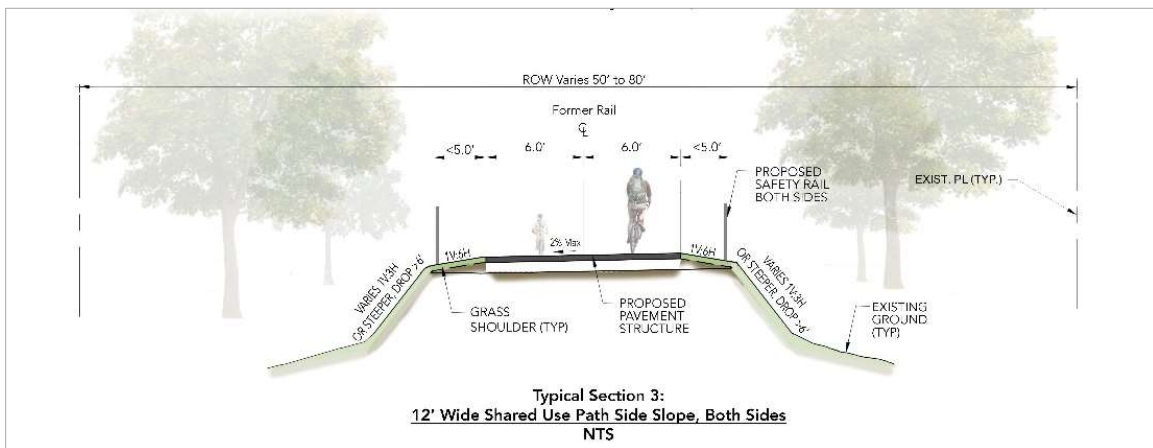
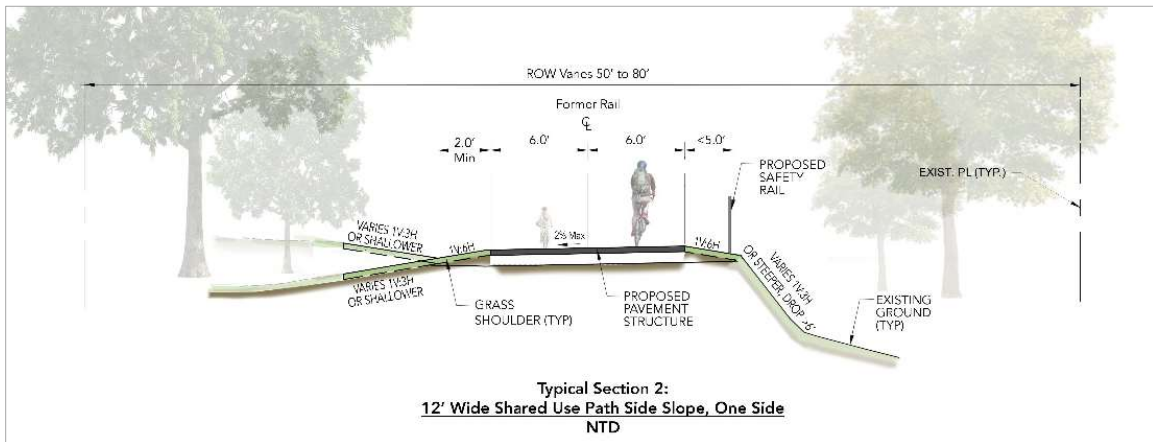
BETA
Feasibility Study DRAFT

April 15, 2022

amenities should be considered at these locations including benches, trash receptacles, or water fountains.



It is anticipated that certain sections of the proposed alignment will require railings to protect users from steep side slopes or to restrict access to environmentally sensitive areas.



PROJECT ALTERNATIVES

There are two known locations along the corridor in which the alignment may need to deviate from the former rail alignment: at the intersection of the Greenway with Pine Street and at Hill Street (See Figure 3).

At both locations the former railroad was elevated at these crossings. The remains of the former bridge approaches are evident today. At Hill Street, the stone block bridge abutments remain. The feasibility of an at grade crossing and a bridge crossing at each location are described below.

BETA evaluated Table 1 of the Federal Highway Administration (FHWA) *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* for the proposed crossing locations on Pine Street (Route 115) and Hill Street. The table outlines various crossing treatments to improve safety based on vehicle speed, volume, and roadway lane configuration. The at-grade alternatives below (1A and 2A) include the relevant findings.

Alternative 1A: At-Grade Crossing at Pine Street

The former Old Colony rail line crossed Pine Street with a bridge. The former bridge abutments were removed in 2009 leaving steep grassy embankments from Pine Street to the former rail grade. The approximately 20' elevation change from the rail bed to the road grade will require the alignment to slope downwards from the trail surface to the crossing location starting from a point approximately 400' from the curb line of the roadway in order to provide an appropriate grade (5% max) that is both comfortable for users as well as ADA compliant.

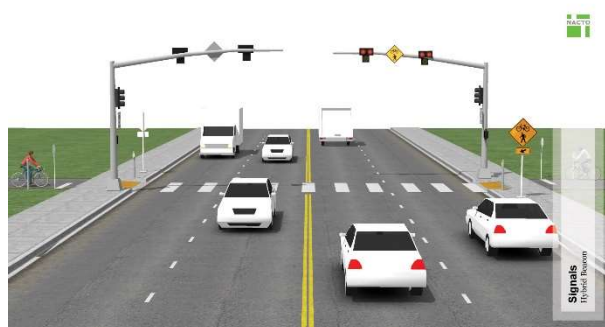
To do this within the parcels on both sides of the roadway will require retaining wall construction along the approach to the crossing at Pine Street.

The data obtained from MassDOT summarized above suggests that Pine Street: carries less than 9,000 vehicles per day, provides one travel lane in each direction, and has a speed limit of 35 miles per hour. Based on this information, Table 1 of the FHWA Guide recommends High Visibility Crosswalk Markings, Parking Restrictions, Adequate Nighttime Lighting Levels, and crossing warning signs should always be considered. Other considerations include curb extensions, a pedestrian refuge island, a Rectangular Rapid Flashing Beacon (RRFB) and a Pedestrian Hybrid Beacon (PHB).

Given the speed, volume, and roadway type, installation of high visibility pavement markings, and relevant warning signage is warranted and recommended. This particular crossing location could utilize curb extensions and a refuge island, though these would narrow the roadway and impact accessibility for bicycles along Pine Street, emergency vehicles between Route 1A, Route 140, and Route 1; and large trucks destined to/from nearby industrial and commercial uses. This generally suggests the installation of supplementary warning features may be acceptable, such as the RRFB or the PHB.

Pedestrian Hybrid Beacon (PHB)

The PHB, also known as a HAWK, is a signal treatment that includes standard Walk/Flashing Don't Walk/Don't Walk pedestrian signals and overhead vehicular signal heads in a "T" shape configuration (RED, RED, YELLOW). Under normal operation, vehicular signal heads are off (dark). When a pedestrian pushes the button, the yellow signal head begins flashing to alert drivers of the upcoming signal change. The flashing yellow turns to steady yellow, then steady double red (side-by-side). The solid WALK signal activates allowing the pedestrians to cross. When the pedestrian signal switches to Flashing Don't Walk, the vehicular red signals begin flashing in a wig-wag pattern. This allows vehicles to proceed with caution if no pedestrians are present. When the Flashing Don't Walk ends, the signal turns dark again for regular travel.



Section 4F.01 of the MUTCD outlines the recommended guidance for installation of a PHB. The guidance is based on 85th percentile speed and volume of major road vehicles, the crossing distance, and the pedestrian volume. Based on an 85th percentile speed similar to the posted speed of 35 mph, a crossing distance of approximately 30 feet, and a two-way daily volume of 6,269 vehicles per day, the required pedestrian volume for the crosswalk to warrant consideration of a PHB is greater than 500 pedestrians per hour. As no existing trail is present today, the installation of a PHB would not be recommended at this time. Further consideration would be given to the PHB upon new data collection of traffic volume and speeds as part of a traffic study.

The cost associated with the PHB is approximately **\$90,000**.

Rectangular Rapid Flashing Beacon (RRFB)

The RRFB is a flashing warning beacon that supplements existing pedestrian warning signage in accordance with FHWA Interim Approval 21, dated March 20, 2018, and have been utilized throughout the Commonwealth of Massachusetts over the last several years. As an RRFB is a supplementary warning device, it does not regulate traffic nor require vehicles to STOP in the way that a full traffic signal or Pedestrian Hybrid Beacon or other intersection control does. As such, they are an adequate safety countermeasure for crosswalks where pedestrian and vehicle volumes do not justify the installation of other measures. Field observations revealed sight lines along Pine Street are adequate approaching the crosswalk, provided pedestrians and/or bicycles are stopped and waiting. Given the speed and potential for vehicle types consistent with nearby industrial uses at this time, and the proximity between Route 1A and Route 1, the installation of an RRFB would be the most appropriate crossing device for the Pine Street Crossing. However, further consideration of the options would be given upon new data collection of traffic volume and speeds as part of a traffic study.



The cost associated with the RRFB assembly is approximately **\$25,000**.

Alternative 1B: Bridge Crossing at Pine Street

Any proposed bridge over Pine Street would be built integral to the existing railbed embankments that remain following the removal of the original railroad bridge in 2009. The bridge would consist of a single span structure with abutments on each side of Pine Street. It is anticipated that a prefabricated steel truss with a clear width of 14 feet would be the most economical structure for this location. The span length of the structure will be heavily dependent on the abutment configuration and placement while also considering the required MassDOT roadway recovery area measured from the edge of traveled way. Taking these factors into consideration, it is anticipated that a span length of approximately 90 feet would be required to cross Pine Street. A minimum vertical clearance of 17'-0" is required to meet the current MassDOT criteria. The skew of the bridge would be approximately 17 degrees.

Options for abutment configurations includes conventional cantilever stems, perched stub abutments on the existing slopes, or mechanically stabilized earth (MSE) wall abutments. Each option will require further evaluation with respect to geotechnical exploration program, utilities, excavation quantities, and general layout and geometry. The east approach may require an increase in profile grade with additional fill to achieve the required vertical clearance over Pine Street. This clearance, coupled with maximum slopes acceptable by ADA and AAB standards will have to be evaluated. Additionally, any increase in profile will require studying the impacts to the railbed side slopes and limits of the Right of Way (ROW).

By erecting a prefabricated steel truss, it is anticipated that one night roadway closure of Pine Street would be required to install the bridge. A detour plan will need to be developed to account for this roadway closure and any single lane closures that may be necessary for the other elements of construction.

One issue that will need to be resolved is determining a location to stage equipment and materials, along with an area to assemble the truss.

Relocation of overhead utilities to provide sufficient clearance from the bridge superstructure will be required.

The expected costs for the construction of a bridge over Pine Street is approximately **\$3,050,000**. This cost does not include utility coordination or relocation and does not include any approach pathway work.

As of this writing, the primary public access point to the trail will be from the Pine Street right of way at the trail crossing. This will require an additional approach to the existing 5'-wide sidewalk at street level on the north side of Pine Street similar that described in Alternative 1A as an approach treatment to/from the roadway grade.

Alternative 2A: At-Grade Crossing at Hill Street

The former Old Colony rail line crossed Hill Street with a bridge. The former bridge abutments remain as stone block walls along both sides of Hill Street. The approximately 8' elevation change from the rail bed to the road grade will require the alignment to slope downwards from the trail surface to the crossing location starting from a point approximately 160' from the curb line of the roadway in order to provide an appropriate grade (5% max) that is both comfortable for users as well as ADA compliant.

To accomplish this within the parcels along both sides of the roadway, the removal of the existing stone abutments would be required as well as some new retaining wall construction along the approach on

both sides of the crossing at Hill Street. As these stone block structures are included in the state's historic inventory structures, a review by the MHC will be required. An opinion of cost associated with the removal of the stone abutments is included as a separate line item for this alternative.

The data obtained from MassDOT summarized above suggests that Hill Street: carries significantly less than 9,000 vehicles per day, provides less than one travel lane in each direction, and has a speed limit of less than 30 miles per hour. Based on this information, Table 1 of the FHWA Guide recommends High Visibility Crosswalk Markings, Parking Restrictions, Adequate Nighttime Lighting Levels, and Crossing Warning Signs are *always considered*. Other considerations include raised crosswalks, in-street pedestrian crossing signs, curb extensions, and a pedestrian refuge island.

Given the narrow width of the existing roadway (17-feet), on-street parking is generally not expected. Furthermore, any feature that continues to narrow the roadway, such as curb extensions or a median island, are not recommended. This suggests an adequate crossing treatment can be established with high visibility markings and relevant warning signage is acceptable.

Since the existing roadway has a very low daily traffic volume, consideration was given to prioritizing the trail in accordance with the 2012 AASHTO *Guide for the Development of Bicycle Facilities, 4th Edition*. The Guide denotes a case where at midblock crossings, vehicular traffic may be issued YIELD signs and markings such that all vehicles passing the trail crossing yield to path traffic. This is based on the revelations that bicyclists tend to be less compliant with STOP signs at roadway crossings, particularly when adequate sight distance is available. Instead, bicyclists treat the condition as a YIELD and roll through the intersection if no vehicles are present. For Hill Street, the roadway is narrow, and the volume is low which further suggests this may occur. That said, the narrow roadway is not wide enough to support center line striping to define the travel path of motor vehicles and as such, this configuration may be confusing. In any case, the crossing should be cleared to maximize sight lines for both path users and motor vehicles in addition to installation of signage and markings. Alternative measures such as signals or beacons are not required.

The cost associated with the proposed signs and pavement markings is approximately **\$2,000**.

Alternative 2B: Bridge Crossing at Hill Street

Hill Street still retains the original stone abutments from the railroad bridge that previously crossed the road in a north-south orientation. The existing square distance between abutments is approximately 15 feet with a span length of 25 feet and skew of around 45 degrees.

With any option that crosses over Hill Street It is recommended that the existing stone masonry abutments be evaluated for reuse to support a new superstructure. The evaluation would determine what repairs or modifications are necessary to the existing abutments. Reusing the existing abutments, if structurally sound, will allow for significant cost savings over constructing new abutments at this location. Due to their historic nature, any plan that may impact or obscure the existing stone abutment structure should be coordinated with MHC.

To do this within the corridor parcels along both sides of the roadway will require some impact of the existing Stone Abutments as well as some new structural elements within the approach on both sides of

the crossing at Hill Street. As these existing stone block structures are included in the state's historic inventory structures, a review by the MHC will be required.

The bridge crossing would require a minimum vertical clearance of 16'-6" to meet the current MassDOT criteria. To achieve the minimum vertical clearance, it is anticipated that a railbed profile increase would be required. Additionally, it is anticipated that the existing stone abutments would need to be removed and new abutments constructed. The side slopes and ROW limits will require evaluation to determine if retaining walls will be considered necessary.

Relocation of overhead utilities to provide sufficient clearance from the bridge superstructure will be required.

As of this writing, the sole access points to the trail remain from the roadway requiring an accessible route to the trail corridor similar that described in Alternative 1A as an approach treatment to/from the roadway grade.

Options for proposed superstructure types include the following:

Cast-in-Place Concrete Slab

This superstructure option consists of a 12-inch-thick exposed cast-in-place concrete slab designed to span between abutments. The pedestrian railings add 8 inches of width on each side of the bridge, creating a total 15'-4" out-to-out width. Construction for this option requires temporary support of formwork from the road below, requiring closure of the roadway for an extended amount of time. This type of construction allows for flexibility in the span length in case the expected site conditions do not match up exactly as anticipated. This Option has the shallowest depth of construction of the evaluated options.

This Option is the least expensive of the evaluated options.

