



SOUTH ORLEANS TO ORLEANS TRAIL STUDY

BIKE AND WALKWAYS COMMITTEE

TOWN OF ORLEANS, MA

EXECUTIVE SUMMARY



FAY, SPOFFORD & THORNDIKE
JULY 2009



Executive Summary

Introduction

Fay, Spofford & Thorndike (FST) was contracted by the Town of Orleans to assist the Orleans Bike and Walkways Committee in conducting a trail feasibility study to connect South Orleans to Orleans Town Center.

The Committee initially recognized the need for this project in 2003, and it was later listed in the Implementation Program of the 2006 Orleans Comprehensive Plan.

The purpose of this project is to link South Orleans to Orleans Village by providing a multi-use trail that somewhat parallels the Route 28 Corridor. The Bike and Walkways Committee and the Town of Orleans have developed a substantial foundation to build upon, and this study will present the technical support to determine the feasibility of this project.

This study presents various trail facility options, alignment alternatives, and identifies the recommended alternative for implementation. The study was conducted in four phases:

- Analysis of Existing Conditions
- Development of Alignment Alternatives and Design Concepts
- Alternatives Evaluation
- Implementation Plan Development (including funding options)

The study area limits include

- On the southerly side: Beginning at the Route 28/39 intersection
- To the west: continues to the Route 6 layout
- To the east extends to the Route 28 corridor and intersecting streets and
- The northerly limits continue to Orleans Center.

The majority of the project area falls within the limits of either the watershed property or Route 28 Corridor.

Analysis of Existing Conditions

Due to the physical conditions of these areas, an impact to some of the existing natural resources may occur. Alignment alternatives are chosen based to minimize or have no impact to these natural resources. There are various topographical and vegetative constraints including:

- Rolling terrain
- Wide range of elevation changes
- Wetlands and ponds
- Thick woodland vegetation

From our field reconnaissance, numerous protected wetland resource areas and seven (7) different state-listed rare vegetative species were found within the project study area. Other findings include:

- Gould Pond and Crystal Lake are associated with the Pleasant Bay ACEC (Area of Critical Environmental Concern)
- Orleans has eight groundwater wells, seven of which are located within the watershed property, and require a protective radius or buffer limiting the usage of the surrounding land
- The study area is located within the Massachusetts Coastal Zone and
- The study area engulfs various Stormwater Critical Areas

Establishing these environmental issues are beneficial in order to initiate and file the appropriate environmental permit applications to be in compliance with local, state and federal laws. Suitable mitigation or measures to offset project impacts actions should be considered, as trail alignments are determined. Other possible issues to verify within the study area include:

- Identifying historic properties
- Reviewing adjacent land use
- Identifying contamination issues
- Recording local roadway conditions and accident history
- Identify the extent of State involvement

Alignment Alternatives and Design Concepts

Based on state and federal guidelines and regulations, there are a number of trail facilities that can be proposed along each alignment. Factors in the path design consist of various surface materials and enhancements along the recommended alternative. The facility types to be considered along each alignment include:

- Shared-use path or trail
- Sidewalk or walkway
- Greenway trail
- Bicycle lane
- Bicycle route or shared roadway

A graphic showing each of these facility types can be seen in Figures A-E.

