Appendix 3.1-A

Analysis of South Coast Rail Alternatives: Phase 1 Report (April 2008)

SOUTH COAST RAIL

Analysis of South Coast Rail Alternatives: Phase 1 Report

Prepared for **Executive Office of Transportation and Public Works**
Boston, Massachusetts

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April 30, 2008

FINAL

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Acronyms

ACEC	Area of Critical Environmental Concern
CTPS	Central Transportation Planning Staff
DEIR	Draft Environmental Impact Report
DEP	Department of Environmental Protection
DMU	Diesel Multiple Units
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ENF	Environmental Notification Form
EOEEA	Executive Office of Energy and Environmental Affairs
EOT	Executive Office of Transportation and Public Works
EPA	United States Environmental Protection Agency
FEIR	Final Environmental Impact Report
HOV	High Occupancy Vehicles
LEDPA	Least Environmentally Damaging Practicable Alternative
MAPC	Metropolitan Area Planning Council
MBTA	Massachusetts Bay Transportation Authority
MEPA	Massachusetts Environmental Policy Act
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NHESP	Natural Heritage and Endangered Species Program
OCPC	Old Colony Planning Council
SRPEDD	Southeastern Regional Planning and Economic Development District
VMT	Vehicle miles travelled

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1 Introduction

The purpose of the Executive Office of Transportation and Public Works (EOT) and the Massachusetts Bay Transportation Authority's (MBTA's) South Coast Rail Project Alternatives Analysis is to define the most appropriate strategy to provide public transportation between Boston to the cities of Fall River and New Bedford within the South Coast region. The South Coast Rail Project investigates cost-effective transit solutions that will increase transit accessibility, ensure equitable distribution of transit services, increase transit ridership, improve regional air quality, and support opportunities for smart growth initiatives and sustainable development.

1.1 Phase 1 Alternatives Analysis Overview

The environmental review process for this Project will be conducted in two phases. The first phase of the Project, the Phase 1 Alternatives Analysis, determines which alternatives are capable of meeting the Project purpose and are initially considered practicable. This is also Phase 1 of the United States Army Corps of Engineers' (the Corps) *Highway Methodology.*[1] A Civic Engagement process, conducted in parallel to the Interagency Coordinating Group process, provided opportunities for stakeholders to participate in an open and collaborative planning process.

As discussed in Chapter 9, the second phase will further evaluate the alternatives brought forward from the Phase 1 Alternatives Analysis in Phase 2 of the *Highway Methodology,*[1] concurrent with the joint federal and state environmental review process. During this process the Project team, in cooperation with an Interagency Coordinating Group, will determine the Preferred Alternative, as well as

1 United States Army Corps of Engineers. NEDEP-360-1-30, *The Highway Methodology Workbook*. October 1993.

the Least Environmentally Damaging Practicable Alternative (LEDPA)[2] as determined by the Corps.

1.2 Study Background

The restoration of passenger rail service to the South Coast region has been extensively studied for almost twenty years. In 2000, the MBTA completed a Draft Environmental Impact Report (DEIR) that analyzed six alternative routes for providing improved transportation between downtown Boston and the cities of Fall River and New Bedford. The DEIR focused on what was viewed then as the three most viable alternatives: (1) extending the existing MBTA Stoughton Line, (2) extending the existing MBTA Middleborough Line, and (3) providing new service, branching off from the Providence Line near Attleboro. In 2002, the MBTA concluded that extending the Stoughton Line was the most practicable and feasible of the alternatives, and EOT received state-level approval from the Secretary of Environmental Affairs to proceed with planning for the South Coast Rail Project as an extension of the existing Stoughton Line. At that time, the Project did not undergo a federal environmental review process either under the Clean Water Act permit process or the National Environmental Policy Act (NEPA). Therefore, EOT and the MBTA are taking a fresh look at the alternatives, and conducting a robust public review process to determine the most viable transportation alternatives to and from New Bedford and Fall River, and Boston. A comprehensive federal and state environmental review process will occur concurrently in accordance with the Corps' *Highway Methodology*. This process will provide the public the opportunity to comment on the alternatives.

1.3 Historical Perspective

Prior to 1958, the Middleborough, Stoughton and Attleboro rail lines were part of the Old Colony Railroad System that provided service to Fall River and New Bedford from Boston's South Station, via Canton Junction, along the Stoughton Branch railroad. Since discontinuation of this service, commuter rail has only been available to southeastern Massachusetts along the Boston-Providence Shore Line, with stops in Attleboro and South Attleboro, and the Old Colony Middleborough Line, which terminates in Lakeville. However, none of these provide an opportunity for commuters from the Fall River or New Bedford areas to easily or efficiently access rail transportation to Boston.

[2] The Least Environmentally Damaging Practicable Alternative (LEDPA) is defined by United States Environmental Protection Agency regulations at 40 CFR 230 et seq.

1.4 Relationship to the Corps' Highway Methodology Process

Since the South Coast Rail Project may result in greater than one acre of wetland fill, an individual Section 404 permit may be required by the Corps. The Corps regulates the discharge of dredged or fill material into "waters of the United States," including wetlands, under Section 404 of the Clean Water Act.

The Corps, New England District, has developed a set of non-regulatory pre-application guidelines known as the *Highway Methodology* to screen alternatives and to ensure that the transportation agency's preferred alternative is consistent with federal wetlands regulations. This Phase 1 Alternatives Analysis was conducted in accordance with the *Highway Methodology* Phase 1 guidelines, and identifies a range of reasonable alternatives to advance into the state (Massachusetts Environmental Policy Act [MEPA]) and federal (NEPA) environmental review and appropriate permitting processes. This Phase 1 process is described in more detail in Chapter 4.

1.5 Community Involvement

To ensure effective and inclusive public outreach throughout the various stages of Project development, EOT has implemented a comprehensive community involvement process for the South Coast Rail Project that includes an Interagency Coordinating Group, the Southeastern Massachusetts Commuter Rail Task Force (Commuter Rail Task Force), Civic Engagement meetings and the Smart Growth Corridor Plan, as described below.

1.5.1 Interagency Coordinating Group

In cooperation with the Corps, EOT and the MBTA developed an Interagency Coordinating Group of federal and state regulatory agencies to guide the Phase 1 Alternatives Analysis process. The group consists of:

- United States Corps of Engineers (the Corps)
- United States Environmental Protection Agency (EPA)
- United States Fish and Wildlife Service
- National Marine Fisheries Service
- Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA)
- Massachusetts Environmental Policy Act Office (MEPA)

- Massachusetts Department of Environmental Protection (DEP)
- Massachusetts Office of Coastal Zone Management
- Massachusetts Department of Conservation and Recreation, Areas of Critical Environmental Concern
- Massachusetts Department of Fish and Game Natural Heritage and Endangered Species Program
- Massachusetts Historical Commission
- Southeastern Regional Planning and Economic Development District

The objective of this group in Phase 1 is, through consensus at key milestone points, to select a range of alternatives to analyze in the in-depth environmental review.