Rolled Steel Beams

The superstructure would consist of W beams with an 8-inch exposed cast-in-place concrete deck. An ornamental steel pedestrian rail adds 8 inches of width on each side of the bridge, creating a total 15'-4" out-to-out width. Compared with Option A, this type of construction eliminates the need to support the deck formwork from the existing roadway below but would require one day (night) closure to install the bridge. This Option has slightly less flexibility in span length than Option A with regards to unanticipated field conditions. This Option has approximately 12 inches more depth of construction than Option A. Availability of space to stage the bridge installation would need further evaluation

This Option ranks second of the evaluated options in terms of cost.

Prefabricated Truss

The superstructure would consist of a prefabricated steel truss with a concrete deck. Total out-to-out width will be 14'-10". Compared with Option A, this type of construction eliminates the need to support deck formwork from the roadway below. This Option has the least amount of flexibility in span length with regards to unanticipated field conditions. The depth of construction of the superstructure will vary

depending on the bridge supplier, but it is anticipated that depth of construction will be greater than that of Option A.

This Option is the most expensive of the evaluated options.

The expected costs for the construction of a bridge over Hill Street is approximately **\$860,000**. This cost does not include utility coordination or relocation and assumes that additional wingwalls will be required along the ROW. This cost also does not include any approach pathway work.

5. IMPACT ASSESSMENT OF PRIMARY AND ALTERNATIVE ALIGNMENTS

The assessment of impacts from the construction of the proposed Greenway is based on the known existing conditions and the proposed alignment with alternatives as described above. The impact assessment is an approximation based on limited information that will provide the Town with a practical basis for future decisions regarding approach and further investments in design and construction of this facility.

RIGHT OF WAY IMPACTS

Constructing a shared use path for public use along this corridor will require the Town to secure the Right of Way regardless of the source of funding. As stated above, the corridor consists of three privately and independently held parcels along its length. The Town, as trail manager, will need to acquire each parcel or otherwise gain the right to use the parcel indefinitely prior to completion of the final design and permitting. This is typically accomplished one of three ways⁶:

1. **Full Transfer of ownership (fee acquisition).** This arrangement can be costly but provides the most flexibility. Fee acquisition may be accomplished through a mutual agreement between parties or by eminent domain, which consists of acquiring the land by government order.
2. **Acquisition of Easement.** This arrangement would include a landowner granting the right to the Town the right to the use of their property for a particular use, on a permanent basis. For a fee, the Town would be permitted to build the specified facility while assuming certain specified responsibilities such as maintenance. An easement is written into the deed of the parcel. The owner retains title to the land and the easement should be transferable in the event of the sale of the property. Easements can be acquired by eminent domain or through legal agreements that are mutually agreed on by both parties.
3. **Lease or License.** This arrangement is a fixed-term rental. This arrangement is risky for the Town due to construction costs and the lack of control over continuous, long-term public access. If necessary, lease or license arrangement may be best suited to accommodate a non-essential use off the main corridor such as parking or other trail amenities.

Acquisitions along the corridor may be required to provide parking or public access to the corridor. Additional acquisitions or temporary easements at the intersections with existing roadways may be required to accommodate construction, stormwater control, utility relocation, and other potential encroachments yet to be determined.

⁶ *Shared Use Paths: From Vision to Reality.* (MassTrails, 2018)

LAND USE AND ZONING SPECIAL PERMIT

Because a publicly accessed recreation facility such as the one proposed is not listed in the zoning bylaws as a permitted use within either the commercial or the residential zones, the Town should apply to the Zoning Board of Appeals for a special permit for all subject parcels once the right of way is secured. An additional special permit should be secured for improvements on Parcel 1 due to the Aquifer Resource Protection Overlay south of Pine Street.

ENVIRONMENTAL DOCUMENTATION AND PERMITTING

Based on the existing conditions of the Project Corridor, additional existing environmental studies will be required prior to advancing the design and permitting of the Project. Following collection of additional existing conditions information, multiple environmental permits and reviews will be required prior to construction. This section identifies additional environmental studies required and potential permitting needed to move this Project toward construction.

Additional Environmental Studies / Documentation

As the Greenway proceeds into the design phase, additional environmental studies should be considered. While some studies are required, others are recommended to support future permitting efforts. These studies include the following:

Resource Area Boundary Delineation

Completion of Resource Area Boundary Delineation will be required in accordance with the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131 Section 40 - the Act), the federal Clean Water Act (33 U.S.C. §1251 et seq (1972)), the Massachusetts Clean Waters Act (MGL Chapter 21 Section 26-53), and the Norfolk Wetland Protection Bylaw (Article VII, Section 2 – the Bylaw). Completion of the delineation will determine the limits of protected resources, which is necessary to complete resource area impact calculations and definitively determine the water resources permitting required to proceed to construction.

Vernal Pool Study

Completion of a Vernal Pool Study is recommended to determine whether the field-identified vernal pool qualifies for NHESP certification. Completion of this study would also provide the Town of Norfolk with sufficient information to determine whether this potential vernal pool is protected under the Bylaw.

NLEB Presence / Absence Survey

The USFWS initiated its 5-year status review for the Northern Long-Eared Bat, and, based upon the declining population trend for the species, it is very possible the USFWS may reclassify the species as Endangered at the end of the 5-year review process. In the event of an Endangered listing, the current 4(d) Rule would no longer be valid, and the USFWS would publish a new rule associated with the Endangered listing, which would likely include stringent regulations and Avoidance and Minimization Measures (AMMs) to protect the bat from jeopardy of becoming extinct. If this were to occur, the rule and its associated regulations would apply to areas considered within the range of the Northern Long-Eared Bat (as shown in IPaC), unless the species is not considered present within a project area as determined through completion of a presence/absence surveys conducted in accordance with USFWS guidelines.

Accordingly, completion of a Northern Long-Eared Bat summer presence/absence survey using acoustic detection methods, in accordance with the 2020 survey guidelines, may be required as the Greenway design advances to determine whether this species is present along the Greenway.

Monarch Butterfly Habitat Assessment

While the Monarch Butterfly is not yet listed as a threatened or endangered species, it may be listed in the future. As the Greenway design progresses, an appropriately timed habitat assessment may be necessary to determine the presence of milkweed (*Asclepias* spp.) populations along the Greenway, as this plant species is the Monarch's obligate host plant. Completion of this assessment may allow the design to incorporate AMMs such as time of year restrictions, as well as mitigation, including planting milkweed species.

Article 97 Legal Opinion

Because there are no apparent impacts to parcels with Conservation Restrictions, Article 97 Land Disposition is not anticipated along the proposed corridor within the Town of Norfolk.

FEDERAL ENVIRONMENTAL REVIEW AND PERMITTING

National Environmental Policy Act (NEPA)

The primary law governing federal environmental protection process is the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as amended. The regulations of the Council on Environmental Quality (CEQ) implementing NEPA ensure that information on the social and environmental impacts of any **federally funded** action is available to public officials and citizens before decisions are made and before actions are taken. NEPA establishes an umbrella process through the preparation of an environmental review document for all federal actions affecting the environment. NEPA regulations direct federal agencies in their planning and decision making on federally assisted transportation projects to take into consideration the natural and social sciences, environmental amenities and values, air and water quality, historic preservation, parklands protection, habitat preservation, civil rights, and social burdens of transportation investments.

The process for complying with NEPA and related federal surface transportation statutes is defined in the joint Federal Highway Administration/Federal Transit Administration Environmental Impact and Related Procedures (23 C.F.R 771). The regulation sets forth the agencies' policy of combining all environmental analyses and reviews into a single process. It defines the roles and responsibilities of the federal agency and its grant applicants in preparing documents and in managing the environmental process within the various project development phases.

Should Greenway design or construction use federal funds, this Project would require NEPA review, however, because the Project will result in construction of a bicycle path, it is anticipated that the Greenway that will qualify as a "C-list" Categorical Exclusion (CE). Depending on the outcome of the Section 106 and Section 7 consultation (see below), the Greenway may require either an Individual CE or Programmatic CE.

National Historic Preservation Act - Section 106

Section 106 of the National Historic Preservation Act of 1966 as amended, and regulations of the Advisory Council on Historic Preservation (ACHP) (36 CFR 800) require federal agencies to take into

account the effects of their undertakings on historic properties during project planning and execution, and establishes a process for review and consultation with state historic preservation officers (SHPO – the Massachusetts Historic Commission), tribal historic preservation officers, representatives of local government, additional individuals and organizations with an interest in the undertaking, and the public. Section 106 review applies to resources listed in the National Register of Historic Places or determined by the consulting parties to meet National Register criteria.

During the Section 106 review process, historic properties are identified and evaluated for National Register eligibility; effects of the undertaking on historic properties are assessed; consultation occurs between the federal agency, SHPO, other interested groups and individuals, and the Advisory Council. This consultation is intended to produce an agreement (usually a Memorandum of Agreement) establishing measures that a project will undertake to avoid, reduce, or mitigate any adverse effects of the project on historic resources.

As previously described, the Greenway travels through the Old Pond – Valley – Hill Streets Inventoried Historic District (NOR.I) and may require alteration of, or removal of the historic bridge abutments, which are contributing structures to the Old Pond – Valley – Hill Streets Historic District.

Because it is possible that either federal funding or a federal permit will be required, a Project Notification Form (PNF) will likely need to be submitted to the Massachusetts Historical Commission and the Norfolk Historical Commission to initiate Section 106 Review.

Federal Endangered Species Act – Section 7

Should federal funding or a federal permit be required for the Greenway, consultation under Section 7 of the Endangered Species Act will be required.

- To satisfy informal consultation requirements under Section 7 of the Endangered Species Act as currently required, a Northern Long-Eared Bat Streamlined 4(d) submittal form is required to be sent to the USFWS, which will require quantification of the area to be cleared during construction. If no response from the USFWS is received after the passage of 30 days from submission, the project will have satisfied current consultation requirements under Section 7. As previously indicated, however, it is possible the USFWS may reclassify the NLEB as Endangered at the end of the 5-year review process. In the event of an Endangered listing, the 4(d) Rule would no longer be valid, and the USFWS would publish a new rule associated with the Endangered listing which would likely include stringent regulations and AMMs, such as time of year restrictions on clearing and lighting requirements. Accordingly, Programmatic Consultation For Transportation Projects Affecting NLEB may likely be required.

Should the NLEB be present, as determined through a presence/absence survey, Section 7 consultation may result in a Likely to Adversely Affect (LAA) finding which would require incorporation of relevant AMMs into the design and construction schedule.

- The Monarch Butterfly is a candidate species and not yet listed or proposed for listing. Accordingly, there are generally no Section 7 consultation requirements for this species.

Section 404 of the Clean Water Act

Construction of the Greenway may require temporary and/or permanent impacts to waters of the United States, depending on grading requirements and/or culvert replacement needs. Work requiring

filling below the boundary of vegetated wetlands or OHWM of the onsite streams is Subject to Jurisdiction under Section 404 of the Clean Water Act and will require some level of permitting through the US Army Corps of Engineers.



There are several existing stone block culverts along the corridor which facilitate storm water flow.

Based on the anticipated impacts to waters of the US (should any be required), the Greenway will likely qualify for either Self-Verification or a Pre-Construction Notification (PCN) under the Department of the Army General Permits for the Commonwealth of Massachusetts.

While it is anticipated that a PCN will be required in accordance with General Condition 10.b.i. under the Massachusetts General Permit (as the removal of trees >3 inches d.b.h. (diameter at breast height) is anticipated to be required to construct the Greenway and the Greenway is located within the habitat of the NLEB), depending on the Greenway's funding source and impacts, it is possible that the project could qualify as a Self-Verification.

National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP)

Construction of the Greenway will disturb greater than one (1) acre of land and has the potential to discharge stormwater to waters of the United States and/or to a storm sewer. Accordingly, the Construction contractor will require coverage under the EPA NPDES CGP. It is anticipated that the contractor will be responsible for acquiring coverage under the CGP.

STATE ENVIRONMENTAL REVIEW AND PERMITTING

Massachusetts Environmental Policy Act

Massachusetts Environmental Policy Act (MEPA) review is required for projects that involve state agency action (such as funding or permits) and that exceed a review threshold. Because it is unknown if the Greenway will be completed using state funds, all thresholds under 301 CMR 11.03 were evaluated to determine if MEPA review may be required.

Below is an analysis of MEPA ENF thresholds that could potentially be exceeded:

11.03 (1) Land

1. The Project will not result in alteration of 25 or more acres of land (the Project locus is nearly 100% previously developed) and will create ~1.5 acres of new impervious area (<5 acres).
2. No parcels protected under Article 97 are located within the limits of the Greenway in Norfolk.
3. No active agricultural land will be affected.
4. There will be no release of interest in land held for conservation, preservation or watershed preservation purposes.
5. The Project is not located in an urban renewal area.

11.03(3) Wetlands, Waterways and Tidelands

1. While it is unknown if there will be impacts to Wetlands, Bank or Land Under Water, no state wetlands permits are anticipated.
2. There will be no construction of a new dam.
3. There are no Dams present along the Greenway.
4. No dredging within jurisdictional waterways is anticipated at this time.
5. The Project will not affect jurisdictional tideland areas.

11.03(6) Transportation

1. The Project does not involve construction of a new roadway; or widening of an existing roadway.
2. The Project is not the construction of a new interchange on a completed limited access highway.
3. The Project is not the construction of a new airport or a new runway or terminal at an existing airport.
4. The Project is not the construction or discontinuation of a new rail or rapid transit line.
5. The Project will not generate new ADT on a roadway providing access to a single location.
6. The Project will not result in the construction of new parking spaces.
7. The Project does not involve construction, widening or maintenance of a roadway or its right-of-way.

11.03(10) Historical and Archaeological Resources

1. The Greenway travels through the Old Pond – Valley – Hill Streets Inventoried Historic District (NOR.I) and will likely require alteration or removal of the historic railroad bridge abutments, which are contributing structures to the Old Pond – Valley – Hill Streets Inventoried Historic District.
2. Because work is proposed within an inventoried Historic District and will likely result in alteration of contributing structures, review by the Mass Historical Commission under Chapter 254 and Section 106 are anticipated, should state and/or federal funding be used for design or construction.
3. Without a “Finding of Effect” from MHC or an executed Memorandum of Agreement (MOA), it is unknown if the threshold at 301 CMR 11.03(10)(B)(1) will be exceeded. If MHC finds the Project will not have an Adverse Effect on the historic resources listed above or an MOA is executed, this threshold would not be exceeded.

The Project may currently meet or exceed any regulatory review thresholds established under the MEPA Regulations at 301 CMR 11.03, with potential exceedances of the Article 97 Disposition and Historic Resource Impacts thresholds. Therefore, review under the Massachusetts Environmental Policy Act (MEPA) may be required for the Project.

Section 401 of the Clean Water Act

While construction of the Greenway may result in impacts to waters of the United States (Figure 3), it is anticipated that these impacts will not exceed 5,000 square feet, and that sediment excavation (if required for construction) will not exceed removal of 100 cubic yards. Accordingly, submission of a Section 401 Water Quality Certification (WQC) Application is not anticipated to be required, as the Order of Conditions will serve as the 401 WQC.

Massachusetts Historic Preservation Act - Chapter 254

Under M.G.L. Chapter 9, sections 26-27c, as amended by Chapter 254 of the Acts of 1988, (950 CMR 71) (referred to as “Chapter 254”), the MHC has review authority of projects undertaken, funded, or licensed by a state body to determine whether such project would have any adverse effect on properties listed in the State Register of Historic Places. The review process mirrors the Section 106 process (see above) with the exception that projects that involve only inventoried properties and in the absence of any State Register properties, are not subject to Chapter 254 review.

The Greenway is located within a historic district that is inventoried in the State Register of Historic Places and therefore, the proposed improvements may be subject to review by the MHC in compliance with Chapter 254. The MHC will review the Greenway for its effects on the Historic Districts.



