

**WAREHAM,  
MASSACHUSETTS**

**BIKE PATH FEASIBILITY STUDY**

AUGUST 18, 2010

**Weston & Sampson**  
ENGINEERS, INC.

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*Report*



**County Road Crossing**



**Active Line Under Main Street**



**Active Line Over Main Street**



**Center Park**



**Cape Cod Canal Bike Path**

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## EXECUTIVE SUMMARY

In 2006 the Wareham Bike Path Committee (WBPC) was established to oversee the feasibility of constructing a multi-use path along existing town roads, abandoned rail bed and active rail right-of-way with the goal to provide a link between the Town of Marion and Bourne to the South Coast Pathway. In 2007 the Southeastern Regional Planning & Economic Development District (SRPEDD) prepared and submitted a report to the Town of Wareham Board of Selectmen that identified and recommended potential routes along the project corridor. In July 2009, the Town of Wareham retained the services of Weston & Sampson to investigate and evaluate the feasibility of the various alternatives developed by SRPEDD, develop associated construction costs, identify design and construction constraints with respect to right-of-way, access, utilities, environmental resource impacts, possible funding sources for construction and to assist the town to develop a plan to administer policy, trail enhancement, fire/rescue procedures and maintenance for the trail once it is constructed.

Based upon the report prepared by SRPEDD for the WBPC in 2007, the following routes were recommended that became the basis for this study:

- Phase I: Along County Road either as a share-the-road or separate multi-use path beginning at the Marion Town Line and along Fearing Hill Road to Main Street – a distance of approximately 2.95 miles.
- Phase II: Along the active rail-line currently owned by the Massachusetts Department of Transportation (MassDOT) and leased to the Bay Colony Railroad Company who currently operates a low speed freight line otherwise known as the “Trash Train”, as a multi-use path from the intersection with Main Street to Sandwich Road – a distance of approximately 2.30 miles.
- Phase III: Along Sandwich Road as a share-the-road and along the active rail-line as a multi-use path to the intersection with Depot Street – a distance of approximately 1.85 miles.
- Phase IV: Along the active rail-line as a multi-use path from the intersection with Depot Street to the Bourne Town Line – a distance of approximately 2.90 miles.
- Alternative: Along Main Street as a share-the-road from the intersection with Elm Street to the intersection with Sandwich Road where the existing railroad corridor right-of-way is 50 feet wide before connecting to the active rail-line.

Based upon the recommended routes developed by SRPEDD, field investigations and site visits and meetings with the WBPC and general public, the following routes and alternatives were developed for this study:

- Phase 1: Begins at the Marion Town Line connecting to the future Marion Bikepath and travels northerly along County Road for approximately 1.50 miles either as a

share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with Fearing Hill Road and then along Fearing Hill Road for approximately 0.50 miles either as a share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with the abandoned rail-bed currently owned by MassDOT.

- Phase 1A: Continues along Fearing Hill Road from the intersection (at-grade) with the abandoned rail-bed for approximately 0.95 miles either as a share-the-road or separate 8-12 foot wide multi-use path to the intersection with Main Street and continues along Main Street where it crosses the existing active rail-line (either at-grade or under the existing bridge) and continues along Main Street either as an 8-12 foot wide multi-use path and/or as a share-the-road for approximately 1.70 miles to Merchants Way.
- Phase 1B: This alternate begins at the Marion Town Line and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 2.25 miles as an 8-12 foot wide multi-use path crossing Blackmore Pond Road (at-grade) to the intersection (at-grade) with Fearing Hill Road.
- Phase 1C: This alternate begins at the intersection (at-grade) with Fearing Hill Road and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 1 mile as an 8-12 foot wide multi-use path crossing Farmers Lane (at-grade) to the intersection (at-grade) with Paper Mill Road.
- Phase 1D: This alternate begins at the intersection (at-grade) with Paper Mill Road and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 4200 feet as an 8-12 foot wide multi-use path where it intersects and runs along the westerly side of the existing active rail-line (currently owned by MassDOT) and then crosses over the tracks via the bridge carrying Pierceville Road over the active rail-line before connecting to Main Street.
- Phase 1E: This alternate begins at the bridge carrying Pierceville Road over the tracks and onto the existing active rail-line (currently owned by MassDOT) where it travels southerly along the active rail-line for approximately 2 miles as an 8-12 foot wide multi-use path to the intersection (at-grade) with Main Street (bridge).
- Phase 1F: This alternate begins at the intersection (at-grade) with the abandoned rail-bed (currently owned by MassDOT) and travels easterly along Paper Mill Road for approximately 2400 feet to the intersection with Main Street.
- Phase 1G: This alternate begins at the bridge carrying Pierceville Road over the tracks and travels southeasterly along Main Street for approximately 2 miles as a share-the-road to the intersection with Fearing Hill Road.
- Phase 2: Begins at the intersection (bridge) with Main Street and travels easterly along the active rail-line (currently owned by MassDOT) for approximately 2.30 miles as



an 8-12 foot wide multi-use path crossing Station Street (at-grade), Interstate I-195 (overpass), Hathaway Street (at-grade), Main Street (overpass), Elm St/Thonet Rd (at-grade), over the Agawam River (railroad bridge) and eventually to the intersection (at-grade & signalized) with Sandwich Road.

Phase 2A: This alternate begins at the I-195 (overpass) along the active rail-line (currently owned by MassDOT) and turns north along property now or formerly of the Town of Wareham (behind the Decas School) adjacent to the I-195 right-of-way as an 8-12 foot wide multi-use path then along Main Street as a share-the-road or 8-12 foot wide multi-use path to the intersection with and southerly along Hathaway Street before reconnecting to the active rail-line (at-grade).

Another version of this alternative is to exit the active rail-line at the intersection (at-grade) with Station Street and travel northerly along Station Street as share-the-road, Main Street as either share-the-road or an 8-12 foot wide multi-use path and then southerly along Hathaway Street as share-the-road before reconnecting to the active rail-line (currently owned by MassDOT).

Phase 2B: This alternate begins at Merchants Way (behind the storefronts) as an 8-12 foot wide separate multi-use path to the intersection (at-grade) with Sandwich Road where it crosses over the Agawam River via a 6-8 foot wide sidewalk currently located on the existing vehicular/pedestrian bridge where users will be allowed to cross Sandwich Road via the existing traffic signal currently located at this intersection. It should be noted there is an opportunity at this location to provide a connection to the existing park adjacent to Sandwich Road.

Phase 3: Begins at Sandwich Road and travels along the existing active rail-line (currently owned by MassDOT) as an 8-12 foot wide separate multi-use path for approximately 1.85 miles to the intersection (at-grade) with Depot Street.

Phase 3A: This alternate begins at Sandwich Road and travels along Narrows Road/Minot Avenue for approximately 1.85 miles either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Depot Street. It should be noted there is an existing 6 foot wide paved sidewalk along the southerly side of Narrows Road/Minot Avenue from the intersection with Sandwich Road to the intersection with Depot Street. This sidewalk could either be replaced entirely or widened resulting in an 8-12 foot wide multi-use path.

Phase 3B: This alternate begins at the intersection of Sandwich Road and Narrows Road and travels along Sandwich Road for approximately 500 feet either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Indian Neck Road where it travels along Indian Neck Road for approximately 1100 feet as a share-the-road or a separate 8-12 foot wide multi-use path before reconnecting with Narrows Road.

- Phase 4: Begins at Depot Street and travels along the existing active rail-line (currently owned by MassDOT) as an 8-12 foot wide multi-use path for approximately 2.90 miles to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path.
- Phase 5: Begins at Depot Street and travels along Onset Avenue for approximately 3 miles as a share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with U.S. Route 6 (Cranberry Highway) & State Route 28, and then along Route 6 for approximately one half mile before crossing over the Cohasset Narrows bridge to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path. It should be noted that the section of U.S. Route 6 & State Route 28 as well as the Cohasset Narrows Bridge is currently under design as part of the American Recovery and Reinvestment Act (ARRA) through MassDOT and will comply with the latest ADA/AAB requirements and pedestrian/bicycle accommodation once completed.
- Phase 5A: Begins at the intersection of Onset Avenue and West Boulevard and travels along West Boulevard for approximately 2400 feet and then along South Boulevard for approximately 500 feet as a share-the-road before reconnecting with Onset Avenue.

Based upon site investigations, existing right-of-way information, general knowledge of the study corridor and direct coordination with MassDOT, it is unlikely that MassDOT is going to allow a multi-use path to be constructed along a majority of the active rail-line at this time. Therefore the recommended route of the Wareham Bicycle Path corridor is as follows:

- Phase 1B: North along abandoned rail-bed (currently owned by MassDOT) from Blackmore Pond Road for approximately 2 miles as an 8-12 foot wide multi-use path to the intersection with Fearing Hill Road (at-grade);
- Phase 1C: Continuing north along abandoned rail-bed (currently owned by MassDOT) from Fearing Hill Road (at-grade) for approximately 1 mile as an 8-12 foot wide multi-use path crossing Farmers Lane (at-grade) and to the intersection with Paper Mill Road (at-grade);
- Phase 1D: Continuing north along abandoned rail-bed (currently owned by MassDOT) from Paper Mill Road (at-grade) for approximately 4200 feet as an 8-12 foot wide multi-use path along a short section of the active rail-line (currently owned by MassDOT) before connecting onto the westerly side of the Pierceville Road bridge to Main Street;
- Phase 1G: Continuing onto Main Street and travelling southeasterly approximately 2 miles as a share-the-road to the intersection of Main Street and Fearing Hill Road where it enters onto property now or formerly of Springborn as a 8-12 foot wide multi-use path before connecting to Station Street and crosses the existing active rail-line (at-grade) as a share-the-road and then continues to and along Main Street

either as a share-the-road or separate 8-12 foot multi-use path for approximately 1.70 miles to Merchants Way;

- Phase 2B: Continuing along Merchants Way (behind the storefronts and parallel to the existing active rail-line) as an 8-12 foot wide separate multi-use path to the intersection (at-grade) with Sandwich Road where it crosses over the Agawam River via a 6-8 foot wide sidewalk currently located on the existing vehicular/pedestrian bridge and crosses Sandwich Road via existing traffic signals;
- Phase 3A: Continuing across Sandwich Road and along Narrows Road/Minot Avenue for approximately 1.85 miles either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Depot Street;
- Phase 5: Continuing across Depot Street and along Onset Avenue for approximately 3 miles as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with U.S. Route 6 (Cranberry Highway) & State Route 28, and then along Route 6 for approximately one half mile before crossing over the Cohasset Narrows bridge to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path.

## 1.0 INTRODUCTION

### 1.1 Background

In 2006 the Wareham Bike Path Committee (WBPC) was established to oversee the feasibility of constructing a multi-use path along existing town roads, abandoned rail bed and active rail right-of-way with the goal to provide a link between the Town of Marion and Bourne to the South Coast Pathway. In 2007 the Southeastern Regional Planning & Economic Development District (SRPEDD) prepared and submitted a report to the Town of Wareham Board of Selectmen that identified and recommended potential routes along the project corridor. In July 2009, the Town of Wareham retained the services of Weston & Sampson to investigate and evaluate the feasibility of the various alternatives developed by SRPEDD, develop associated construction costs, identify design and construction constraints with respect to right-of-way, access, utilities, environmental resource impacts, possible funding sources for construction and to assist the town to develop a plan to administer policy, trail enhancement, fire/rescue procedures and maintenance for the trail once it is constructed.

#### SRPEDD Recommended Route

Based upon the report prepared by SRPEDD for the WBPC in 2007, the following summarizes the recommended route that became the basis for this study:

- Phase I:       Along County Road either as a share-the-road or separate multi-use path beginning at the Marion Town Line and along Fearing Hill Road to Main Street – a distance of approximately 2.95 miles.
- Phase II:       Along the active rail-line currently owned by the Massachusetts Department of Transportation (MassDOT) and leased to the Bay Colony Railroad Company who currently operates a low speed freight line otherwise known as the “Trash Train”, as a multi-use path from the intersection with Main Street to Sandwich Road – a distance of approximately 2.30 miles.
- Phase III:      Along Sandwich Road as a share-the-road and along the active rail-line as a multi-use path to the intersection with Depot Street – a distance of approximately 1.85 miles.
- Phase IV:      Along the active rail-line as a multi-use path from the intersection with Depot Street to the Bourne Town Line – a distance of approximately 2.90 miles.
- Alternative:    Along Main Street as a share-the-road from the intersection with Elm Street to the intersection with Sandwich Road where the existing railroad corridor right-of-way is 50 feet wide before connecting to the active rail-line.

### Feasibility Study Route (Refer to Locus Map in Appendix A and Photos in Appendix B)

Based upon the recommended route developed by SRPEDD and the WBPC in 2007, field investigations and site visits and meetings with the WBPC and general public, the following routes and alternatives were developed for this study:

- Phase 1: Begins at the Marion Town Line connecting to the future Marion Bikepath and travels northerly along County Road for approximately 1.50 miles either as a share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with Fearing Hill Road and then along Fearing Hill Road for approximately 0.50 miles either as a share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with the abandoned rail-bed currently owned by MassDOT.
- Phase 1A: Continues along Fearing Hill Road from the intersection (at-grade) with the abandoned rail-bed (currently owned by MassDOT) for approximately 0.95 miles either as a share-the-road or separate 8-12 foot wide multi-use path to the intersection with Main Street and continues along Main Street where it crosses the existing active rail-line (either at-grade or under) and continues along Main Street either as an 8-12 foot wide multi-use path or as a share-the-road for approximately 1.70 miles to Merchants Way.
- Phase 1B: This alternate begins at the Marion Town Line and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 2.25 miles as an 8-12 foot wide multi-use path crossing Blackmore Pond Road (at-grade) to the intersection (at-grade) with Fearing Hill Road.
- Phase 1C: This alternate begins at the intersection (at-grade) with Fearing Hill Road and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 1 mile as an 8-12 foot wide multi-use path crossing Farmers Lane (at-grade) to the intersection (at-grade) with Paper Mill Road.
- Phase 1D: This alternate begins at the intersection (at-grade) with Paper Mill Road and travels northerly along abandoned rail-bed (currently owned by MassDOT) for approximately 4200 feet as an 8-12 foot wide multi-use path where it intersects and runs along the westerly side of the existing active rail-line (currently owned by MassDOT) and then crosses over the tracks via the bridge carrying Pierceville Road over the active rail-line before connecting to Main Street.
- Phase 1E: This alternate begins at the bridge carrying Pierceville Road over the tracks and onto the existing active rail-line (currently owned by MassDOT) where it travels southerly along the active rail-line for approximately 2 miles as an 8-12 foot wide multi-use path to the intersection (at-grade) with Main Street (bridge).
- Phase 1F: This alternate begins at the intersection (at-grade) with the abandoned rail-bed (currently owned by MassDOT) and travels easterly along Paper Mill Road for approximately 2400 feet to the intersection with Main Street.

- Phase 1G: This alternate begins at the bridge carrying Pierceville Road over the tracks and travels southeasterly along Main Street for approximately 2 miles as a share-the-road to the intersection with Fearing Hill Road.
- Phase 2: Begins at the intersection (bridge) with Main Street and travels easterly along the active rail-line (currently owned by MassDOT) for approximately 2.30 miles as an 8-12 foot wide multi-use path crossing Station Street (at-grade), Interstate I-195 (overpass), Hathaway Street (at-grade), Main Street (overpass), Elm St/Thonet Rd (at-grade), over the Agawam River (railroad bridge) and eventually to the intersection (at-grade & signalized) with Sandwich Road.
- Phase 2A: This alternate begins at the I-195 (overpass) along the active rail-line (currently owned by MassDOT) and turns north along property now or formerly of the Town of Wareham (behind the Decas School) adjacent to the I-195 right-of-way as an 8-12 foot wide multi-use path then along Main Street as a share-the-road and/or 8-12 foot wide multi-use path to the intersection with and southerly along Hathaway Street before reconnecting to the active rail-line (at-grade).
- Another version of this alternative is to exit the active rail-line at the intersection (at-grade) with Station Street and travel northerly along Station Street as share-the-road, Main Street as either share-the-road or a 8-12 foot multi-use path and then southerly along Hathaway Street as share-the-road before reconnecting to the active rail-line (currently owned by MassDOT).
- Phase 2B: This alternate begins at Merchants Way (behind the storefronts) as an 8-12 foot wide separate multi-use path to the intersection (at-grade) with Sandwich Road where it crosses over the Agawam River via a 6-8 foot wide sidewalk currently located on the existing vehicular/pedestrian bridge where users will be allowed to cross Sandwich Road via the existing traffic signal currently located at this intersection. It should be noted there is an opportunity at this location to provide a connection to the existing park adjacent to Sandwich Road.
- Phase 3: Begins at Sandwich Road and travels along the existing active rail-line (currently owned by MassDOT) as an 8-12 foot wide separate multi-use path for approximately 1.85 miles to the intersection (at-grade) with Depot Street.
- Phase 3A: This alternate begins at Sandwich Road and travels along Narrows Road/Minot Avenue for approximately 1.85 miles either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Depot Street. It should be noted there is an existing 6 foot wide paved sidewalk along the southerly side of Narrows Road/Minot Avenue from the intersection with Sandwich Road to the intersection with Depot Street. This sidewalk could either be replaced entirely or widened resulting in an 8-12 foot wide multi-use path.
- Phase 3B: This alternate begins at the intersection of Sandwich Road and Narrows Road and travels along Sandwich Road for approximately 500 feet either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Indian Neck



Road where it travels along Indian Neck Road for approximately 1100 feet as a share-the-road or a separate 8-12 foot wide multi-use path before reconnecting with Narrows Road.

- Phase 4: Begins at Depot Street and travels along the existing active rail-line (currently owned by MassDOT) as an 8-12 foot wide multi-use path for approximately 2.90 miles to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path.
- Phase 5: Begins at Depot Street and travels along Onset Avenue for approximately 3 miles as a share-the-road or separate 8-12 foot wide multi-use path to the intersection (at-grade) with U.S. Route 6 (Cranberry Highway) & State Route 28, and then along Route 6 for approximately one half mile before crossing over the Cohasset Narrows bridge to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path. It should be noted that the section of U.S. Route 6 & State Route 28 as well as the Cohasset Narrows Bridge is currently under design as part of the American Recovery and Reinvestment Act (ARRA) through MassDOT and will comply with the latest ADA/AAB requirements and pedestrian/bicycle accommodation once completed.
- Phase 5A: Begins at the intersection of Onset Avenue and West Boulevard and travels along West Boulevard for approximately 2400 feet and then along South Boulevard for approximately 500 feet as a share-the-road before reconnecting with Onset Avenue.

## **1.2 Data Collection And Field Investigation**

Data collection as part of this feasibility study included obtaining town assessor maps, aerial mapping of the town, accident data dating back three years (2006, 2007, 2008, and 2009), traffic counts and roadway classifications provided by MassDOT.

Field work included driving and/or walking the various roadways and off-road segments identified in the SRPEDD report, recording existing pavement widths, observing existing conditions, investigating potential connections or alternative routes and recording digital photos.

Traffic data included obtaining vehicle counts performed by MassDOT along County Road, Fearing Hill Road, Main Street, Minot Avenue and Indian Neck Road.

Accident data was obtained from the Wareham Police Department dating back three years (2006, 2007, 2008, and 2009) along traffic corridors and at specific intersections. Traffic corridors included County Road from the Marion Town Line to Fearing Hill Road; Fearing Hill Road from County Road to Main Street; Main Street from Fearing Hill Road to Minot Avenue; Minot Avenue from Main Street to Depot Street/Onset Avenue; and the intersection of Onset Avenue and Route 6 (Cranberry Highway). Typically, accident data is used to evaluate and recommend specific improvements at intersections. For this feasibility study, accident data was reviewed for impact to bicyclists or pedestrians using various roadways as a share-the-road scenario or crossing specific intersections. Although all of the accidents that occurred during this time period within the study corridor were considered serious and potentially life threatening, the

primary focus was on accidents that indicated problems with lane/shoulder width or proximity of utility poles or poor sight distance – conditions that could present potentially dangerous situations for bicyclists/pedestrians using the same corridor. It should be noted that the actual accident reports have not been included in this document but are available upon request and written permission from the Wareham Police Department. Accident reports revealed the following:

#### County Road

There were a total of ten (10) accidents reported along County Road during this time period: three during 2006; two during 2007; two during 2008; and three during 2009. Notable accidents included a collision between a vehicle and motorcycle (fatality) at the intersection with Wishbone Way in April 2007.