Table 1-1 Interagency Coordinating Group Meetings to Date

Meeting Topic	Date
Project Kickoff and Introduction	September 25, 2007
Project Purpose and Need – Draft	October 23, 2007
Project Purpose and Need – Draft: Phase 1 Screening Criteria	November 27, 2007
Project Purpose and Need – Draft: Phase 1 Screening Criteria; Review of Civic Engagement Input	December 19, 2007
Project Purpose and Need – Final: Phase 1 Screening Criteria	January 3, 2008
Phase 1 Screening Criteria – Final: Range of Phase 1 Alternatives	January 10, 2008
Phase 1 Analysis – Step 1 Screening Criteria Results	February 14, 2008
Phase 1 Analysis – Concurrence on Step 1 Screening Criteria Results; Review Step 2 Results	February 21, 2008
Phase 1 Analysis – Step 2 Concurrence; Review Step 3 Results and Conclusion of Phase 1	February 28, 2008
Phase 1 Analysis – Concurrence on Step 3 Results	March 4, 2008
Phase 1 Analysis – Draft Report; Review of Civic Engagement Input; Step 4 (Circling Back) Analysis	March 21, 2008
Phase 2 Alternatives – Concurrence on Advancing Alternatives	April 1, 2008

1.5.2 Commuter Rail Task Force

The 2000 MEPA Certificate for the New Bedford/Fall River Commuter Rail Extension DEIR recognized the induced growth that could result from the rail line construction and called for a growth management task force to be created. In 2004, the Commuter Rail Task Force was formed to help the region prepare for the impacts of the re-introduction of passenger rail to the South Coast. Its membership includes representatives from the MBTA, other regional transit authorities, municipal and

regional representatives, environmental groups, and business and economic development organizations.

The Commuter Rail Task Force provides a forum for state and local officials to review and discuss all aspects of the Project and to work toward consensus on the design and operational aspects of the Project, as well as provide assistance to EOT and the MBTA.

Table 1-2 Commuter Rail Task Force Meetings to Date

June 8, 2005	March 14, 2007	January 16, 2008
April 6, 2005	January 10, 2007	February 13, 2008
September 14, 2005	February 23, 2007	March 12, 2008
November 16, 2005	May 9, 2007	April 9, 2008
January 11, 2006	June 20, 2007	
March 8, 2006	September 11, 2007	
June 14, 2006	October 17, 2007	
September 19, 2006	November 14, 2007	
November 15, 2006	December 12, 2007	

1.5.3 Civic Engagement

The Civic Engagement process seeks to engage stakeholders in a manner that enables EOT and the MBTA to integrate and address concerns of all interested parties. The process intensively relies on the efforts of the stakeholder working group developed by the Commuter Rail Task Force. Efforts also include dialogue with corridor municipalities, area legislators, members of the public and interest and community groups throughout the corridor.

Table 1-3 Civic Engagement Meetings to Date

Meeting Topic	Date	Location
What new alternatives should we consider and how should we evaluate them?	November 28, 2007 December 5, 2007 December 6, 2007	Middle School, Berkley Town Hall, Stoughton Town Hall, Dartmouth
What do you think of the list of alternatives and evaluation criteria?	January 15, 2008 January 16, 2008 January 31, 2008	J.C. Solmonese (Gym), Norton Advanced Manufacturing and Technology Center, Fall River Southeastern Voc/Tech School, South Easton
What do you think of the draft findings?	March 10, 2008 March 11, 2008 March 12, 2008	City Hall, Attleboro Public Library, Lakeville Elementary School, Freetown

1.5.4 Smart Growth Corridor Plan

The Project is intended to result in strong economic development, transportation mobility for the region, and environmental benefits. However, transportation facilities may have major impacts on land use by controlling the ease of access to neighborhoods, communities, and commercial and industrial areas. Improved access to rural and undeveloped lands typically results in more rapid development of these areas, potentially resulting in suburban sprawl and reducing the amount of open space. With this in mind, the Commonwealth, through the EOT and Executive Office of Housing and Economic Development, is developing a comprehensive Economic Development and Land Use Corridor Plan (Plan), consistent with smart growth objectives, to accompany the construction of the South Coast Rail.

Implementation of the Plan will result in economic growth for the South Coast, enhanced quality of life and environmental resources for the people of the region, and new funding that can be captured to help finance the construction and operation of the rail line. The Plan will recommend ways to maximize the economic development potential in the corridor, create sustainable development through land use change, and generate new revenues for corridor communities and the Commonwealth. This effort seeks to coordinate transportation infrastructure investments with implementation of regional and local land use changes that will enable the Commonwealth to sustain and build ridership, and generate revenues critical to financing the rail line.

1.5.5 Contents of this Report

The remaining chapters of this Alternatives Analysis Technical Report provide details of the Phase 1 alternatives analysis with supporting materials provided in the appendices.

- **Chapter 2 –** This chapter provides information on the Project purpose, and the need for transportation improvements in the Massachusetts South Coast region. It includes a discussion of the planning and policy context, discusses state and regional policy goals and objectives, and defines and describes existing transportation conditions within the Alternatives Analysis Study Area (Figure 1-1).
- **Chapter 3 –** This chapter describes the initial set of alternatives that were proposed to address the Purpose and Need of the South Coast Rail project.
- **Chapter 4 –** This chapter describes the methodology that was developed to screen these alternatives.
- **Chapter 5 –** This chapter describes the Step 1 Analysis, which identifies those alternatives capable of achieving the objectives of the Project Purpose.
- **Chapter 6 –** This chapter describes the Step 2 Analysis, which identifies those alternatives that are practicable to construct and operate.
- **Chapter 7 –** This chapter describes the Step 3 Analysis, which identifies the relative magnitude of potential impacts that each alternative could have on the aquatic and natural environment, and the potential of each alternative to support smart growth principles.
- **Chapter 8 –** This chapter describes the Step 4 Analysis, which summarizes the results of the Steps 1, 2 and 3 analyses and describes how a reasonable range of practicable alternatives to proceed into the Phase 2 environmental review process was identified.
- **Chapter 9 –** This chapter describes the Phase 2 Alternatives Analysis Process and identifies the Phase 1 alternatives selected for further consideration.