Example of the reuse of stone blocks for slope stabilization and seating on the Cochituate Rail Trail

The MHC’s regulations allow for the coordination of Chapter 254 review with Section 106 review. Completed review under Section 106 would fulfill compliance with Chapter 254.

LOCAL ENVIRONMENTAL REVIEW AND PERMITTING

Massachusetts Wetlands Protection Act and Norfolk Wetlands Bylaw

Portions of the Project are located within the 100-foot buffer zones to BVW and Bank, which are Subject to Jurisdiction under the Massachusetts Wetlands Protection Act (M.G.L. 131, Section 40) and Subject to Protection under the Bylaw. In addition, construction of the Greenway may require temporary and/or permanent impacts to protected resource areas, including BVW, Bank and/or LUW depending on grading requirements and culvert replacement needs.

Because the Project proposes work within protected areas, the Project will require an Order of Conditions from the Norfolk Conservation Commission under the Massachusetts Wetlands Protection Act and Norfolk Wetlands Protection Bylaw.

The Greenway will need to be designed to avoid impacts to BVW, Bank and LUW to the extent possible. Erosion controls will be required along the limit of work to protect water quality during construction. Should impacts to BVW, Bank or LUW be required to construct the Greenway, mitigation will be required, which may include wetland replication in accordance with the Performance Standards at 310 CMR 10.55(4)(b), restoration planting, invasive species management, Bank stabilization with coir logs, and LUW restoration.

Should construction of the Greenway require replacement or rehabilitation of one or more of the cross-culverts, resource area impacts will be unavoidable. The design of any required culvert replacement should consider compliance with the Massachusetts Stream Crossing Standards.

As part of the Notice of Intent application to the Norfolk Conservation Commission, a Stormwater Management Report and Checklist will be also required to document compliance with the Massachusetts Stormwater Regulations and Standards at 310 CMR 10.05(6) (k-q). Because a portion of the Greenway is located within a Stormwater Critical Area, specific Best Management Practices are required.

HAZARDOUS MATERIALS

Figure 1 shows the limits of the Southwood Hospital property which includes three parcels including the subject parcel included in the greenway corridor. The MCP “Disposal Site” is not well defined at this point, so we have to conservatively assume any portion of the Southwood Hospital facility is potentially part of the Disposal Site at this point. The proposed greenway appears to be located on Southwood Hospital property all the way from the Walpole town line to Hill Street, Norfolk. BETA anticipates that the owner’s environmental consultant (EnviroTrac) will eventually narrow down the extent of the Disposal Site to one or more smaller areas.

- The Town should coordinate any plan that would potentially disturb the soil within the Southwood Hospital site. EnviroTrac’s LSP would need to be involved. Any disturbed soil that is found to be contaminated should be removed for off-site disposal. Soil capping is also an option but would still need to be coordinated with Southwood’s owner and LSP. In order for them to ultimately achieve regulatory closure with MassDEP, EnviroTrac will still need to be involved, for example, they may need to disturb the capped greenway for future testing activities (or they may want to incorporate the soil cap as part of their planned solution).

- If the Town were to purchase the portion of the Southwood property that comprises the proposed greenway, the contamination will still have to be cleaned up or addressed to MassDEP’s satisfaction. The Town should not take on any liability/responsibility for site cleanup if they decide to purchase the land but require that the current owner continues to be the party responsible for cleanup. The Town would have to allow access to the greenway for environmental consultants to continue assessment activities, as appropriate.
- Environmental assessment activities at the Southwood property are ongoing. Additional testing could reveal additional contamination. The fact that the Disposal Site has not achieved closure with MassDEP is concerning because the proposed use of the greenway as a recreational area is considered a sensitive use. A Health Risk Assessor should be consulted to evaluate potential risks to future recreational users of the greenway. This is typically done as part of assessment activities performed by the owner, often toward the end of site assessment activities. It is not known when or if the current owner or their consultant will be consulting with a Health Risk Assessor. Public opinion regarding health risks may cause the location of the proposed greenway project to be unfavorable.

| Activity | Timeline |
|--|----------------|
| Phase II Investigation | |
| Compile and evaluate all available data for all AOCs | February 2022 |
| Field inspection and verification of existing MWs | March 2022 |
| Conduct comprehensive GW monitoring event | March 2022 |
| Compile and evaluate new GW data | May 2022 |
| Identify data gaps | June 2022 |
| Conduct additional site investigations to fill data gaps | September 2023 |
| Compile all data and produce figures, tables and graphs | November 2023 |
| Complete Method 3 Risk Characterization, including Eco Risk | February 2024 |
| Submit a Revised Phase II CSA | March 26, 2024 |
| Revised Phase III – Remedial Action Plan | March 26, 2025 |
| Revised Phase IV – Remedy Implementation Plan | March 26, 2025 |
| Permanent Solution Statement, Temporary Solution Statement or ROS | March 26, 2026 |
| | |

Southwood Hospital Site LSP 21E Remediation Schedule from Draft Phase II scope of Work (EnviroTrac, 12/27/2021)

All along the corridor, the risk of contaminated soil remains a possibility due to the past rail activity; however, due to the single track and low volume nature of the rail activity, the risk of substantial soil contamination from rail activity is low. Due diligence should be followed in the design and construction phases as recommended in the MassDEP guidelines⁷.

SAFETY AT INTERSECTIONS

Bridge crossings over Pine Street/Hill Street would minimize potential conflicts between trail users and motor vehicles. At-grade crossings can be provided that can minimize the risk of conflict using a range of suitable treatments described above.

At both the Pine Street and the Hill Street crossing location, an at-grade crossing is a feasible option. Additional study of traffic conditions should be conducted to confirm the proposed treatment for the at-grade road crossing at both locations.

⁷ <https://www.mass.gov/doc/best-management-practices-for-controlling-exposure-to-soil-during-the-development-of-rail-0/download>

ACCESS, PARKING, AND OTHER AMENITIES

As of this writing, the primary public access point to the trail using all alternative alignments will be from the Pine Street right of way at the trail crossing. While this access point will be built into the at-grade crossing alternative here (Alt. 1A), the bridge alternative (Alt. 1B) will require an additional approach to the 5'-wide sidewalk at street level on the north side of Pine Street similar to that described in Alternative 1A as an approach treatment to/from the roadway grade.

Designated parking would improve the public's access to the shared use path. Parking within the subject parcels or other Town-owned parcels, does not appear feasible due to the terrain and limited access points from the public right of way.

If parking is provided, accessible parking stalls and access routes to the shared use path facility are required by the ADA and Commonwealth of Massachusetts Regulations.

Additional amenities may include benches, trash receptacles, wayfinding and informational signage. Coordination of such features with a design standard and branding package may provide a more attractive facility that inspires visitors and fosters community pride.

PUBLIC SAFETY

Public Safety officials, including police and fire, should review concept plans for comment. Considerations should be given to incident response, vehicle access, and general safety of trail users as well as abutting property owners.

OPERATIONS AND MAINTENANCE

Public Works officials should review concept plans for comment. It is anticipated that Town staff and equipment may be utilized for maintenance of vegetation overgrowth, surface repairs, and trash pickup. The Greenway plan should be reviewed to confirm available equipment and staffing capacity.

CONSTRUCTION COST

Planning-level construction cost estimating is based on current MassDOT standards and specifications including:

- Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges (2020).
- Massachusetts Department of Transportation Construction Standard Details, Highway Division (October 2017)
- Massachusetts Construction Project Estimator, Highway Division (current)⁸

Four typical sections were developed to reflect the various treatments that may be applied along specified segments of the alignment. Unit costs for each treatment were developed using standard MassDOT items and recent bid pricing provided by MassDOT (as of January 2022). All Cost Estimates include a 40% contingency (Stormwater 10%, Mobilization 5%, General Construction 25%). The following improvement types were considered for this planning study:

⁸ <https://hwy.massdot.state.ma.us/CPE/WeightedAverageCriteria.aspx>

| TYPICAL SECTION TREATMENT | UNIT COST ^{2,3} |
|---|--------------------------|
| | \$/LF ⁴ |
| Typical Section 1: 12'-wide Shared Use Path With 2-foot Grassed Shoulders | \$213 |
| Typical Section 2: 12'-wide Shared Use Path With Cedar Railing on 1-Side | \$364 |
| Typical Section 3: 12'-wide Shared Use Path With Cedar Railing on 2-Sides | \$409 |
| Typical Section 4: 12'-wide Shared Use Path With Cedar Railing on 1-Side 4'- high Retaining Wall on Other | \$644 |

A detailed description of Improvements and their unit costs are provided in the Appendix. The cost of removing the existing bridge abutments on Hill Street is TBD and not included in these estimates.

An order of magnitude cost estimate was developed to determine a range of probable construction costs. The estimated construction cost is based on the typical section and unit cost extended along the length of the Greenway. Alternative treatments at Pine Street and Hill Street were developed to determine a range of probable construction cost based on four possible scenarios (i.e.: Primary Alignment+1A+2A, Primary Alignment+1A+2B, etc.).

| GREENWAY SEGMENT | Typical Section 1 | | Typical Section 2 | | Typical Section 3 | | Typical Section 4 | | Crossing Treatments | TOTALS |
|--------------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-------------------|-----------------------------|-----------------------|-----------------------|
| | Length (ft) | Approx. Unit Cost (\$\$/ft) | Length (ft) | Approx. Unit Cost (\$\$/ft) | Length (ft) | Approx. Unit Cost (\$\$/ft) | Length (ft) | Approx. Unit Cost (\$\$/ft) | Estimated Cost (\$\$) | Estimated Cost (\$\$) |
| Primary Alignment | 2,325 | \$213 | 600 | \$364 | 1,375 | \$409 | | | | \$1,277,233 |
| Alternative 1A | | | | | | | | | | |
| Approaches | | | | | | | 800 | \$644 | | \$515,200 |
| Pine Street At- Grade Crossing | | | | | | | | | \$25,000 | \$25,000 |
| Alternative 1A Total | | | | | | | | | | \$540,200 |
| OR | | | | | | | | | | |
| Alternative 1B | | | | | | | | | | |
| Approaches | 800 | \$213 | | | | | 400 | \$644 | | \$428,267 |
| Pine Street Bridge Structure | | | | | | | | | \$3,050,000 | \$3,050,000 |
| Alternative 1B Total | | | | | | | | | | \$3,478,267 |
| + | | | | | | | | | | |
| Alternative 2A | | | | | | | | | | |
| Approaches | | | | | | | 400 | \$644 | | \$257,600 |
| Hill Street At- Grade Crossing | | | | | | | | | \$2,000 | \$2,000 |
| Remove stone block abutments | | | | | | | | | \$220,000 | \$220,000 |
| Alternative 2A Total | | | | | | | | | | \$479,600 |
| OR | | | | | | | | | | |
| Alternative 2B | | | | | | | | | | |
| Approaches | 400 | \$213 | | | | | | | | \$85,333 |
| Hill Street Bridge Structure | | | | | | | | | \$860,000 | \$860,000 |
| Remove stone block abutments | | | | | | | | | \$220,000 | \$220,000 |
| Alternative 2B Total | | | | | | | | | | \$1,165,333 |

Lowest Estimated Total Cost **\$2,300,000**

Highest Estimated Total Cost **\$5,930,000**

Notes:

1. Construction cost estimate should include Primary Alignment with possible combined alternatives (1A+2A, 1A+2B, 1B+2A, or 1B+2B). Estimate is for planning purposes only.
2. Based on Unit Price Statistics from MassDOT for period 01/2021 to 01/2022 for all districts. Order of Magnitude Construction Cost Estimate does not include the following items: survey, design fees, ROW acquisition, permitting, traffic study, and utility modifications if necessary.
3. Estimate includes an Order of Magnitude Construction cost. A 40% contingency has been added to the above unit costs.
4. Linear estimates based on 12'-wide shared use path
5. Removal of existing stone structures on Hill Street assume removal up to 2' - below grade to minimize impact to subsurface materials and do not consider salvage or reuse on site.

Estimated Construction Cost Summary –Unit Cost basis (\$/ft)

Metacomet Greenway Feasibility Study Summary of Findings

| Impact Criteria | Primary Alignment | @ Pine Street | | | @ Hill Street | | | | |
|---|--|-----------------------------------|---|---------------------------------|--|----|--|----|--|
| | | Alternative 1A: At-Grade Crossing | OR | Alternative 1B: Bridge Crossing | Alternative 2A: At-Grade Crossing | OR | Alternative 2B: Bridge Crossing | | |
| Right of Way | Proposed shared use path will require acquisition of public right of way from individual property owners on three (3) separate parcels. Including: 18-82-4, 25-84-8, and 26-86 | + | In addition to Parcel 1 + 2 right of way acquisition, potential impact to parcel 25-82-1 as alignment brought down to street level along western parcel boundary from change in grade. Permanent and temporary impacts from excavation and wall construction anticipated | OR | In addition to Parcel 1 + 2 right of way acquisition, temporary impacts are anticipated during construction. | + | In addition to Parcel 1 + 2 right of way acquisition, temporary impacts are anticipated during construction. | OR | In addition to Parcel 1 + 2 right of way acquisition, temporary impacts are anticipated during construction. |
| Environmental Permitting (Federal Funding) In addition to below | NEPA review will be required. Anticipate that project will qualify for a Categorical Exclusion (CE) based on outcome of Historic (Section 106) and Endangered Species (Section 7) findings | + | No additional impacts anticipated | OR | No additional impacts anticipated | + | No additional impacts anticipated | OR | No additional impacts anticipated |
| Environmental Permitting (State/Federal Funding) In addition to below | MEPA review may be required. | + | No additional impacts anticipated | OR | No additional impacts anticipated | + | No additional impacts anticipated | OR | Disturbance of existing stone abutments would need review by Mass. Historic Commission, Additional |
| Environmental Permitting (Local/State/Federal Funding) | Order of Conditions and Notice of Intent, from Conservation Commission, Stormwater BMP's and erosion controls required | + | No additional impacts anticipated | OR | No additional impacts anticipated | + | Removal of existing stone abutments would need review by Mass. Historic Commission, Additional disturbance from excavation and wall construction will require wetlands permitting and water quality certificate. Excavation for approach may impact one or more existing cross culverts on north side of Hill Street. Repair or replacement plans must comply with Mass. Stream Crossing Standards | OR | Disturbance from excavation and bridge construction will require wetlands permitting and water quality certificate. Repair or replacement plans must comply with Mass. Stream Crossing Standards |
| Hazardous Materials | Coordinate all necessary soil disturbance north of Hill Street with the pending remediation plan for Southwood Hospital Site. | + | No additional impacts anticipated | OR | No additional impacts anticipated | + | Parcel 3 (north of Hill Street) is connected to Southwood Hospital by deed. If constructed prior to final remediation plan, Town would be providing formal access to a known contaminated site. | OR | Parcel 3 (north of Hill Street) is connected to Southwood Hospital by deed. If constructed prior to final remediation plan, Town would be providing formal access to a known contaminated site. |
| Utility Relocation | No impacts anticipated | + | No additional impacts anticipated | OR | Bridge crossing of Pine Street may require the relocation of the overhead Utility lines along the north side of the road. | + | No additional impacts anticipated | OR | Bridge crossing of Hill Street may require relocation of overhead utility lines |
| User Safety | Shared Use Path provides maximum safety for non-motorized transportation and recreation for all ages and abilities. Signage and education can communicate user protocols to reduce conflict with speed typical differential. | + | Pine Street is a Town Road. The trail crossing at grade will create a potential new conflict point for vehicles, cyclists and pedestrians along Pine Street. Existing speeds and volumes on at this location may require a flashing pedestrian beacon to alert drivers that a trail user intends to cross the road. | OR | Bridge crossing of Pine Street would not introduce an additional conflict point for users and would maximize safety at road crossings. | + | Hill Street is a Town Road. The trail crossing at grade will create a potential new conflict point for vehicles, cyclists and pedestrians along Hill Street. Existing speeds and volumes on at this location are low, but considerations should be made to the visibility of non-motorized users. | OR | Bridge crossing of Hill Street would not introduce an additional conflict point for users and would maximize safety at road crossings. |
| User Access | Shared Use Path will meet Federal (ADA Title II) and State (521 CMR) accessibility requirements along the trail and at public access points. Currently public access is from Pine Street and Hill Street right of Way. | + | Access point is integral to the at-grade crossing. Approaches on both sides of Pine Street to the right of way will include connection to the sidewalk along the north side of Pine Street. This location will be the primary public access to the trail. | OR | Bridge crossing of Pine Street will require additional accessibility considerations from public access points which are currently from the sidewalk at street level along the north side of Pine Street. Bridge crossing here will need to include one of the approaches described in Alt. 1A. | + | Access point is integral to the at-grade crossing. Approaches to the right of way will include connection to the roadway on both sides of Hill Street. Because of the lack of a formal bicycle or pedestrian facility along Hill Street, this location will be a secondary access point to the trail. | OR | Bridge crossing of Hill Street would not provide additional public access to the trail from Hill Street. |
| Construction Cost | \$1.30M | + | \$540K | OR | \$3.50M | + | \$480K | OR | \$1.20M |

NOTES:

- 301 CMR 11.00 establishes review thresholds that determine when a project requires MEPA review. A project that accepts State or Federal funding is potentially within MEPA jurisdiction
- Where the preferred alignment meets or exceeds the MEPA threshold, alternative alignments should be considered.
- Construction cost estimate should include Primary Alignment with possible combined alternatives (1A+2A, 1A+2B, 1B+2A, or 1B+2B). Estimate is for planning purposes only.