#### Fearing Hill Road

There were a total of fourteen (14) accidents reported along Fearing Hill Road during this time period: one during 2006; two during 2007; seven during 2008; and four during 2009. Notable accidents included a collision between a vehicle and a bicyclist (injured) at the intersection with Main Street in August 2008.

#### Main Street

There were a total of two hundred thirty four (234) accidents reported along Main Street during this time period: fifty six during 2006; seventy one during 2007; fifty six during 2008; and fifty one during 2009. Notable accidents included a collision between two vehicles while passing bicyclist in March 2006; a collision between a vehicle and bicyclist at the intersection with Sandwich Road in July 2006; a collision between a vehicle and a pedestrian (injured) at the mid-block crosswalk near the Post Office during February 2007; a collision between a vehicle and pedestrian (injured) at the intersection with Gibbs Avenue in May 2007; a collision between two vehicles that resulted in a pedestrian (injured) being pinned between the two vehicles in October 2008; a collision between a vehicle and bicyclist at the intersection with Chapel Street in January 2009; a collision between a vehicle and pedestrian at the intersection with Center Street in January 2009; a collision between a vehicle and bicyclist at the CVS Plaza in September 2009; a collision between a vehicle and pedestrian (injured) in front of the TD Bank North Bank in September 2009.

#### Minot Avenue

There were a total of forty four (44) accidents reported along Minot Avenue during this time period: nine during 2006; twenty during 2007; six during 2008; and nine during 2009. Notable accidents included a collision between a vehicle and bicyclist (injured) at the intersection with Oak Street in June 2007.

## Onset Avenue/Route 6

There were a total of twelve (12) accidents reported at the intersection of Onset Avenue and Route 6 during this time period: six during 2006; two during 2007; one during 2008; and three during 2009. There were no notable accidents during this time period.

### **1.3 Definitions**

Throughout this study, proposed bike routes are referred to as specific types of bikeways. The American Association of State Highway and Transportation Officials (AASHTO) provide the following definitions in its *Guide for the Development of Bicycle Facilities* (1999 Edition):

<b><i>Bikeway:</i></b>	Any road, street, path or way which is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.
<b><i>Shared Use Path:</i></b>	A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These types of trails are also referred to as “Multi-Use” trails.
<b><i>Bike Lane:</i></b>	A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.
<b><i>Bike Route System:</i></b>	A system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route numbers. Bike routes should establish a continuous routing, but may be a combination of any and all types of bikeways.
<b><i>Signed Shared Roadway:</i></b>	A shared roadway which has been designated by signing as a preferred route for bicycle use. Also applies to a signed bike route.
<b><i>Shared Roadway:</i></b>	A roadway that is open to both bicycle and motor vehicles that may be an existing roadway, street with wide curb lanes, or road with paved shoulders. This type of facility is also referred to as “Share-the-Road”.
<b><i>Rail-Trail:</i></b>	A shared or multi-use path, either paved or unpaved, built within the right-of-way of an existing or former railroad typically abandoned. A shared or multi-use path located on or adjacent to an active railroad corridor is typically referred to as “Rails-with-Trails”.

<b><i>Class I Railroad:</i></b>	Active railroad corridors typically operated by the largest freight railroad companies.
<b><i>Class II Railroad:</i></b>	Active railroad corridors with less operating revenue than Class I Railroads that are typically recognized as “regional railroads” by the American Association of Railroads.
<b><i>Class III Railroad:</i></b>	Active railroad corridors typically include local short lines with less operating revenue than Class I and II railroads.
<b><i>Separation:</i></b>	The treatment of the space between a multi-use trail and the closest active railroad track. Treatments typically include fence, natural vegetation, ditches and other similar barriers.
<b><i>Setback Distance:</i></b>	The distance between the edge of a multi-use trail and the centerline of the closest active railroad track. The distance is determined by type, speed and frequency of trains within the active corridor; separation technique; topography; sight distance; maintenance requirements; historic requirements; and owner requirements, restrictions and liability.

## **1.4 Potential Users**

Bicycles are a legitimate means of transportation and the purpose of a bikeway, or any roadway where bicycles may lawfully operate, is to serve as a transportation facility. The use of bicycles for commuting and other utilitarian purposes indicates that bicycles are being used for transportation purposes. One of the objectives of any multi-use path is to reduce automobile trips and encourage the use of bicycles for commuting and other utilitarian travel such as trips to schools, stores, libraries, recreational facilities, and other activity centers, clearly satisfies this objective. The Wareham Bike Path Project will provide a means of improving bicycle and pedestrian travel within the Town of Wareham by providing a safe connection to neighboring towns of Marion and Bourne and linking all of the communities from Fairhaven to the Cape Cod Canal.

## **1.5 Intermodal Transportation**

For the purposes of this report, Intermodal Transportation is defined as follows:

1. A single trip where one person uses two or more modes of transportation, such as someone bicycling to a transit stop, parking the bike at the stop, boarding a bus to another location, and walking to a final destination.
2. The shared use of a single transportation facility, such as a roadway that is shared by bicycles and motor vehicles, or a multi-use path used by bicycles and walkers.

As stated in the SRPEDD report there are no existing designated bicycle facilities in the Town of Wareham, however the Greater Attleboro Taunton Regional Transit Authority (GATRA)

provides bus service through the Town of Wareham. The busses have bicycle racks mounted on the front of the bus that hold two bicycles allowing commuters to utilize two separate modes of transportation within the Town of Wareham.

## **1.6 Safety**

The proposed bike routes have been evaluated for compliance with current AASHTO and MassDOT design guidance, with the safety of bicyclists and pedestrians receiving the highest consideration. In cases where a route failed to meet minimum design standards, either safer alternate routes were selected and recommended to be included into the study, the specific design waiver required identified, or a possible solution was recommended for the selected route.

Existing non-signalized intersections along routes were not analyzed with respect to signal warrants for the simple reason this effort was outside of the scope of this study. It is assumed that existing signalized intersections support systems that can accommodate pedestrian phasing with either minor equipment upgrades or adjustments.

## **1.7 Development And Evaluation Of Bike Route Segments**

As previously stated, a majority of the proposed routes included in this study were developed by SRPEDD and the WBPC in 2007 as part of the recommendation report. As a result of several site/field visits, participation during committee meetings and data made available by SRPEDD, additional alternate routes were developed for consideration. The primary focus of this study was to identify and evaluate viable connections from the Town of Marion to the Town of Bourne that provided safe access for all types of users.

Several factors were considered during the evaluation process including traffic (volume, speed, accidents), roadway geometry, compatibility with the goals of the community, construction and maintenance cost, severity and length of grade, access, design constraints, environmental impacts, right-of-way, linkage to future bicycle facilities, etc.

The following factors were considered during the evaluation of the segments within each route:

- Available Land - Public versus Private
- Geometry/Traffic - Safety Factors
- Accessibility/Connectivity
- Compatibility - Local/Regional/State Goals
- Construction Costs
- Grades
- Aesthetic/Visual - Bicycling Environment & Enhancements
- Environmental/Historic Impacts

The following is a detailed description of each criterion:

### Available Land - Public versus Private

Property ownership is a concern primarily in the location of bicycle paths since bicycle lanes and routes are located within the public right-of-way. For the routes that are located along either the abandoned rail bed or active rail-line, the location of the proposed bike path is related to the physical characteristics of the land within the project study area. However, property ownership and use is also important in selecting proposed bikeway routes. Public property is preferred to private property, as is undeveloped land. Where the use of private property is required, undeveloped or vacant land is the most desirable. The use of off-road right-of-way may also be advantageous, especially when such issues, as property ownership, contamination and encroachments can be readily resolved.

### Geometry/Traffic - Safety Factors

Safety is the primary objective in selecting and designing a bikeway. The purpose of a bikeway, as with all transportation systems, is to provide for the safe and efficient movement of people. Therefore, the bikeway route selected must provide for the safety of all users of the facility.

The main focus of this study with regard to safety is to eliminate or minimize potential conflicts between bicyclists and motor vehicles. In terms of share-the-road facilities, several studies have been performed to analyze roadway characteristics that affect bicycle safety. These include: traffic volume, vehicle speed, vehicle type (i.e. trucks, busses, cars), pavement condition, lane width, roadway functional classification (i.e. arterial, collector, local), and roadway section (i.e. shoulder, curb, parking). All of these factors affect the operation and movement of bicycles and vehicles through a corridor.

Special attention must be given to the treatment of bicycle lanes and routes at non-signalized intersections, for which points are also deducted. Bicycle and motor vehicle traffic mix at intersections, particularly left-turning bicyclists and right-turning motor vehicles. A left-turning bicyclist must exit the bicycle lane and cross at least one motor vehicle lane to execute this movement. A right-turning motor vehicle must cross the path of through-moving bicyclists to turn right at an intersection. As the number of lanes, movements, and traffic volume increase, the potential for accidents increases. In some cases, the installation of a new traffic signal may be required to accommodate the additional bicycle traffic.

Drives may present potential conflicts for less experienced bicyclists using share-the-road facilities. A roadway with many curb-cuts may not be suitable for use as a bikeway due to the number of turning vehicles crossing the bicycle path. This is particularly true for high-volume roads with many commercial drives.

Road surface conditions are also a factor that affects both bicycle lanes and routes. A pavement surface that is cracked, delaminated and in poor condition must be repaired to properly support new bicycle traffic. In addition, existing catch basin grates must conform to ADA requirements.



### Accessibility/Connectivity

In order to provide a bikeway that serves the community, access to the bikeway is essential. Users should be able to enter the facility at or near residential areas and designated park-and-ride lots, and travel to destinations such as schools, libraries, commercial areas, recreational facilities and places of employment.

### Compatibility - Local/Regional/State Goals

It is important that the location and design of the bikeway reflect the goals of existing and future plans for the development and preservation of recreation, historic and cultural areas along the proposed alignment. The bikeway should enhance and complement the goals of existing or proposed parks or open space plans. In addition, it is important that the bikeway have the support of local, state and federal government, project abutters and the business community.

### Construction Cost

The cost associated with the establishment of the bikeway is an important factor in alignment selection. However, the anticipated cost to construct a facility should not supersede safety and project objectives during the selection process.

The cost of constructing a bicycle path is generally greater than a share-the-road facility. This is due to the cost of new construction that may include providing bridges, tunnels, culverts, upgrading existing bridges and tunnels, and adding drainage, screening, and rails. The costs associated with share-the-road facilities are usually limited to pavement markings and signs, although share-the-road facilities may require shoulder widening or new traffic signals in some instances that will increase the cost.

### Grades

The physical limitation of the bicyclist typically determines acceptable grades on a bikeway. The purpose of developing a maximum grade criterion is to provide a balance between comfort and ability, and the physical terrain of the proposed bikeway.

Several studies have been performed to determine physical capabilities of bicyclists of varying age groups and health. These studies have indicated the amount of aerobic work required for a bicyclist to climb short grades increases with age and declining health. As a result, it is necessary to establish a maximum grade for a bikeway that will provide a healthy, safe and economical facility that meets project objectives. In the selection of a bikeway alignment or connection, a 5% maximum grade is typically used in evaluating alternatives. Where this grade was exceeded due to existing terrain, recommendations were made to eliminate or reduce this problem. Where this was not feasible, grades over 5% may be used if the length of grade does not exceed 500 feet.

### Aesthetic/Visual - Bicycling Environment & Enhancements

One of the objectives of the bikeway system is to promote bicycle access to the environmental, scenic and historical areas within the five communities. For bike trails, this can be accomplished by constructing spurs or secondary trails to selected areas, constructing picnic areas and overlooks, and the use of guide signs directing users to these areas. For on-road alignments, this can also be accomplished through the use of guide signs, as well as education programs sponsored by the towns and business community to make users more aware of these areas.

### Environmental/Historic Impact

In general, a bikeway is designed to improve and enhance the environmental and historical characteristics of a corridor by providing safe, non-motorized access to these areas. Although it is common for bikeway projects to result in impacts to the environment (i.e. wetlands, streams, trees, wildlife etc.), each route was evaluated with respect to these issues and addressed accordingly.

## **1.8 Typical Section - Shared Roadway**

As a result of a portion of the proposed routes within this study being located along existing roadways, the available paved travel lane and usable shoulder width become vital to the success of the bike system.

### Lane Width

AASHTO recommends a usable lane width of 14 feet for shared use. The usable width is measured from the center of pavement to travel edge and does not include the gutter pan, regardless of whether it is paved or not. Where steep grades are encountered and bicyclists require additional maneuvering space, a usable lane width of 15 feet is recommended. The 15-foot width may also be required in areas where drainage grates, raised reflectors, or on-street parking effectively reduces the usable width. AASHTO goes on to caution that widths greater than 14 feet that extend continuously along a roadway may encourage the operation of two vehicles in one lane or unsafe passing.

MassDOT has established minimum lane width based on roadway type (i.e. functional classification). For Collector Roads MassDOT recommends a travel lane width of 10-12 feet; for Local Roads MassDOT recommends a travel lane width of 9-12 feet (Exhibit 5-14, 2006 Project Development & Design Guide).

Since MassDOT will likely be the primary reviewing agency during the design stage for this project and will most likely be supervising the construction, the recommended lane widths established by MassDOT will be used as the standard design criteria.

### Shoulder Width

Where budget constraints prevent lane improvements, the addition of paved shoulders to an existing road is one method of accommodating bicyclists and motorists in rural areas. Paved

shoulders may extend the service life of the road surface and provide more maneuvering space for bicyclists, reducing conflicts with motor vehicles. AASHTO recommends a minimum paved shoulder width of 4 feet but also notes that where this width cannot be achieved, any additional shoulder width is better than none at all. The paved shoulder width is measured from the edge pavement line to the edge of the gutter pan.

MassDOT has established minimum shoulder width based on various functions (Exhibit 5-11, 2006 Project Development & Design Guide). For bicycle and pedestrian use MassDOT recommends a minimum shoulder width of 4 feet.

Since MassDOT will likely be the primary reviewing agency during the design stage for on-road segments and will most likely be supervising the construction, the recommended shoulder widths established by MassDOT will be used as the standard design criteria.

## **1.9 Typical Section - Multi-Use Path**

A significant portion of the proposed route occurs either along abandoned rail-bed or active rail-line (Both currently owned by EOT), providing an excellent opportunity to add mileage to the system in the form of off-road segments. Although AASHTO and MassDOT will accept a minimum trail width of 8 feet, a trail width of 10-12 feet with 2 foot shoulders is more desirable for multi-use trails such as the Wareham Bike Path.

### Abandoned Corridor

Based upon site investigations there are segments along the abandoned rail-bed corridor that will not support a trail width greater than 8 feet with 2 foot shoulders on either side. Therefore it is likely the trail width will have to vary from 8-12 feet in order to reduce or eliminate impacts to wetlands, trees, slopes, right-of-way and natural habitat.

### Active Rail-Line

The 2006 *Project Development & Design Guide* recommends the following separation distances between active rail lines and paths (Exhibit 11-18, See also Appendix C):

Low Volume/Low Speed – 11' Minimum, 25' Desired

Medium Volume/Medium Speed – 15' Minimum w/Physical Barrier, 25' Desired

High Volume/High Speed – 15' Minimum w/Solid Barrier, 25' Desired w/Fence

Due to the fact this trail will be located with land owned by EOT it is recommended the proposed typical section along the active rail-line meet the minimum design standards for High Volume/High Speed Rail Operation.

Based upon site investigations there are segments along the active rail-line corridor that will not support a trail width greater than 8 feet with 2 foot shoulders on either side. Therefore it is likely the trail width will have to vary from 8-12 feet in order to reduce or eliminate the need for retaining walls or negotiate beneath structures such as the Route 195 overpass.

## **1.10 Public Participation**

Public input was provided by several groups and agencies: the Wareham Bike Path Committee; the Wareham Community Preservation Committee; SRPEDD; MassDOT; and the general public through a series of bike path committee meetings, a public workshop, emails, survey performed by the town, and telephone conversations with bicycle enthusiasts and stakeholders. These meetings are summarized as follows:

### **Wareham Bike Path Committee Meetings**

#### **August 12, 2009, Wareham Community Center:**

This meeting served as a kickoff for the project. Weston & Sampson presented the project utilizing PowerPoint and graphic boards including a locus map of the entire study corridor. Weston & Sampson introduced the project team, discussed the scope of the project study, and identified design constraints, project milestones, project schedule and moving forward. A majority of this meeting was spent discussing project schedule and preparations for the public workshop in September and the upcoming town meeting in October.

#### **September 8, 2009, Wareham Community Center:**

Weston & Sampson began the meeting with a project update with respect to completed and on-going tasks and refined study limits, design constraints etc. A majority of the meeting was spent coordinating details for the upcoming public workshop as well as an initiative to distribute several colored locus boards at key locations around town to inform the general public about the project.

#### **May 26, 2010, Wareham Community Center:**

Although there were several WBPC meetings since September 2009, this meeting was the first attended by Weston & Sampson in 2010. Most of the coordination was handled through the telephone and email and distribution of draft copies of the report to the WBPC. The purpose of this meeting was to review the final draft of the report with the WBPC with respect to their comments and concerns. Weston & Sampson received and recorded these comments with the intent of incorporating them into the final report.

### **Public Information Meeting**

#### **September 30, 2009, Wareham Town Hall:**

The purpose of this meeting was to present the project to the general public and provide the community an opportunity to understand the project, ask questions and engage. Mike Langford began with a brief introduction of the history of the project which was followed by a PowerPoint presentation by Weston & Sampson. Several WBPC members, Friends of the Wareham Bike Path and SRPEDD were in attendance in addition to several Wareham residents. After the presentation the public was allowed to ask questions and the meeting was then concluded.

### **Coordination with SRPEDD, MassDOT and Marion Bikepath Committee**

SRPEDD has been very cooperative and helpful throughout the various stages of this study. Weston & Sampson coordinated with SRPEDD representatives via telephone, email and met prior to the public workshop to discuss the study completed in 2007 as well as the current feasibility study.

The Town and Weston & Sampson met with MassDOT – Rail Program at 10 Park Plaza (Room 4150) on December 17, 2009 (See attached meeting minutes) regarding use of the active rail-line and abandoned rail-bed as a multi-use bicycle path. The following excerpts from the meeting summarize the position of MassDOT:

- The existing railway corridor is currently owned by MassDOT and is part of a 25-year plan to maintain either as a freight and/or passenger service and is considered a valuable asset to the State and is unlikely to relinquish a portion of the existing right-of-way for use as a multi-use trail. MassDOT cited safety concerns due to the fact that active trains would be sharing the same right-of-way and in close proximity to a multi-use trail, and stated the Secretary of Transportation was emphatic about not releasing segments of existing rail corridors that might be utilized for future commuter rail.
- The question was raised as to whether MassDOT would consider granting easements for partial use of the active rail-line to provide a connection from the abandoned rail-bed to Pierceville Road Bridge. MassDOT stated their willingness to coordinate with the Town of Wareham with regard to easements and liability at the appropriate time.
- MassDOT will not allow the creation of new at-grade crossing unless the Town is prepared to eliminate two at-grade crossings either within the Town or within a 50-mile radius of the surrounding jurisdiction (i.e. Town of Bourne, Plymouth, and Middleboro).
- MassDOT is willing to coordinate with the Town to transfer or lease this corridor for the use of a multi-use trail from Blackmore Pond Road to where it connects to the active rail-line.