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Purpose and Need

This chapter provides information on the Project purpose and the need for transportation improvements in the Massachusetts South Coast region. To support the purpose and need, this chapter describes the existing transportation system and identifies deficiencies/needs of the regional transportation system. It also includes a discussion of the planning and policy context, and discusses state and regional policy goals and objectives.

2.1 Project Purpose

The purpose of the South Coast Rail Project is to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities.

The Basic Project Purpose that the Corps will use in evaluating alternatives in its Section 404 permit review is to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts.

2.2 Need for the Project

As documented in the following sections, the current transportation system serving the South Coast region (Figure 2-1) is primarily a highway system composed of major, limited-access state routes, regional highways, and local roadways. This highway network is supplemented by private bus services, local bus and demand-response transit services operated by the two regional transit authorities, park-and-ride lots, and vanpool services. Few additional investments in the regional transportation facilities and services are programmed, which primarily address localized congestion or safety concerns, or repair aging infrastructure. The current

transportation system serving the South Coast region is inadequate to meet the current needs of the region and will not meet the future demand placed upon it, as indicated by increasing traffic congestion and accidents.

Major transportation needs and deficiencies include:

- Lack of transportation capacity to downtown Boston.
- Congestion on highway and transit facilities serving the region.
- Air quality that does not meet federal Clean Air Act standards.

New transportation solutions for the South Coast region must be developed within the context of regional transportation issues, national and local transportation policy, and the transportation goals and objectives for the region. There has been a repeated mandate from the Massachusetts Legislature to design and construct commuter rail extension to New Bedford and Fall River.[1] The long-term transportation plans for all three planning regions support the development and enhancement of transit services. The Old Colony Planning Council's Long Range Transportation Plan specifically identifies the extension of commuter rail service from Stoughton, south to Easton and beyond as a more efficient mode of transportation for the area.

Solutions to these regional transportation issues can be found within the context of local and national policy, goals, and objectives on transportation. Current policy indicates that a multimodal/intermodal transportation system is important in the solution to the region's transportation issues. This policy is outlined in the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users of 2005, Transportation Equity Act for the 21st Century, Intermodal Surface Transportation Efficiency Act and the Clean Air Act Amendments. The need for a multimodal transportation system is further reinforced by local transportation policy regarding transportation projects beginning in the 1970s and continuing through today.

The solution to South Coast transportation issues must be in line with the transportation goals and objectives set forth in the regional transportation plans specifically created by the Metropolitan Planning Organizations (MPOs). The region hopes to develop transportation solutions that maintain downtown Boston as a strong economic hub and encourage transit-oriented development patterns. Progress toward these goals is measured in terms of several specific objectives.

1 *Transportation Bond Bill*, Chapter 273 of 1994; Chapter 205 of 1996, 1997.

The region's goals and objectives can be summarized as:

- Goal: Improve transportation service to improve mobility
- Objective: Increase transit accessibility
- Goal: Provide transit services which are cost-effective
- Objective: Increase transit ridership
- Goal: Provide a more equitable distribution of transportation services
- Objective: Increase transit service for regions now poorly or under-served.

Improving the transportation facilities and services in the region is necessary to address the transportation issues facing the region. These solutions must be in line with a transportation policy that encourages a multimodal transportation system and addresses the region's transportation goals and objectives. Because highway solutions are discouraged by policy, largely infeasible, and likely ineffective given the physical constraints of the metropolitan Boston area, public transit enhancements linking the region to downtown Boston are the only remaining practical solution.

2.3 Transportation Needs

Many different types of transportation facilities and services provide mobility throughout the South Coast area. These services also provide important links to the metropolitan Boston area and facilitate access to economic, recreational, and social opportunities located throughout the region. The transportation system providing mobility and accessibility in the South Coast area is composed of:

- Limited-access highways;
- Regional highways;
- Local roadways;
- Intercity, commuter, and local bus services;
- Demand responsive transit services; and
- Carpool and vanpool facilities.

Existing transportation in the South Coast region is overwhelmingly auto-oriented. Local bus public transit is provided in Taunton by Greater Attleboro Taunton Regional Transit Authority and in New Bedford and Fall River by Southeastern Regional Transportation Authority. Greater Attleboro Taunton Regional Transit Authority also operates intercity bus service between Taunton and Providence, Rhode Island. Other intercity bus service is provided by private carriers, connecting

Fall River, New Bedford, and Taunton with each other and with Boston, Providence, Newport, and points beyond.

Commuter rail service is available both to the northwest and northeast of the South Coast region, on the MBTA's Providence Line and Middleborough Line. The closest commuter rail stations to the South Coast region are Middleborough/Lakeville on the Middleborough Line, and Attleboro Station and Providence Station, both on the Providence Line. Although physically located outside the South Coast area, existing commuter rail service provides some mobility through connections in neighboring communities.

The main highway facilities in the South Coast region are Route 24, Route 140, I-195, and I-495. Together, Routes 24 and 140 link New Bedford and Fall River to the metropolitan Boston region, while I-195 provides east-west access connecting Cape Cod, Wareham, New Bedford, Fall River, and Providence. I-495 runs northwest-southeast, connecting Cape Cod, Wareham, and Taunton. Just west of the region, I-95 connects Providence with greater Boston.

Southeastern Massachusetts experienced a 4.5 percent population growth between 1990-2000. As the affordable housing market has moved further from the Boston metropolitan area, the region has become one of the fastest growing areas in the Commonwealth. Many of the people relocating to the area are retaining their jobs in the Boston market. Most of the commuter trips from the region to the Boston market are in single occupant vehicles and public transit accounts for a minor proportion of work trips in the service area. To a large extent, this can be attributed to the lack of public transit alternatives other than privately-operated bus service.

The transportation system serving the South Coast communities is inadequate to meet the current and projected needs of the region. An evaluation of transportation and demographic data and trends has identified the following principal needs for transportation improvements:

- Many communities in the South Coast Massachusetts Area lack public transit facilities other than private bus services. Major population centers are as much as 25 miles from existing commuter rail stations all of which are located outside the South Coast region. Those stations are currently at capacity.
- Highways linking the South Coast area with metropolitan Boston are inadequate to serve the current demand, and congestion, safety, and air quality are expected to continue to worsen as travel demand grows. Few additional transportation improvements are programmed.