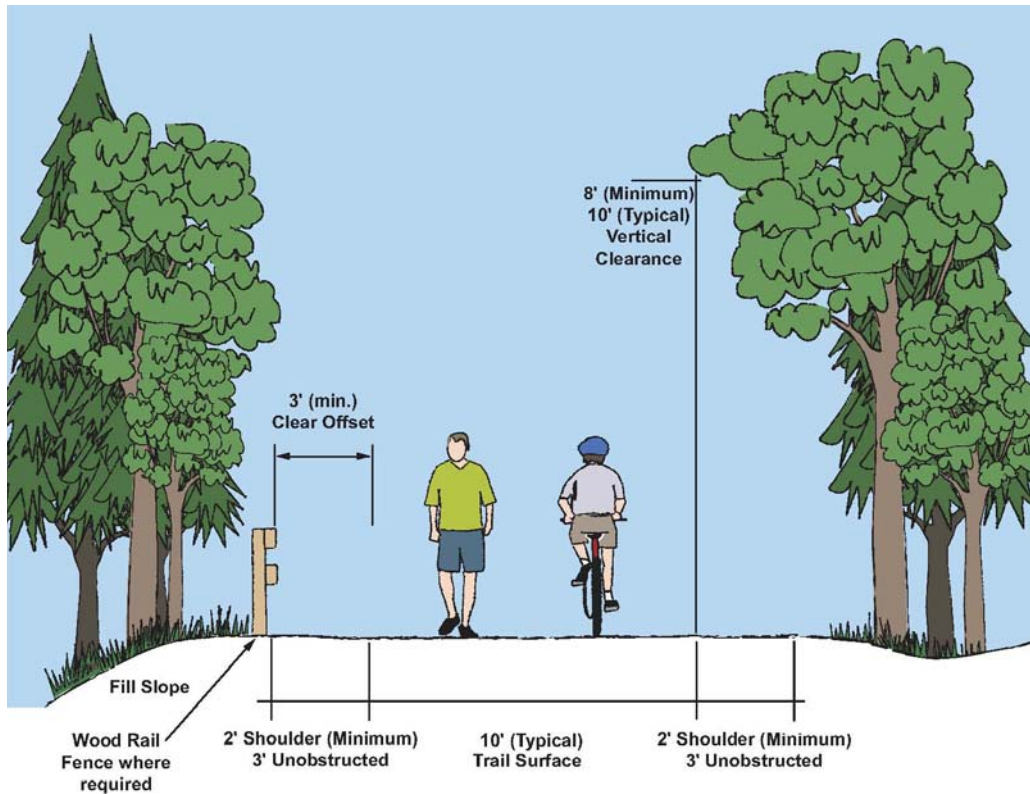


Figure A: Shared Use Path or Trail

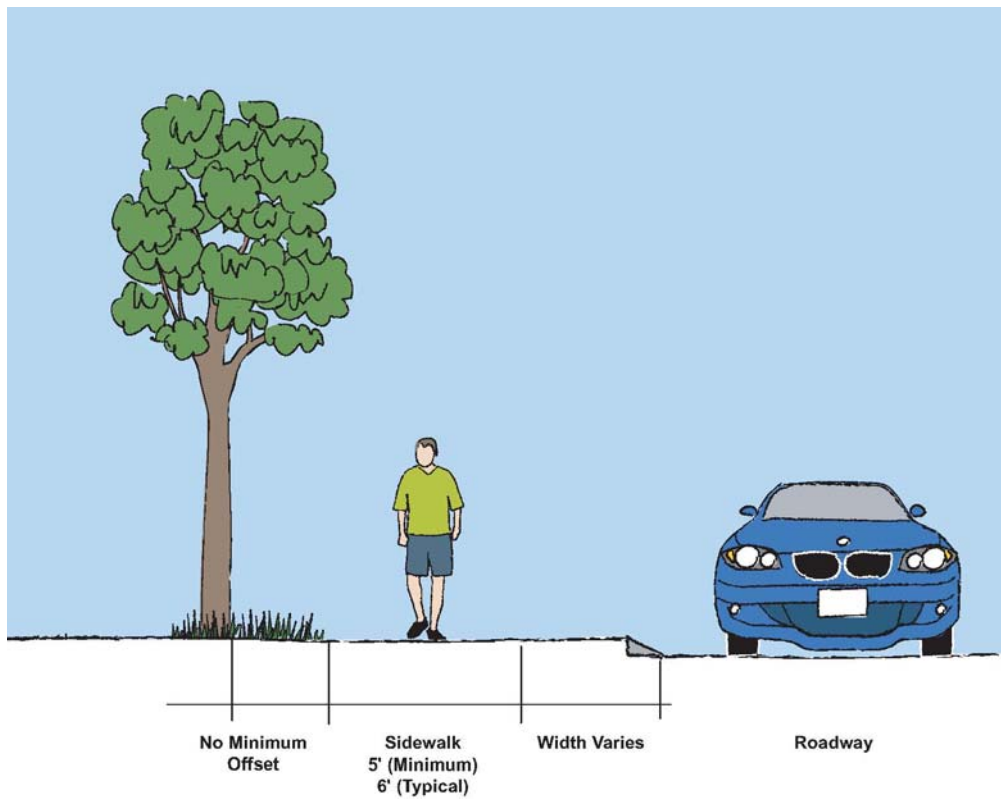


Figure B: Sidewalk or Walkway

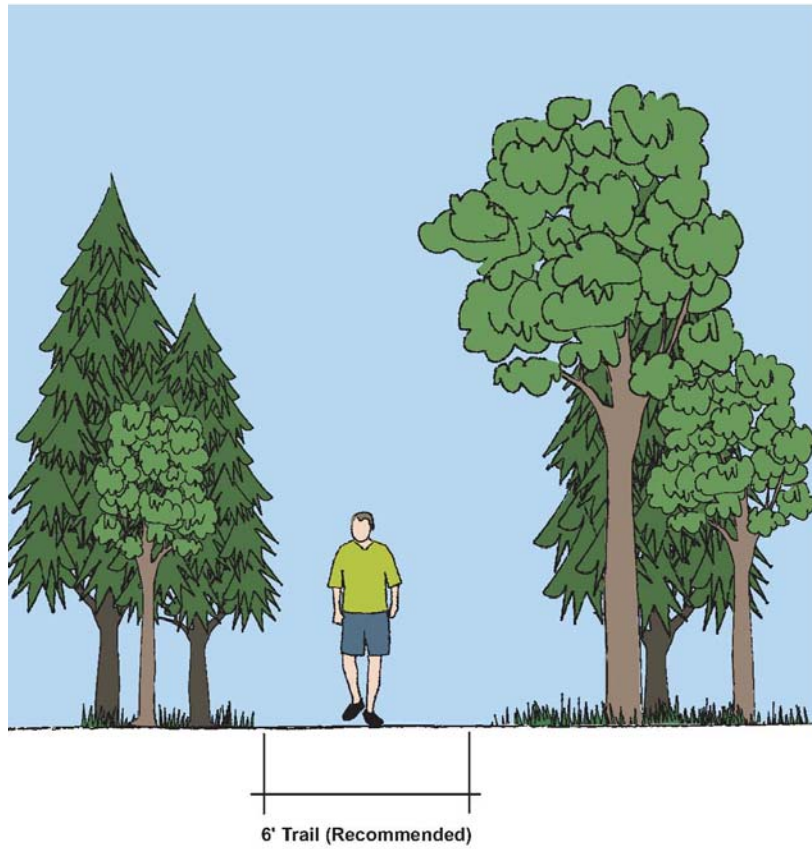


Figure C: Greenway Trail

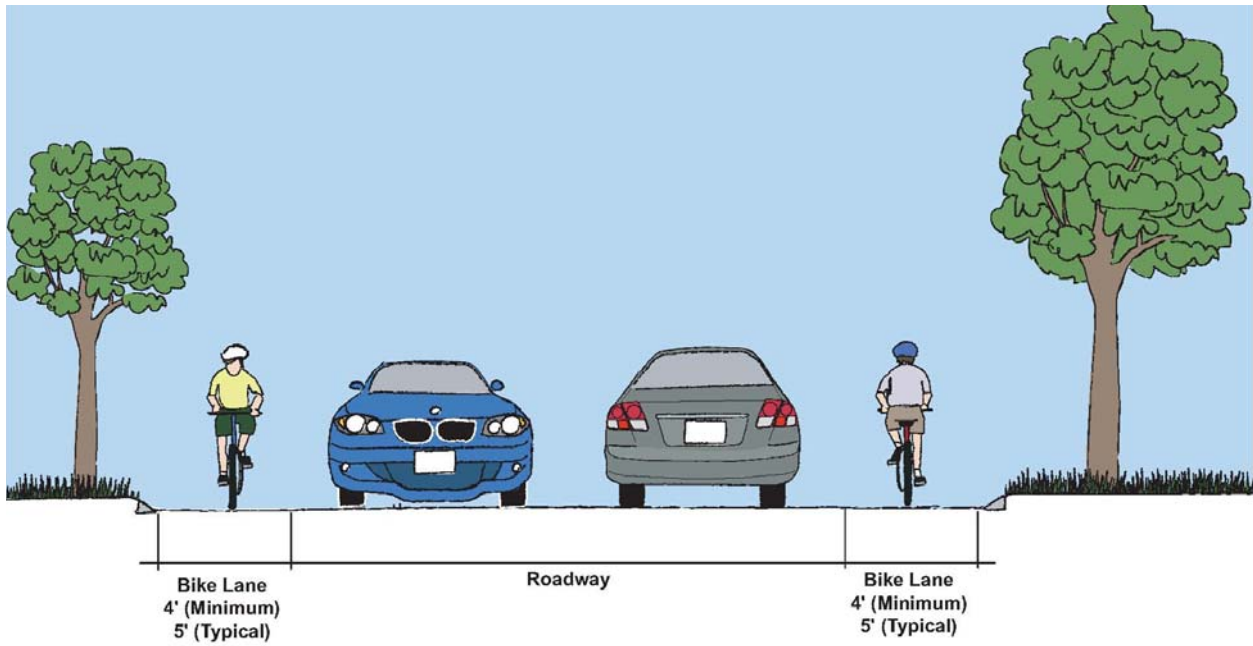


Figure D: Bicycle Lane

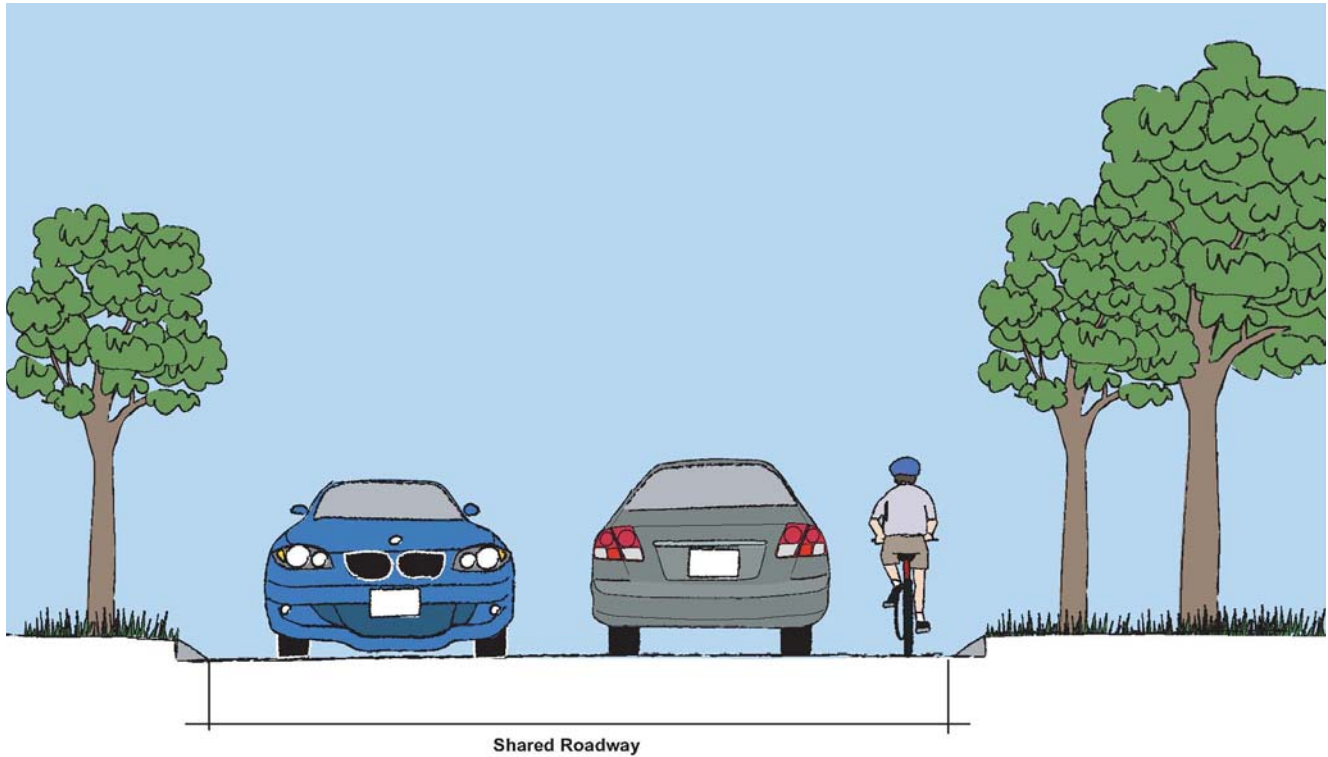


Figure E: Bicycle Route or Shared Roadway

For study purposes, the project was divided into three sections:

- Section 1: South Orleans Village to Watershed Limit
- Section 2: Watershed Limit to Eldredge Park Way
- Section 3: Eldredge Park Way to Orleans Center

Along the three sections of the project corridor, various alternatives and trail options were evaluated. These selections were studied utilizing:

- Aerial survey mapping
- Field investigations
- Available local and State information and
- Bike and Walkways Committee input

Considerations included:

- Land acquisition
- Handicap accessibility
- Coordination with utility companies
- Grading and tree clearing
- Retaining walls and major physical constraints
- Physical trail separators (fencing, etc.)