Weston & Sampson met with representatives from the Marion Bikepath Committee on January 29, 2010 regarding the terminus of the Marion Bikepath and connection to the Wareham Bikepath. The meeting was very informative and resulted in a better understanding of the intended use of County Road, the status of the existing right-of-way south of Blackmore Pond Road and the status of the design and construction schedule of the Marion Bikepath. As a result of this meeting it was decided the Wareham Bikepath should begin at Blackmore Pond Road.

### **1.11 Adjacent Projects**

#### **Route 28 Corridor Improvement Study**

There are two projects along U.S. Route 6 & State Route 28 that are currently being managed by MassDOT that may impact the Wareham Bikepath:

The first is the replacement of the existing bridge (No. B-17-017/W-06-012) carrying U.S. Route 6 & State Route 28 (Cranberry Highway) over the Cohasset Narrows. The project consists of the

demolition and replacement of the William H. Dalton Memorial Bridge with a new 350 foot long, 3-span bridge. The new structure will accommodate a 56-foot roadway width and a 6-foot wide sidewalk protected with bridge railing on either side. The project will also include approximately 300 feet of roadway at each approach and require 5 stages of construction that will allow two lanes of traffic to be maintained during construction. The project is currently at the 25% design stage and is scheduled for construction in the year 2010/2011 as part of the ARRA.

The second is the reconstruction of U.S. Route 6 & State Route 28 beginning approximately 500 feet east of Tyler Avenue to the bridge (No. B-17-017/W-06-012) carrying U.S. Route 6 & State Route 28 over the Cohasset Narrows in the Town of Wareham, a distance of approximately 2.66 miles. The work will include roadway widening, geometric improvements, signal upgrades and other miscellaneous items of work. The project is currently at the preliminary design stage and is scheduled for construction in the year 2012 as part of the ARRA.

### **County Road**

The Marion Bikepath and the Wareham Bikepath Committee have been in contact with the Wareham Department of Public Works regarding the possible use of County Road as either a share-the-road or a separate bikepath in order to connect the two systems. It was recently learned the Town of Wareham is currently evaluating County Road with respect to storm water and drainage improvements within the corporate limits. However, this is the extent of any definitive plans to improve this corridor at this time.



## **2.0 ROUTE EVALUATION**

### **2.1 Roadways**

#### County Road (Phase 1)

County Road is currently a two-lane Local Road that travels in a north/south direction beginning at the Marion Town Line to the intersection with Fearing Hill Road. The roadway lies within a 50 foot public right-of-way, servicing primarily residential zones and consists of a paved width of approximately 22 feet with little or no paved shoulder and no sidewalk. Electric, telephone and cable TV lines are located on utility poles primarily along the easterly side of the road. There is water service located within County Road. There are very few drainage structures and no evidence of sanitary sewer along this section of County Road. According to MassDOT, Average Daily Traffic (ADT) volumes along County Road are approximately 1950 (Year 2006).

There are two options being considered as part of the feasibility study: the first is to construct a separate 8-12 foot wide multi-use path along the easterly side of County Road beginning at the Marion Town Line to the intersection with Fearing Hill Road; the second is to widen both sides of County Road to provide a minimum 4 foot paved shoulders in order to meet minimum design standards with respect to bicycle and pedestrian accommodation.

#### Option 1 – Separate Path

Field investigations included documentation of existing conditions along the corridor including location of utility poles from the edge of pavement, number of driveways and side streets, mailboxes, topography, hydrants, evidence of existing right-of-way (i.e. stone bounds, markers, stone walls, fences etc) and other obstructions that could deter or prevent construction of a path. Although both sides of County Road were considered to support a separate multi-use path, the easterly side proved to be most viable for several reasons: a majority of utility poles were greater than 8 feet from the edge of pavement thus reducing the number of poles to be relocated; the area beyond the edge of pavement was relatively flat and open reducing or eliminating the need for unnecessary excavation and retaining walls; and connecting to Fearing Hill Road would not require users to cross County Road.

Although construction of a separate path along County Road from the Marion Town Line to Fearing Hill Road is feasible, there are several issues that would have to be addressed. First, the limit of the existing 50 foot right-of-way is unknown and would have to be located along this corridor to identify any impacts. Second, there are at least two (2) existing utility poles that would have to be relocated. Third, the path would cross several driveways and side streets requiring compliance with ADA/AAB and MUTCD standards. Finally, there are locations along this corridor where a path would enter onto developed front yards and require re-grading or a low retaining wall, although these are likely within the public right-of-way and are considered encroachments onto town property.

## Option 2 – Shoulder Widening

Providing a 4 foot wide paved shoulder on both sides of County Road from the Marion Town Line to the intersection with Fearing Hill Road is certainly feasible and would have little to no impact on this corridor. The improvements would most likely be entirely within the existing 50 foot right-of-way, would not require relocation of any utility poles, and would only require minor grading along edges of adjacent properties. As mentioned herein, the town of Wareham, Marion and Rochester are currently considering plans for the reconstruction of County Road within that would likely result in a minimum 4 foot paved shoulder along this section of County Road.

## Additional Discussion

Based upon site visits there are no known locations along County Road that will facilitate parking or designated rest areas or pulloffs. According to the Marion Bikepath Committee one of the incentives for utilizing County Road as a bikepath corridor was to provide access to a campground facility located to the west of County Road. Regardless of whether a portion of or the entire length of County Road is used to connect the Marion and Wareham Bikepath, there are key locations where information kiosks would be beneficial to the system. Locations would likely include the intersection of Point Road and County Road in the Town of Marion as well as the intersection of Blackmore Pond Road and County Road in the Town of Wareham.

## Fearing Hill Road (Phase 1A)

According to MassDOT, Fearing Hill Road is currently a two-lane ‘Rural Major Collector’ Road that travels in a west/east direction from County Road to Blackmore Pond Road; and an ‘Urban Minor Collector’ from Blackmore Pond Road to Main Street. The roadway lies within a 50 foot public right-of-way and services primarily residential zones. It consists of a paved width of approximately 22 feet with little or no paved shoulder and no sidewalk. Electric, telephone and cable TV lines are located on utility poles primarily along the southerly side of the road. There is water service, very few drainage structures and no evidence of sanitary sewer along this section of Fearing Hill Road. According to MassDOT, Fearing Hill Road carries approximately 2400 vehicles per day (i.e. Average Daily Traffic – ADT) (Year 2006).

Field investigations included documentation of existing conditions along the corridor including location of utility poles from the edge of pavement, driveways, side streets, mailboxes, topography, hydrants, right-of-way etc. Although construction of a separate path along Fearing Hill Road was considered, the proximity of several existing utility poles to the edge of pavement and the topography along the edge of pavement presented too many impacts to justify the construction cost. As a result only shoulder widening was considered as part of this study.

## Option 1 – Shoulder Widening

Providing a 4 foot wide paved shoulder on both sides of Fearing Hill Road from the intersection with County Road to either the abandoned rail-bed or Main Street is certainly feasible and would have little to no impact upon this corridor. The improvements would be entirely within the

existing 50 foot right-of-way, would not require relocation of any utility poles, and would only require minor grading along adjacent properties.

### Additional Discussion

Fearing Hill Road provides an excellent opportunity to define a gateway to a future rail-trail. There is the possibility of providing parking at the intersection of Fearing Hill Road/Mary Pond Road and County Road with the cooperation of property owners. By creating a safe connection from this intersection to the abandoned railbed crossing of Fearing Hill Road that is less than ½ mile away, trail users would have access to an off-road trail system that would provide both educational and recreational opportunities. Of course the Fearing Hill Road crossing would provide an opportunity for information kiosks, benches, landscaping, bicycle racks etc.

### Main Street (Phase 1A & 1G)

According to MassDOT, Main Street is currently a two-lane ‘Minor Urban Collector’ Road that travels in a west/east direction from Fearing Hill Road to Sandwich Road. The roadway lies within a variable width public right-of-way, servicing both residential and commercial zones. It consists of a paved width that varies from 30-38 feet. Main Street actually crosses under the existing active rail-line at the intersection with Fearing Hill Road (See Section 2.3 Active Rail-line discussion). The bridge carrying the existing active railroad over Main Street is very narrow and will not allow safe passage of two-way traffic or pedestrians and will have to be addressed should Main Street be utilized as share-the-road. The section of Main Street from Fearing Hill Road to Elm Street has no sidewalks but there is sufficient width to accommodate a sidewalk or a separate path along this section of road. It is our understanding that parallel parking is allowed along this section but is rarely utilized to Chapel Street except for specific multi-family housing locations. The section of Main Street from Elm Street to Sandwich Road has sidewalk on both sides of the road as well as parallel parking on either side. Electric, telephone and cable TV lines are located on utility poles on either side of the road. There is water service, drainage and sanitary sewer services along Main Street. According to MassDOT, ADT volumes along Main Street are approximately 4100 (Year 2007).

Based upon site investigations it is possible to incorporate either shoulder widening or a separate path along the various segments of Main Street. The section of Main Street from Pierceville Road to the intersection with Fearing Hill Road could accommodate shoulder widening on both sides to provide a minimum 4 foot wide paved shoulder in order to meet minimum design standards with respect to bicycle and pedestrian accommodation; the section of Main Street from Fearing Hill Road to Elm Street could support a separate 8-12 foot wide multi-use path along the southerly side where there is no existing sidewalk which would provide safe access along Main Street to the Decas School; the section of Main Street from Elm Street to Merchants Way would utilize a share-the-road along the existing paved width or the existing sidewalk system currently located on both sides of Main Street to connect to Merchants Way and points east.

As mentioned herein, the existing railroad bridge carrying the active rail-line over Main Street proposes a serious challenge if Main Street is to be utilized as a share-the-road. MassDOT has indicated they will not permit an at-grade crossing at this location without mitigation or

elimination of at least two other at-grade crossings within the region which is unlikely. Based upon available information and site visits it may be possible to utilize property now or formerly of Springborn, which is currently vacant and upon which a town pumping station is located to allow construction of a bikepath across the easterly side of said property to connect Main Street to Station Street (See Appendix D). Once on Station Street users would cross the existing rail-line at-grade crossing and then connect to Main Street.

### Additional Discussion

Main Street has the potential to benefit trail users at several locations including viewing areas, rest areas, connections to historical and cultural information centers and destinations. The intersection with Pierceville Road provides an opportunity to connect to and provide viewing areas of the active rail-line; the bridge over the active rail-line provides an opportunity to view the active rail-line; the intersection with Fearing Hill Road provides an opportunity to view the active rail-line; the section in front of the Decas School provides a connection to the trail system for students; the downtown area along Merchants Way provides a destination for trail users including the Tremont Nail Factory, parking, shops, viewing of the active rail-line and the existing park at the intersection of Sandwich Road and Main Street. There are several locations along Main Street that would benefit from installation of benches, information kiosks, bicycle racks, signage etc to educate users to where they are, the entire trail system and how to get there.

### Paper Mill Road & Main Street (Phase 1F)

According to MassDOT, Paper Mill Road & Main Street is currently two-lane 'Minor Urban Collector' Roads that travel in a west/east direction beginning at the abandoned rail-bed to Fearing Hill Road. Both roadways lie within a 50 foot public right-of-way and service primarily residential zones and consist of a paved width of approximately 24 feet with no sidewalks. Electric, telephone and cable TV lines are located on utility poles on either side of the road. There is water service, drainage and sanitary sewer service along Paper Mill and Main Streets.

Field investigations included documentation of existing conditions along the corridor including location of utility poles from the edge of pavement, driveways, side streets, mailboxes, topography, hydrants, right-of-way etc. Although construction of a separate path along either roadway was considered, the proximity of several existing utility poles to the edge of pavement and the topography along the edge of pavement presented too many impacts to justify the construction cost. As a result only shoulder widening was considered as part of this study.

### Option 1 – Shoulder Widening

Providing a 4 foot wide paved shoulder on both sides along Paper Mill Road and Main Street from the intersection with the abandoned rail-bed to Fearing Hill Road is certainly feasible and would have little to no impact on this corridor. The improvements would be entirely within the existing 50 foot right-of-way, would not require relocation of any utility poles and would require only minor grading along adjacent properties.

### Narrows Road (Phase 3A)

According to MassDOT, Narrows Road is currently a two-lane 'Minor Urban Collector' Road that travels in a west/east direction from Sandwich Road to Minot Avenue. The roadway lies within a 50 foot public right-of-way and services primarily residential zones and consists of a paved width of approximately 28 feet with a five foot asphalt sidewalk on the southerly side. Electric, telephone and cable TV lines are located on utility poles on either side of the road. There is water service, drainage but no known sanitary sewer service on Narrows Road. According to MassDOT, ADT volumes along Main Street are approximately 6100 (Year 2001).

Based upon field investigations Narrows Road could be utilized as share-the-road or the existing sidewalk could be widened sufficiently along the southerly side to serve as a separate path from the intersection with Sandwich Road to Narrows Road.

### Minot Avenue (Phase 3A)

According to MassDOT, Minot Avenue is currently a two-lane 'Minor Urban Collector' Road that travels in a west/east direction from Narrows Road to Depot Street. The roadway lies within a 50 foot public right-of-way and services primarily residential zones and consists of a paved width of approximately 28 feet with a five foot asphalt sidewalk on the southerly side. Electric, telephone and cable TV lines are located on utility poles on either side of the road. There is water service, drainage but no known sanitary sewer services along Narrows Road. According to MassDOT, Main Street carries approximately 6100 ADT (Year 2001).

Based upon site investigations Narrows Road could be utilized either as a share-the-road or the existing sidewalk could be widened sufficiently along the southerly side to serve as a separate 8-12 foot path from Narrows Road to Depot Street.

### Additional Discussion

The intersection of Minot Avenue and Indian Neck Road is an ideal location for information kiosks/panels, bicycle racks and benches. The intersection of Minot Street and Depot Street provides yet another opportunity to create a gateway to the bikepath due to the fact it provides a connection to Route 28 to the north along Depot Street and downtown Onset to the south along Onset Avenue. This area would be ideal for vehicle parking, a pocket park, bicycle racks, information kiosks/panels, bicycle shelters and lockers.

### Onset Avenue (Phase 5)

According to MassDOT, Onset Avenue is currently a two-lane 'Minor Urban Collector; Road that travels in a west/east direction from Depot Street to U.S. Route 6 (Cranberry Highway) & State Route 28. The roadway lies within a 40 foot public right-of-way and services both residential and commercial zones and travels through the center of Onset before connecting to Route 6 in Wareham.

The intersection of Minot Avenue and Depot Street is non-signalized and under stop control. The intersection will have to be evaluated and modified to allow safe crossing for pedestrians/bicyclists. It is not certain at this time if the town intends to incorporate traffic signals or make improvements at this intersection. Onset Avenue connects Depot Street with downtown Onset and currently has a sidewalk along one side of the road for a majority of the corridor before connecting to Route 28. Based upon site investigations Onset Avenue could be utilized either as a share-the-road or the existing sidewalk could be replaced or widened to 8-12 feet to serve as a separate multi-use path.

### Additional Discussion

Similar to Main Street in downtown Wareham, Onset Avenue provides a key link to shops, restaurants, parking and the waterfront in Onset and eventually to Route 28 and the Cape Cod Rail-Trail in Bourne. There are several locations where benches would be appropriate, possibly a pocket park where feasible and of course rest stops/viewing areas at bridges and other key locations of interest.

## **2.2 Abandoned Railroad Corridor**

The abandoned rail-bed begins at Blackmore Pond Road and travels northerly approximately 3.60 miles where it connects to the active rail-line, crossing Fearing Hill Road (at-grade), Farmers Lane (at-grade) and Paper Mill Road (at-grade) before connecting to the existing active rail-line via a track spur along the westerly side.

### South Corridor (Phase 1B)

According to SRPEDD and based upon limited site visits, the existing track ties and rails are still in place along the abandoned rail-bed from Fearing Hill Road to the active rail-line; however along the abandoned rail-bed from the Marion Town Line to Fearing Hill Road the track ties and rails have been removed. The entire abandoned rail-bed corridor is overgrown with brush and fallen trees but the overall corridor is still very much intact and discernable. The abandoned rail-bed corridor also crosses the Cohackett Brook (i.e. culvert) approximately 2000 feet north of the intersection with Blackmore Pond Road. Just north of the Cohackett Brook crossing, the existing abandoned rail-bed travels adjacent and to the west of an existing cranberry bog for a distance of approximately 1500 feet. Site visits revealed the existing rail-bed to be inaccessible due to standing water as a result of recent cranberry operations. There are at least two locations where existing drainage gates discharge bog water directly into the abandoned rail-bed. Site visits also revealed one location where there is a gravel road constructed across the existing abandoned rail-bed, preventing water from draining back toward the Cohackett Brook. If this section of abandoned rail-bed is to be used as a multi-use trail, specific drainage improvements will have to be incorporated along this section of the trail to treat water discharged from the bogs and route back toward the Cohackett Brook as originally intended.

The right-of-way along the section of abandoned rail-bed from the Marion Town Line to Blackmore Pond Road is currently privately owned and would require an easement or land taking by the Town of Wareham and Marion for use as a multi-use path and is highly unlikely.



However, the right-of-way along the section of abandoned rail-bed from Blackmore Pond Road to Fearing Hill Road (Approximately 2 miles) is primarily intact (i.e. owned by MassDOT) except at one location just south of Blackmore Pond Road. At this location there are two parcels: the southerly parcel is identified as Lot 1A (See Appendix D – Assessors Map 68, Parcel 1A) is still undeveloped and for sale by Cornerstone Properties; the northerly parcel “Now or Formerly of Nolan” is developed. Both parcels may prevent a continuous connection without a land taking in fee or an access easement by either MassDOT or the Town of Wareham.

Site investigations and research have resulted in the identification of two viable options to connect this corridor to the north. The first option is to direct users from County Road onto Blackmore Pond Road as a share-the-road scenario and connect onto the abandoned rail-bed along the north side of Blackmore Pond Road and continue north to Fearing Hill Road. The second is to continue along the abandoned rail-bed from Marion to an existing path along the southerly edge of property “Now or Formerly of Galavotti” (See Appendix D – Assessors Map 68, Parcel 1003) which runs westerly and eventually connects to Town of Wareham Conservation Land that runs northerly to Blackmore Pond Road as share-the-road and connects to the abandoned rail-bed along the northerly side of Blackmore Pond Road. This option would require an access easement or taking from the property owner “Now or Formerly Galavotti”.

#### Additional Discussion

The section of abandoned rail-bed from Blackmore Pond Road to Fearing Hill Road offers many opportunities to enhance the trail and provide great benefit to trail users. Although the Blackmore Pond Road crossing will not support vehicle parking without land takings from private owners, there may be sufficient public right-of-way at the Blackmore Pond Road/County Road intersection to accommodate 2-3 vehicles from which users could then walk/ride along Blackmore Pond Road a short distance before connecting to the abandoned rail-bed to the north. At a minimum the intersection of Blackmore Pond Road and County Road is a key location for a rest area with an information kiosk with landscaping and benches. There is also an opportunity for users to access conservation land owned by the Town located along Blackmore Pond Road to the south mid-way between the intersection with County Road and the entrance to the abandoned rail-bed. The Blackmore Pond Road and Fearing Hill Road crossings are certainly ideal locations to serve as gateways to the trail by incorporating information kiosks/panels, bicycle racks and benches and removable bollards to allow access for emergency and maintenance vehicles. This section of trail is an excellent opportunity to provide rest stops/pulloffs adjacent to or near the existing culvert, cranberry bogs and other appropriate locations.