- The South Coast region is classified as a Severe Non-Attainment Area for ozone.[2]
- State and federal transportation planning goals encourage the development of a multi-modal transportation system that is consistent with growth management and smart growth objectives. Currently, the region lacks access to the passenger/commuter rail mode and is dependent on private automobiles, which contributes to sprawl and uncontrolled growth.
- The long-term transportation plans of the region support the development of transportation improvements that enhance accessibility, increase mobility, encourage alternatives to automobiles, and provide a more equitable distribution of transit services. The extension of commuter rail service from Stoughton south to North Easton, New Bedford, and Fall River is identified in the long-range transportation plans of the local planning organizations.

The following sections provide additional details on these specific South Coast transportation needs, and the benefits of an improved transit system.

2.4 Highway Congestion

The South Coast area is served by a network of roadways varying from limited-access facilities to local roads. The primary highway facilities link the major urban areas of New Bedford, Fall River, and Taunton with each other and to the metropolitan Boston region. These facilities have different physical and operating characteristics, described below.

2.4.1 Physical and Operating Characteristics

There are six highways in the South Coast area. These major facilities, shown in Figure 2-1, provide the primary access routes within the South Coast area and to adjacent regions. The two interstate routes serving the South Coast area are not part of the primary highway access system to the metropolitan Boston region. The six regional highways are:

- The main north-south highway link between the South Coast area and the metropolitan Boston area is Route 24, which passes through Fall River, Freetown, Berkley, Taunton, and Raynham. This limited-access facility begins at the Rhode Island state line at Tiverton, connects with I-195 on the east side of Fall River,

2 A non-attainment area is defined by the EPA as an area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act.

and terminates at I- 93/Route 128.

- Route 140 is a limited-access facility connecting New Bedford and Taunton. It passes through the South Coast area communities of New Bedford, Freetown, Lakeville, and Taunton. The limited-access portion of Route 140 ends at Route 24 in Taunton, providing an important link between the South Coast cities and towns of New Bedford, Dartmouth, Mattapoisett, Acushnet, and Taunton. Route 140 continues north from Taunton, roughly paralleling I-495, but not as a limited-access facility.

- The limited-access segment of Route 79 is approximately four miles long, beginning at I-195 on the west side of downtown Fall River and ending at Route 24 in northern Fall River. Route 79 provides a link from downtown Fall River and the communities located along I-195 west of Fall River to Route 24.

- Route 138 is primarily a two-lane facility that passes through the South Coast area communities of Fall River, Somerset, Dighton, and Taunton, and provides access north to Raynham, Easton, and Stoughton. It connects with I- 195 and the limited-access segment of Route 79 in Fall River, the non-access controlled section of Route 140 in Taunton, and I-495. Route 138 also provides access to the MBTA's Stoughton Station.

- Although designated as a north-south route, I-495 runs primarily northwest/ southeast in the vicinity of the South Coast area, linking Route 24 to the I-90 and I- 95 corridors. This facility does not provide a direct link to the metropolitan Boston area. It does provide access for a portion of the region to MBTA commuter rail stations in Middleborough/Lakeville and Mansfield. I-495 passes through Wareham, Rochester, Middleborough, Raynham, Taunton, and Norton, connecting with I-95 near the Mansfield/Foxborough Line and Route 24 in Raynham.

- I-195 is an east-west limited-access highway linking the towns within the southern portion of the South Coast area to Providence, Rhode Island. The highway facilitates connections to Routes 79, 24, and 140 and among some South Coast communities. It does not provide an important link between the South Coast area communities and the metropolitan Boston area. I-195 passes through Seekonk, Rehoboth, Swansea, Somerset, Fall River, Westport, Dartmouth, New Bedford, Fairhaven, Mattapoisett, Marion, and Wareham.

Off-peak travel speeds on the major limited-access highways are typical of interstate roads, with traffic traveling at the posted speed limit of 55 or 65 mph. Travel speeds are reduced during peak periods as the traffic volumes increase. The highway

exhibiting the greatest peak period strain is Route 24, where some of the highest traffic volumes in the South Coast area are recorded. On Route 24, the major north-south corridor in the South Coast area, the average daily traffic ranges from 22,000 vehicles per day in Fall River to over 122,000 vehicles per day in Randolph. Traffic congestion and long delays are common on the northern segments of this highway during weekday peak commuting periods.

2.4.2 Access to Metropolitan Boston Area

Traffic generated within the South Coast area must travel on I-93/Route 128 and I-93/Route 3 (Southeast Expressway) to reach downtown Boston. Route 128 is Boston's inner circumferential highway that provides access to much of the metropolitan Boston region. Following I-93 north/Route 128 south from Route 24 leads to I-93/Route 3 (Southeast Expressway) and downtown Boston, approximately eight miles from the I-93/Route 128/Route 3 interchange in Braintree. Following I-93 south/Route 128 north from Route 24 leads to I-95 approximately three miles to the north, and to I-90 approximately 15 miles to the north. I-90 (Massachusetts Turnpike) provides the only limited-access highway to Boston from west of the city. Route 128 and the Southeast Expressway are heavily congested roadways, particularly during peak periods.

Traffic volumes on Route 128 are approximately 135,000 vehicles per day north of Route 24 (towards I-95) and 185,000 vehicles per day to the south (towards I-93/Route 3). I-93/Route 128 provides four general purpose travel lanes in each direction between Route 24 and I-93/Route 3. North of the I-93/Route 3 interchange in Braintree, four general-access lanes and one high occupancy vehicle (HOV) lane in the peak direction and three general access lanes in the non-peak direction are provided during peak periods. During off-peak periods, the roadway provides four lanes in each direction through Southampton Street Massachusetts Highway Department operates HOV lanes on I-93/Route 3 from just south of the Furnace Brook Parkway exit in Quincy to the Columbia Road exit in Dorchester. Currently, the HOV lanes are open to all two-person carpools. Traffic volumes on I-93/Route 3 are as high as approximately 191,000 vehicles per day.

2.4.3 Regional Traffic Volume Growth

As the population in the South Coast area and employment in the Boston area have grown, the demands on the roadway system linking Southeastern Massachusetts to the rest of the region have increased rapidly. Traffic volumes on the limited-access state routes linking the South Coast area to the employment centers of Boston have been growing steadily over the past decade, as shown in Table 2-1. Overall, traffic

volumes on the roadways in the South Coast area have grown at an annual rate of two to three percent over the past decade. However, traffic volumes have grown more rapidly in some areas.

The most dramatic increases in traffic volumes are on Route 24 in Raynham and Taunton, where traffic volumes have increased about 5 percent annually. Traffic volumes on Route 140 in Taunton have been increasing at the highest annual rate, 5.3 percent. In some cases, projected volumes for the year 2020 that were made in 1997 were already reached in 1999.