All alternatives were assessed based on the consistency with the project goals of producing a safe and continuous bicycle and pedestrian facility. A more thorough evaluation assigned rankings to each alternative to make a comparison between the *general performance measures*. These performance measures are defined as:

- Bike and pedestrian connections
- Accessibility
- Directness
- Consistency
- Route attractiveness
- Ease of implementation and
- Safety and Security

Detailed evaluation criteria were also used to screen alternatives. These detail criteria are:

- Environmental impacts
- Construction impacts
- Right-of-way impacts
- Engineering constraints
- Aesthetics
- Conceptual costs and
- Potential funding sources

Site walks and workshops were scheduled throughout the study process to solicit input from Town staff and the Town's Bike and Walkways Committee. Graphics showing the alternatives by section are presented in Figures F, G, and H, included at the end of this document.

Recommended Alternative

Noted in Table 1 is the recommended alternative to link South Orleans to Orleans Center. This alternative provides the most direct connection for connectivity of village centers.

Table 1: Recommended Alternative

Alternative	General Description	Facility Type
1A & 2A	Route 28 Right-of-way (ROW): Begin at the site of South Orleans District School (South Orleans Village) at the intersection of Route 28/39; continue north towards Orleans Center within the Route 28 ROW (Route 28 is under MassHighway jurisdiction)	Shared-use trail
Spur	Provide a spur connection to Namequoit Road to improve access to nearby residential and open space areas. (Crosswalk at this location will require MassHighway approval.)	Crosswalk
3B	Middle School Campus: <ul style="list-style-type: none"> Continue through Middle School campus from Eldredge Park Way to Main Street. 	Sidewalk / Walkway
	<ul style="list-style-type: none"> Continue from Eldredge Park Way either in front or behind Nauset Public Schools Administration Office. (Formalizes existing use through the campus and upgrades the facility to be ADA accessible.) 	Sidewalk
3D	Eldredge Park Way to West Road: Continue along Eldredge Park Way and West Road to connect users to the Cape Cod Rail Trail.	Sidewalk / Bike route

Below in Table 2 are the alternate options to the recommended alternative.

Table 2: Alternatives

Alternative	General Description	Facility Type
1D	Power Line Corridor: Follow the existing power line corridor to provide a direct north-south connection. (Trail requires Board of Water Commissioners and NSTAR approval.)	Greenway
1B	Eastern Watershed Perimeter with a trail spur to Monument Road: Follow along the eastern edge of the watershed to provide a north-south connection. (Trail requires Board of Water Commissioners approval; Connection to Monument Road requires MassHighway approval and easements from two private owners.)	Greenway
1G	Northern Fire Road: Continue along northern fire road as a connection to other watershed alternatives. (Requires Board of Water Commissioners approval.)	Greenway
2D or 2E	Lots Hollow Road: From the end of O'Connor Way, continue to Finlay Road.	Sidewalk / Bike route
2D or 2E	Finlay Road (Lots Hollow Road to Nickerson Road): Follow Finlay Road to Nickerson Road (converting Nickerson Road into a two-way roadway at the intersection of Finlay Road).	Sidewalk / Bike route
2D	Nickerson Road: Follow Nickerson Road to Eldredge Park Way	Bike route
2E	Finlay Road (Nickerson Road to Kettle Pond Way): Retain Nickerson Road as a one-way roadway and continue to Kettle Pond Way.	Sidewalk / Bike route
2E	Kettle Pond Way to Daley's Terrace to Marston's Way: From Kettle Pond way, users can go to Daley's Terrace and Marston's Way, which will bring users to an existing crosswalk across Eldredge Park Way.	Bike route

Implementation Plan

Attempting to tackle the project in its entirety would prove burdensome and be cost prohibitive to the Town. Therefore, it is instead recommended that the project follow a phased approach that would allow time to secure the necessary permits and approvals and apply for funding to help offset the costs of trail development to the Town.