#### North Corridor (Phase 1C & 1D)

The right-of-way section from Fearing Hill Road (Approximately 1.60 miles) is entirely owned by MassDOT and provides an excellent opportunity to connect Fearing Hill Road to the existing active rail-line which is also owned by MassDOT, not only eliminating the need to make any improvements along Fearing Hill Road travelling north from this intersection but allowing users to exit and avoid the heavily travelled and potentially dangerous section of County Road and Fearing Hill Road. Although the corridor may present challenges such as environmental permitting, right-of-way agreements with MassDOT, drainage, at-grade crossings (Farmers Lane

& Paper Mill Road) and privacy screening, these issues are not considered major stumbling blocks.

### Additional Discussion

Similar to the southern abandoned rail-bed corridor, the northern section offers several enhancement opportunities in addition to rest stops and pull-offs. The at-grade crossings of Farmers Lane and Paper Mill Road could serve as gateways to the corridor with the incorporation of information kiosks and panels, benches, landscaping etc. However, the one feature of this section is clearly the connection to the active rail-line. The transition from the abandoned section to the active section will most certainly appeal to all trail users by allowing them to ride alongside the active tracks for approximately 500 feet before crossing over the active corridor via the Pierceville Road bridge before connecting to Main Street. Clearly, an area that would incorporate benches, picnic tables, landscaping, a pocket park, information kiosks and panels and possibly a viewing platform.

## **2.3 Active Railroad Corridor**

### Existing Active Rail-Line (Phase 1E & 2)

This section of the corridor presents the greatest number of challenges primarily due to such physical constraints as;

- Connection onto the abandoned rail-bed
- Main Street northerly overpass
- Bridge over Main Street
- At-grade crossing at Station Street
- Interstate I-195 overpass
- At-grade crossing at Hathaway Street
- Main Street southerly overpass
- At-grade crossing at Elm Street.

Based upon available assessor maps and right-of-way information provided by SRPEDD, the existing right-of-way along this section appears to be sufficient to accommodate the minimum separation of 25 feet required for high speed/high volume train operation and a multi-use path.

The primary issue regarding the connection to the abandoned rail-bed is which side of the active rail-line to locate the multi-use trail. One option is to connect the abandoned rail-bed onto the westerly side of the active rail-line and travel south. Based upon several site walks the available width along the westerly side of the active rail-line corridor is very limited and would likely require additional embankment and retaining walls to support a path and maintain the minimum 25 foot separation required. Utilizing the westerly side would likely result in impacts to existing right-of-way, outstanding resource areas, and natural habitat that would significantly increase design and construction costs. Site investigations revealed a wider shoulder along the easterly side, better potential access/connection points from adjacent streets, and reducing the need to cross the active rail-line in order to connect to points south such as Station Street, Hathaway or

Merchants Way. One option to connect the abandoned rail-bed to the easterly side of the active rail-line would direct the path north along the westerly side of the active rail-line, along the Pierceville Road west bridge abutment onto Pierceville Road, over the active rail-line via the Pierceville Road bridge, along the Pierceville Road east bridge abutment and onto the easterly side of the active rail-line where it would continue south along the easterly side of the active rail-line to connect to points south.

The Main Street overpass is not wide enough to provide the minimum 25 foot separation required to allow active trains and a multi-use path to travel under Main Street. Although one option is to replace the existing structure with a new bridge and wider opening, the cost would be substantial. A second option includes bypassing this bridge by directing the path off the active rail-line from the easterly side, crossing Main Street east of the bridge and then back down onto the active rail-line where it would continue south along the easterly side of the active rail-line to connect to points south. Site investigations revealed the existing topography along the east side of the existing bridge will allow for a smooth and gentle transition onto Main Street. There is actually an existing access road from Main Street onto the easterly side of the active rail-line that could be utilized (See photos in Appendix B).

The existing bridge carrying the active rail-line over Main Street is not wide enough to provide the required 25 foot separation between the active rail-line and a multi-use trail. In addition, the clear span over Main Street will not provide sufficient width for safe bicycle passage and vehicular traffic. One option may be to extend the existing abutments in order to support a separate pedestrian bridge over Main Street. A second option may be to replace the entire structure with a new bridge supported on either extended existing abutments or entirely new abutments. A third option may include diverting the path off of the active rail-line and onto Main Street before connecting to Station Street and back onto the easterly side of the active rail-line to connect to points south. The at-grade crossing at Station Street does not present any issues other than compliance with ADA/AAB and MUTCD standards.

The I-195 overpass is unlike the other structures along the active rail-line in that the abutments are sloped thus providing additional width that may satisfy the minimum 25 foot separation requirement. It may be possible to elevate the path onto the easterly abutment utilizing a block/concrete retaining wall in order to achieve the minimum separation. A second option would be to bypass this section of active rail by exiting the path to the east along Town property and connecting to Main Street and eventually to Hathaway and back onto the easterly side of the active rail-line to connect to points south.

#### Existing Active Rail-Line (Phase 2B)

This section of the corridor consists of variable right-of-way width which is not sufficient to accommodate both an active rail-line and multi-use trail. It is for this reason the most logical solution is to bypass this section and utilize either Main Street or Merchants Way to connect to the existing bridge over the Agawam River. The existing parking lot and traffic circulation could easily be reconfigured along Merchants Way to accommodate a paved path parallel to the active rail corridor that would make a direct connection to the existing bridge behind the existing shops.

Once over the vehicular bridge, trail users could cross Sandwich Road via the existing traffic signal and reconnect to the active rail-line on the opposite side.

#### Existing Active Rail-Line (Phase 3)

This section of the corridor has sufficient right-of-way to easily accommodate an active rail-line and a multi-use trail. An alternative (Phase 3A) along this section could be to utilize the existing sidewalk along Minot Street or to modify the existing sidewalk to create a 10-12 foot wide path in order to connect to Depot Street.

#### Existing Active Rail-Line (Phase 4)

This section of the corridor has sufficient right-of-way to easily accommodate an active rail-line and a multi-use trail. The corridor does present challenges due to the at-grade crossing at Main Avenue, the Onset Avenue overpass bridge and the Cohasset Narrows Bridge.

### **3.0 CONCLUSIONS AND RECOMMENDATIONS**

#### **3.1 Conclusions**

As a result of the initial study prepared by SRPEDD, with additional input from the WBPC, several alternatives were developed and evaluated as part of this feasibility study. These routes included off-road segments along the abandoned rail-bed corridor, off-road segments along the active rail-line corridor, and on-road segments along several streets within the Town of Wareham.

Based upon guidelines established by AASHTO, MUTCD, MassDOT, ADA/AAB and the evaluation criteria established herein, there are several viable routes that will provide a connection from the Marion Bikeway to the Cape Cod Canal Bike Path in the Town of Bourne through the Town of Wareham that is safe, attractive, functional and enjoyable to all types of users.

##### Abandoned Rail-Bed Corridor

The fact that MassDOT currently owns the land along the abandoned rail-bed corridor will require either a land taking from or long-term lease between MassDOT and the Town of Wareham in order to construct a multi-use trail along this corridor. This corridor is located along outstanding resource areas and likely within wildlife habitat that will require environmental permitting. A section of this corridor crosses over an existing culvert carrying the Cohackett Brook under the rail-bed which will likely require improvement to the existing upstream and downstream headwalls. The section of abandoned rail-bed adjacent to the existing cranberry bogs will also require specific drainage improvements to treat bog discharge and to direct the discharge back toward the Cohackett Brook as originally intended. This corridor also has several at-grade crossings that will require additional study, evaluation and an engineered solution to provide a safe crossing for trail users. However, these issues are not considered major and insurmountable.

The Town and Weston & Sampson met with MassDOT on December 17, 2009 regarding use of the abandoned rail-bed as a multi-use bicycle path. MassDOT made it clear their willingness to coordinate with the Town at the appropriate time, to transfer or lease this corridor for the use of a multi-use trail from Blackmore Pond Road to where it connects to the active rail-line.

##### Active Rail-Line Corridor

The fact that MassDOT currently owns the land along the active rail-line corridor will require either a land taking from or long-term lease between MassDOT and the Town of Wareham in order to construct a multi-use trail along this corridor. This corridor is also located along outstanding resource areas and likely within wildlife habitat that will require environmental permitting.

There are at least two overpasses along the active rail-line that will not provide the minimum 25 foot separation required to allow a multi-use trail to be located alongside an active railroad that will require a bypass.

There are three existing railroad bridges along the active rail-line corridor that are not wide enough to provide the minimum 25 foot separation required and will either require a bypass or modification and/or replacement.

The Town and Weston & Sampson met with MassDOT on December 17, 2009 regarding use of the active rail-line as a multi-use bicycle path. The existing railway corridor is part of a 25-year plan to maintain either as a freight and/or passenger service and is considered a valuable asset to the State which is unlikely to relinquish a portion of the existing right-of-way for use as a multi-use trail.

### Roadways

All of the roads identified as alternate routes will allow for the minimum 4 foot paved shoulder widening in order to meet minimum design standards with respect to bicycle and pedestrian accommodation while portions of County Road and Main Street will accommodate a separate 8-12 foot multi-use path. The existing railroad bridge carrying the active rail-line over Main Street at the intersection with Fearing Hill Road will not accommodate two-way traffic or pedestrians safely and will require an engineered solution.

## **3.2 Recommendations**

Based upon site investigations, existing right-of-way information, general knowledge of the study corridor and direct coordination with MassDOT, it is highly unlikely that MassDOT is going to allow a multi-use path to be constructed along the active rail-line at this time. Therefore the recommended feasible route of the Wareham Bicycle Path corridor is as follows:

- Phase 1B: North along abandoned rail-bed from Blackmore Pond Road for approximately 2 miles as an 8-12 foot wide multi-use path to the intersection with Fearing Hill Road (at-grade);
- Phase 1C: Continuing north along abandoned rail-bed from Fearing Hill Road (at-grade) for approximately 1 mile as an 8-12 foot wide multi-use path crossing Farmers Lane (at-grade) and to the intersection with Paper Mill Road (at-grade);
- Phase 1D: Continuing north along abandoned rail-bed from Paper Mill Road (at-grade) for approximately 4200 feet as an 8-12 foot wide multi-use path along a short section of the active rail-line before connecting onto the westerly side of the Pierceville Road Bridge to Main Street;
- Phase 1G: Continuing onto Main Street and travelling southeasterly approximately 2 miles as a share-the-road to the intersection of Main Street and Fearing Hill Road where it enters onto property now or formerly of Springborn as a 8-12 foot wide multi-

use path before connecting to Station Street and crosses the existing active rail-line (at-grade) as a share-the-road and then continues to and along Main Street either as a share-the-road or separate 8-12 foot multi-use path for approximately 1.70 miles to Merchants Way;

Phase 2B: Continuing along Merchants Way (behind the storefronts and parallel to the existing active rail-line) as an 8-12 foot wide separate multi-use path to the intersection (at-grade) with Sandwich Road where it crosses over the Agawam River via a 6-8 foot wide sidewalk currently located on the existing vehicular/pedestrian bridge;

Phase 3A: Continuing across Sandwich Road and along Narrows Road/Minot Avenue for approximately 1.85 miles either as a share-the-road or a separate 8-12 foot wide path to the intersection (at-grade) with Depot Street;

Phase 5: Continuing across Depot Street and along Onset Avenue for approximately 3 miles as a share-the-road to the intersection (at-grade) with U.S. Route 6 (Cranberry Highway) & State Route 28, and then along Route 6 for approximately one half mile before crossing over the Cohasset Narrows bridge to the Bourne Town Line where it will connect to the Cape Cod Canal Bike Path.

### **3.3 Construction & Yearly Maintenance Costs**

#### Construction Costs

Construction costs associated with the various segments identified in this study have been developed as an “Order of Magnitude” for planning purposes only. Once specific routes have been selected and preliminary designs initiated, more detailed construction estimates can be developed. It should be noted that construction costs along County Road only include signage since County Road is currently being evaluated/considered to be reconstructed by the Town of Wareham in the near future.

#### *Rail Trail*

Construction cost items for a multi-use path that utilizes an abandoned rail-bed include clearing and grubbing, excavation, gravel borrow, grading, drainage, loam and seed, safety rail/fence, pavement, screening, root barriers, signalized at-grade crossings, landscaping, bollards, signing (regulatory & interpretive), pavement markings, temporary erosion controls and other miscellaneous items of work. In general costs were developed as a cost per linear foot of trail that includes excavation, subbase (gravel borrow) and the surface (asphalt) and other major items of work (Refer to Appendix E).

#### *Shared Roadway*

Construction cost items for share-the-road may consist of either shoulder widening or a separate path including excavation, gravel borrow, grading, pavement, asphalt berm (or curb), wheelchair ramps, loam and seed, signing (regulatory) and other miscellaneous items of work.

### *Active Rail-Bed*

Construction cost items for a multi-use path along the active rail-bed include clearing and grubbing, excavation, gravel borrow, grading, loam and seed, reinforced concrete barrier (4 ft high), chain link fence (4 ft high), new switch back structures, pedestrian bridges, bollards, signing (regulatory & interpretive) and other miscellaneous items of work.

The following summarizes the approximate construction costs developed for each trail section identified in this study (Refer to Appendix E for cost breakdown):

Phase 1 (Path, L=0.50 mile; Share-the-road, L=1.5 miles)	\$375,000
Phase 1A (Path, L=0.95 mile; Share-the-road, L=1.70 miles)	\$500,000
Phase 1B (Abandoned rail-bed, L=2 miles)	\$1,000,000
Phase 1C (Abandoned rail-bed, L=1 mile)	\$650,000
Phase 1D (Abandoned rail-bed, L=4200'; Active rail-line, L=500')	\$525,000
Phase 1E (Active rail-line)	\$2,000,000
Phase 1F (Share-the-road, L=6400')	\$5,000
Phase 1G (Share-the-road, L=2 miles)	\$375,000
Phase 2 (Active rail-line)	\$4,500,000
Phase 2A (Active rail-line, L=2000'; Path, L=1000')	\$500,000
Phase 2B (Share-the-road, L=1000')	\$150,000
Phase 3 (Active rail-line)	\$2,000,000
Phase 3A (Share-the-road, L=1.85 miles)	\$350,000
Phase 3B (Share-the-road, L=1600')	\$1,500
Phase 4 (Active rail-line)	\$5,000,000
Phase 5 (Share-the-road, L=3.5 miles)	\$800,000
Phase 5A (Share-the-road, L=2900')	\$1,500



### Annual Maintenance Costs

Annual maintenance costs associated with each type of trail segment (i.e. rail trail or off-road, share-the-road or active rail-line) have been developed to assist the town with budgeting for the future trail system. With respect to liability the town will be required to comply with the Massachusetts General Laws in the Tort Claims Act, Ann. Laws of Massachusetts, Chapter 258 and Ann. Laws, Chapter 21, Section 17c. The town would likely be required to carry general liability with coverage to \$1 million per incident and a \$3 million umbrella for the trail system that will have to be included in the annual budget.

#### *Rail Trail (Off-Road)*

Annual maintenance along off-road segments typically require the most maintenance due to their location and include brush clearing, invasive species removal/treatment, trash removal, drainage structure maintenance, sign maintenance, erosion repair, shoulder repair/re-seeding etc. Initially the bikepath surface will not require any maintenance but as years pass it may be necessary to repair cracks, re-apply sealer or re-apply pavement markings such as a center line, stop bars or symbols. There are no structures anticipated along the off-road segments from Blackmore Pond Road to the active rail-line thus eliminating a potentially significant maintenance cost liability to the town. However, there will likely be a flashing warning system at Blackmore Pond Road crossing and a fully-actuated signal at the Fearing Hills Road crossing that will likely require annual maintenance.

A recent survey performed by the Rails-To-Trail Conservancy revealed annual maintenance costs for a off-road trails similar to Segments 1B, 1C and 1D (Approx. 3.8 miles) will vary from \$700 to \$2000 dollars per mile, depending upon the amount of volunteer support. Applying an average of \$1350 per mile along the abandoned segments recommended in this study, results in an approximate cost of \$5125 per year.

#### *Shared Roadway*

Annual maintenance along share-the-road segments will vary depending upon the type of edge treatment but typically require little to no maintenance. Along roads that will utilize a widened shoulder such as Fearing Hills Road, County Road or the westerly section of Main Street, annual maintenance may include shoulder repair, re-application of the edge line, stop bars or crosswalks and sign repair. Along roads that will utilize a separate bikepath such as the easterly section of Main Street, Minot Avenue and Onset Avenue, annual maintenance will be very minimal and primarily include re-application of pavement markings at intersections/crossings.

Annual maintenance costs for a share-the-road or separate path similar to Segment 1G, 2B, 3A and 5 (Approx. 7 miles) typically vary from \$250 to \$750 dollars per mile and will be maintained primarily by town forces. Applying \$250 per mile along these segments recommended in this study, results in an approximate cost of \$1750 per year.

### *Active Rail-Bed*

Although MassDOT has indicated an unwillingness to share their Right-of-Way for use as a multi-use bikepath, they have not ruled out the possibility of using approximately 500 feet of the active rail-line to provide a connection from the abandoned section (Segment 1D) to the bridge carrying Pierceville Road over the active rail-line to Main Street. If use of this section is allowed the annual maintenance will be very similar to that of the off-road segments and may include brush clearing, invasive species removal/treatment, trash removal, drainage structure maintenance, sign maintenance, concrete barrier/fence repair, erosion repair, shoulder repair/re-seeding etc. Again, initially the bikepath surface will not require any maintenance but over time it may be necessary to repair cracks, re-apply sealer or re-apply pavement markings such as a center line, stop bars or symbols. There are no structures anticipated along the active rail-line segment due to the fact the connection from the bikepath to the Pierceville Road bridge will likely require a path with a gradient of less than five (5) percent.

As previously described herein, annual maintenance costs for a trail similar to Segment 1D (Approx. 500 feet or 0.1 miles) along the active rail-line will be very similar to that of an abandoned rail-bed and typically vary from \$700 to \$2000 dollars per mile. Applying \$1500 per mile along this segment recommended in this study, results in an approximate cost of \$150 per year.

Based upon our experience and historic data it is estimated that annual maintenance costs for the recommended Wareham Bikepath system consisting of approximately 3.8 miles of off-road, 7.5 miles of share-the-road/separate path and 0.1 miles of active rail-line, totaling over 11 miles, will require approximately \$7000 to \$8000 per year. It should be noted this annual cost could be reduced significantly with support of volunteers.

### **3.4 Funding Sources**

In October 2009 the Town of Wareham appropriated \$200,000 toward the design of this project.

As identified in the SRPEDD report, the majority of bicycle projects in Massachusetts have utilized either Transportation Enhancement Funds or Congestion Mitigation/Air Quality Improvement funds for construction.

#### Transportation Enhancement Program

The Federal Highway Administration (FHWA) typically matches 80% while MassDOT typically matches 10% of the total cost of the project. This requires the project applicant (i.e. Town of Wareham) to match the remaining 10%. Projects compete for funding at the state level and include the preparation and submission of a pre-application to SRPEDD and final application to the Transportation Enhancement Steering Committee for approval.

Projects can apply for final design funds and/or construction funds. In order to receive funds for final design, the project must be at least at the 25% design level at the time the application is

submitted. The project can be phased so that it receives final design funds one year and construction funds the next.

### Congestion Mitigation and Air Quality improvement program (CMAQ)

The Federal Highway Administration (FHWA) typically matches 80% while MassDOT typically matches the remaining 20% of the total cost of the project. Projects must demonstrate they improve air quality and must receive approval from the CMAQ committee.