Only Route 128 and I-93 (the Southeast Expressway) exhibit relatively stable traffic volumes. These roadways are known as some of the most congested highways in the state and traffic volumes on these roadways are at or near capacity for long portions of the day, making further increases in average daily traffic volumes infeasible. Furthermore, the very slight decrease in traffic on portions of I-93 may reflect changes in motorist route choices due to Central Artery/Tunnel project construction, and demand reductions from the Route 3 corridor due to the restoration of the Old Colony Commuter Rail service.

The significant increases in traffic volumes on the principal highways linking the South Coast area to downtown Boston have led to deteriorating levels of service, especially during peak periods. Delays on these roadways are now common and have become much worse over the past decade. These delays are especially prevalent on Route 24 as it approaches Route 128/I-93 in Randolph. Furthermore, as discussed in greater detail later in this section, traffic accidents occur with increasing frequency along these corridors, indicating that these traffic volume increases may be resulting in increased risk of injury and property damage for the commuting public.

Southeastern Massachusetts is one of the fastest growing areas in the Commonwealth. Between 1960 and 2000, this area experienced a growth rate of 31 percent, and population growth projections indicate that in the next 25 years, over 100,000 additional people will reside in the area.

Between 1960 and 1990, this area had an annual growth of over 2,500 people per year from a base population of 343,353 to its 1990 population of 430,846. Growth slowed somewhat between 1990 and 2000, to an annual growth of approximately 1,950 people per year. These figures translate to a growth of 4.5 percent between 1990 and 2000, which is greater than the growth rate of the Commonwealth as a whole. Each 10,000 new residents coming into the area are expected to generate a need for 3,500 new residential units, and are predicted to generate 27,650 new vehicle trips per day, further degrading the level of service provided by the regional transportation system.

Table 2-1 Average Daily Traffic Volume Growth

	Average Daily Traffic (vehicles per day)			Growth Rate (percent)		
Count Location	Historic	Recent	Change	Total	Period	Annual
Route 24						
Randolph (south of Route 128)	96,601	122,400	25,799	27.0%	1989-2005	1.7%
Avon (south of Pond Street)	90,196	97,100	6,904	8.0%	1989-2004	0.5%
Raynham (north of Route 44)	42,168	74,300	32,132	76.0%	1989-2004	5.1%
Taunton (north of Route 140)	37,734	68,109	30,375	80.0%	1989-2005	5.0%
Freetown (at Fall River City Line)	29,822	52,300	22,478	75.0%	1989-2005	4.7%
Fall River (south of Wilson Road)	19,000	26,700	7,700	41.0%	1989-2003	2.9%
Route 140						
Taunton (south of Route 24)	23,133	41,400	18,267	79.0%	1989-2004	5.3%
Freetown (north of New Bedford City Line)	25,250	32,447	7,197	22.0%	1989-2004	1.5%
New Bedford (north of Phillips Road)	23,449	32,400	8,951	38.0%	1989-2005	2.4%
New Bedford (north of Hathaway Road)	35,631	49,700	14,069	39.0%	1989-2005	2.5%
Route 79						
Fall River (north of Hermon Street)	16,460	25,400	8,940	54.0%	1989-2004	3.6%
I-95						
Foxborough (north of I-495)	57,800	93,200	35,400	61.0%	1997-2003	10.2%
Canton (south of I-93 / Route 128 / Route 1)	80,800	98,700	17,900	22.0%	1997-2004	3.2%
I-495						
Mansfield (south of Route 140)	37,400	69,900	32,500	46.0%	1996-2005	5.2%
Taunton (south of Bay Street)	40,400	69,100	28,700	42.0%	1996-2005	4.6%
Raynham (north of Route 24)	48,277	67,098	18,821	39.0%	1996-2005	4.3%
Middleborough (between Route 44 and Route 18)	35,100	56,100	21,000	60.0%	1996-2005	6.6%
I-195						
Fall River (west of Route 24)	66,053	81,339	15,286	23.0%	1996-2005	2.6%
New Bedford (east of Route 140)	55,300	73,500	18,200	33.0%	1996-2005	3.7%
Route 3						
Braintree (north of Union Street)	130,000	133,600	3,600	2.8%	1996-1997	2.8%
Route 128 / I-93 / I-95						
Quincy (north of Route 28, east of Route 24)	168,955	184,900	15,945	9.0%	1989-2004	0.6%
Canton (at Dedham townline, west of Route 24 / I-95	128,537	134,684	6,147	5.0%	1989-2004	0.3%
Route 3 / I-93 (S.E. Expressway)						
Boston (north of Granite Avenue)	174,612	190,993	16,381	9.0%	1999-2004	1.9%
Boston (north of Southampton Street)	176,322	174,284	-2,038	-1.0%	1989-2006	-0.1%

ADT Average Daily Traffic (vehicles per day)
Source: Massachusetts Highway Department

Access from South Coast area communities to Boston is primarily via Route 24 to Interstate 93/Route 128. These principal, limited-access highways currently operate at or over capacity, with peak-hour volumes of up to 2,600 vehicles per hour and level-of-service F on Route 24 in Raynham, and 3,500 vehicles per hour and level-of-service F on I-93/Route 128 in Braintree. Although several mitigation measures have been implemented on I -93 to reduce congestion (high-occupancy vehicle lanes, improved MBTA Red Line service, and Old Colony Commuter Rail service), this highway continues to operate at unacceptable levels of service, resulting in substantial congestion and decreased safety. There are no alternatives to the use of Route 24 and I-93, and no proposed mitigation measures to reduce congestion.

2.4.4 Safety

The number of accidents on the primary travel routes within the South Coast area has generally been increasing over the past years, as shown in Table 2-2. Not only has the number of accidents increased, but the number of injuries has also increased substantially, with annual growth rates of 20 percent per year on Route 24 and 10 percent on Route 140. In contrast, there has been a decrease in the number of accidents on Route 79, but little change in the number of injuries.

Table 2-2 Accidents on Primary Study Area Highways

Route	2003	2004	2005	Annual Percent Change
Accidents				
Route 24	876	1053	1259	19.9%
Route 140	327	395	390	9.2%
Route 79	155	140	121	-11.7%
Total	1,358	1,588	1,770	14.2%
Injuries				
Route 24	416	519	599	20.0%
Route 140	150	207	183	10.5%
Route 79	46	57	45	-1.1%
Total	612	783	827	16.3%
Fatalities				
Route 24	11	8	9	-9.6%
Route 140	4	4	4	0.0%
Route 79	1	2	0	N/A
Total	16	14	13	-9.9%

Massachusetts Highway Department, Accident Database, 2006.