The tasks under each phase have been organized based on their potential to serve users in the near term while helping to advance the larger trail project over the long term.

Selected elements of the three phases are:

Phase 1: Current to 3 years

- Prepare and submit project forms to MassHighway.
- Formalize a greenway trail through the watershed property.

Phase 2: 3 to 5 years

- Construct ADA accessible trail from upper Middle School parking lot to Main Street through the Village Green.
- Install bike route signs along local roadways.

Phase 3: Future

- Upgrade greenway trails through watershed to shared-use trails.
- Submit project form to MassHighway to design and construct Monument Road / Route 28 intersection improvements.
- Pursue shared-use trail or sidewalk along Route 28 when roadway is upgraded to current design standards.

Based on the evaluations and the recommended alternative through the project study area, a preliminary construction cost estimate has been calculated. Factors included are anticipated permits, typical cross sections, and enhancements. A preliminary construction cost for the South Orleans to Orleans trail is \$1.5 to \$2 million. This selected alignment will involve MassHighway, as Route 28 is a State-owned highway and they are in control of the right-of-way.

Potential funding sources can correspond with the committee's goal of creating a trail and include the:

- Transportation Enhancement Program
- Congestion Mitigation and Air Quality Improvement Program
- Recreational Trails Program
- Community Preservation Act
- Bikes Belong Coalition
- Fields Pond Foundation
- Kodak American Greenway
- New England Grassroots Environment Fund