### Other State & Federal Funding Sources

- Highway Safety Improvement Program (bicycle/pedestrian safety projects)
- Recreational Trails Program (recreation-oriented trails)
- Transportation, Community and System Preservation Program
- Section 402 Highway Safety Program (priority given to bicycle/pedestrian safety projects)
- Alternative Transportation in Parks and Public Lands-Section 3021
- Safe Routes to School Program (bicycle/pedestrian facilities near schools, bicycle/pedestrian awareness programs)
- Transit Enhancement Funds (bicycle/pedestrian access to transit)
- Jobs Access and Reverse Commute Grants (welfare recipients and low-income individuals access to employment)
- DEM Greenways and Trails Demonstration Grants Program (planning, feasibility and materials for greenways and trails in Massachusetts)
- Local Chapter 90 Program (funds given to communities through MassDOT that can be used for bicycle/pedestrian projects)

### **3.5 Phase I Design Costs**

As previously mentioned the town approved \$200,000 to be spent toward the design of the Wareham Bikepath. During the feasibility study process, it became clear the approved funding would not be sufficient to design the entire trail system which made it necessary for the WBPC to select specific segments to be included under the Phase I Design. Based upon the information presented in this report and discussions with the WBPC, it was decided to focus on the abandoned rail-bed sections of the system for several reasons: The section from Blackmore Pond Road will allow the Marion Bikepath to connect to the Wareham Bikepath and get users off of County Road which is currently unsafe with no immediate plans to upgrade; Makes use of a historic railway corridor that MassDOT does not intend to re-establish; Will provide a safe connection to several streets including Blackmore Pond Road, Fearing Hill Road, Farmers Lane and Paper Mill Road; Will eventually provide access along a short section of active rail-line which will serve as a destination; Will add mileage to the system; and serve as a incentive to obtain funding for future phases identified in this report.

Therefore, it is recommended the Phase I design include the abandoned rail-bed sections (Phase 1B) beginning at Blackmore Pond Road to Fearing Hill Road; the crossing of Fearing Hill Road; and if possible continue the trail from Fearing Hill Road along the abandoned rail-bed, crossing Farmers Lane and connecting to Paper Mill Road (Phase 1C).

The section of abandoned rail-bed from Blackmore Pond Road to Fearing Hill Road is approximately 2 miles in length and is estimated to cost approximately \$1 Million to construct; and the section of abandoned rail-bed from Fearing Hill Road to Paper Mill Road (a distance of approx. 1 mile) with an at-grade crossing at Farmers Lane is estimated to cost approximately \$650,000 to construct. The Fearing Hill Road crossing will likely require a signalized crossing and may impact the design whereas the Farmers Lane crossing may only require a warning/alert system due to the low traffic volume. There are no bridge structures (only one culvert) along this section of trail.

Survey along this 3 mile corridor will cost between \$35,000 to \$40,000 which will include a comprehensive topographic survey that will show the existing trail, intersections, right-of-way, drainage, existing features such as trees, utilities, cranberry bogs and cross sections every 50 feet. The survey will conform to the latest MassDOT survey standards and be tied into the Mass. State Plane Grid and NAVD 1988.

The design will likely cost between 8-12 percent of the estimated construction cost. Using an average of 10 percent of \$1,650,000 estimated to construct this corridor, this would equate to approximately \$165,000 which would include preparation of a preliminary design (25% design submission) to MassDOT, environmental permitting, preliminary right-of-way plans and attendance at the 25% design public hearing) and final design (75%, 100% and PS&E design submissions) to MassDOT which would supervise and fund the construction of the project through the State Transportation Improvement Program (STIP).

### **3.6 Trail Management Plan**

The Town has identified four separate elements that will be essential to establishing town policy with regard to the operation and maintenance of this trail: The first being Trail Policy; Second, Trail Management; Third, Law Enforcement, Fire & Rescue Management; and Finally, Trail Maintenance.

#### **Trail Policy**

As with any type of trail facility, it is important to establish trail use standards and guidelines for all types of users of the trail system. Types of users include bicyclists, pedestrians, other non-motorized wheeled vehicles, the disabled in wheelchairs, and facility maintenance personnel. The ultimate objective of these policies is to ensure safety, accessibility, aesthetics, education, recreation and cost-effective operation of the trail system. While guidelines and policies discussed in this section are intended to provide a framework for the Wareham Bikepath, they are simply a starting point and may require modification to address specific conditions along the trail system depending upon which segments are selected to be constructed. It is recommended the town review and revise the guidelines accordingly.

## *Safety*

Unsafe situations or conditions resulting from inconsistent policies, poor signage or user behavior can prevent trail users from achieving their desired trail experience. There are several factors that can occur along trails resulting in injuries or unsafe conditions including:

- Collisions and/or near misses among trail users and/or vehicles
- Reckless and irresponsible behavior
- Poor preparation or judgment by trail users
- Poor trail design, construction, maintenance or management
- Others such as weather, crime, vandalism etc.

Incorporating consistent guidelines for user behavior will result in a trail system that is safe, more enjoyable for trail users, more cost-effective to maintain and reduce liability of the town. By implementing consistent user policies, signage/marketing standards, ADA/AAB compliance and educational programs the town can address several sources of conflict including:

- User speed
- Users overtaking one another silently or without warning
- User expectations and preparedness
- Negotiating at-grade and signalized crossings
- Emergency procedures
- On-site management and public safety presence

## *Accessibility, Signage, Aesthetics and Rules of the Trail*

Trail use and desired experience varies depending upon a particular activity and type of user (even from one outing to the next by the same user). The quality of these experiences is often measured in terms of the expectations of the user versus their overall satisfaction. The type of access and attractiveness of the trail will affect the number of users that actually use and continue to use the trail in the future. All trails should comply with the latest ADA/AAB rules and regulations and wherever possible the trail should be designed according to the latest minimum bicycle standards so there is consistency within the trail system. Signage throughout the trail system should be clear, concise and consistent so users develop a certain level of expectation and there are no surprises. Trail users need to understand “Rules of the trail” which may include hours of operation, restrictions or standard rules of trail etiquette.

## *Trail Head Signing*

The following information should be provided at trailheads, intersections and key point along the trail:

- Directions and distances to major destinations
- Signage with street names and locations at all intersections with streets
- Over/under crossings should be marked with street names

- Hazardous turns/curves, no shoulder, loose gravel etc. should be identified with warning signs
- Signs directing trail users to access points, connections and trail spurs or rest stops
- Mile markers
- Consistent trail naming
- Emergency contact information and/or call boxes

### Trail Management

Establishing simple guidelines and policies for trail use is essential to provide a safe and enjoyable trail network. The following is a summary of typical trail management policies that should be applied to the Wareham Bikepath:

- Bicycle riding along roadways – A bicycle operated along a roadway shall be operated in the same direction as vehicles. Motorists normally scan for traffic traveling in the lawful direction; wrong-way traffic is easily overlooked. For example, a motorist turning right at an intersection scans to the left for approaching traffic and cannot see or anticipate a fast-moving wrong-way bicyclist approaching from the right.
- All motorized/electric vehicles are prohibited – This is for both safety and maintenance purposes. The difference in speed between a motorized vehicle and a cyclist/pedestrian and the amount of distance vehicles require create dangerous conflicts between cyclists/pedestrian and vehicles. Pavement sections for multi-use trails are not typically designed to accommodate motor vehicles which over time cause surface cracking and deterioration.
- Stopping on or blocking the trail – When in a group or with your pets, use no more than half the trail so as not to block the flow of other users. When stopping, move off of the trail. Be aware of others approaching you from behind and make certain they know you are pulling off the trail. There are serious safety implications of blocking the trail, especially for small children. Small children or animals are often difficult to see, cyclists traveling around blind corners are not able to see the entire trail or cannot react if someone crosses the trail quickly which may result in serious injury.

### Law Enforcement, Fire and Rescue Management

Law enforcement is a necessary element to the successful operation of a multi-use trail. Any time you have multiple users and interest groups utilizing the trail, there is a need for rules and regulations and subsequently enforcement. These regulations should be in place prior to the opening of the trail system to the public and law enforcement personnel should be trained to respond appropriately. The following should be considered when developing a law enforcement plan:

- Education – Educate the trail users by providing law books, answering questions and explaining the rules of the trail. Signs at access points should include rules and regulations, maps indicating user location, emergency phone numbers and police contact numbers for concerns and questions.

- Community Policing – Educate and train local volunteer groups who are willing to provide assistance in citizen patrols to assist in education of the rules, directing user groups as to where different amenities are located and the detection and reporting of rule violations and safety hazards to the appropriate agency. This would be likened to a neighborhood watch program and could be called a trail watch program.
- Providing a Law Enforcement Presence – Being highly visible along all sections of the trail to encourage voluntary compliance of the rules. Local law enforcement should be encouraged to apply for grants to purchase ATV's or bicycles for trail patrol if not already part of the Police Department's equipment inventory.
- Enforcement – Responding to complaints with the appropriate use of warnings and citations addressing the violations of the law.
- Accident Investigation – Investigate and document accidents

Fire and Rescue is also essential to the operation of a trail system and there should be a specific plan in place in order for the town to respond appropriately. Local emergency call centers and fire departments should be provided with detailed maps of the entire trail system indicating location of mile markers, GPS coordinates, access roads, access points, life flight sites and pullouts and parking areas. This will ensure the most efficient and safest response route for all emergency personnel.

Emergency call centers should be provided with a list of contact numbers for agencies responsible or available emergency response and emergency rescue incidents on or adjacent to the trail. This should include fire departments, rescue units, ambulance and voluntary search and rescue groups. This list should include capabilities and equipment and ATV's with transport trailers for areas that may be inaccessible by a rescue vehicle due to the current conditions and/or other rescue equipment or qualified personnel necessary.

Grants are currently available to Law Enforcement Agencies for the purpose of ATV enforcement on trails. These grants provide funding for the purchase of ATV's, training and enforcement. They encourage multi-agency details targeting high complaint or high use areas in order to reach a higher goal of voluntary compliance.

### Trail Maintenance

Trail management and maintenance are important to ensure that a trail user's experience is pleasant and safe and the town receives the maximum amount of benefit for the initial investment and the town is able to maintain the trail for years to come.

The cost of maintaining trails and trail systems is usually included in a general budget for the trail or parks system. Although most trails do not charge user fees, many towns hold or encourage local events to raise funds or rely on advocacy organizations to help raise funds to supplement their maintenance budgets. Involving the community in maintaining the trail is an excellent way for residents to participate in improving their community and take ownership of their trails. These advocates act as the eyes and ears of the trail and help report any needed maintenance. Communities are also important partners in promoting the trail through special events, educational programs, outreach etc.

The Wareham Bikepath should be overseen and managed by the Wareham Bikepath Committee with actual maintenance being performed by the Department of Public Works and local volunteer groups whenever possible. The town is encouraged to consider instituting a regularly scheduled work day to have volunteers assist with minor maintenance, tree trimming, brush clearing and repairs. In order to reduce the cost associated with maintenance of the trail system, volunteers should be a major element of the maintenance work force. Volunteers are an essential part of every trail maintenance effort and will allow the town to stretch town funds as far as possible. The following is a summary of potential volunteer sources and guidelines:

- Boy and Girl Scout troops, school and church groups, adult service clubs such as Rotary, Kiwanis, Lions, etc, and alternative education programs for at-risk youth. Often the county court system or correction department can provide individuals who are incarcerated or have mandatory community service sentences.
- Volunteers should always work under the direction and supervision of a responsible adult. This person should preferably represent the entity that will be liable if any mishap occurs.
- Volunteers should not do anything that runs contrary to insurance coverage, private property rights, laws, ordinances, regulations etc.
- Power tools and equipment should not be operated by minors or in the presence of unattended children.
- Volunteers should not engage in any police or medical functions unless they are properly trained or certified.

Another way to reduce trail maintenance costs is through an adopt-a-trail program. This follows the adopt-a-highway program model used throughout the United States that encourages a business, community group or even single individual or family to perform certain routine maintenance functions for a section of the trail. Similar to the highway program, “adopters” do not fix the trail surface but they can cut the grass, pick up trash and litter, remove overgrown brush and inform the trail manager of problems and hazards before they become a problem or impact the safe use of the trail. With existing skills or a modicum of instruction, volunteers can perform nearly every action associated with the maintenance and operation of a trail.

The formation of a private, nonprofit “Friends of the Trail” organization can be a huge asset to the long-term success of a trail system. Although most of the maintenance and management will come from the town, there will always be an opportunity for a group of active volunteers to provide the type of assistance that will noticeably improve the trail system. The single most important function of a “Friends” organization is to act as an advocate for the trail, defending it when necessary and promoting it from time to time through special events. Advocacy support groups can provide many services including:

- Physical labor including litter cleanup, sweeping, brush cutting, painting, minor bridge repairs and construction of support facilities such as benches, picnic tables and kiosks.
- “Eyes and ears” surveillance and reporting of any problems, dangers, or inappropriate activities taking place along or near the trail.



- Fund-raising to pay for trail structures, amenities or threatened adjacent properties of environmental significance that are not included in the regular budget for the trail
- Developing maps, newsletters, and other publications to educate users and improve the quality of their experience along the trail.
- Promoting the trail as a tourist destination, source of recreation or commuting facility

Many nonprofit groups seek nonprofit corporate status to obtain exemptions from federal and state income taxes. The most common federal tax exemption for nonprofits comes from Section 501(c)(3) of the Internal Revenue Code, which is the primary reason nonprofits are sometimes identified as 501(c)(3) corporations. If a group obtains tax-exempt status, not only is it free from paying taxes on all income from activities related to its nonprofit purpose, but people and organizations that donate to the nonprofit can take a tax deduction for their contributions.

Forming a nonprofit corporation normally protects the directors, officers, and members of the nonprofit from personal liability for the corporation's debts and other obligations. Called limited liability, this shield ensures that anyone who obtains a judgment against the nonprofit can reach only the assets of the corporation, not the bank accounts, houses, or other property owned by the individuals who manage, work for, or participate in the business. Gaining nonprofit status would be an important step in the formation of a "Friends" organization in Massachusetts.

Aside from major surfacing and resurfacing projects, most of the equipment needed for trail maintenance is already owned by the town. The parks department or public works department usually owns everything needed such as a backhoe, grass cutting equipment, flatbed pickup trucks, shovels, rakes etc. Larger power equipment or specialized equipment such as a bobcat, chipper, grader, gradeall, paving machine can be rented or utilized through contractors that usually do business with the town.

By utilizing local volunteer groups, residents and the business community the Town of Wareham has an opportunity to reduce the amount of annual budget required to maintain the trail system and the amount of workload on town forces.

**APPENDIX A**  
**TOWN LOCUS MAP**



# TOWN OF WAREHAM, MASSACHUSETTS

## BIKE PATH FEASIBILITY STUDY

JULY, 2010

### Legend

#### Bike Path Phases

- Phase 1
- Phase 1A
- Phase 1B
- Phase 1C
- Phase 1D
- Phase 1E
- Phase 1F
- Phase 1G
- Phase 2
- Phase 2A
- Phase 2B
- Phase 3
- Phase 3A
- Phase 3B
- Phase 4
- Phase 5
- Phase 5A

#### EOT Roads - Class Group

- Limited Access Highway
- Multi-lane Hwy. not limited access
- Other Numbered Highway
- Major Road, Collector
- Minor Road, Arterial

#### Railroads - Type of Service

- Active Rail Service
- Right-of-way used for Hiking and Biking
- Right-of-way never built or used for rail
- Abandoned Service ROW in Public Interest
- Abandoned or Out of Service
- Unknown

#### 1:25,000 USGS Hydrography - Linear Features

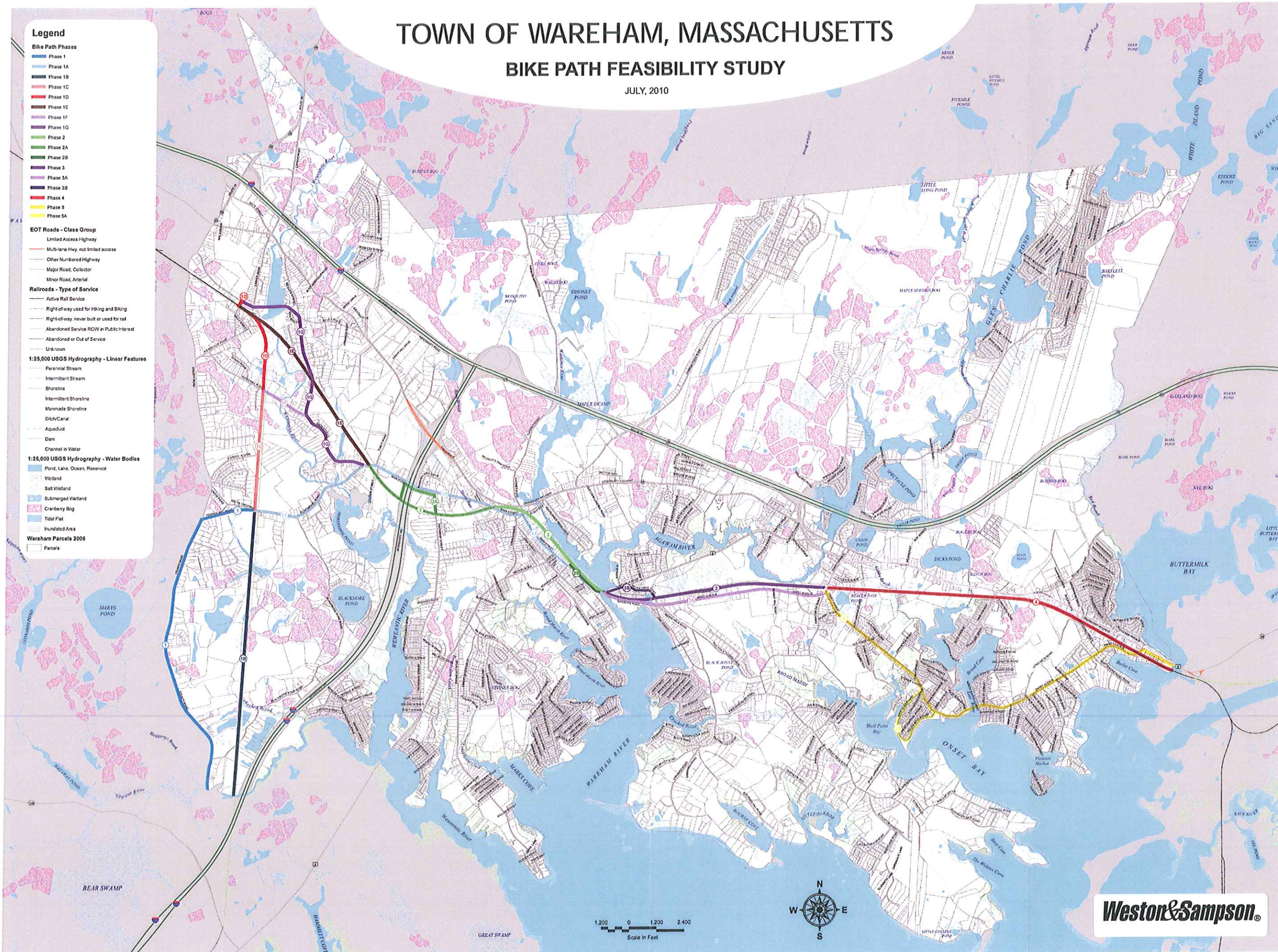
- Perennial Stream
- Intermittent Stream
- Shoreline
- Intermittent Shoreline
- Manmade Shoreline
- Ditch/Canal
- Aqueduct
- Dam
- Channel in Water

#### 1:25,000 USGS Hydrography - Water Bodies

- Pond, Lake, Ocean, Reservoir
- Wetland
- Salt Wetland
- Submerged Wetland
- Cranberry Bog
- Tidal Flat
- Inundated Area