6. RECOMMENDATIONS

The preferred alignment will be identified by the Town and should be based on the following considerations:

Right of Way

- Town should consider engaging with the owners of the three subject parcels as well as any parcel identified on the plans to be impacted by the proposed project. A value appraisal should be done to determine the anticipated funding required and a feasible arrangement negotiated in each case.
- Town should consider the corridor identified here as well as possible additional access points and pathways to the trail not yet identified.
- Town should consider appealing to the Town's Zoning Board to approve the construction of a Shared Use Path as an eligible use on the subject parcels. This process is not required if the Greenway is constructed with TIP funding.
- Town should consider coordinating further planning of the Greenway with the adjoining towns of Wrentham and Walpole to ensure that their proposed Greenway segments will align the Town's preferred alignment.

Environmental Permitting Strategy

- Town should coordinate the Greenway alignment with Conservation Commission early in design phase.
- MEPA Review may be required. Further assessment of environmental resources will be required as the project moves into the design phase.
- All possible alternatives will require some impact within the Old Pond – Valley – Hill Streets Inventoried Historic District (NOR.I) and will likely require alteration or removal of the historic railroad bridge abutments, which are contributing structures to the Old Pond – Valley – Hill Streets Inventoried Historic District. Early coordination with Massachusetts Historical Commission is recommended prior to substantial design efforts to the Greenway corridor. Town might consider proposals that would reuse the stone blocks on site to maintain the historic connections. Such elements as new retaining walls and seating areas may benefit from the keeping the stone blocks on site.

Minimizing Risk

- Town should coordinate planning for proposed Greenway north of Hill Street with the ongoing Phase II Investigation and the LSP at Southwood Hospital Site. Once the Investigation and action plan have been finalized, it may be possible to isolate the subject parcel (Parcel 3) for acquisition.

Accessibility

- The Greenway must be designed to the requirements of the ADA and 521 CMR for accessibility.
- Fully accessible public access to the proposed alignment may be limited to the sidewalk on the north side of Pine Street where Alternatives 1A and 1B would provide equal accommodation for all users. If parking or additional access points are provided, the Town shall make reasonable accommodations to comply with ADA accessibility standards.

User Safety

- Bridge crossings of Pine Street and Hill Street would eliminate potential user conflicts with motor vehicles and would provide the highest level of safety of the alternatives along the proposed corridor. At-grade crossings are a less costly alternative and can meet and can meet an acceptable level of safety by prioritizing pedestrian safety with warranted traffic control measures, advanced warning signage, and lighting of path approaches.
- Signing and striping should be used along the path to designate user protocols to reduce conflicts
- Clear shoulder areas along the trail should be wide enough for users to pull off the trail when stopping to let others pass

Abutting Owner Safety

- Town should consider privacy screening for residential properties on a case-by-case basis.
- Town should consult with public safety officials to ensure trail design is consistent with Town safety protocols

Phasing

- Town should consider waiting until the Phase II investigation of the Southwood Hospital is complete prior to committing funds to the proposed Greenway corridor as described above. Phase II investigation is scheduled to be complete by March 2026.
- Town should consider the potential disturbance on the north side of Hill Street on Parcel 3 before determining the crossing treatment at Hill Street. Town should coordinate all potential disturbance with the responsible LSP assigned to the Southwood Hospital site prior to final design and construction.
- Town may construct other greenway segments based on available funding.

Project Funding

- Funding and implementation of the Metacomet Greenway should be coordinated between the Town and the organizers of the Metacomet Greenway.
- Typically, the municipality funds planning efforts.
- Town should look to State and Federal sources for possible design and construction funding of some or all of the proposed Greenway within Norfolk.
- Potential funding sources for Design and Construction include:
 - **Chapter 90**
 - **MassTrails**⁹ Design and Construction grants up to \$300K. Prioritizes longer distance trail networks. Can also be used for land or easement acquisition. Requires 20% match. Offered annually, due February 1.
 - **Community Preservation Act (CPA)** funds through CPA the can be used for design, construction and acquisition of land, and matching funds for Mass Trails grant. In its 2020 Annual report, the Norfolk Community Preservation Committee (CPC) indicated

⁹ <http://www.mass.gov/guides/masstrails-grants>

that the CPC is considering working with the Metacomet Greenway Trust to acquire the subject parcels for the construction of the Greenway in Norfolk¹⁰.

- **Complete Streets Funding** – Norfolk’s Complete Streets Prioritization Plan identifies the “Pondville Shared Use Path” as number 25. Shared Use Paths are eligible under this program. Total funding for program is \$400K/5 years.
- **Federal Transportation Funds** require that projects are programmed, typically through the Transportation Improvement Program (TIP) and the MassDOT project intake process. The Town should contact their Municipal Planning Organization (Boston Region MPO) or MassDOT (District 5) to initiate the project.
 - **Safe Routes to School (SRTS)**
 - **Transportation Alternatives Program (TAP)**
 - **Congestion Mitigation and Air Quality Improvement Program (CMAQ)**
- The use of local funding vs state/federal funding will affect the overall project timeline, permitting burden, required design elements, and overall project cost. The Town should consider working with the Metacomet Greenway organization and participating municipalities to discuss the overall vision, priorities, and respective funding opportunities and challenges.

Implementation

- Town should consider developing a preliminary design of their preferred alternative.
- Upon Conclusion of the Preliminary Design, Town should consider notifying owners of subject parcels (Parcels 1, 2 and 3) of their interest in the acquiring right of way for the Greenway.
- Town should consider coordinating with property owner of Southwood Hospital and their LSP (EnviroTrac) to better understand the progress of the Site remediation plan and to confirm possible contamination on Parcel 3.
- Town should consider engaging with the Massachusetts Historic Commission to indicate their intent to possibly remove the historic stone structures on Hill Street and seek a “Finding of Effect” or an executed Memorandum of Agreement (MOA).
- Town should consider engaging MassDOT and Boston MPO to initiate project into TIP system.

7. CONCLUSION

The Feasibility Study of the Metacomet Greenway in Norfolk has identified certain opportunities and constraints along the proposed corridor, but overall, the Greenway is a feasible project. In this report BETA has identified the key components, steps, and considerations that the Town should make prior to moving the project into design and construction. By coordinating with the identified agencies, stakeholders and the local community, the Metacomet Greenway in Norfolk will provide enjoyable transportation and recreation facility for years to come.

¹⁰ <http://www.virtualnorfolk.org/assets/files/boards-and-committees/community-preservation-committee/annual-reports/cpc-2020.pdf>

8. ATTACHMENTS

RR Valuation Map V7-42-13 (1915)

RR Valuation Map V7-42-14 (1915)

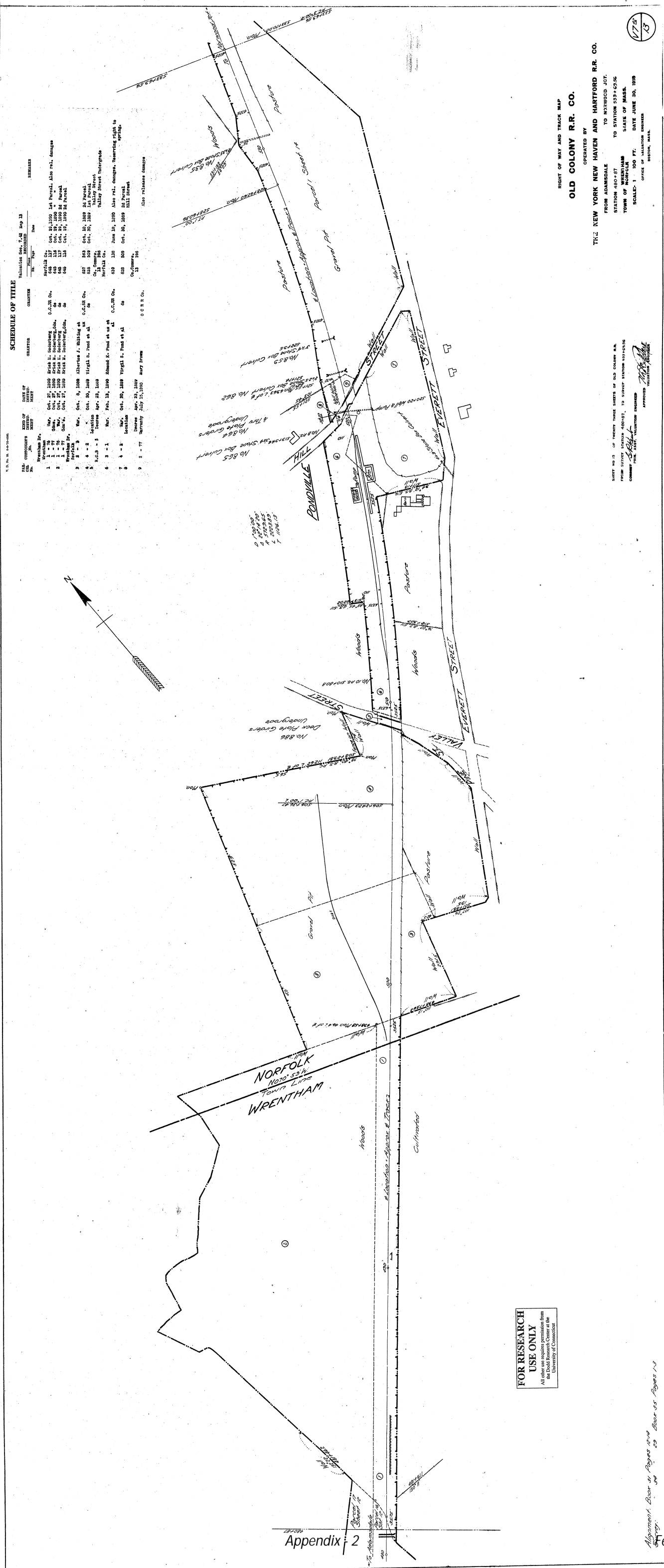
Quitclaim Deed (Parcel 3) Book 39063 Page 210

Confirmatory Deed (Parcel 3) Book 12163 Page 595

Quitclaim Deed (Parcel 1) Book 24263 Page 481

Quitclaim Deed (Parcel 2) Book 39672 Page 13

Unit Cost Development Details



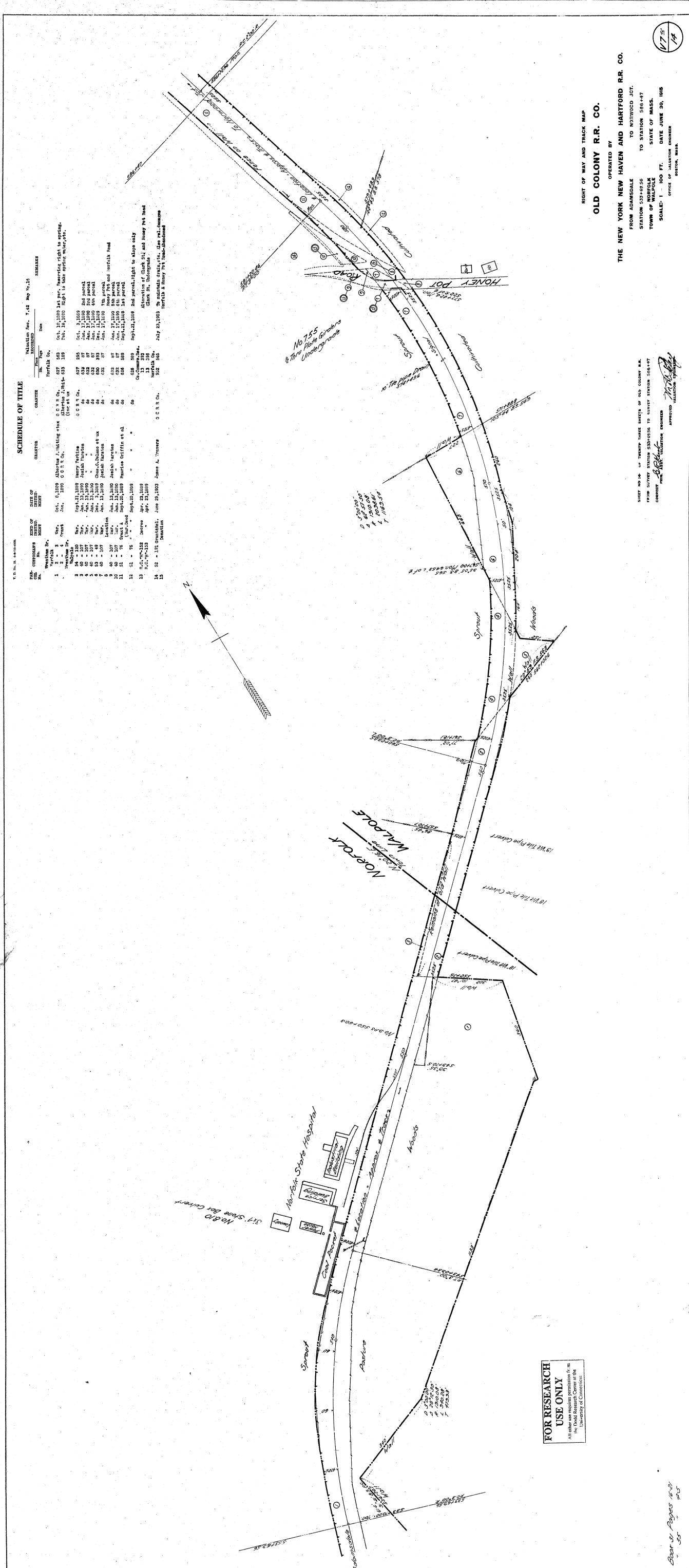
SCHEDULE OF TITLE

| NO. | CONVEYANCE | DATE OF DEED | CHARACTER | GRANTEE | REMARKS |
|-----|------------|---------------|-----------|---------|--|
| 1 | Deed | Oct. 27, 1880 | Warrant | Warrant | Also Parcel 124 Parcel 125 Parcel 126 Parcel 127 Parcel 128 Parcel 129 Parcel 130 Parcel 131 Parcel 132 Parcel 133 Parcel 134 Parcel 135 Parcel 136 Parcel 137 Parcel 138 Parcel 139 Parcel 140 Parcel 141 Parcel 142 Parcel 143 Parcel 144 Parcel 145 Parcel 146 Parcel 147 Parcel 148 Parcel 149 Parcel 150 Parcel 151 Parcel 152 Parcel 153 Parcel 154 Parcel 155 Parcel 156 Parcel 157 Parcel 158 Parcel 159 Parcel 160 Parcel 161 Parcel 162 Parcel 163 Parcel 164 Parcel 165 Parcel 166 Parcel 167 Parcel 168 Parcel 169 Parcel 170 Parcel 171 Parcel 172 Parcel 173 Parcel 174 Parcel 175 Parcel 176 Parcel 177 Parcel 178 Parcel 179 Parcel 180 Parcel 181 Parcel 182 Parcel 183 Parcel 184 Parcel 185 Parcel 186 Parcel 187 Parcel 188 Parcel 189 Parcel 190 Parcel 191 Parcel 192 Parcel 193 Parcel 194 Parcel 195 Parcel 196 Parcel 197 Parcel 198 Parcel 199 Parcel 200 Parcel 201 Parcel 202 Parcel 203 Parcel 204 Parcel 205 Parcel 206 Parcel 207 Parcel 208 Parcel 209 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RIGHT OF WAY AND TRACK MAP
OLD COLONY R.R. CO.
OPERATED BY
THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO.
FROM ADAMSDALE TO HAYWOOD JCT.
STATION 480+00 TO STATION 533+05.56
TOWN OF NORFOLK STATE OF MASS.
SCALE: 1" = 100 FT. DATE: JUNE 30, 1919
OFFICE OF VALUATION BOSTON, MASS.