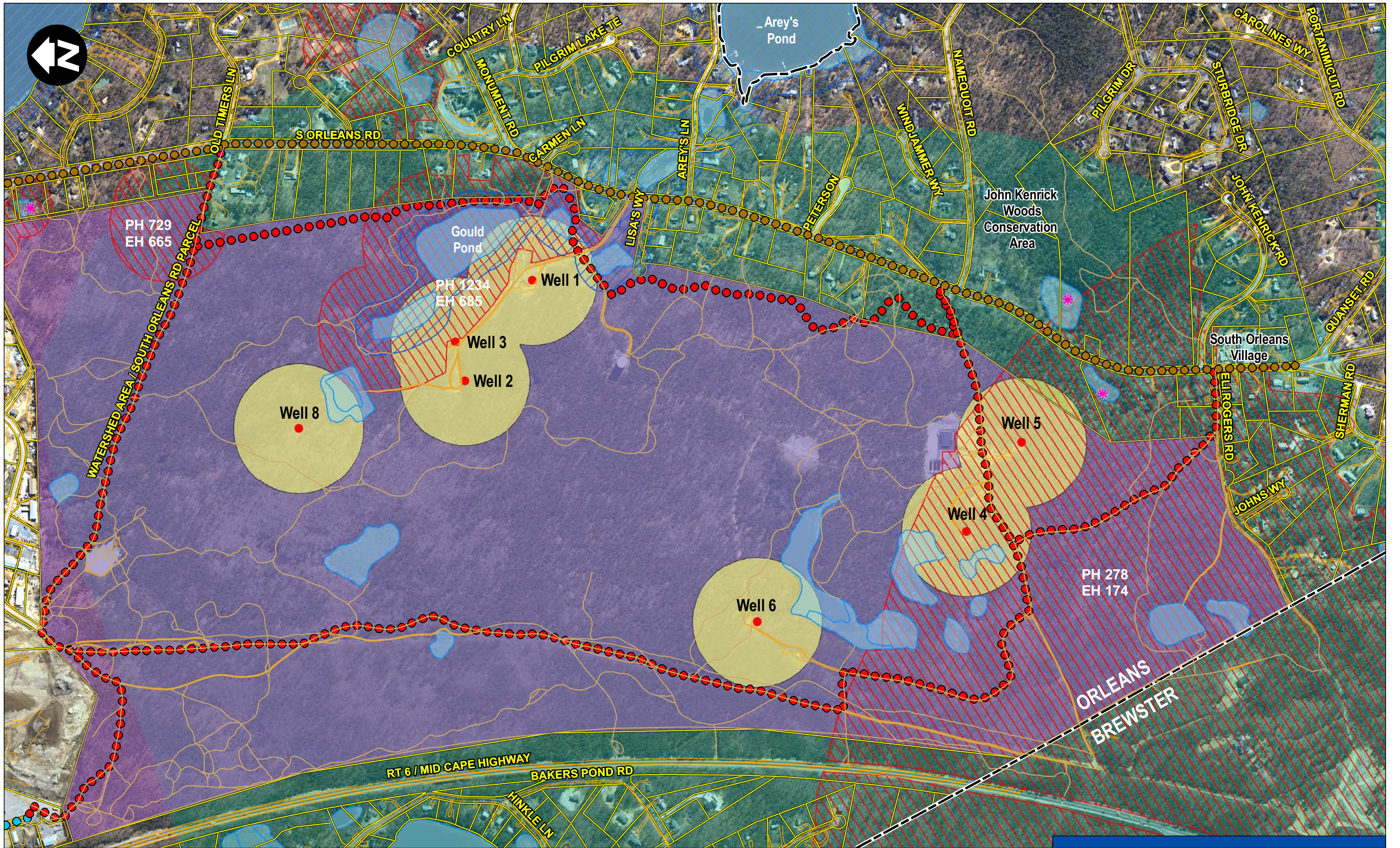
Conclusions

The study concludes with the recommended alignment of primarily using the Route 28 corridor and right-of-way to connect the village centers. This alignment utilized the combination of various facilities to develop a system aimed at meeting the Committee's expectations. Due to the amount of potential impacts through out the study area, there was not a clear-cut defined alternative. The Town and Committee may begin implementing segments of the overall project depending on scheduling, land acquisition approval, and available funding sources. The proposed facility types could also have potential for future upgrades depending on usage and demand.

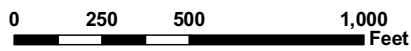
It is recommended that the Town initiate the funding implementation process by working with the Cape Cod Commission (CCC) and MassHighway to have this project placed on the Transportation Improvement Program (TIP). For this multi-use trail facility to be realized, long-term planning is required. While there is no definitive time frame for construction, given the State and environmental permits required, it is likely the Route 28 corridor section would be in the 6-10 year time frame.

However, there is a possibility that when the north-south sewer system is being considered for construction some time in the future along Route 28, (Phases 3 and 5 of the sewer phasing plan) that this multi-use trail could be coordinated and constructed concurrently within the ROW and the roadway re-constructed to meet MassHighway standards.

For more information about the Bike and Walkways Committee, including documents available for downloading and meeting minutes, visit the Town's website at:
http://www.town.orleans.ma.us/Pages/OrleansMA_BComm/walkway



Data Source: The Office of Geographic and Environmental Information (MassGIS) Commonwealth of Massachusetts Executive Office of Environmental Affairs, and Town of Orleans.

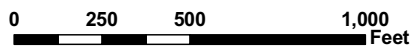


Legend	
	Shared Use Trail
	Bike Route & Sidewalk
	Sidewalk (Walkway)
	Greenway Trail
	Bike Route
	DEP Wetlands
	Stream
	NHESP Certified Vernal Pool
	Watershed Property
	Water Well Location
	Zone I Wellhead Protection Area (400' Radius)
	Zone II Wellhead Protection Area
	Rare Species Habitat
	Pleasant Bay Area of Critical Environmental Concern (ACEC)
	Existing Trail
	Property Lines

SOUTH ORLEANS TO ORLEANS TRAIL STUDY
 Orleans, Massachusetts
 Figure F: Section 1 Recommended Alternative