#### Wareham Parcels 2006

- Parcels





**APPENDIX B**  
**SITE PHOTOS**



Intersection of County Road & Fearing Hill Road



County Road – Looking North





Abandoned Line Crossing with Blackmore Pond Road – Looking North



Looking South





Abandoned Line South of Blackmore Pond Road – Looking North



Looking North





Abandoned Line South of Blackmore Pond Rd – Brook Crossing



Conservation Land Entrance





Abandoned Line North of Blackmore Pond Rd – Looking South



Abandoned Line North of Blackmore Pond Rd – Adjacent to Cranberry Bog





Abandoned Line North of Blackmore Pond Rd – Cohackett Brook



Abandoned Line North of Blackmore Pond Rd – Cohackett Brook





Abandoned Line North of Blackmore Pond Rd – Looking South From Bog Driveway



Abandoned Line North of Blackmore Pond Rd – Looking North From Bog Driveway



Bog Looking South - Abandoned Line Is On Right



Bog Outfall Toward Abandoned Line





Bog Looking North - Abandoned Line Is On Left



Bog Spillway Entrance That Drains Toward Abandoned Line



Connection of Abandoned to Active Line – Looking South



Looking South





Connection of Abandoned to Active Line – Looking North



Abandoned Line - Looking South





Main Street Crossing



View Over Main Street





Looking Along Active Line



County Road Crossing





Pierceville Road Crossing



Looking Onto Active Line





Main Street



Looking Along Active Line





Active Line Looking South



Connection From Main Street to East Side of Active Line





Station Street Crossing



Looking Along Active Line





Rte 195 Crossing – Looking East



Looking East





Hathaway Street Crossing



Looking Along Active Line





Main Street & Tremont Street Crossing



Looking Along Active Line





Main Street & Elm Street Crossing



Looking Along Active Line



Main Street & Elm Street Crossing



Looking Along Active Line





Merchants Way – Looking East



Active Line – Looking West



Bridge Over Agawam River



View Along Active Line





Sandwich Road Crossing



View Along Active Line – Looking East



Minot Avenue – Looking East



Looking West Toward Sandwich Road





Indian Neck Rd Crossing – Prior To Recent Construction



View Along Active Line





Depot Street Crossing



View Along Active Line





Main Avenue Crossing



View Along Active Line



Onset Avenue – Looking Along Line



Cohasset Narrows – Looking Along Line



Looking Toward Bourne





Bourne Town Line – Looking Along Line

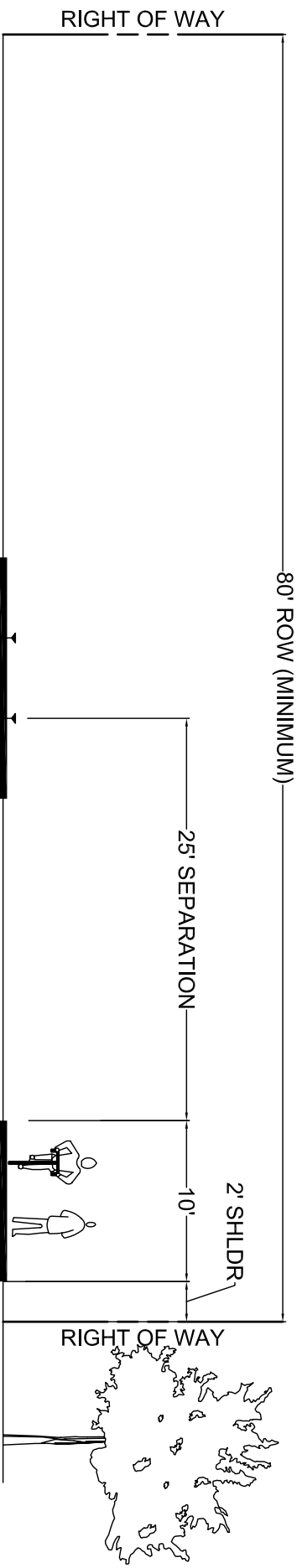


Bourne – Cape Cod Canal Bike Path

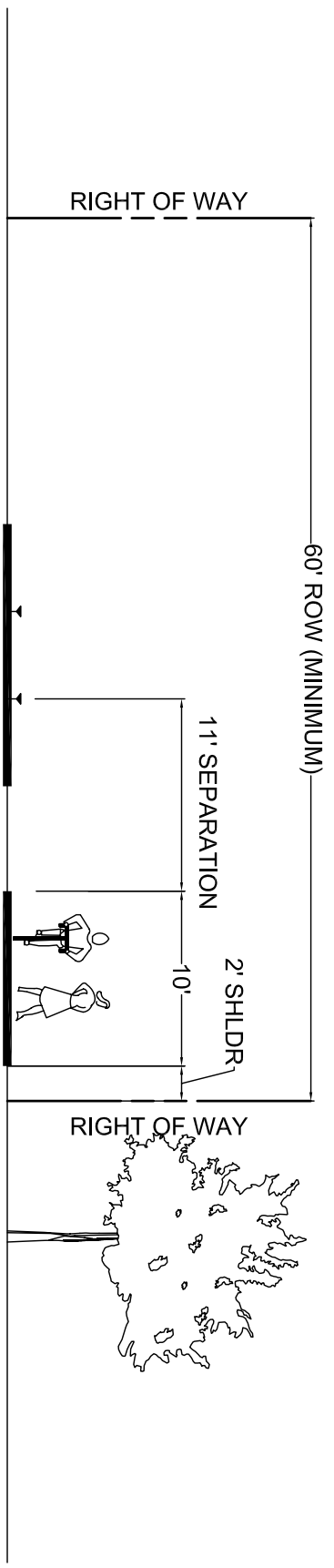


**APPENDIX C**  
**TYPICAL SECTIONS**

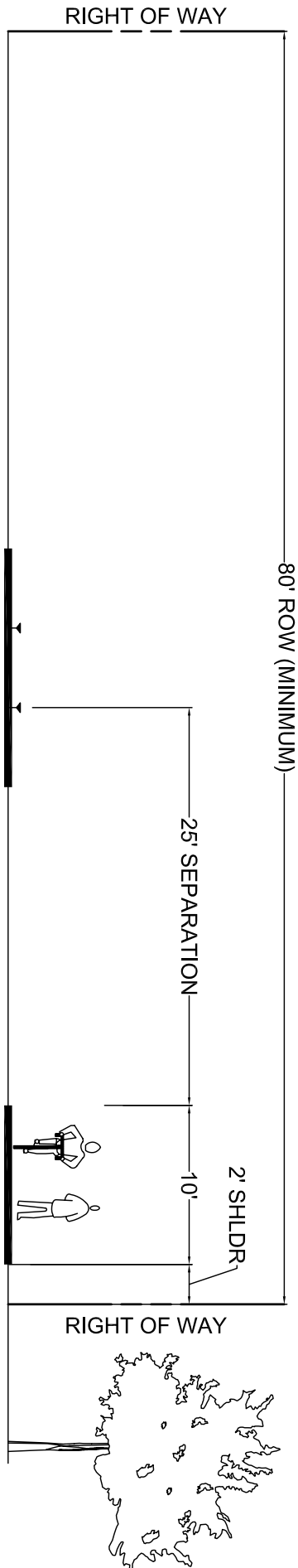




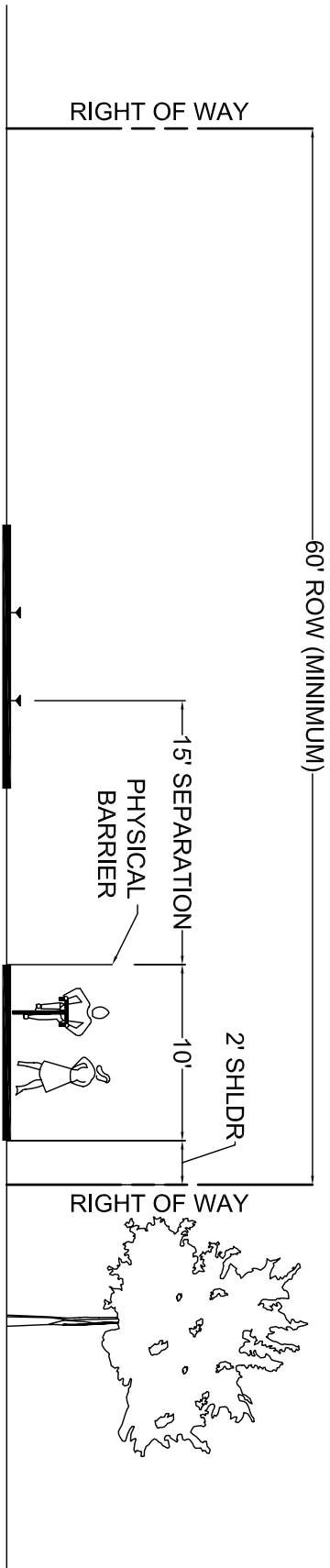
LOW VOLUME / LOW SPEED  
DESIRED SEPARATION



LOW VOLUME / LOW SPEED  
MINIMUM SEPARATION

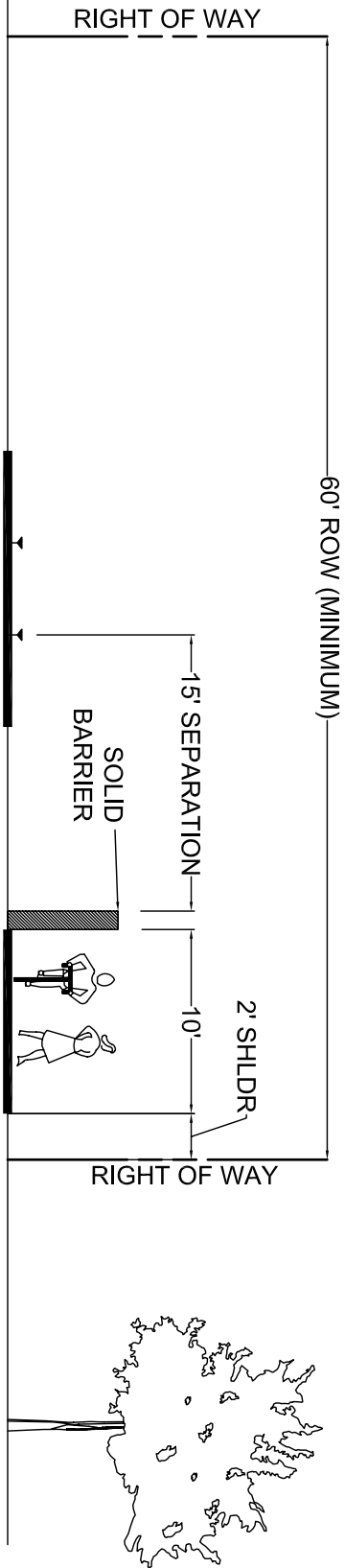
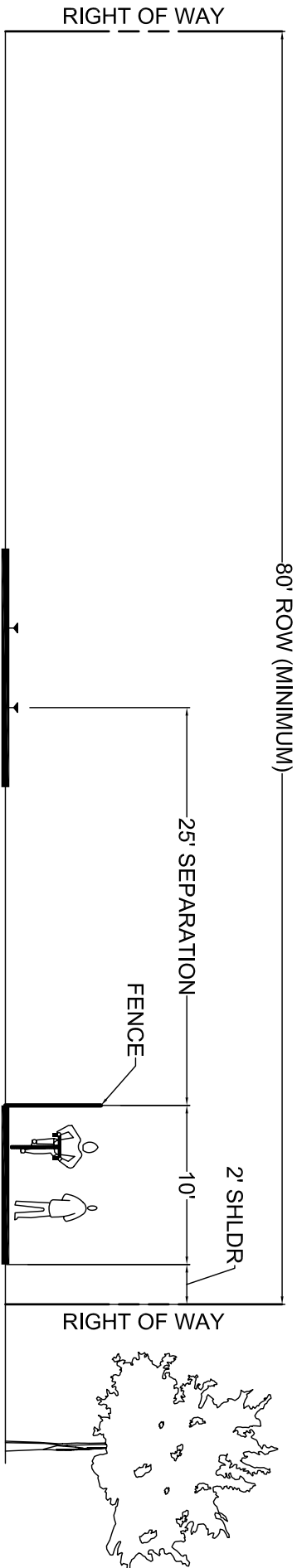


MEDIUM VOLUME / MEDIUM SPEED  
DESIRED SEPARATION



MEDIUM VOLUME / MEDIUM SPEED  
MINIMUM SEPARATION





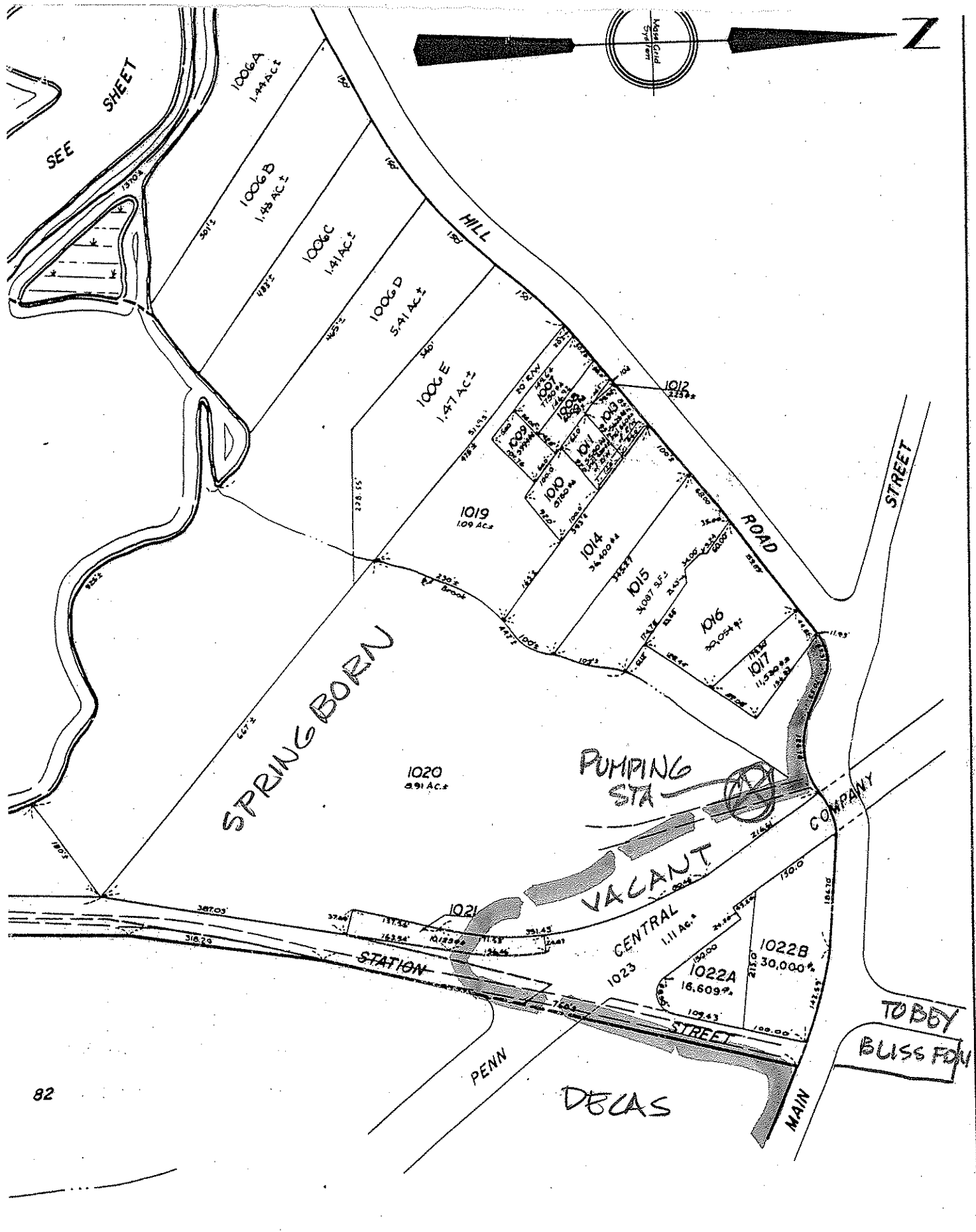
## **APPENDIX D**

### **SRPEDD RIGHT-OF-WAY & VARIOUS TOWN ASSESSORS MAPS**

THESE PLANS ARE FOR ASSESSMENT  
PURPOSES ONLY – DO NOT USE  
FIGURES FOR WRITING DEEDS







THESE PLANS ARE FOR ASSESSMENT  
PURPOSES ONLY - DO NOT USE  
FIGURES FOR WRITING DEEDS



SCALE IN FEET





THESE PLANS ARE FOR ASSESSMENT  
PURPOSES ONLY - DO NOT USE  
FIGURES FOR WRITING DEEDS



SEE SHEET 83

SEE SHEET 83

SEE SHEET 109

SEE SHEET 60

SEE SHEET 48

SEE SHEET 47

**APPENDIX E**  
**COST ESTIMATES**

# Order-of-Magnitude Construction Cost Breakdown - Wareham Bikepath

Notes: 'Shldr' indicates full depth widening; 'Trail' indicates new 12' wide bikepath; 'Share' indicates share-the-road and signs only

Segment No. & Major Work Items	Description	Unit amount	Cost per unit	Total Cost
<b>Phase 1 (2 mi. shldr)</b>				
Shoulder Widening (per foot)	Exc, Gravel, Pavement	10,560	\$30.00	\$316,800.00
Signs (per each)	Regulatory	20	\$100.00	\$2,000.00
Pavement Markings (per foot)	Edge Line	10,560	\$1.00	\$10,560.00
Miscellaneous (per lump sum)	Seed, R&R Gate Valves	1	\$10,000.00	\$10,000.00
Temporary Traffic Controls	Signs, Drums, Police etc.	1	\$15,000.00	\$15,000.00
<b>Total Cost for Phase 1</b>				<b>\$354,360.00</b>

Say \$375,000.00

<b>Phase 1A (0.95 mi. shldr; 1.7 mi. shldr)</b>				
Shoulder Widening (per foot)	Exc, Gravel, Pavement	13,992	\$30.00	\$419,760.00
Signs (per each)	Regulatory	30	\$100.00	\$3,000.00
Pavement Markings (per foot)	Edge Line	14,000	\$1.00	\$14,000.00
Miscellaneous (per lump sum)	Seed, R&R Gate Valves	1	\$10,000.00	\$10,000.00
Temporary Traffic Controls	Signs, Drums, Police etc.	1	\$20,000.00	\$20,000.00
<b>Total Cost for Phase 1A</b>				<b>\$466,760.00</b>

Say \$500,000.00

<b>Phase 1B (2.25 mi. trail)</b>				
New Trail (per foot)	Exc, Gravel, Pavement	11,880	\$55.00	\$653,400.00
Signs (per lump sum)	Regulatory & Interpretive	1	\$5,000.00	\$5,000.00
Bollards (per each)	3 at Blackmore Pond Rd	3	\$1,500.00	\$4,500.00



Loam & Seed (per cu yd)	5' x length x 2 sides x 4"	1,500	\$12.00	\$18,000.00
Clearing & Grubbing (per acre)	5' x 2 sides x length	3	\$15,000.00	\$45,000.00
Crossing Signal System (per lump sum)	Blackmore Pond Road	1	\$25,000.00	\$25,000.00
Temporary Erosion Controls (per lump sum)		1	\$15,000.00	\$15,000.00
Miscellaneous (per lump sum)	Grading, Drainage	1	\$25,000.00	\$25,000.00
Temporary Traffic Controls	Blackmore Pond Road	1	\$10,000.00	\$10,000.00
<b>Total Cost for Phase 1B</b>				<b>\$800,900.00</b>

Say \$1,000,000.00

<b>Phase 1C (1 mi. trail)</b>				
New Trail (per foot)	Exc, Gravel, Pavement	5,280	\$55.00	\$290,400.00
Signs (per each)	Regulatory & Interpretive	1	\$10,000.00	\$10,000.00
Bollards (per each)	6 at Fearing Hill Rd	6	\$1,500.00	\$9,000.00
Loam & Seed (per cu yd)	5' x length x 2 sides x 4"	650	\$12.00	\$7,800.00
Clearing & Grubbing (per acre)	5' x 2 sides x length	3	\$15,000.00	\$37,500.00
Traffic Signal (per lump sum)	Fearing Hill Road	1	\$125,000.00	\$125,000.00
Temporary Erosion Controls (per lump sum)		1	\$10,000.00	\$10,000.00
Miscellaneous (per lump sum)	Grading, Drainage	1	\$25,000.00	\$25,000.00
Temporary Traffic Controls	Fearing Hill Road	1	\$10,000.00	\$10,000.00
<b>Total Cost for Phase 1C</b>				<b>\$524,700.00</b>