SHOWN AS OF TWENTY THREE SHEETS OF OLD COLONY R.R. FROM ADAMS DALE STATION, TO STATION 533+05.56 COMM. FROM ADAMS DALE STATION, TO STATION 533+05.56
APPROVED: [Signature]
VALUATION ENGINEER

FOR RESEARCH USE ONLY
All other use requires permission from the University of Connecticut



SCHEDULE OF TITLE

| LINE | CONTRACTOR'S NO. | DATE OF DEED | GRANTOR | GRANTEE | REMARKS |
|------|------------------|--------------|----------------|---------------------|---------------------------------------|
| 1 | 1 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 2 | 2 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 3 | 3 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 4 | 4 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 5 | 5 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 6 | 6 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 7 | 7 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 8 | 8 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 9 | 9 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 10 | 10 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 11 | 11 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 12 | 12 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 13 | 13 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 14 | 14 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |
| 15 | 15 | 1870 | John A. Thayer | Old Colony R.R. Co. | Original grant to Old Colony R.R. Co. |

RIGHT OF WAY AND TRACK MAP
OLD COLONY R.R. CO.
OPERATED BY
THE NEW YORK NEW HAVEN AND HARTFORD R.R. CO.
FROM ADAMS DALE TO NOTWOOD JCT.
STATION 537+69.26 TO STATION 566+47
TOWN OF NORFOLK STATE OF MASS.
SCALE: 1" = 100 FT. DATE: JUNE 30, 1908
OFFICE OF VALUATION ENGINEER
BOSTON, MASS.

SHEET NO. 14 OF TWENTY THREE SHEETS OF OLD COLONY R.R.
FROM STATION 537+69.26 TO STATION 566+47
CONTRACT NO. 100-100-100-100-100
APPROVED
VALUATION ENGINEER

FOR RESEARCH USE ONLY
Approved for use by the
Norfolk Research Center at the
University of Connecticut

Alignment Bear. at Pages 45-2
Survey 100-100-100-100-100

N O T
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O F F I C I A L
C O P Y

MASSACHUSETTS
N O T
A N
O F F I C I A L
C O P Y

PROPERTY LOCATION: STRIP OF LAND ON THE NORTHEASTERLY SIDE OF EVERETT STREET, NORFOLK AT THE REAR OF #46 EVERETT STREET

KNOW ALL MEN BY THESE PRESENTS

That THE PENN CENTRAL CORPORATION, a Pennsylvania corporation, having an office at 1700 Market Street, Philadelphia, Pennsylvania 19103, hereinafter referred to as the Grantor, for consideration of TWO THOUSAND DOLLARS (\$2,000.00)----- paid, does hereby grant and release to MARY J. GOULD, whose mailing address is 46 Everett Street, Norfolk, Massachusetts 02056, hereinafter referred to as the Grantee, all the right, title and interest of the said Grantor of, in and to the premises described in Schedule "A" attached hereto and made a part hereof.

JUN 27 12 35 PM '83
RECORDED



N O T
A N
O F F I C I A L Case No. 84537 A N sam
C O P Y O F F I C I A L

SCHEDULE "A"

ALL THAT PARCEL of land situate in the Town of Norfolk, County of Norfolk and Commonwealth of Massachusetts, being a strip of land 55.25 feet wide lying 20 feet Northwesterly and 35.25 feet Southeasterly of the monumented baseline of the Wrentham Branch of railroad of Penn Central Transportation Company (now known as The Penn Central Corporation), said strip of land being described as follows; VIZ:

BEGINNING at a point in the Southerly line of Hill Street at the Northeast corner of that 1.664 acres parcel of land which has been conveyed by Robert W. Blanchette, et al, Trustees of the Property of Penn Central Transportation Company, to George E. Gould by deed dated April 6, 1978, said Northeast corner being distant 20 feet Northwestwardly measured radially from a point in the monumented baseline of the aforesaid Wrentham Branch at railroad baseline Survey Station 519+94.64;

EXTENDING from said beginning point the following four courses and distances:

- (1) Southwestwardly along the Easterly line of said land conveyed to George E. Gould, parallel with said baseline by a curve to the right having a radius of 5709.65 feet, an arc distance of 1060.53 feet to the Southernmost corner of said land of Gould in the North line of Pine Street; thence
- (2) Southeastwardly along said line of Pine Street for a distance of 59.00 feet, more or less, to a point distant 55.25 feet Southeastwardly measured radially from Course Number 1 herein; thence
- (3) Northeastwardly parallel with said Course Number 1 by a curve to the left having a radius of 5764.90 feet, an arc distance of 1155 feet, more or less, to a point in the Southerly line of Hill Street; thence
- (4) Westwardly along said line of Hill Street for a distance of 79 feet, more or less, to the place of beginning.

The above described parcel of land is also shown on a plan entitled "Plan of Land in Norfolk, Massachusetts prepared for Penn Central Transportation Co. Scale: 40 feet to the inch" dated October 22, 1977 and revised March 7, 1978, by C. A. Pickering Associates, Inc. Civil Engineers - Land Surveyors, as a strip of land Southeasterly of parcel MA D100 11-4 running from Pine Street to Hill Street, and described on said plan with the notation in said strip "N/F PENN CENTRAL TRANSPORTATION CO. TR'S". Said plan is recorded with Norfolk County Registry of Deeds as Plan No. 338 of 1978 in Book 267. A copy of said plan is attached hereto as "Exhibit 1".

N O T N O T

EXCEPTING AND RESERVING, however, to Grantor, easements for all existing wire and pipe facilities covered by agreements, occupancies and licenses, if any, between Grantor and other parties, of record or not of record, that in any way encumber the premises hereinabove described, together with the right to convey such easements to the occupant without securing approval of the Grantee herein. Grantor specifically reserves and retains all rentals, fees and considerations resulting from such agreements, occupancies, licenses and easement conveyances.

-2-

SUBJECT, however, to such state of facts that an accurate survey or personal inspection of the premises may disclose.

THIS DEED is delivered by Grantor and accepted by Grantee upon the understanding and agreement that should any claim adverse to the title hereby granted and released by asserted and/or proved, no recourse shall be had against the Grantor.

-3-

NOT AN OFFICIAL COPY MASSACHUSETTS NOT AN OFFICIAL COPY

THE words "Grantor" and "Grantee" used herein shall be construed as if they read "Grantors" and "Grantees", respectively, whenever the sense of this Indenture so requires and whether singular or plural, such words shall be deemed to include in all cases the heirs or successors and assigns of the respective parties.

IN WITNESS WHEREOF, the Grantor has caused these presents to be executed this 15th day of March A.D. 1983.

THE PENN CENTRAL CORPORATION

By: [Signature] RICHARD D. JORDAN, Director of Property Sales Administration

Attest: [Signature] SENIOR ASSISTANT Secretary



N O T
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O F F I C I A L
C O P Y

N O T
A N
M A S S A C H U S E T T S
O F F I C I A L
C O P Y

STATE OF PENNSYLVANIA :
:SS
COUNTY OF PHILADELPHIA:

ON THIS ~~15th~~ day of *March*, 1983, before me appeared Richard D. Jordan, to me personally known, who, being by me duly sworn, did say that he is the Director of Property Sales Administration of THE PENN CENTRAL CORPORATION, a Pennsylvania corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors and said Richard D. Jordan acknowledged said instrument to be the free act and deed of said corporation.

Dilledred C. Orluska
Notary Public

MR DRED C. ORLUSKA
Notary Public, Phila. Co.
My Comm. Expires May 26, 1984

NOT AN OFFICIAL COPY NOT AN OFFICIAL COPY

THE PENN CENTRAL CORPORATION

CERTIFICATE OF AUTHORITY

I, G. C. HOLPP, the SENIOR ASSISTANT SECRETARY of The Penn Central Corporation HEREBY CERTIFY as follows:

(1) The sale by The Penn Central Corporation (Corporation) of the following described real estate: A segment of the former Wrentham Branch containing about 1.388 acres, more or less, located between Pine and Hill Streets in the Town of Norfolk, Norfolk County, Massachusetts,

to George E. Gould for a consideration of \$2,000.00 has been duly authorized on behalf of the Corporation.

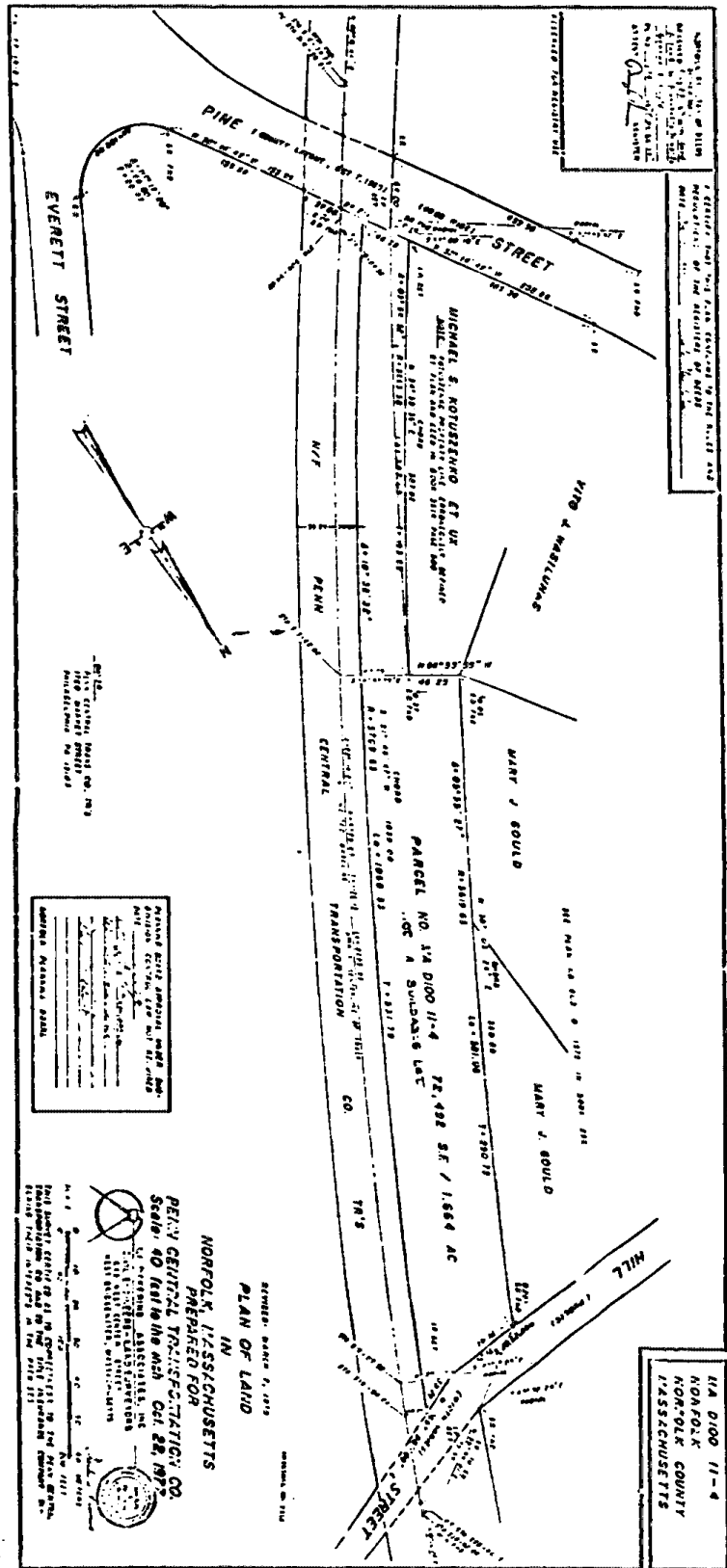
(2) Richard D. Jordan is Director, Property Sales Administration and Joseph J. Supon is Director of Leased Property and Special Sales, of this Corporation, and either of such officers is authorized to execute on behalf of the Corporation original agreements, contracts, deeds, leases, licenses, or other documents necessary or desirable to effectuate the foregoing sale.

(3) The authorizations described in the foregoing paragraphs (1) and (2) are in full force and effect.

WITNESS my hand and the corporate seal of said THE PENN CENTRAL CORPORATION, at Philadelphia, Pa. this 15th day of March, 1983.

[Handwritten signature and circular corporate seal of The Penn Central Corporation]

NOT AN OFFICIAL COPY OF FINANCIAL COPY OF FINANCIAL EXHIBIT 1



NOTED: THIS PLAN IS A DRAFT AND SHOULD NOT BE USED FOR ANY PURPOSES WITHOUT THE WRITTEN CONSENT OF THE PLANNING ASSOCIATES, INC.

| NO. | DATE | DESCRIPTION |
|-----|----------|--|
| 1 | 02/28/22 | PREPARED FOR PENNY CRITICAL TRANSPORTATION CO. |
| 2 | 02/28/22 | REVISIONS TO PLAN |
| 3 | 02/28/22 | REVISIONS TO PLAN |
| 4 | 02/28/22 | REVISIONS TO PLAN |
| 5 | 02/28/22 | REVISIONS TO PLAN |

NORFOLK, MASSACHUSETTS
IN
PLAN OF LAND
 REVISION: 02/28/22
 PREPARED FOR:
PENNY CRITICAL TRANSPORTATION CO.
 SCALE: AS SHOWN ON THE PLAN
 DATE: 02/28/22
 BY: PLANNING ASSOCIATES, INC.
 100 STATE STREET, SUITE 200, NORFOLK, MA 01901
 TEL: 781-754-1111
 WWW.PA-INC.COM

1A D100 11-4
 NORFOLK COUNTY
 MASSACHUSETTS

140746

N O T CONFIRMATORY DEED N O T

NORWOOD HOSPITAL, a Massachusetts corporation, having a principal place of business at 800 Washington Street, Norwood, Massachusetts, for consideration paid, and in full consideration of One Dollar (\$1.00) grants to SOUTHWOOD COMMUNITY HOSPITAL, INC., a Massachusetts corporation, having an address of 111 Dedham Street, Norfolk, Massachusetts, with QUITCLAIM COVENANTS:

ALL THAT PARCEL of land situate in the Town of Norfolk, County of Norfolk and Commonwealth of Massachusetts, bounded and described according to a plan of survey made by C. A. Pickering Associates, Inc., Civil Engineers and Land Surveyors, entitled "PLAN OF LAND IN NORFOLK, MASSACHUSETTS PREPARED FOR PENN CENTRAL TRANSPORTATION CO." and dated April 20, 1978 recorded as Plan 410 of 1983 in Plan Book 302; as follows; VIZ:

BEGINNING at the southwesterly corner at an iron pipe set 35.25 feet southeasterly of and opposite survey station 533+69.56 on the baseline of the railroad right of way nor or formerly of Penn Central Transportation Co. about 510 feet northwesterly of Everett Street in Norfolk, Massachusetts;

THENCE Northerly and easterly 923.03 feet parallel with said baseline along a curved line of radius 1874.83 feet to an iron pipe set at a point of tangency;

THENCE North 46 degrees 14 minutes 53 seconds East, 979.99 feet parallel with said baseline to a drill hole set at corner of land of Albert H. Jones;

THENCE South 50 degrees 43 minutes 18 seconds East, 90.42 feet by land of Jones and along a stone wall to a drill hole set for a corner;

THENCE South 46 degrees 14 minutes 53 seconds West, 990.96 feet by land of Charles P. and Helen Anthony to an iron pipe set;

THENCE Southerly and Easterly 683.54 feet along a curved line of radius 1785.08 feet by land of Anthony and Frederick and Amy Gould to a drill hole set in a stone wall at land of Paul M. and Mary Kozak;

THENCE South 69 degrees 47 minutes 42 seconds West, 81.49 feet by land of Kozak along a stone wall to an iron pipe set for a corner;

THENCE South 09 degrees 09 minutes 44 seconds East, 162.43 feet by land of Kozak along a stone wall to a drill hole set at other land formerly of Penn Central Transportation Company;

THENCE by said land North 71 degrees 57 minutes 36 seconds West, 110.68 feet to an iron pipe, the point of beginning.