Projected future growth in traffic volume on the principal South Coast area roadways cannot be sustained by the current regional transportation system. Recurrent traffic congestion is becoming a more significant problem for the region, as is the increasing frequency of traffic accidents (Table 2-2). Not only has the number of accidents increased, but also the number of injuries has increased substantially with annual growth rates of 20 percent per year on Route 24 and 10.5 percent on Route 140.

Although increasing the capacity of the region's highways might improve safety, highway capacity expansions are not in line with national and local transportation policy and physical expansion of the highway links is likely to be infeasible. As noted in Section 2.10, widening the southern portion of Route 24 is being considered (but is not currently part of the Transportation Improvement Program), and there are no plans to widen the northern section of Route 24.

2.5 Air Quality and Climate Change

Motor vehicles are the predominant sources of ozone precursor emissions within the South Coast area, which has been designated as a severe non-attainment area for ozone by the EPA.[3] Ozone at the earth's surface is a health concern, as high concentrations can harm lung function. Motor vehicles are the predominant sources of ozone precursor emissions within the South Coast area. Automobiles also emit carbon monoxide through the partial combustion of carbon-containing compounds in gasoline.

Reducing greenhouse gas emissions is a priority for the Commonwealth. State agencies, particularly DEP, are working to cut greenhouse gas emissions from motor vehicles and fuels through several initiatives, including efforts to promote transit-oriented development.

As documented in previous sections, the highways serving the South Coast region convey high volumes of automobile traffic, and have high levels of congestion (which increases vehicle emissions). There are currently no alternatives for South Coast commuters that would reduce the emissions of greenhouse gases. A shift in travel from automobiles to rail could reduce vehicle emissions and improve regional air quality.

3 A non-attainment area is defined by the EPA as an area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants designated in the Clean Air Act.

2.6 Inadequate Regional Transit System Capacity

Transit services within the South Coast area include bus and demand-response services operated by regional transit authorities and private carriers. Park-and-ride facilities and carpool/vanpool services are offered along the primary travel corridors in the South Coast area. Outside of the South Coast area, the MBTA operates commuter rail service.

2.6.1 Bus and Demand-responsive Services

Two public transit authorities provide local bus service in the South Coast area, including some feeder service to commuter rail stations:

- The Greater Attleboro Taunton Regional Transit Authority provides local fixed-route bus service in the Attleboro/Taunton area and demand-response transportation in the South Coast area communities of Berkley, Dighton, Lakeville, Norton, Raynham, and Taunton. The Greater Attleboro Taunton Regional Transit Authority operates 14 fixed routes and two intercity routes with service Monday through Friday from 6:00 AM to 6:30 PM and Saturday from 9:00 AM to 5:00 PM. Seven routes serve the city of Attleboro, six routes serve Taunton, and one connects Attleboro and Pawtucket, Rhode Island. One of the intercity routes connects Taunton and Attleboro via Norton, and the other connects Taunton and Providence, Rhode Island. There is also a shuttle service in downtown Middleborough and a connector route from Mansfield to Norton.

- The Southeastern Regional Transportation Authority serves the communities of Fall River, New Bedford, and Somerset with fixed-route and demand-response service. The Southeastern Regional Transportation Authority offers ten routes in the New Bedford area, eleven routes in the Fall River area, and one route between New Bedford and Fall River. The weekday service spans from 5:30 AM to 6:30 PM in New Bedford and 6:00 AM to 6:00 PM in Fall River. Saturday service runs from 7:00 AM to 6:00 PM in New Bedford and 6:30 AM to 6:00 PM in Fall River.

Four private carriers currently provide service from the South Coast area to South Station in Boston:

- H&L Bloom provides service from Taunton and Raynham to Boston via Route 138 and Route 24. Service is offered on 30-minute headways during the peak periods and 120-minute headways during off-peak hours. The scheduled travel time is 70 to 75 minutes during peak periods and 60 to 75 minutes during off-peak periods. Bus stops are located at the Bloom Terminal in downtown Taunton and the Raynham-Taunton Greyhound Park Park-and-Ride in Raynham. The buses also will make unscheduled stops on request at several designated locations along Route 138 between the Bloom Terminal and the Raynham Park-and-Ride lot. On weekdays, H&L Bloom also provides one morning and one evening trip each way between Taunton and Fall River.

- Peter Pan Bonanza provides service from Fall River to Boston via Route 24. During the morning peak period, three buses are scheduled to operate from Fall River to Boston, departing at 6:10 AM, 6:40 AM, and 8:40 AM. In the evening, three buses are scheduled to leave Boston between 4:30 PM and 6:30 PM on 60-minute headways. The scheduled peak period travel time is 60 to 75 minutes. During off-peak periods, the scheduled travel time is 60 minutes. The only bus stop on the route is the Southeastern Regional Transportation Authority terminal in downtown Fall River.

- DATTCO provides service from Fairhaven, New Bedford, and East Taunton to Boston via Route 140 and Route 24. Trips depart on 25 to 35 minute headways during the peak periods and every two hours during off-peak times. The scheduled peak period travel time is 95 minutes from New Bedford and 65 minutes from East Taunton. Bus stops are located at the DATTCO garage in Fairhaven, the Southeastern Regional Transportation Authority terminal in downtown New Bedford, the Mount Pleasant Street Park-and-Ride lot in New Bedford, and the Silver City Galleria Park-and-Ride lot in East Taunton.

- Interstate Coach provides service from Middleborough servicing Easton and Stoughton via Route 138 and Route 24.

All four services terminate at South Station in Boston. None of the private carriers offer service to the Back Bay area. Round trip fares range from $18 for Taunton, $27 for Fall River and $23 for New Bedford. Multi-ride tickets are available at a lower cost per trip.

2.6.2 Carpools and Vanpools

CARAVAN for Commuters, Inc. is a private non-profit corporation providing vanpool organizational and management services. Caravan has established vanpools in all communities of the South Coast area. As with buses, vanpool and carpool travel times are severely impacted by slow travel speeds on the expressway and secondary roads.

2.6.3 Existing Park-and-Ride Facilities

Currently, there are nine park-and-ride lots located in the South Coast area. Five facilities are located along the primary access routes from the region to the Boston metropolitan area. The locations of these five park-and-rides, the service provided, and usage is summarized below. There are no data on the destinations of commuters who use these facilities.