Say \$650,000.00

<b>Phase 1D (4200' trail; 500' active)</b>				
New Trail (per foot)	Exc, Gravel, Pavement	4,700	\$55.00	\$258,500.00
Signs (per lump sum)	Regulatory & Interpretive	1	\$5,000.00	\$5,000.00
Bollards (per each)	Farmers Neck & Pierceville	9	\$1,500.00	\$13,500.00
Loam & Seed (per cu yd)	5' x length x 2 sides x 4"	600	\$12.00	\$7,200.00
Clearing & Grubbing (per acre)	5' x 2 sides x length	1	\$15,000.00	\$15,000.00

Crossing Signal System (per lump sum)	Farmers Neck	1	\$25,000.00	\$25,000.00
Temporary Erosion Controls (per lump sum)		1	\$10,000.00	\$10,000.00
Miscellaneous (per lump sum)	Grading, Drainage	1	\$25,000.00	\$25,000.00
Concrete Barrier (per foot)	Along Active Line	500	\$100.00	\$50,000.00
Chain Link Fence (per foot)	Along Active Line	500	\$30.00	\$15,000.00
Total Cost for Phase 1D				\$424,200.00

Say \$525,000.00

Phase 1E (2 miles)				
New Trail (per foot)	Exc, Gravel, Pavement	4,700	\$55.00	\$258,500.00
Signs (per lump sum)	Regulatory & Interpretive	1	\$5,000.00	\$5,000.00
Bollards (per each)	Pierceville	2	\$1,500.00	\$3,000.00
Loam & Seed (per cuyd)	5' x length x 1 sides x 4"	750	\$12.00	\$9,000.00
Clearing & Grubbing (per acre)	5' x 1 sides x length	1	\$10,000.00	\$10,000.00
Temporary Erosion Controls (per lump sum)		1	\$10,000.00	\$10,000.00
Miscellaneous (per lump sum)		1	\$25,000.00	\$25,000.00
Concrete Barrier (per foot)		10,560	\$100.00	\$1,056,000.00
Chain Link Fence (per foot)		10,560	\$30.00	\$316,800.00
Total Cost for Phase 1E				\$1,693,300.00

Say \$2,000,000.00

Phase 1F (6400' share)				
Signs (per each)	Regulatory	10	\$100.00	\$1,000.00
Total Cost for Phase 1F				\$1,000.00

Say \$5,000.00

Phase 1G (2 mi. shldr)				
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Shoulder Widening (per foot)	Exc, Gravel, Pavement	10,560	\$30.00	\$316,800.00
Signs (per each)	Regulatory	20	\$100.00	\$2,000.00
Pavement Markings (per foot)	Edge Line	10,560	\$1.00	\$10,560.00
Miscellaneous (per lump sum)	Seed, R&R Gate Valves	1	\$10,000.00	\$10,000.00
Temporary Traffic Controls	Signs, Drums, Police etc.	1	\$20,000.00	\$20,000.00
<b>Total Cost for Phase 1G</b>				<b>\$359,360.00</b>

Say \$375,000.00

<b>Phase 2 (2.3 miles)</b>				
New Trail (per foot)	Exc, Gravel, Pavement	12,144	\$55.00	\$667,920.00
Signs (per lump sum)	Regulatory & Interpretive	1	\$5,000.00	\$5,000.00
Bollards (per each)	At-grade (4)	8	\$1,500.00	\$12,000.00
Loam & Seed (per cu yd)	5' x length x 1 sides x 4"	1,000	\$12.00	\$12,000.00
Clearing & Grubbing (per acre)	5' x 1 sides x length	2	\$10,000.00	\$15,000.00
Temporary Erosion Controls (per lump sum)		1	\$25,000.00	\$25,000.00
Miscellaneous (per lump sum)	Switchback structures (2)	2	\$500,000.00	\$1,000,000.00
Pedestrian Structure	Sandwich Road	1	\$1,000,000.00	\$1,000,000.00
Concrete Barrier (per foot)		12,144	\$100.00	\$1,214,400.00
Chain Link Fence (per foot)		12,144	\$30.00	\$364,320.00
<b>Total Cost for Phase 2</b>				<b>\$4,315,640.00</b>

Say \$4,500,000.00

<b>Phase 2A (1000' trail; 2000' active)</b>				
New Trail (per foot)	Exc, Gravel, Pavement	1,000	\$55.00	\$55,000.00
Signs (per lump sum)	Regulatory & Interpretive	1	\$5,000.00	\$5,000.00
Bollards (per each)		4	\$1,500.00	\$6,000.00
Loam & Seed (per cu yd)	5' x length x 2 sides x 4"	600	\$12.00	\$7,200.00
Clearing & Grubbing (per acre)	5' x 2 sides x length	1	\$15,000.00	\$15,000.00



Temporary Erosion Controls (per lump sum)				
Miscellaneous (per lump sum)				
Concrete Barrier (per foot)		Grading, Drainage	1	\$10,000.00
Chain Link Fence (per foot)		Along Active Line	1	\$25,000.00
		Along Active Line	2,000	\$100.00
		Along Active Line	2,000	\$30.00
<b>Total Cost for Phase 2A</b>				<b>\$383,200.00</b>

Say \$500,000.00

<b>Phase 2B (1000' path)</b>				
New Path (per foot)		Exc, Gravel, Pavement	1,000	\$55.00
Signs (per lump sum)		Regulatory & Interpretive	1	\$2,500.00
Bollards (per each)		3 at Entrance	6	\$1,500.00
Loam & Seed (per cu yd)		5' x length x 1 sides x 4"	1,500	\$12.00
Temporary Erosion Controls (per lump sum)			1	\$5,000.00
Chain Link Fence (per foot)			1,000	\$20.00
Temporary Traffic Controls		Drums, Fence etc.	1	\$5,000.00

**Summary of Approximate Construction Cost (\$ Per Linear Foot)**

**Widening of Existing Paved Shoulder (Variable Width)**

	Unclassified Excavation (\$30/CY)	Gravel Borrow (\$32/CY)	4" Hot Mix Asphalt (\$150/Ton)	Total Linear Foot Cost (+/-)
2' Shoulder	0.08 CY / LF	0.06 CY / LF	0.05 Tons / LF	\$13.80 / LF
4' Shoulder	0.16 CY / LF	0.1 CY / LF	0.11 Tons / LF	\$27.20 / LF
6' Shoulder	0.24CY / LF	0.17 CY / LF	0.17 Tons / LF	\$42.70 / LF

**Full Depth Reconstruction of Existing Roadway (22' Wide)**

Unclassified Excavation (\$30/CY)	Gravel Borrow (\$32/CY)	Dense Grade (\$8.50/CY)	4" Hot Mix Asphalt (\$100/Ton)	Total Linear Foot Cost (+/-)
0.9 CY / LF	0.3 CY / LF	0.3 CY / LF	0.62 Tons / LF	\$107 / LF

**Cold Plane and Overlay of Existing Roadway (22' Wide)**

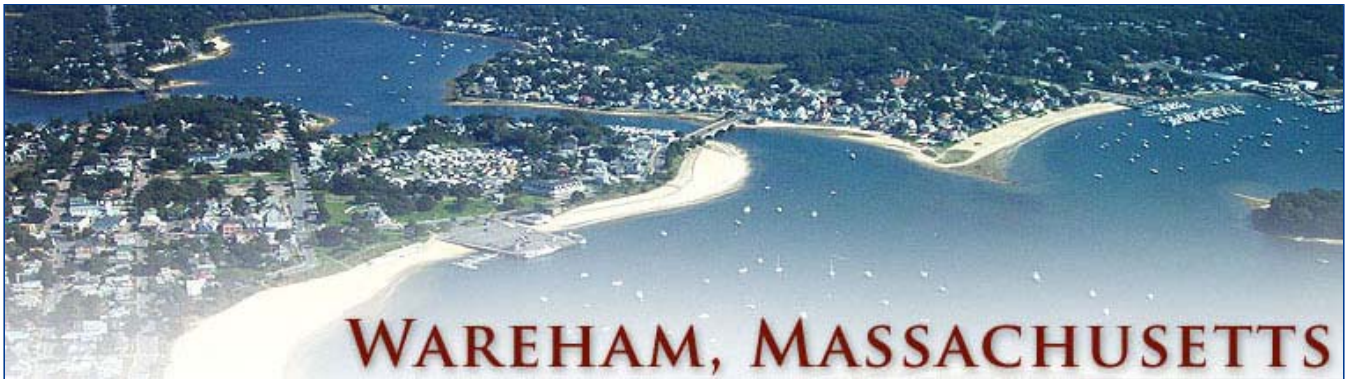
Cold Plane and Overlay (\$6 / SY)	2" Hot Mix Asphalt (\$100/Ton)	Total Linear Foot Cost (+/-)
2.4 SY / LF	0.31 Tons / LF	\$45.50 / LF

**Construction of a New 12' Wide Multi-Use Trail**

Unclassified Excavation (\$30/CY)	Dense Grade (\$8.50/CY)	4" Hot Mix Asphalt (\$100/Ton)	Total Linear Foot Cost (+/-)
0.48 CY / LF	0.33 CY / LF	0.30 Tons / LF	\$53.65 / LF

## **APPENDIX F**

### **REPORTS, SURVEYS & CORRESPONDENCE**



[Surveys](#) > Results

Options

## Wareham Bike Path Results

Show ☐ All ☐ Show

[CSV By Answer](#) | [CSV By Taker](#) | [Display by Taker](#) | [Manage Labels](#) | [Print](#)

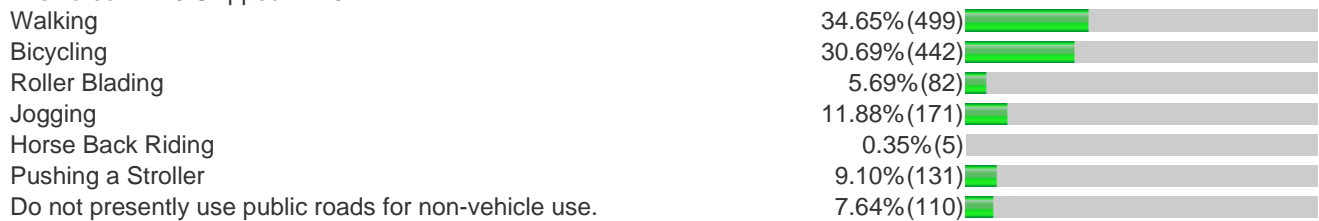
### 1. Who Are You?

Answered: 689 Skipped: 6



### 2. Do you and your family regularly use the public roads in Wareham for

Answered: 1440 Skipped: -745



### 3. What are the ages of your family members who use or would use public roads for non-motorized recreation and or transportation purposes?

Answered: 1276 Skipped: -581



### 4. How safe do you feel using public roads for non-motorized recreation and/or transportation purposes?

Answered: 682 Skipped: 13



### 5. Would you like to have bicycle/walking paths in Wareham?

Answered: 687 Skipped: 8



### 6. If NO state concerns

☒ Answered: 31 Skipped: 664

- Not if it costs more tax money
- there is no money for this project



- maintenance and safety , town maintenance can not take care of the roads they have now ; picking up trash , sweeping , pruning trees and shrubs ect.the police are also over worked here .
- I think we have a larger problem balancing our budget, then the need or expense of a bike path! We need more Police on the streets!
- there is no money for bike path
- safety
- I would like to know where exactly it would be.
- 069ffcb71c04629977ba8df450bfcf14 <a href="http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14">http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14 </a>  
http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14 [url]  
http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14[url]
- I would like to see a plan! Where is it posted on the website?
- vfRRPD <a href="http://aykaekuhbmyk.com/">aykaekuhbmyk</a>, [url=http://ndzvpcxcswtr.com/]ndzvpcxcswtr[/url], [link=http://gmodfsnwyca.com/]gmodfsnwyca[/link], http://mrulplzcjryf.com/
- I think a bicycle/walking path is a good idea but it would add a financial burden to a town that can not endure more expense. It was said that the town would not have the burden of expense but that could never happen. Who is going to keep the paths clean and keep the riff-raff(the party types). This would mean more maintenance and police expense. Don't try to fool the taxpayer that this is not going to effect the town's financial distress. Consider a fee by registering your bicycle.
- money
- ABOSULUTELY NEED A BIKE PATH IN WAREHAM!! OUR FAMILIES NEED THIS! OUR COMMUNITY NEEDS THIS! THIS WILL HELP PREVENT MANY BICYCLE AND PEDISTRIAN ACCIDENTS.
- I would still have concern about safety of children walking through paths
- all town public lands should be open and accessable for all legal activities including dirtbikes and hunting
- cost
- the country is in an economic crisis and you are proposing bike paths. You are cutting library hours, teachers hours and you are thinking about this nonsense? NO. I DO NOT WANT A BIKE PATH.
- Town could use funds to make improvements such as sewer lines, etc.
- Would depend on location.
- Cost when our taxes are going up and services are going down. And don't say the this is state sponsered because wareham still has to come up with the majority of the cost.
- not with the proposed plan down county rd. Mattapoisett used the R.R.bed, Marion has a R.R. bed that can be used and more scenic than making County Rd a super wide race way. Traffic is terrible now, and with a proposed 40B on upper County, what will we have. Re pave County to maintain it's country scenic beauty and hook up to the old R.R bed.
- another waste of money
- YnlSW4 <a href="http://egkmtugtynh.com/">egkmtugtynh</a>, [url=http://fpftyqqzzcei.com/]fpftyqqzzcei[/url], [link=http://llwpwghmipzt.com/]llwpwghmipzt[/link], http://onmrynxsunn.com/
- I feel that the taxpayer is going to get slammed with the cost and this is unacceptable. It was initially said that the taxpayer would not get the burden but as town meeting proved we spent \$20,000 for a study. Consider the cost of maintaining and safety concerns (re policing)
- 3uwW7A <a href="http://adupndpniunx.com/">adupndpniunx</a>, [url=http://jttangybwqqq.com/]jttangybwqqq[/url], [link=http://fkmibsojclb.com/]fkmibsojclb[/link], http://wlewtbesqcj.com/
- YXblzV <a href="http://kgrzirtafkjo.com/">kgrzirtafkjo</a>, [url=http://bshevyqxirhu.com/]bshevyqxirhu[/url], [link=http://dcxfnnhfcwbn.com/]dcxfnnhfcwbn[/link], http://tsxwvaohrovh.com/
- iuPq6E <a href="http://qqluwdtjvdbc.com/">qqluwdtjvdbc</a>, [url=http://zgyjlvhnvdwp.com/]zgyjlvhnvdwp[/url], [link=http://qdvqvcjwzdxn.com/]qdvqvcjwzdxn[/link], http://xinxqbjxsejb.com/
- tFurCC <a href="http://igemlrgpcirq.com/">igemlrgpcirq</a>, [url=http://vouzkyzsgkbw.com/]vouzkyzsgkbw[/url], [link=http://xasuovaisjzm.com/]xasuovaisjzm[/link], http://dctowsktebak.com/
- Get the bikepath!
- FWnLcm <a href="http://gxvhdljpqqpa.com/">gxvhdljpqqpa</a>, [url=http://jjmlqlxajxhu.com/]jjmlqlxajxhu[/url], [link=http://ttkupszmzwfie.com/]ttkupszmzwfie[/link], http://vlxmxcstytcos.com/
- In this year of fiscal crisis, it is irresponsible to use public funds for such a frivolous cause.

## 7. Would you or members of your family use a bicycle/walking path running from the Marion Town line to Bourne town line, connecting to the Cape Cod Canal, if it were available?

Answered: 683 Skipped: 12

Yes

96.49% (659)

No

3.51% (24)

## 8. If NO Explain

☒ Answered: 22 Skipped: 673

- I don't really bike or walk.
- more important things to do

- it would ,in my opinion be unsafe
- to far of a walk or bike ride
- maybe
- no money
- safety
- I would like it to connect to Myles Standish.
- Remington
- dKjXefNehTx
- If you are serious about making Wareham an attaction, bting back the Commuter rail service from Middleboro.
- Not necessary
- Location along railroad right of way is dangerous.
- same as above
- why
- LsJzYIAgxFVmsy
- to much cost involved in the prospect
- ZqJdlyXwWUvBSEQUKSd
- pvlVSxwXPn
- qcXCLstiP
- ErbPAmVnfoQuqjmqnHQ
- elVvaRUmYFExCvSI

### 9. Would you like to be part of the Wareham Friends Group?

Answered: 629 Skipped: 66

Yes

25.60%(161)

No

74.40%(468)

### 10. If YES, leave contact information

Answered: 140 Skipped: 555

- Mike P-cell 508317
- mjpao@msn.com
- Alphonse Barthe 14 daniel road 508-291-3414
- pinheiro5@verizon.net
- ab.rb.cook@comcast.net
- ???
- alvizcayno@recol.es
- Daniela Tolle 23 Lynne Rd Wareham, MA 02571
- Cara Winslow, 7 Peaceful Lane 02538 508-273-7770 thewinslows@comcast.net
- Vicki Gintis 2 Windward Way Fairhaven, MA 02719
- Brian Churchill 63 Bayview ST Wareham, MA 02571
- Gail Wentworth 508-686-2787
- John Churchill 508-273-0377
- Renee Roach 9 West Street West Wareham Ma 02576
- mansfieldsign@netzero.net
- Debbie Russell PO Box 29 Onset, MA 02558
- ray.allaire@comcast.net
- Lynninfla1@yahoo.com
- Gail Mihalec 508-291-6365
- jhill85@comcast.net
- adb16@comcast.net
- tbys9297@charter.net
- Joanne 508-291-0301
- Rich Gross 5 Burr St Portland, CT 06480
- stevenmdowney@hotmail.com
- MBALSERaIPSWICHHELLFISH.COM
- jcifello@student.umass.edu
- wjrunner@verizon.net
- karen.corsano@channing.harvard.edu
- sammorrison@comcast.net
- CT MEDEIROS MARK S. MEDEIROS P. O. BOX 1544 ONSET, MA 02558 CELL# 978-853-5040
- maefield@aol.com - when is your next meeting?
- Jackson Gillman, jxsong@comcast.net
- Debbie DePietro 20 Crooked River Rd Email: DebDePietro@netscape.net Phone: 508-967-0457
- I JUST love bike paths, GOOD LUCK
- mark carboni 4 marsh ave, wareham Ma 02571 508-726-7226
- tmackalb00@post.harvard.edu