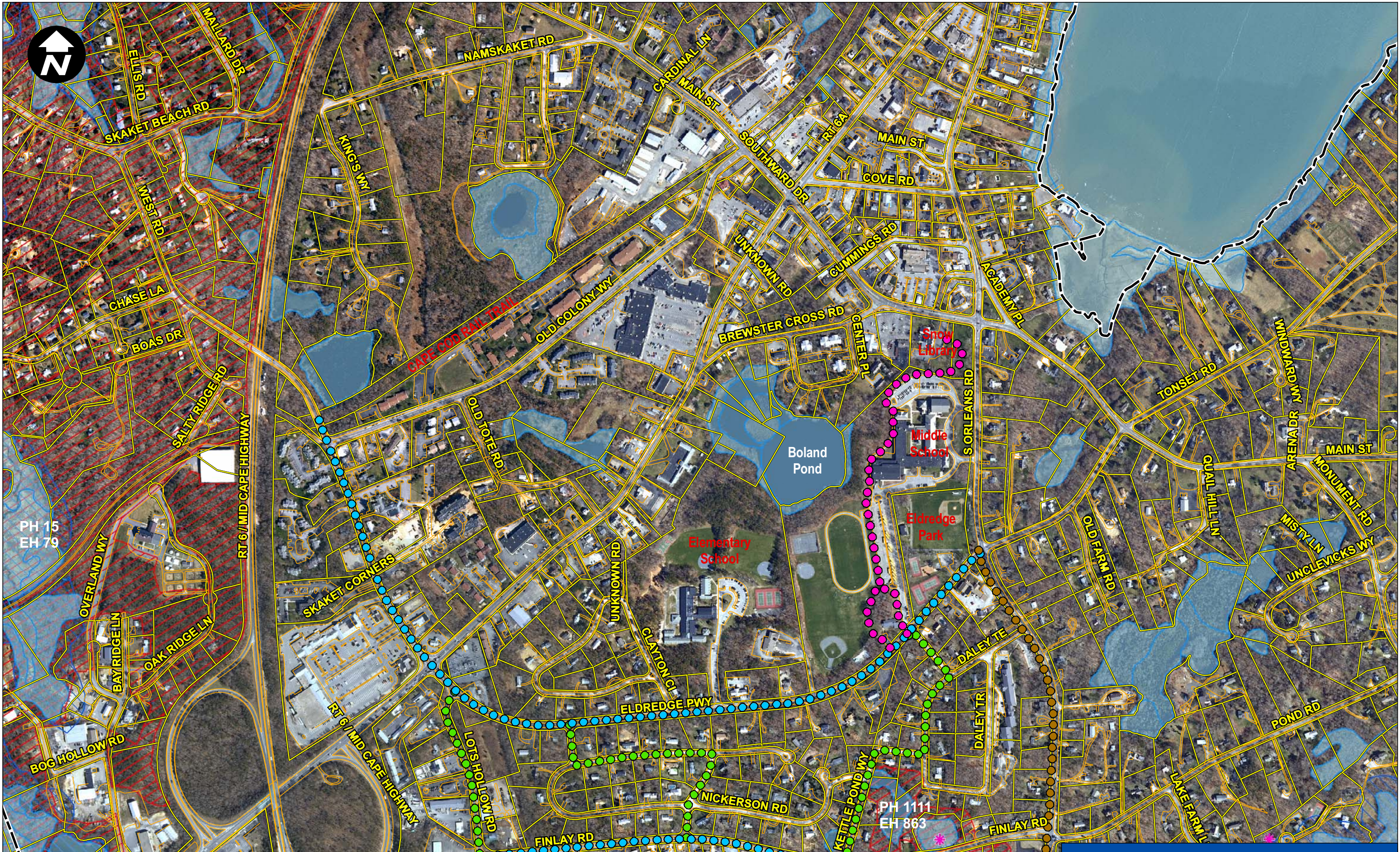


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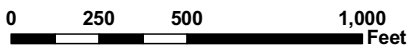


Legend	
	Shared Use Trail
	Bike Route & Sidewalk
	Sidewalk (Walkway)
	Greenway Trail
	Bike Route
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	DEP Wetlands
	Stream
	Watershed Property
	Water Well Location
	NHESP Certified Vernal Pool
	Zone I Wellhead Protection Area (400' Radius)
	Zone II Wellhead Protection Area
	Rare Species Habitat
	Pleasant Bay Area of Critical Environmental Concern (ACEC)

SOUTH ORLEANS TO ORLEANS TRAIL STUDY
 Orleans, Massachusetts
 Figure G: Section 2 Recommended Alternative



Data Source: The Office of Geographic and Environmental Information (MassGIS) Commonwealth of Massachusetts Executive Office of Environmental Affairs, and Town of Orleans.



Legend	
	Shared Use Trail
	Bike Route & Sidewalk
	Sidewalk (Walkway)
	Greenway Trail
	Bike Route
	Existing Trail
	Property Lines
	DEP Wetlands
	Stream
	Watershed Property
	Water Well Location
	NHESP Certified Vernal Pool
	Zone II Wellhead Protection Area
	Rare Species Habitat
	Pleasant Bay Area of Critical Environmental Concern (ACEC)
	Zone I Wellhead Protection Area (400' Radius)

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Figure H: Section 3 Recommended Alternative