- The park-and-ride facility in New Bedford is located on Mount Pleasant Street at Exit 4 from Route 140. This lot provides 202 free parking spaces for commuters. Utilization of this lot has been fairly steady from 1996 to 2006, increasing slightly from 79 percent to 81 percent. Carpool, vanpool, and bus patrons use this lot. DATTCO provides bus service to this facility.

- A park-and-ride lot is located adjacent to Route 24 at Exit 10 (Gramp Deane Road) in Freetown. There are 32 parking spaces provided at no charge. Utilization of this facility increased from 27 percent in 1996 to 88 percent in 2006. Carpool and vanpool patrons use this facility. No bus service is provided.

- In Raynham, a park-and-ride lot is located on Route 138 at the Raynham-Taunton Greyhound Park. The facility is located within the track's customer parking field. There are no specific spaces identified for park-and-ride patrons, but Southeastern Regional Planning and Economic Development District (SRPEDD) estimates capacity at 150 spaces. Utilization was 16 percent in 2006, down from 41 percent in 1996. Carpool, vanpool, and bus patrons use this lot. H&L Bloom provides bus service to this facility.

- A second park-and-ride lot is located in Raynham at the intersection of Route 138 and Carver Street. Use of the 80 free spaces available increased from 20 percent to 29 percent between 1996 and 2006.

- Park-and-ride space is designated at the Silver City Galleria Mall near Exit 11 on Route 140 in Taunton. This lot contains 187 spaces, with utilization increasing from 34 percent to 82 percent between 1996 and 2006. This lot is serviced by DATTCO and the Greater Attleboro Taunton Regional Transit Authority.

In addition to these five lots, there are four park-and-ride facilities located in the South Coast area but not in the immediate vicinity of the primary access routes to Boston. The locations of the four park-and-rides, the service provided, the daily fees, and usage are summarized below:

- The Somerset park-and-ride facility is located at the intersection of Routes 6 and 138. The facility is located within a larger parking lot at a shopping mall. There are currently 80 spaces designated for commuter parking. Between 1996 and 2006, utilization rates at this site decreased from 98 percent to 79 percent. The lot is used only by carpool and vanpool patrons. There is no charge for parking.

- A second park-and-ride lot is located in Somerset on Route 103 at the I-195 Exit 4 interchange. This lot primarily serves commuters to the Providence area. Usage at the lot increased between 1996 and 2006, rising from 54 percent to 103 percent. There is no charge for parking at the 67 spaces provided.

- The Mattapoisett park-and-ride facility is located on Route 6 near I-195 Exit 19. This lot provides 80 free spaces, with utilization increasing from nine percent to 20 percent between 1996 and 2006.

- The Westport park-and-ride lot provides free parking for 20 vehicles at the intersection of Route 88 and Briggs Road. Use of this lot decreased from 45 percent to zero percent between 1996 and 2006.

Several park-and-ride lots are outside the South Coast area, but still along the Route 24 access corridor to Boston:

- The West Bridgewater park-and-ride lot is located at the Route 24 interchange with Route 106 (Exit 16). The lot contains free parking for 140 cars. Average utilization of this lot is near 100 percent. Vanpool, carpool, and bus patrons use this facility. H&L Bloom and Interstate Coach stop at this park-and-ride lot.

- A second West Bridgewater park-and-ride lot is located on Route 106 in Elm Square, approximately three miles east of Route 24 and the Exit 16 interchange. Approximately 65 spaces are available in this unpaved lot at no charge. Average daily usage is very light, under 10 percent. The Elm Square lot is used primarily as an overflow lot for the Exit 16 lot. It is used by vanpool and

carpool patrons.

- The Bridgewater park-and-ride lot is located on Route 104 at the Route 24 Exit 15 interchange. The lot currently provides 60 free spaces. The utilization rate at this location is about 77 percent. Interstate Coach provides bus service to this facility. Vanpools and carpools also use the lot.

There are also three private park-and-ride lots in the South Coast area:

- A private park-and-ride lot is operated by DATTCO in Fairhaven. The capacity of this lot is 80 vehicles. There is a $1 charge, and the lot is restricted to DATTCO customers. In 2006, utilization was 12 spaces or 15 percent.

- A private park-and-ride lot is operated by H&L Bloom at the company's Taunton Terminal. It contains 160 spaces with a 2006 utilization rate of 44 percent.

- Peter Pan Bonanza operates a private park-and-ride lot in Fall River. There is an hourly fee for parking.

2.6.4 Commuter Rail Service

No commuter rail service is offered within the South Coast area. Although commuter rail service is offered outside of the South Coast area by the MBTA (Figure 2-2), this service is difficult for residents to access and is at or over capacity under existing conditions.

The Attleboro/Providence Line has stations in Providence, Attleboro, Mansfield, and Sharon. The Stoughton Line has a station in Stoughton and the Middleborough Line has stations in Brockton, Bridgewater, and Middleborough/Lakeville. Several communities located on the fringes of the South Coast area, including Easton, Raynham, Norton, and Lakeville, are near existing commuter rail stations.

Communities in the heart of the South Coast area, however, are outside a six-mile access radius of these stations, and some are more than 20 miles from the nearest commuter rail station.[4] Commuter rail is currently not a practical alternative for most South Coast area residents traveling to Boston, especially from the communities of Taunton, Berkley, Freetown, Fall River, and New Bedford, due to distance from the nearest station. The proximity of commuter rail service to the population centroid of each South Coast area community is shown in Table 2-3.

4 According to CTPS, most commuters live within a 6- to 8-mile radius of a commuter rail station. This distance is generally used for estimating ridership.

Table 2-3 Proximity of South Coast Communities to Commuter Rail Service

Community	Closest Station	Proximity[1] (mile)
Acushnet	Middleborough/Lakeville	15.7
Attleboro	Attleboro	0.0
Berkley	Middleborough/Lakeville	10.7
Bridgewater	Bridgewater	0.7
Canton	Canton Center	0.0
Dartmouth	Middleborough/Lakeville	20.9
Dighton	Middleborough/Lakeville	13.7
Easton	Stoughton	5.1
Fairhaven	Middleborough/Lakeville	22.5
Fall River	Middleborough/Lakeville	19.6
Foxborough	Mansfield	3.4
Freetown	Middleborough/Lakeville	10.8
Lakeville	Middleborough/Lakeville	3.3
Mansfield	Mansfield	0.0
Marion	Middleborough/Lakeville	19.8
Mattapoisett	Middleborough/Lakeville	19.4
Middleborough	Middleborough/Lakeville	1.5
New Bedford	Middleborough/Lakeville	20.8
North Attleborough	Attleboro	4.8
Norton	Mansfield	5.7
Raynham	Bridgewater	7.5
Rehoboth	Attleboro	8.8
Rochester	Middleborough/Lakeville	13.7
Seekonk	Providence	7.5
Sharon	Sharon	0.3
Somerset	Providence	19.4
Stoughton	Stoughton	0.0
Swansea	Providence	15.5
Taunton	Middleborough/Lakeville	9.7
Wareham	Middleborough/Lakeville	15.8
Westport	Middleborough/Lakeville	28.3