CONTAINING 165,196 square feet, more or less, or 3.792 acres, more or less. TOGETHER with all that strip or parcel of land situate as aforesaid and being all of the land of The Penn Central Corporation (formerly known as Penn Central Transportation Company) lying Northerly of Hill Street and Southwesterly of the dividing line between the Towns of Norfolk and Walpole and which is adjacent to and Northwesterly of the following described line:

111 Dedham St., Norfolk, Mass

RECEIVED RECORDED NORFOLK COUNTY 97 DEC 22 AM 9:29

RECORDED NORFOLK COUNTY REGISTRY OF DEEDS DEDHAM, MA

CERTIFY  BARRY T. HANNON, REGISTER

BEGINNING at a point in the North line of Hill Street at the Southwesterly corner of that 4.345 acre parcel of land which has been conveyed by The Penn Central Corporation to Michael J. Toledo and Carol A. Toledo by Deed dated April 20, 1981;

O F F I C I A L O F F I C I A L

THENCE Northeastwardly along the westerly line of said 4.345 acre parcel of land for a distance of 1254.40 feet to the Southwesterly corner of the 3.792 acre parcel of land hereinbefore described and continuing Northeastwardly along the Northwesterly line of said 3.792 acre parcel of land for a distance of 1903.02 feet the Northernmost corner thereof; thence Northeastwardly along the prolongation of said Northwesterly line for a distance of 235 feet, mor or less, to a point in the dividing line between the Towns of Norfolk and Walpole, the place of ending.

Subject to and with the benefit of all restrictions, easements and encumbrances of record, if any, so far as the same may now be in force and applicable.

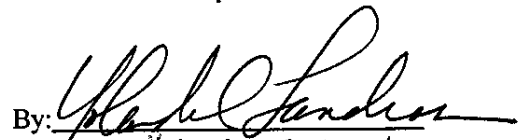
For Grantor's title, see deed from The Penn Central Corporation, dated December 15, 1982, recorded with the Norfolk County Registry of Deeds in Book 6142, Page 656.


This Deed is given to confirm a prior deed to the Grantee herein, dated November 17, 1992 and recorded with said Registry of Deeds in Book 9636, Page 364, wherein the following unintended scrivener's errors were made: (i) incorrect reference to the Grantor therein as Norwood Hospital, Inc.; and (ii) incorrect reference to the Grantee therein as Southwood Hospital Corp.

This conveyance does not represent the transfer of all or substantially all of the assets of Norwood Hospital in the Commonwealth of Massachusetts.

Executed as a sealed instrument as of this 26th day of November, 1997.

NORWOOD HOSPITAL, a
Massachusetts corporation

By: 
Name: Yolanda C. Landrau
Its: President

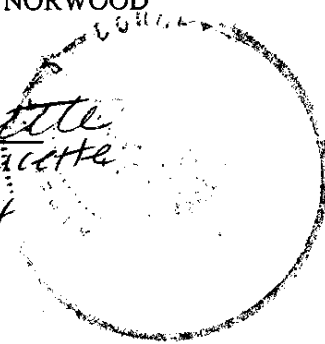
By: 
Name: Coleman J. Foley
Its: Treasurer

COMMONWEALTH OF MASSACHUSETTS

NORFOLK County, ss. OFFICIAL OFFICIAL 11/26, 1997

COPY Then personally appeared the above named Yolanda E. Land, President of NORWOOD HOSPITAL, and acknowledged the foregoing as his/her free act and the free act and deed of NORWOOD HOSPITAL, before me,

Catherine A. Doucette
Notary Public Catherine A. Doucette
My Commission expires: 5/14/2004

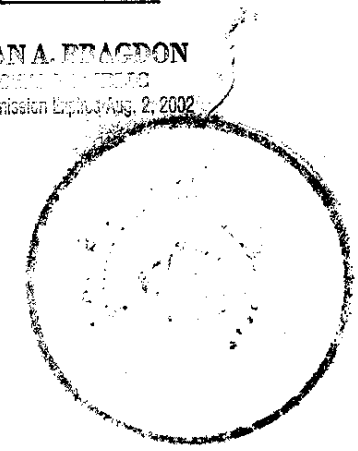


COMMONWEALTH OF MASSACHUSETTS

Suffolk County, ss. 11/26, 1997

Then personally appeared the above named Coleman J. Foley, Treasurer of NORWOOD HOSPITAL, and acknowledged the foregoing as his/her free act and the free act and deed of NORWOOD HOSPITAL, before me,

Susan A. Bragdon
Notary Public
My Commission expires: SUSAN A. BRAGDON
My Commission Expires Aug. 2, 2002



ds1/377077.1

RECEIVED AND RECORDED
NORFOLK COUNTY
REGISTRY OF DEEDS
DEDHAM, MA

Bk 24263 P481 #129551
11-14-2006 @ 12:43P

CERTIFY NOT AN OFFICIAL
William P. O'Donnell REGISTER WILLIAM P. O'DONNELL, REGISTER
QUITCLAIM DEED
COPY COPY

Cushing Properties Lot 4 LLC, a Massachusetts limited liability company with a principal place of business at 5 Wagon Road, Westwood, Norfolk County Massachusetts in consideration of \$480,000.00 paid grants to **AA and JB Realty, LLC**, a Massachusetts limited liability company with a principal place of business at 134 Island Road, Millis, Norfolk County Massachusetts, with **QUITCLAIM COVENANTS**,

The land in Wrentham, Norfolk County, Massachusetts, labeled "Lot 4B" on a plan entitled "Plan of Land Cushing Drive Wrentham & Norfolk, Mass." dated March 29, 2001, by Norwood Engineering Co., Inc. which plan is recorded with Norfolk Registry of Deeds in Plan Book 487 as Plan #414 of 2001. Lot 4B contains 10.52 Acres of land according to said plan.

Together with the right to use Cushing Drive for all purposes for which public ways are used in the Town of Wrentham.

Said Lot is subject to and shall have the benefit of the Utility Easement shown on said plan. The Grantor hereby retains for itself and its assignees, including but not limited to the Town of Wrentham, the perpetual right to install, maintain, replace and repair: within the said Utility Easement, electric lines, electrical power, data transmission and telephone lines, cable television lines and such other utilities as may be appropriate, from time to time, to service Lots within the Cushing Industrial Park (all of which shall remain the property of the persons installing the same).

Said Lot shall be subject to and have the benefit of the Covenants and Restriction (3 pages) annexed hereto as Exhibit A and to be recorded herewith and to easements and restrictions of record, if any, insofar as in force and applicable.

For grantors title see:

Deed of Norwood Stamping Company dated April 21, 1999, Book 13501, Page 520; Deed of Norwood Stamping Company dated October 4, 2006, Book 24142, Page 221; and Deed of Cushing Properties Lot 3 LLC dated October 4, 2006, Book 24142, Page 271.


In witness whereof, the said **CUSHING PROPERTIES LOT 4 LLC** has caused these presents to be signed, and acknowledged and delivered in its name and

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C O P Y

behalf by Harris E. Stone and Jordan M. Stone its managers, hereto duly authorized this fourth day of October, 2006.


Cushing Properties Lot 4 LLC


By: Harris E. Stone, Manager

DEDHAM
DEEDS REG#17
NORFOLK

11/14/06
1000007107
CANCELLED
NOV 14 2006
FEE \$2188.80
CASH \$2188.80

Cushing Properties Lot 4 LLC

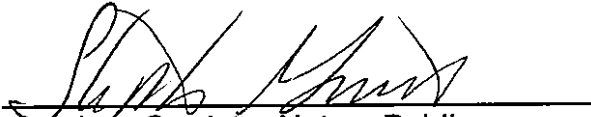

By: Jordan M. Stone, Manager

COMMONWEALTH OF MASSACHUSETTS

Norfolk, ss

October 4, 2006

Before me, the undersigned notary public, personally appeared Harris E. Stone and Jordan M. Stone and proved to me through satisfactory evidence of identification, which was personal knowledge of identity claimed, to be the persons whose names are signed on the preceding or attached document, and acknowledged the instrument to be the free act and deed of **CUSHING PROPERTIES LOT4 LLC** and acknowledged to me that they signed it voluntarily for its stated purpose.


Stephen Gordet - Notary Public



STEPHEN GORDET
Notary Public
Commonwealth of Massachusetts
My Commission Expires
October 8, 2010

3474/deed.CPL4LLC.to.AA&JB.10.4.06

EXHIBIT A
COVENANTS AND RESTRICTIONS
 A N A N

O F F I C I A L C O P Y O F F I C I A L C O P Y
 Said covenants and restrictions are as follows:

1. Site plans and specifications must be submitted to the Norwood Stamping Co., Inc. and its written approval must be obtained prior to all construction on the conveyed premises. Site plans must include surface drainage, building locations, parking areas, landscaping, roadways, entrances and exits.
2. Location of roads, road widths, road surfacing and construction standards, as well as water and utility installations, must comply with all municipal or State rules, orders, ordinances or regulations governing such facilities or installations.
3. No building or other improvements may be erected, placed or altered on the conveyed premises unless building, structural and architectural plans and specifications have been first submitted to the Norwood Stamping Co., Inc., and its written approval thereof obtained.
4. All structures erected on the conveyed premises (and the word "structure" shall include anything which requires location on or attachment to the ground, but does not include pavements or plantings) must be so located on the conveyed premises that each part thereof is set back at least the following distances:
 1. Seventy-five (75) feet from the street, highway or road upon which the structure in question fronts (its being understood that the Norwood Stamping Co., Inc. reserves the right to approve the direction which any structure will face.)
 2. Forty (40) feet from any other boundary line of the conveyed premises or, if the conveyed premises include two or more contiguous subdivision lots, from the exterior boundary of such lots.

If a site plan is submitted to the Norwood Stamping Co., Inc. which shows the location of a proposed structure and said plan is approved in writing by the Norwood Stamping Co., Inc. and then erection of said structure at the location shown on the site plan is begun and continues for ninety (90) days without the institution of a suit to enjoin said construction on the ground that it violates the minimum set-back provisions of this subparagraph, it shall be conclusively presumed (against anyone to whom the benefits of this subparagraph runs) that the minimum set-back provisions have been complied with.

5. The area of the conveyed premises covered by buildings shall at no time exceed fifty (50) percent of the total area of the conveyed premises.
6. No buildings or structures shall be erected or maintained except the same shall have exterior walls faced with brick, precast concrete, metal panels, or other equally aesthetically acceptable material approved by the Norwood Stamping

Co., Inc. or its successors as to color, permanence and architectural conformity with a garden-type industrial park, nor shall any buildings or structures be erected, or exterior structural alterations or additions made except pursuant to plans first approved in writing by the Norwood Stamping Co., Inc. or its successors as to landscaping, and architectural conformity to a garden-type industrial park, which approval shall not be withheld unreasonably. Reasonable care shall be used to maintain the exterior appearance of said premises and all structures thereon in accordance with such plans. Exterior finish at minimum shall be fifty (50) percent block and fifty (50) percent metal, with exceptions for metal expansion walls.

7. The conveyed premises shall not be used or occupied at any time for any purpose other than the purpose of corporate headquarters, services industries, manufacturing, processing, wholesaling, distribution, and jobbing or warehousing which is in connection with on-site manufacturing processing, wholesaling and distribution; or for the purpose of operating a business of a nature kindred to the ones specified.
8. Among those uses of the conveyed premises which are prohibited are residential uses and retail uses not to exceed ten (10) percent or 4,000 square feet, whichever is less, in the latter case, such uses as may be incidental and of an insubstantial nature in comparison with the permitted commercial use of the premises; provided that any such exceptional retail use shall nevertheless be conducted only with the prior written approval of the Norwood Stamping Co., Inc.
9. No obnoxious or offensive trade or activity shall be carried on, nor shall anything be done on the conveyed premises which may be or may become an annoyance to the occupants of the other premises in the area, including but not limited to unsightliness, excess emission of odors, waste, dust, fumes, smoke, noise, vibration, heat, glare or toxic gases.
10. No waste material or refuse shall be dumped upon or permitted to remain upon any part of the conveyed premises outside of buildings constructed thereon. In addition, the convey premises shall not be used for any industry whose primary business requires industrial sewage unless the governing municipal and State bodies authorize the use of the available sewage disposal facilities. All liquid or solid wastes must be treated to conform with applicable standards of the Massachusetts Department of Health or any other regulations or any governing municipal or State body. Nothing in this paragraph shall prevent the owner of any portion of the premises from constructing thereon a "settling pond" to receive materials discharged in the process of manufacture of its product so long as said pond or its use is neither unsightly, offensive, unsanitary or in violation of any state or municipal regulation or order.
11. Any and all parking, including parking for visitors, employees or customers shall

be "off street" and there shall be no less than one (1) parking space for every two (2) workers employed on the conveyed premises.

O F F I C I A L O F F I C I A L

12. Any and all loading, unloading or deliveries on the premises shall be "off-street", located at the rear or sides of the building. All loading or unloading areas shall have a minimum surfacing of asphaltic concrete with curbing or berm. Curbing shall be installed in all loading and unloading areas between the front lot line and building set-back line.
13. No materials or supplies shall be stored or permitted to remain on any part of the conveyed premises outside the buildings constructed thereon (unless properly fenced in so it is not visible).
14. The Zoning and Building Code regulations in effect from time to time shall be deemed as minimum requirements.
15. The area between the buildings and the property lines is to be used either for open landscape and green areas, or for off-street parking. The area is to be landscaped attractively with lawns, trees, shrubs, etc. according to plans first approved by the Norwood Stamping Co., Inc. Any landscaped area shall be properly maintained in a sightly and well-kept condition.
16. Every owner of a portion of the premises shall maintain the roads and structures within his own property in good condition, and the grounds, such roads, parking areas, grass, shrubs and trees in a clean and tidy manner.
17. No fence or permanent construction shall be permitted between the building line and any street, highway or road or elsewhere on the parcel, over three (3) feet in height and of an opaque nature without prior consent of the Norwood Stamping Co., Inc.
18. No billboards or advertising sign, other than those identifying the main business and products of the firm occupying the premises shall be permitted in the park. All such signs shall be approved by the Norwood Stamping Co., Inc. No unshaded, flashing or open lights shall be allowed on such sign.
19. No part of the conveyed premises shall be further subdivided by any owners nor any portion thereof transferred or conveyed so as to cause the remainder thereof to fail to comply with any provisions of these restrictions (except for Lot 7A).
20. Reasonable exceptions to the above restrictions can be granted by Norwood Stamping Co., Inc. if it is apparent that a hardship is created by enforcing same.