- bagger66@verizon.net
- pls11jws@msn.com
- peter nicol 25 lincoln st
- swhite531@aol.com
- CHERYL BAKER 5082957118 27 CEDAR STREET WAREHAM,MA
- I may be interested in The Friends group. May I please have more information? Send to: Deborah Rich 7 Bachant Way Wareham, MA 02571
- danielw@binghamton.edu
- Already am part of contact list and receive e-mails.
- hchaunceyhogan@comcast.net
- Peter Allard 43 Warr Ave Wareham 508-295-6388
- Dan Williman and Karen Corsano danielw@binghamton.edu
- Danny Rolo 31 Warr Avenue 774-678-0038
- David Smith 66 Alley Road Rochester, MA 02770 musculerelase@comcast.net
- pbbythec@aol.com
- 069ffcb71c04629977ba8df450bfcf14 <a href="http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14">http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14 </a>http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14 [url]http://njdokj.info/04715f85bae6b362ee9b82b154587111/069ffcb71c04629977ba8df450bfcf14[url]
- Lisa Irish ljrish@verizon.net 97 Marion Road Wareham, MA 02571
- Kenneth Rutherford 9 Perry Ave. E Wareham, MA 02538
- Ejohntech@aol.com
- Debra Beach 13 Maritime Drive Wareham, MA 02571 email: OLIKoli@aol.com Cell: 508-317-1175
- Holly Fernandes PO Box 1183 Onset, MA
- vfRRPD <a href="http://aykaekuhbmyk.com/">aykaekuhbmyk</a>, [url=http://ndzvpcxcswtr.com/]ndzvpcxcswtr[url], [link=http://gmodfsnwywcpa.com/]gmodfsnwywcpa[link], http://mrulplzcjryf.com/
- Cobbsrule@aol.com
- Possibly in the near future.
- David Smith 66 Alley Road Rochester, MA 02770
- hoops61@yahoo.com
- terrie\_cole@yahoo.com
- jessica petrone 7 plymouth rd wareham, ma 02571
- Although I cannot actively join,AS I BELONG TO WAY TOO MANY OTHER ORGANIZATIONS, I support the effort and will promote the positive aspects of seeing this project to completion. Claire Smith CLS550@comcast.net
- I am already a member
- jrmalloy@comcast.net
- ejohntech@aol.com
- Anne Potito 31 Onset Avenue Buzzards Bay, MA 02532
- Betty Steudel bjsteudel@aol.com
- jmkilpela@comcast.net
- jenn@robertsonschvey.com
- angeleyes0823@comcast.net po box 951 onset ma 02558
- mjpaasche@yahoo.com
- saphyress@gmail.com Roxanne Raymond 8 Crooked River Rd, Wareham
- dan.barber@comcast.net
- Sandi Stowe 9 Beach Plum Lane 508-274-9081
- Bill McGrane 79 Winter St. #2 Stoughton, MA 02072 wmgmcgrane@comcast.net
- Windbreakers2008@comcast.net
- Jacqui McDonald - jphmcd@verizon.net
- John J. Verrier 89 Marion Rd Wareham Ma. 02571 508-291-6027
- chedrock@hotmail.com
- Robert Bergeson bberg-8@comcast.net
- Joan Kinniburgh shellpoint1@verizon.net
- cuinva4@msn.com
- nbcaretti@msn.com
- Marilyn Rossi 295-2708
- sscartissi@aol.com
- jendekkers@hotmail.com
- tanyad@comcast.net
- MARK DOMENICUCCI CUCCIHARLEY@YAHOO.COM 5082737270
- jennifer.waters@maotis.af.mil
- marc.vercellone@us.af.mil
- kanzih@comcast.net
- jennomelia@gmail.com
- VINCENT & Merrily Simone 19 Wedgewood Place, P.O. 331,B.B. 02532 E-Mail: vfsjms@Comcast.net

- LHollo777@aol.com Lynn Hollis 59 Cromesett Road Wareham, MA 02571
- bbrowes@gmail.com
- ccavacas@comcast.net
- hsashaa@verizon.net
- stevenmbecker@gmail.com
- cuinva4@msn.com
- Robert Cordeiro 508-965-9862 EVANGELIST13@COMCAST.NET
- I'm not sure
- jayg\_2007@msn.com
- Richard Leibowitz Leibjo@verizon.net
- rebecca kuklinski; reb.kuk@hotmail.com; 774-201-1016
- YnISW4 <a href="http://egkmtugtycnh.com/">egkmtugtycnh</a>, [url=http://fpftyqqzzcei.com/]fpftyqqzzcei[/url], [link=http://llwpwghmipzt.com/]llwpwghmipzt[/link], http://onmrynxsunn.com/
- Already a member budster1001@comcast.net
- ferdstig@hotmail.com
- Dan & Jenn Parks 508-954-5674 95 Wareham Lake Shore Drive
- 3uwW7A <a href="http://adupndpniunx.com/">adupndpniunx</a>, [url=http://jttangybwqqq.com/]jttangybwqqq[/url], [link=http://fkmibsojclb.com/]fkmibsojclb[/link], http://wlewothesqcj.com/
- I already am a member
- YXblzV <a href="http://kgrzirtafkjo.com/">kgrzirtafkjo</a>, [url=http://bshevqyxirhu.com/]bshevqyxirhu[/url], [link=http://dcxfnnhfcpxn.com/]dcxfnnhfcpxn[/link], http://tsxwvaohrovh.com/
- gtstowe@comcast.net Tom and Sandi Stowe
- shanynmarie22@hotmail.com
- eelfman@gmail.com
- Della T. Franklin 508-291-1331 or franklin129@comcast.net
- jcarboni@bridgew.edu
- Tom & Christina Gelson Owners TriTown Cycling 129 Marion Road Wareham, MA 02571 508-295-1123 home#508-748-3818
- olivierijj@hotmail.com
- my email: redrose1227@yahoo.com
- Donna Richard 11 Agawam Lakeshore Drive, Wareham 02571 508-295-4077
- Vincent & Jacqueline Simone 19 Wedgewood Place, E. Wareham vfsjms@Comcast.net
- Margaret Smart 2 Marsh Ave., Wareham MA (508) 295-4892
- iuPq6E <a href="http://qqluwdtjvdbc.com/">qqluwdtjvdbc</a>, [url=http://zgyjlvhnvdwp.com/]zgyjlvhnvdwp[/url], [link=http://qdqvgcjwzdxn.com/]qdqvgcjwzdxn[/link], http://xinxqbjxsejb.com/
- Ellen Rosenbaum 11 Graham St rosenbaumers@comcast.net 508-273-7575
- jrobitaille59@yahoo.com
- email:karenjomalley1999@yahoo.com
- tFurCC <a href="http://igemlrgpcirq.com/">igemlrgpcirq</a>, [url=http://vouzkyzsgkbw.com/]vouzkyzsgkbw[/url], [link=http://xasuovaisjzm.com/]xasuovaisjzm[/link], http://dctowsktebak.com/
- Donna Forest 774-206-6488
- kandjbalano@verizon.net
- FWnLcm <a href="http://gxvhdjlpqqa.com/">gxvhdjlpqqa</a>, [url=http://jjmlqlxajxhu.com/]jjmlqlxajxhu[/url], [link=http://ttkupszmzwfie.com/]ttkupszmzwfie[/link], http://vlxmxcstcos.com/
- Maybe -- what is it??? Not enough information.
- cucciharley@yahoo.com
- imndover@comcast.net
- dannyandpete@comcast.net
- Sharon Elder selder@inbox.com
- Jennifer Dekkers-Mitchell 42 agawam lake shore drive wareham ma 02571 jendekkers@hotmail.com
- judysnow@comcast.net

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Town of Wareham



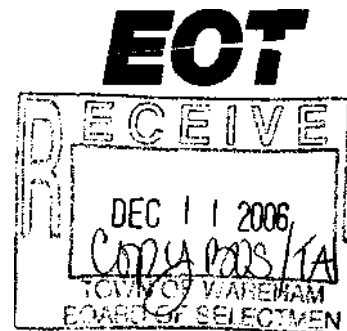


MITT ROMNEY  
GOVERNOR

KERRY HEALEY  
LIEUTENANT GOVERNOR

JOHN COGLIANO  
SECRETARY

THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE  
OFFICE OF TRANSPORTATION



December 7, 2006

R. Renee Fernandes-Abbott  
Chairman  
Wareham Board of Selectmen  
54 Marion Road  
Wareham, MA 02571

Dear Chairman Fernandes-Abbott:

Thank you for your recent letter regarding the proposed extension of a rail trail on EOT-owned right-of-way through Wareham onward to Buzzards Bay. I appreciate your interest in promoting multimodal transportation opportunities in Wareham and in the Southeast Region, and in promoting the connectivity of current and planned bicycling facilities.

The proposed rail trail facility would likely entail use of two segments of EOT-owned right-of way. The first segment is inactive, while the second is currently in active use under lease by EOT. We foresee potential expansion of rail service in this area, and want to ensure that any detailed trail planning occur in conjunction with railroad operational needs. Public safety is always of primary concern to EOT.

I value your interest in expanding rail-trail opportunities in Wareham and throughout the Southeast Region, and support improving all modes of travel there. I look forward to working closely with both the town and the region to improve bicycling opportunities, both off- and on-road. My staff is prepared to assist your efforts.

Sincerely,

Thomas S. Cahir  
Deputy Secretary





SOUTHEASTERN REGIONAL PLANNING & ECONOMIC DEVELOPMENT DISTRICT  
88 BROADWAY ♦ TAUNTON, MA 02780-2557

Acushnet  
Attleboro  
Berkley  
Carver  
Dartmouth  
Dighton  
Fairhaven  
Fall River  
Freetown  
Lakeville  
Mansfield  
Marion  
Mattapoissett  
Middleborough  
New Bedford  
N. Attleborough  
Norton  
Plainville  
Raynham  
Rehoboth  
Rochester  
Seekonk  
Somerset  
Swansea  
Taunton  
Wareham  
Westport

December 23, 2009

Tim Doherty  
Director of Rail Program  
MassDOT  
10 Park Plaza, Room 4150  
Boston, MA 02116

Dear Mr. Doherty:

It is with much disappointment that our agency was notified of MassDOT's decision not to support the use of the Buzzards Bay Secondary Rail Line for a shared-use path through the Town of Wareham. Current policy, safety issues, and the potential use of the right-of-way for Commuter Rail were all cited as reasons behind the decision.

SRPEDD's 2007 *Wareham Bikeway Project Route Recommendation* for the Town called for the use of this right-of-way where feasible under MassHighway Design Standards for a shared-use path in order to connect paths in Bourne with those proposed in Marion and Mattapoissett. The *MassHighway Project Development and Design Guide* has guidelines and standards for the inclusion of a shared-use path within an active railroad right-of-way, all of which would have been met if this path were allowed to advance. The engineering firm *Weston & Sampson* further investigated SRPEDD's recommended route in a Bike Path Feasibility Study for the Town, completed this year. The findings showed the Buzzards Bay Secondary right-of-way could include a shared-use path and meet MassHighway's design standards from Sandwich Road to the Cohasset Narrows Bridge, as well as in several other locations. **SRPEDD is requesting that MassDOT reconsider their decision and support a shared-use path along the right-of-way at least from Sandwich Road to Onset Avenue.**

Though SRPEDD supports Commuter Rail service to the Town of Wareham and Cape Cod, we do not believe a double track is necessary throughout the entire Buzzards Bay Secondary right-of-way. The *Bourne Commuter Rail Feasibility Study* (1996, updated in 2006) found that in order to accommodate efficient commuter rail service to Bourne, an additional track would only be needed for a two-mile stretch somewhere north of the Rochester/Middleborough line.

Shared-use paths within active railroad right-of-ways are now commonplace throughout New England and the rest of the country. The Falmouth bike path included a shared-use segment within an active rail right-of-way for many years (prior to rail deactivation beyond the military reservation). The Greenbush line in North Scituate has a pedestrian path to the downtown area that is also within the right-of-way, and in close proximity to the rail itself. The *Rails-to-Trails Conservancy* has published several *Rails-with-Trails*



documents that address all the issues associated with this practice. The State of Rhode Island has constructed two shared-use paths (the Blackstone River Bikeway and the Ten Mile River Greenway) along active *Providence & Worcester Railroad* right-of-ways.

If the inclusion of the shared-use path along the Buzzards Bay Secondary continues to go unsupported, then SRPEDD requests that the re-design of the Cranberry Highway (Routes 6 & 28, Project # 117106)) include a separate, shared-use path alongside of it. SRPEDD has already requested that the new William Dalton Bridge (Project # 603670) over the Cohasset Narrows include a shared-use path along its southern side, separated from traffic with a physical barrier.

If you have any questions regarding this matter or would like to discuss it further, please do not hesitate to contact myself or Adam Recchia of my staff at 508-824-1367.

Sincerely,



Stephen Smith,  
Executive Director

Cc: Chalita Belfield, Director of Railroad Properties, MassDOT  
Catherin Cagle, Manager of Sustainable Transportation, MassDOT  
Josh Lehman, Bicycle/Pedestrian Program Manager, MassDOT  
Bernard McCourt, District Highway Director, MassDOT Highway District 5  
Michael Langford, Wareham Bikepath Committee

**Paille, William**

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**From:** Paille, William  
**Sent:** Tuesday, February 02, 2010 2:29 PM  
**To:** Michael Langford  
**Cc:** 'Ken\_Litke@AcushnetGolf.com'; jrockwell@buzzardsbay.org; Wagner, Johannes; Peck, Jeremy  
**Subject:** Meeting with Marion Bikepath Representatives

Mike,

As you know, last week we met with Ken Litke and John Rockwell who represent the Marion Bikepath Committee. The meeting was very informative as I did not completely understand the location of the Marion Bikepath, the status of the existing right-of-way along the Marion Bikepath or the status of the design/construction and it was an opportunity for us to explain the limits and status of the feasibility study to Ken and John.

At the outset of the meeting it was our understanding that County Road is under design and will eventually be reviewed and constructed by the Massachusetts Department of Transportation (MassDOT). Since then I have spoken directly with MassDOT – District 5 and learned that County Road is not eligible for federal funding and there is not a current plan for the state to reconstruct this road. We also learned the Town of Wareham, Marion and Rochester are working on the design as part of a collaborative effort to improve County Road using their own funds. As a result, we recommend the Marion Bikepath Committee coordinate with the Town of Wareham, Marion and Rochester's design consultant (i.e. AECOM) regarding incorporating a separate bikepath along County Road.

Moving forward, I recommend that both the Wareham Bikepath Committee and the Marion Bikepath Committee representatives get together to coordinate before the feasibility report is finalized and presented to the Town of Wareham.

Bill

***William G. Paille, P.E.***

***Project Manager***

***Weston & Sampson***

***100 Foxborough Blvd., Suite 250***

***Foxborough, MA 02035***

E-mail: paillew@wseinc.com

Direct Tel: 508-698-3034 Ext. 7486

Fax: 508-698-0843

Direct Fax: 978-573-4070



**TO:** Mike Langford, Wareham Bikepath Committee  
**FROM:** William G. Paille, P.E.  
**DATE:** December 17, 2009  
**SUBJECT:** Meeting with the Massachusetts Department of Transportation (MassDOT)

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**Location:** 10 Park Plaza, Room 4150  
Boston, MA 02116

**Attendees:** Tim Doherty, Director of Rail Program (MassDOT); Chalita Belfield, Manager of Railroad Properties (MassDOT); Catherine Cagle, Manager Sustainable Transportation (MassDOT); Josh Lehman, Bicycle/Pedestrian Program Manager (MassDOT)  
Michael Langford, Wareham Bike Path Committee  
David Smith, President, Friends of the Wareham Community Pathway Inc.  
John Wagner, Weston & Sampson  
Bill Paille, Weston & Sampson

The purpose of this meeting was to present the proposed feasibility study to MassDOT and discuss specific routes, namely use of the active rail-line currently owned and maintained by MassDOT. After a brief overview of the project and introductions, T. Doherty opened the meeting. The following summarizes the results of this meeting:

- M. Langford provided a brief history of the project including the Town's approval of \$25k to perform a feasibility study and recent approval of \$200k for design and engineering of trail segments. The design and engineering funds will come from the Community Preservation Committee (CPC). The question was asked and it was made clear the Wareham Bikepath Committee reports to the Town Selectmen whereas the Friends of the Wareham Community Pathway Inc. does not report to the Town Selectmen.
- Two projects currently being managed by MassDOT were discussed that may have an impact upon the Wareham Bikepath project. The first was the Buzzards Bay Bridge replacement project which is currently at the 25% design stage; the second was the conceptual/preliminary design of approximately 2 miles of Route 28 from Tyler Avenue to the Buzzards Bay Bridge. The Town and Weston & Sampson requested the opportunity to provide input for the Rte 28 design and MassDOT recommended the Town coordinate with the District 5 office.
- It was agreed the Town would set up a meeting with Massachusetts State Senator Marc R. Pacheco to discuss the project which MassDOT would be invited to attend.

- The current active line was discussed with respect to use as a Rails-with-Trails corridor. MassDOT explained the existing railway corridor is part of a 25-year plan to maintain either as a freight and/or passenger service and is considered a valuable asset to the State and that it is unlikely to relinquish a portion of the existing right-of-way for use as a multi-use trail. MassDOT was also very clear regarding the existence of Federal funds for railway improvements/upgrades/conversions, which this rail corridor is eligible for and is being considered for future expansion. MassDOT also cited safety concerns due to the fact that active trains would be sharing the same right-of-way and in close proximity to a multi-use trail, and stated the Secretary of Transportation was emphatic about not releasing segments of existing rail corridors that might be utilized for future commuter rail.
- The question was raised as to whether MassDOT would consider granting easements for partial use of the active rail-line to provide a connection from the abandoned rail-bed to Pierceville Road Bridge. MassDOT stated their willingness to coordinate with the Town of Wareham with regard to easements and liability at the appropriate time.
- The question was raised to MassDOT to allow for an at-grade crossing at the Main Street overpass. MassDOT made it clear they will not allow the creation of new at-grade crossing unless the Town was prepared to eliminate two at-grade crossings either within the Town or within a 50-mile radius of the surrounding jurisdiction (i.e. Town of Bourne, Plymouth, Middleboro). MassDOT suggested the possibility of utilizing Federal funds to either replace the existing bridge structure with a longer span or construct a separate bicycle tunnel under the active rail-line.
- The Tremont Nail Factory was discussed. The question was raised if either Federal or State funds could be used to convert the existing building into a regional transportation center similar to the one in Hyannis, MA. MassDOT was uncertain if such funds could be justified for such a use without cooperation between the Federal Government, State of Massachusetts and the Regional Planning Agency (i.e. SRPEDD).
- The abandoned rail-bed corridor was discussed. MassDOT indicated their willingness to coordinate with the Town to transfer or lease this corridor for the use of a multi-use trail from the Marion town line to where it connects to the active rail-line. MassDOT made it clear the Town would have to prepare and submit a proposal to the State that verifies this corridor will not benefit in the future (50 to 100 years) from re-establishment of a rail-line either freight or passenger. All agreed this corridor presents an excellent opportunity for a multi-use trail that provides connectivity.
- J. Lehman discussed an Enhancement Application (Circa 1994) submitted to the Project Review Committee that included design and engineering of a bicycle corridor from the Town of Wareham to Plymouth and that the information might prove useful to this project. J. Lehman stated he would find the document and provide access to either the Town or Weston & Sampson for review.
- C. Belfield and T. Doherty requested copies of the locus plan used during the meeting. Weston & Sampson stated they would provide the appropriate copies as soon as possible.

C. Belfield and T. Doherty had to leave for another meeting and thus the meeting was adjourned soon thereafter.

NAME	TITLE	E-Mail/Phone
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planning, permitting,  
design, construction,  
operation, maintenance,  
design/build, & equipment

**Weston & Sampson®**

**Wareham, Massachusetts  
WSE Project No. 2090290**

October 6, 2009

Cassandra Cassidy  
Town of Wareham  
Wareham Police Department  
2515 Cranberry Highway  
Wareham, Massachusetts 02571

Re: Request for Information: Accident Reports

Dear Ms. Cassidy,

Weston & Sampson is currently preparing a feasibility study for a Bike Trail for the Town of Wareham. As part of that study, Weston & Sampson needs to analyze any and all accident data for the past three years at or along the following corridors and intersections.

Traffic Corridors:

County Road, from the Marion Town Line to Fearing Hill Road  
Fearing Hill Road, from County Road to Main Street  
Main Street, from Fearing Hill Road to Minot Ave  
Minot Ave, from Main Street to Depot Street./ Onset Ave


Intersections:

Main Street at Pumpkin Head Road  
Main Avenue at Maynard Avenue  
Onset Avenue at Route 6

If you have any questions, please feel free to contact me at (978) 977-0110 x 7474.

Very truly yours,

WESTON & SAMPSON ENGINEERS

  
Gregory T. Swan  
Engineer II

cc: File

~~file:wareham-ma\bike path feasibility study\wareham police rfi.doc~~