EXHIBIT A

N O T
After recording return to: A N
Cooley, Shrair P. C O F F I C I A L
1380 Main Street C O P Y
Springfield, MA 01103
Attention: Peter W. Shrair, Esq.

N O MASSACHUSETTS STATE EXCISE TAX
Norfolk Registry of Deeds
A N Date: 02-26-2021 @ 03:15pm
O F F I C t I # : A 1 4 1 5 Doc#: 25691
C O P Y Fee: \$1,254.00 Cons: \$275,000.00

QUITCLAIM DEED

TAS-CSH, Inc., a Massachusetts nonprofit corporation (f/k/a Caritas Southwood Hospital, Inc.), having an address of 66 Brooks Drive, Braintree, Massachusetts 02184 (“Grantor”),

for consideration of Two Hundred Seventy-Five Thousand and No/100 Dollars (\$275,000.00) paid,

grants, with Quitclaim Covenants, to

111 DEDHAM STREET, INC., a Massachusetts corporation, having a mailing address of 133 Pearl Street, Boston, Massachusetts 02110 (“Grantee”),

that certain parcel of land with improvements thereon in Norfolk, Norfolk County, Massachusetts more particularly described in Exhibit A attached hereto and made a part (the “Premises”).

The Premises are conveyed subject to all easements, restrictions, covenants, conditions and other matters of record.

The Grantor is exempt from being taxed under Section 501 of the Internal Revenue Code and is thereby exempt from paying Massachusetts corporate excise tax.

For title reference, see that certain (i) deed dated February 17, 1982 and recorded with the Norfolk County Registry of Deeds (the “Registry”) in Book 5991, Page 1 (as to Parcel One) and (ii) deed dated November 17, 1992 and recorded with the Registry in Book 9636, Page 364, as confirmed by that certain confirmatory deed dated November 26, 1997 and recorded with the Registry in Book 12163, Page 595 (as to Parcels Two and Three).

Use Restriction

The Property is conveyed subject to the following restrictions and agreements, which Grantee agrees to by its acceptance hereof.

Grantee covenants and agrees for itself, its successors and assigns and successors in title that it shall not use or permit the use of the Property for: (a) a church, chapel or other house of religious worship; (b) a facility at which abortions, assisted suicide or euthanasia occurs; (c) the operations of professional counseling services which advocate abortion, euthanasia or suicide; or

Property Address: 111 Dedham Street, Norfolk, MA 02056

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(d) the operations of any embryonic stem cell research facility or services implementing embryonic stem cell research (the "Use Restrictions"). The Use Restrictions shall expire upon the ninetieth (90th) annual anniversary of the date of the recording of this Deed.

The Use Restrictions are for the benefit of the Grantor and the Roman Catholic Archbishop of Boston, a Corporation Sole ("RCAB"), which is an intended third-party beneficiary hereof. Grantee, on behalf of itself, its successors and assigns and successors in title, acknowledges that the Use Restrictions are imposed for the benefit of Grantor and the RCAB and are of actual and substantial benefit to the Grantor and the RCAB.

Grantee, on behalf of itself, its successors and assigns and successors in title, waives any and all claims and defense as to the enforceability of the Use Restrictions, as they have been set forth herein, in accordance with their terms. Grantee acknowledges and agrees, on behalf of itself, its successors and assigns and successors in title that the Grantor and/or the RCAB (only one such party being required), will be entitled from time to time to record notices of extensions of the Use Restrictions as such notices and extensions are provided for in Massachusetts General Laws, Chapter 184, Sections 27 and 29 to the extent such notices and extensions are consistent with the terms described above. In the event of a breach of the Use Restrictions at any time during the duration of same, as set forth herein, Grantor and/or the RCAB may seek specific performance of the Use Restrictions or any or all of them, in a court of law having jurisdiction over the matter and obtain from Grantee, or its successors or assigns or successors in title, as the case may be, all costs and expenses, including attorney's fees, incurred in the enforcement or defense of the Use Restrictions or any or all of them, and any other damages suffered by Grantor and the RCAB arising or resulting from a breach of the Use Restrictions, or any or all of them.

Environmental.

Grantee, on behalf of itself, its successors and assigns and successors in title, waives, relinquishes, and releases Grantor (and Grantor's officers, directors, shareholders, partners, members, employees and agents) and the Roman Catholic Archbishop of Boston, a Corporation Sole (hereinafter "Grantor Parties") from and against any and all past present and future claims, demands, causes of action (including causes of action in tort), losses, damages, liabilities, costs, and expenses (including reasonable attorneys' fees) of any and every kind or character, known or unknown, which Grantee might have asserted or alleged against any Grantor Party at any time by reason of or arising out of any Hazardous Substances, any latent or patent construction defects or physical conditions, violations of applicable laws, and all other acts, omissions, events, circumstances, or matters regarding the real property conveyed from Grantor to Grantee by this Deed ("Released Claims"). "Hazardous Substances" shall mean and include, but shall not be limited to any petroleum product and all hazardous or toxic substances, wastes or substances, any substances which because of their quantitated concentration, chemical, or active, flammable, explosive, infectious or other characteristics, constitute or may reasonably be expected to constitute or contribute to a danger or hazard to public health, safety or welfare or to the environment, including, without limitation, any hazardous or toxic waste or substances which are included under or regulated (whether now existing or hereafter enacted or promulgated, as they may be amended from time to time) including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9601 et seq.

N O T

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(“CERCLA”), the Federal Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq. or the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, M.G.L. ch. 21E (“Chapter 21E”), and similar laws and regulations adopted thereunder.

General.

Each covenant, release, indemnification, and other provision under the Sections of this Deed captioned “Use Restriction” and “Environmental” shall run with the land and shall be binding upon Grantee and Grantee’s successors and assigns and successors in title. Each reference to Grantor under the Sections of this Deed captioned “Use Restriction” and “Environmental” shall be deemed to be a reference to Grantor, its successors and assigns.

(Remainder of Page Intentionally Left Blank; Signature Pages to Follow)

NOT NOT
Executed as a sealed instrument as of February 26, 2021. AN AN
OFFICIAL OFFICIAL
COPY COPY

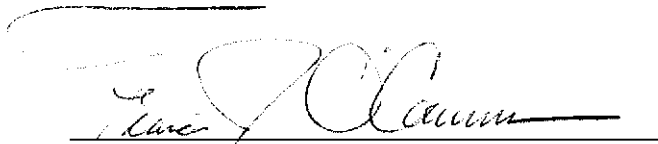
TAS-CSH, INC.,
a Massachusetts nonprofit corporation

By: J. Bryan Hehir
Name: J. Bryan Hehir
Title: President and Treasurer

COMMONWEALTH OF MASSACHUSETTS

Norfolk County, ss.

On this 18th day of February, 2021, before me, the undersigned notary public, personally appeared before me, proved to me through satisfactory evidence of identification (based upon personal knowledge of his identity), to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for the stated purposes as TAS-CSH, Inc., a Massachusetts nonprofit corporation.



Notary Public

My commission expires: Oct. 29, 2025

[affix seal]

North 80° 18' 16" West by a stone wall bounded by land shown on the Plan as being land of Pondville Realty Trust and William A. and Judith Riccio, seven hundred eighty two and 47/100 (782.47) feet; thence

North 06° 23' 36" West in part by a stone wall by the easterly side line of Valley Street, three hundred sixty seven and 64/100 (367.64) feet; thence

North 08° 26' 16" West by a stone wall by the easterly sideline of Valley Street, three hundred thirty two and 99/100 (332.99) feet; thence

North 41° 35' 43" East by the southeasterly sideline of Dedham Street, six hundred sixty six and 61/100 (666.61) feet; thence

Northeasterly by the southeasterly sideline of Dedham Street, by a curve to the left with a radius of five thousand seven hundred fifty four and 60/100 (5754.60) a distance of eight hundred two and 82/100 (802.82) feet; thence

Northeasterly and Northerly by the southeasterly and easterly sideline of Dedham Street, by a curve to the left with a radius of three thousand one hundred fifty and 36/100 (3150.36) feet, a distance of seven hundred seventy two and 52/100 (772.52) feet; thence

North 19° 33' 08" East by the easterly sideline of Dedham Street, one thousand two hundred fifty five and 14/100 (1255.14) feet, to the point of beginning.

The second parcel beginning at a point on the easterly sideline of Dedham Street, being the intersection of the Town Line between Norfolk and Walpole and the easterly sideline of Dedham Street; thence

South 22° 35' 38" East 1,449.70 feet to the point of beginning; thence

North 67° 24' 22" East 150.00 feet; thence

South 22° 35' 38" East 200.00 feet; thence

South 67° 24' 22" West 150.00 feet; the last three courses being by the land shown on the plan as other land of the grantor; thence

North 22° 35' 38" West 200.00 feet by the northeasterly sideline of Parcel 1 to the point of beginning.

Parcel Two

All that parcel of land situate in the Town of Norfolk, County of Norfolk and Commonwealth of Massachusetts, bounded and described according to a plan of survey made by C. A. Pickering Associates, Inc., Civil Engineers and Land Surveyors, entitled "Plan of Land in Norfolk, Massachusetts prepared for Penn Central Transportation Co." and dated April 20, 1978 recorded as Plan 410 of 1983 in Plan Book 302; as follows:

[Exhibit A to Quitclaim Deed]

Beginning at the southwest^{N O T}erly corner at an iron pipe set 35.25^{N O T} feet southeasterly of and opposite survey station 533-69-56^{A N} on the baseline of the railroad right of way now or formerly of Penn Central Transportation Co^{C O P Y} about 510 feet northwesterly^{C O P Y} of Everett Street in Norfolk, Massachusetts;

Thence Northerly and easterly 923.03 feet parallel with said baseline along a curved line of radius 1874.83 feet to an iron pipe set at a point of tangency;

Thence North 46 degrees 14 minutes 53 seconds East, 979.99 feet parallel with said baseline to a drill hole set at corner of land of Albert H. Jones;

Thence South 50 degrees 43 minutes 18 seconds East, 90.42 feet by land of Jones and along a stone wall to a drill hole set for a corner;

Thence South 46 degrees 14 minutes 53 seconds West, 990.96 feet by land of Charles P. and Helen Anthony to an iron pipe set;

Thence Southerly and Easterly 683.54 feet along a curved line of radius 1785.08 feet by land of Anthony and Frederick and Amy Gould to a drill hole set in a stone wall at land of Paul M. and Mary Kozak;

Thence South 69 degrees 47 minutes 42 seconds West, 81.49 feet by land of Kozak along a stone wall to an iron pipe set for a corner;

Thence South 09 degrees 09 minutes 44 seconds East, 162.43 feet by land of Kozak along a stone wall to a drill hole set at other land formerly of Penn Central Transportation Company;

Thence by said land North 71 degrees 57 minutes 36 seconds West, 110.68 feet to an iron pipe, the point of beginning.

Parcel Three

All that strip or parcel of land situated as aforesaid and being all of the land of The Penn Central Corporation (formerly known as Penn Central Transportation Company) lying Northerly of Hill Street and Southwesterly of the dividing line between the Towns of Norfolk and Walpole and which is adjacent to and Northwesterly of the following described line:

Beginning at a point in the North line of Hill Street at the Southwesterly corner of that 4.345 acre parcel of land which has been conveyed by The Penn Central Corporation to Michael J. Toledo and Carol A. Toledo by Deed dated April 20, 1981;

Thence Northeastwardly along the westerly line of said 4.345 acre parcel of land for a distance of 1254.40 feet to the Southwesterly corner of the 3.792 acre parcel of land hereinbefore described and continuing Northeastwardly along the Northwesterly line of said 3.792 acre parcel of land for a distance of 1903.02 feet the Northernmost corner thereof; thence Northeastwardly along the prolongation of said Northwesterly line for a distance of 235 feet, more or less, to a point in the dividing line between the Towns of Norfolk and Walpole, the place of ending.

[Exhibit A to Quitclaim Deed]

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QUITCLAIM DEED

We, ROBERT H. BERARD, Personal Representative of the Estate of MARY J. GOULD, by a Decree of the Norfolk Probate & Family Court Docket No. NO21P0276EA and as Co-Trustee, and KAREN MacDONALD, Co-Trustee, of The Mary J. Gould Revocable Trust u/d/t dated July 23, 2012, evidence of the Trust being the Trustee Certificate Pursuant to MGL c. 184, § 35 recorded herewith

by a power conferred by Will, power conferred by Trust and every other power, for consideration paid, and in full consideration of

TWO HUNDRED THOUSAND AND 00/100 (\$200,000.00) DOLLARS,

grant to Hill Street Partners, LLC, a Massachusetts limited liability company with a principal place of business at 6 Hill Street, Norfolk, Massachusetts

with *quitclaim covenants*

Parcel 1:

That certain parcel of land shown on a plan entitled "Plan of Land In Norfolk, Massachusetts Prepared For Penn Central Transportation Co. Scale: 40 feet to the inch" dated October 22, 1977 and revised March 7, 1978, by C.A. Pickering Associates, Inc. Civil Engineers - Land Surveyors, as a strip of land Southerly of parcel MA 0100 11-4 running from Pine Street to Hill Street, and described on said plan with the notation in said strip "N/F PENN CENTRAL TRANSPORTATION CO. TR'S". Said plan is recorded with Norfolk County Registry of Deeds as Plan No. 338 of 1978 in Plan Book 267."

EXCEPTING AND RESERVING, however, to The Penn Central Transportation Company, easement for all existing wire and pipe facilities covered by agreements, occupancies and licenses, if any, between Penn Central Transportation Company and other parties, of record or not of record, that in any way encumber the premises hereinabove described, together with the right to convey such easements to the occupant without securing approval of the Grantee herein. The Penn Central Transportation Company specifically reserved and retained all rentals, fees and considerations resulting from such agreements, occupancies, licenses and easement conveyances.

MASSACHUSETTS STATE EXCISE TAX
Norfolk Registry of Deeds
Date: 07-27-2021 @ 03:41pm
Ct1#: 1190 Doc#: 97729

Property Address: 10 and Lot 0, Hill Street, Norfolk, MA

This Deed is accepted by Grantee upon the understanding and agreement that should any claim adverse to the title hereby granted and released by asserting and/or proved, no recourse shall be had against The Penn Central Transportation Company.

F I C I A L
C O P Y C O P Y

Grantors do hereby state that no person is entitled to any homestead rights in said property.

For grantor's title, see deed recorded with the Norfolk County Registry of Deeds in Book 6192, Page 409.

Parcel 2:

ALL THAT PARCEL OF LAND, situate in the Town of Norfolk, County of Norfolk and Commonwealth of Massachusetts, bounded and described according to a plan of a survey entitled "Plan of Land in Norfolk, Massachusetts, Prepared for Penn Central Transportation Co." made by C.A. Pickering Associates, Inc., dated October 22, 1977, and revised March 7, 1978 as follows: VIZ:

BEGINNING at a point marked by an iron pipe set at the northeast corner of the parcel of land herein to be described on the southerly line of Hill Street distant 20.00 feet Northwestwardly measured radially from the railroad monumented baseline of Penn Central Transportation Company at baseline survey Station 519+94.64; thence parallel with said baseline southwestwardly along a curved line to the right having a radius of 5709.65 feet, a distance of 1060.53 feet to an iron pipe in the northerly line of Pine Street (60 feet wide) opposite said monumented baseline at survey Station 509+54.02; thence, North 32 degrees 14 minutes 42 seconds West in the line of Pine Street, 46.78 feet to an iron pipe and land of Michael S. Kotuszenko, et ux; thence, northeastwardly by land of said Kotuszenko along a curved line to the left having a radius of 5665.90 feet, a distance of 387.09 feet to a point 0.37 feet northwesterly of a stone bound; thence, North 56 degrees 53 minutes 55 seconds West continuing by land of Kotuszenko, 46.25 feet to a stone bound and land of Mary J. Gould and Vito J. Wasilunas; thence northeastwardly by land of Mary J. Gould, along a curved line to the left having a radius of 5619.65 feet, a distance of 581.06 feet to a point in the southerly line of Hill Street, 0.20 feet westerly of a stone bound; thence, North 88 degrees 25 minutes 07 seconds East in the southerly line of Hill Street, 71.41 feet to an iron pipe; thence North 69 degrees 56 minutes 05 seconds East continuing in the southerly line of Hill Street, 39.71 feet to an iron pipe, the point of beginning.

CONTAINING 72,492 square feet, or 1,664 acres, more or less.

EXCEPTING and reserving, however, to The Penn Central Transportation Company all existing wire and pipe agreements, occupations and licenses, in writing, of record or not or record, between The Penn Central Transportation Company and other parties, if any, that cross or in any way encumber the premises together with the right to convert said agreements, occupations and licenses into permanent easements at any time, and convey such easements to the occupant without securing approval of the Grantee herein. The Penn Central Transportation Company specifically reserved and retained all rentals, fees and considerations resulting from such agreements, occupations, licenses, and easement conversions.

N O T N O T
SUBJECT to all existing agreements, occupations, easements and licenses as may affect said
property. O F F I C I A L O F F I C I A L

C O P Y C O P Y
For title reference, see deed dated April 6, 1978 and recorded with the Norfolk Registry of Deeds
in Book 5464, Page 465. See also Estate of George E. Gould, Norfolk Probate and Family Court
No. 84P1466.

{signature page follows}

Executed as a sealed instrument on this 15th day of July, 2021. O T

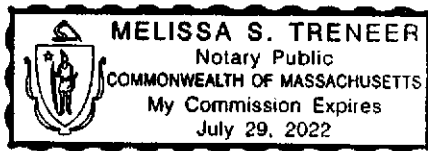
A N A N
O F F I C I A L O F F I C I A L
Robert H. Berard C O P Y
Robert H. Berard, Personal Representative and Trustee

K MacDonald
Karen MacDonald, Trustee

Commonwealth of Massachusetts

Norfolk, ss.

On this 15th day of July, 2021, before me, the undersigned notary public, personally appeared Robert H. Berard, Personal Representative and Trustee as aforesaid, proved to me through satisfactory evidence of identification, which was his/her/their driver's license, to be the person(s) whose name is signed on the preceding or attached document, and acknowledged to me that he/she/they signed it voluntarily for its stated purpose.

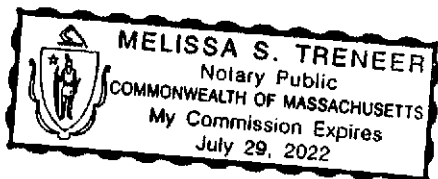


Melissa Treneer
Notary Public:
My Comm. Exp.:

Commonwealth of Massachusetts

Norfolk, ss.

On this 15th day of July, 2021, before me, the undersigned notary public, personally appeared Karen MacDonald, Trustee as aforesaid, proved to me through satisfactory evidence of identification, which was his/her/their driver's license, to be the person(s) whose name is signed on the preceding or attached document, and acknowledged to me that he/she/they signed it voluntarily for its stated purpose.



Melissa Treneer
Notary Public:
My Comm. Exp.:
My Commission Expires:

Order of Magnitude Unit Cost Development for Shared Use Path Construction

Typical Section 1: 12'-wide Shared Use Path With 2-foot Grassed Shoulders

| MassDOT Item No | Description | Unit of Measure (UOM) | | Dimensions (UOM) | | | Conversion | WAUP (\$/UOM) (2019-2020) | | WAUP Desired (\$/UOM) | | SAY |
|-----------------|---|-------------------------------|-------------|------------------|--------|--------|------------|---------------------------|--------------|-----------------------|------------------------------|--------------------|
| | | MassDOT Unit of Measure (UOM) | Desired UOM | L (yd) | W (yd) | D (yd) | | Median | Mean | WAUP adjusted Mean | WAUP adjusted Median | |
| 101.0 | CLEARING AND GRUBBING | A | SY | 1 | 1 | | 0.00 | \$ 44,000.00 | \$ 44,793.27 | \$ 9.11 | \$ 9.27 | \$ 10.00 |
| 120.0 | EARTH EXCAVATION | CY | SY | 1 | 1 | 0.33 | 0.33 | \$ 37.00 | \$ 36.36 | \$ 12.21 | \$ 12.00 | \$ 13.00 |
| 151.0 | GRAVEL BORROW | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 45.00 | \$ 44.90 | \$ 10.05 | \$ 10.03 | \$ 11.00 |
| 170.0 | FINE GRADING AND COMPACTING - SUBGRADE AREA | SY | SY | 1 | 1 | | 1.00 | \$ 12.00 | \$ 10.38 | \$ 12.00 | \$ 10.38 | \$ 12.00 |
| 702.0 | HOT MIX ASPHALT SIDEWALK OR DRIVEWAY | Ton | SY | 1 | 1 | 0.01 | 0.24 | \$ 196.50 | \$ 198.90 | \$ 47.16 | \$ 47.74 | \$ 50.00 |
| 751.0 | LOAM FOR ROADSIDES | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 60.00 | \$ 61.30 | \$ 13.40 | \$ 13.69 | \$ 15.00 |
| 765.0 | SEEDING | SY | SY | 1 | 1 | | 1.00 | \$ 2.50 | \$ 2.56 | \$ 2.50 | \$ 2.56 | \$ 3.00 |
| | | | | | | | | | | | \$ 114.00 | /SY |
| | | | | | | | | | | | 10% Stormwater | \$ 11.40 |
| | | | | | | | | | | | 5% Mobilization | \$ 5.70 |
| | | | | | | | | | | | 25% Construction Contingency | \$ 28.50 |
| | | | | | | | | | | | TOTAL | \$ 159.60 |
| | | | | | | | | | | | SAY | \$160 /SY |
| | | | | | | | | | | | | \$18 /SF |
| | | | | | | | | | | | | \$213 /LF |
| | | | | | | | | | | | | \$1.13M /mi |

Order of Magnitude Unit Cost Development for Shared Use Path Construction

Typical Section 2: 12'-wide Shared Use Path With Cedar Railing on 1-Side

| MassDOT Item No | Description | Unit of Measure (UOM) | | Dimensions (UOM) | | | Conversion | WAUP (\$/UOM) (2019-2020) | | WAUP Desired (\$/UOM) | | SAY |
|-----------------|---|-------------------------------|-------------|------------------|--------|--------|------------|---------------------------|--------------|-----------------------|---------------------------------------|----------|
| | | MassDOT Unit of Measure (UOM) | Desired UOM | L (yd) | W (yd) | D (yd) | | Median | Mean | WAUP adjusted Mean | WAUP adjusted Median | |
| 101.0 | CLEARING AND GRUBBING | A | SY | 1 | 1 | | 0.00 | \$ 44,000.00 | \$ 44,793.27 | \$ 9.11 | \$ 9.27 | \$ 10.00 |
| 120.0 | EARTH EXCAVATION | CY | SY | 1 | 1 | 0.33 | 0.33 | \$ 37.00 | \$ 36.36 | \$ 12.21 | \$ 12.00 | \$ 13.00 |
| 151.0 | GRAVEL BORROW | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 45.00 | \$ 44.90 | \$ 10.05 | \$ 10.03 | \$ 11.00 |
| 170.0 | FINE GRADING AND COMPACTING - SUBGRADE AREA | SY | SY | 1 | 1 | | 1.00 | \$ 12.00 | \$ 10.38 | \$ 12.00 | \$ 10.38 | \$ 12.00 |
| 702.0 | HOT MIX ASPHALT SIDEWALK OR DRIVEWAY | Ton | SY | 1 | 1 | 0.01 | 0.24 | \$ 196.50 | \$ 198.90 | \$ 47.16 | \$ 47.74 | \$ 50.00 |
| 751.0 | LOAM FOR ROADSIDES | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 60.00 | \$ 61.30 | \$ 13.40 | \$ 13.69 | \$ 15.00 |
| 765.0 | SEEDING | SY | SY | 1 | 1 | | 1.00 | \$ 2.50 | \$ 2.56 | \$ 2.50 | \$ 2.56 | \$ 3.00 |
| 655.0 | CEDAR RAIL FENCE | FT | SY | 1 | 0 | 0.00 | 0.75 | \$ 107.50 | \$ 101.28 | \$ 80.63 | \$ 75.96 | \$ 81.00 |
| | | | | | | | | | | | \$ 195.00 /SY | |
| | | | | | | | | | | | 10% Stormwater \$ 19.50 | |
| | | | | | | | | | | | 5% Mobilization \$ 9.75 | |
| | | | | | | | | | | | 25% Construction Contingency \$ 48.75 | |
| | | | | | | | | | | | TOTAL \$ 273.00 | |
| | | | | | | | | | | | SAY \$273 /SY | |
| | | | | | | | | | | | \$30 /SF | |
| | | | | | | | | | | | \$364 /LF | |
| | | | | | | | | | | | 1.92M /mi | |

Order of Magnitude Unit Cost Development for Shared Use Path Construction

Typical Section 3: 12'-wide Shared Use Path With Cedar Railing on 2-Sides

| MassDOT Item No | Description | Unit of Measure (UOM) | | Dimensions (UOM) | | | Conversion | WAUP (\$/UOM) (2019-2020) | | WAUP Desired (\$/UOM) | | SAY |
|-----------------|---|-------------------------------|-------------|------------------|--------|--------|------------|---------------------------|--------------|-----------------------|---------------------------------------|-----------|
| | | MassDOT Unit of Measure (UOM) | Desired UOM | L (yd) | W (yd) | D (yd) | | Median | Mean | WAUP adjusted Mean | WAUP adjusted Median | |
| 101.0 | CLEARING AND GRUBBING | A | SY | 1 | 1 | | 0.0002 | \$ 44,000.00 | \$ 44,793.27 | \$ 9.11 | \$ 9.27 | \$ 10.00 |
| 120.0 | EARTH EXCAVATION | CY | SY | 1 | 1 | 0.33 | 0.33 | \$ 37.00 | \$ 36.36 | \$ 12.21 | \$ 12.00 | \$ 13.00 |
| 151.0 | GRAVEL BORROW | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 45.00 | \$ 44.90 | \$ 10.05 | \$ 10.03 | \$ 11.00 |
| 170.0 | FINE GRADING AND COMPACTING - SUBGRADE AREA | SY | SY | 1 | 1 | | 1.00 | \$ 12.00 | \$ 10.38 | \$ 12.00 | \$ 10.38 | \$ 12.00 |
| 702.0 | HOT MIX ASPHALT SIDEWALK OR DRIVEWAY | Ton | SY | 1 | 1 | 0.01 | 0.24 | \$ 196.50 | \$ 198.90 | \$ 47.16 | \$ 47.74 | \$ 5.00 |
| 751.0 | LOAM FOR ROADSIDES | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 60.00 | \$ 61.30 | \$ 13.40 | \$ 13.69 | \$ 15.00 |
| 765.0 | SEEDING | SY | SY | 1 | 1 | | 1.00 | \$ 2.50 | \$ 2.56 | \$ 2.50 | \$ 2.56 | \$ 3.00 |
| 655.0 | CEDAR RAIL FENCE | FT | SY | 2 | 0 | 0.00 | 1.50 | \$ 107.50 | \$ 101.28 | \$ 161.25 | \$ 151.92 | \$ 150.00 |
| | | | | | | | | | | | \$ 219.00 /SY | |
| | | | | | | | | | | | 10% Stormwater \$ 21.90 | |
| | | | | | | | | | | | 5% Mobilization \$ 10.95 | |
| | | | | | | | | | | | 25% Construction Contingency \$ 54.75 | |
| | | | | | | | | | | | TOTAL \$ 306.60 | |
| | | | | | | | | | | | SAY \$307 /SY | |
| | | | | | | | | | | | \$34 /SF | |
| | | | | | | | | | | | \$409 /LF | |
| | | | | | | | | | | | \$2.17M /mi | |

Order of Magnitude Unit Cost Development for Shared Use Path Construction

Typical Section 4: 12'-wide Shared Use Path With Cedar Railing on 1-Side 4'- high Retaining Wall on Other

| MassDOT Item No | Description | Unit of Measure (UOM) | | Dimensions (UOM) | | | Conversion | WAUP (\$/UOM) (2019-2020) | | WAUP Desired (\$/UOM) | | SAY |
|-----------------|---|-------------------------------|-------------|------------------|--------|--------|------------|---------------------------|--------------|-----------------------|---------------------------------------|-----------|
| | | MassDOT Unit of Measure (UOM) | Desired UOM | L (yd) | W (yd) | D (yd) | | Median | Mean | WAUP adjusted Mean | WAUP adjusted Median | |
| 101.0 | CLEARING AND GRUBBING | A | SY | 1 | 1 | | 0.00 | \$ 44,000.00 | \$ 44,793.27 | \$ 9.11 | \$ 9.27 | \$ 10.00 |
| 120.0 | EARTH EXCAVATION | CY | SY | 1 | 1 | 0.33 | 0.33 | \$ 37.00 | \$ 36.36 | \$ 12.21 | \$ 12.00 | \$ 13.00 |
| 151.0 | GRAVEL BORROW | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 45.00 | \$ 44.90 | \$ 10.05 | \$ 10.03 | \$ 11.00 |
| 170.0 | FINE GRADING AND COMPACTING - SUBGRADE AREA | SY | SY | 1 | 1 | | 1.00 | \$ 12.00 | \$ 10.38 | \$ 12.00 | \$ 10.38 | \$ 12.00 |
| 702.0 | HOT MIX ASPHALT SIDEWALK OR DRIVEWAY | Ton | SY | 1 | 1 | 0.01 | 0.24 | \$ 196.50 | \$ 198.90 | \$ 47.16 | \$ 47.74 | \$ 50.00 |
| 751.0 | LOAM FOR ROADSIDES | CY | SY | 1 | 1 | 0.22 | 0.22 | \$ 60.00 | \$ 61.30 | \$ 13.40 | \$ 13.69 | \$ 15.00 |
| 765.0 | SEEDING | SY | SY | 1 | 1 | | 1.00 | \$ 2.50 | \$ 2.56 | \$ 2.50 | \$ 2.56 | \$ 3.00 |
| | INTERLOCKING RETAINING WALL | SF | SY | 1 | 1 | 2.00 | 1.50 | \$ 100.00 | \$ 100.00 | \$ 150.00 | \$ 150.00 | \$ 150.00 |
| 655.0 | CEDAR RAIL FENCE | FT | SY | 1 | 0 | 0.00 | 0.75 | \$ 107.50 | \$ 101.28 | \$ 80.63 | \$ 75.96 | \$ 81.00 |
| | | | | | | | | | | | \$ 345.00 /SY | |
| | | | | | | | | | | | 10% Stormwater \$ 34.50 | |
| | | | | | | | | | | | 5% Mobilization \$ 17.25 | |
| | | | | | | | | | | | 25% Construction Contingency \$ 86.25 | |
| | | | | | | | | | | | TOTAL \$ 483.00 | |
| | | | | | | | | | | | SAY \$483 /SY | |
| | | | | | | | | | | | \$54 /SF | |
| | | | | | | | | | | | \$644 /LF | |
| | | | | | | | | | | | \$3.40M /mi | |