Source: Google Maps
1 Proximity measured to population centroid

While residents from Lakeville are able to use commuter rail to commute to Boston, system capacity is limited due to the lack of adequate parking. Commuter rail parking lots in Attleboro, Mansfield, Stoughton, and on the Middleborough Line are either unable or will not be able to handle any more growth, and communities are reluctant to increase parking lot capacity. In addition, some peak hour trains experience heavy passenger loads. Therefore, the existing commuter rail service, although within reach of some communities in the South Coast area, will not be sufficient to handle the anticipated growth in ridership. Parking utilization rates for the Providence, Stoughton, and Middleborough Lines and ridership are provided in Tables 2-4 and 2-5.

Table 2-4 Ridership on Providence, Stoughton and Middleborough Lines

Line	AM Peak Passengers	AM Peak Seating Capacity	AM Peak Utilization*
Providence	11,017	8,532	129%
Stoughton	2,771	3,558	78%
Middleborough	3,743	3,696	101%

Sources: MBCR Ride Check December 2006, MBTA South Side Equipment Schedule

* Assumes all passengers continue to South Station, Stoughton, Providence/Stoughton and Middleborough/Lakeville Lines.

Table 2-5 Parking Utilization at Providence, Stoughton and Middleborough Lines Stations

Station	Occupied Spaces	Total Spaces	Utilization
Providence Line+			
Providence	N/A	330	N/A
South Attleboro	918	992	93%
Attleboro	756	770	98%
Mansfield	812	805	101%
*Stoughton Line**			
Stoughton	350	441	79%
*Middleborough Line**			
Middleborough/Lakeville	595	852	70%
Bridgewater	430	500	86%

\+ MBTA, 2000

* OCPC 2004

Currently, there are limited regional transit services provided in the South Coast area and they provide inadequate links between centers of activity in the region; specifically, between Taunton, Fall River, New Bedford, and Boston. The only regional transit services currently provided in the South Coast area are private express bus services to South Station in Boston and local bus services operated by the Greater Attleboro Taunton Regional Transit Authority and the Southeastern Regional Transit Authority. The private express bus service is subject to the same congestion and safety problems on the highway system as other vehicles. The local bus routes provide services only within (not between) the three urban areas of New Bedford, Fall River, and Taunton.

Commuter rail service currently does not extend into the South Coast area, making access to commuter rail difficult for area residents. The Middleborough Line serves areas east of the South Coast region and southeast of Boston, with stations in Lakeville and Bridgewater, while the Attleboro/Providence and Stoughton lines serve communities to the north and west of the South Coast region. The Attleboro and Mansfield stations are the primary access points on the Attleboro/ Providence Line. The Stoughton Station serves as the primary access point on the Stoughton Line. The major population centers of the communities in the southern half of the South Coast area are as much as 25 miles from existing commuter rail stations, with access over local secondary roads. Parking lots at most existing stations are regularly filled to capacity on weekdays prior to 7 AM, which also limits access to rail service.

2.6.5 Freight Rail Service

Freight railroad service in the South Coast area is provided by CSX and Mass Coastal. Regular freight service is provided on the New Bedford Secondary, the Fall River Secondary, and the Middleborough Secondary, which connect to the Northeast Corridor via the Attleboro Secondary. CSX also operates freight service on the existing Stoughton Line between Canton and Stoughton. Mass Coastal serves customers on the southern portion of the old Stoughton Line between Weir Junction and Winter Street in Taunton, on the Dartmouth Secondary, and on the Buzzards Bay Secondary. Mass Coastal connects with CSX to move freight in and out of the region. Freight service operated on commuter rail lines constrains the potential movement and operations of commuter rail.

2.7 Access to Opportunity

Poor or limited transportation opportunities also constrain access by South Coast area residents to important Boston destinations, including education opportunities provided by numerous private and public colleges and universities, the highest concentration of medical facilities and specialties in the Commonwealth, cultural facilities, and sporting events. Existing highway congestion, extended travel times, and limited (and often expensive) parking affect the ability of many area residents to access these destinations.

The City of Boston continues to provide substantial employment opportunities at all levels, and also contains a substantial employment labor force. Many of the South Coast area communities, particularly in the towns of Easton, Raynham and Taunton, have a substantial work orientation to Boston. Access between South Coast area communities and downtown Boston is constrained by the limited, overtaxed highway system and the lack of alternative transit modes. The ability to park in Boston is constrained by the limited space available to provide parking, high demand for parking resulting from new development, the high cost of parking, and the metropolitan area parking freeze. Residents of South Coast area communities would benefit substantially from improved employment access and reduced cost of commuting and parking.

2.8 Mode Choice and Connectivity

Travel options within the region and to the metropolitan Boston area are currently limited to the automobile and limited bus service, as the infrastructure of the region consists only of highways. The proposed Project, which is consistent with the current transportation policy both at the federal and state levels, would introduce a fixed-guideway transit option to a region currently under-served by all modes of transit. Introduction of commuter rail service would increase mode choice for area residents and offer a new mode option to travelers to the region. The proposed Project would also increase opportunities for multimodal connections by creating a major intermodal transportation center in New Bedford that provides commuter rail, freight, bus, and waterfront trolley connections with links to the water terminal for ferry and water taxi services.

2.9 Smart Growth

The South Coast Region also has identified economic development and environmental preservation as two key needs that are related to transportation. Southeastern Massachusetts has been the fastest growing region in the Commonwealth for many years both in terms of population and housing units. At the same time, population and housing growth has been inequitably distributed, and the historic cities of Fall River and New Bedford are experiencing a decline in population. The South Coast has also been characterized by exurban sprawl, the decline of gateway cities, and the consumption of natural areas at a rate that far exceeds the population growth rate. This type of uncontrolled growth results in the loss of farms, fields and forests and damages the character of the historic villages and cities within the region.

At the same time, growth is needed. The poor connectivity to the metropolitan Boston area may constrain economic activity in the urban areas of New Bedford and Fall River. These two cities currently have higher unemployment rates than the state average. In 2006, the New Bedford metropolitan area had an unemployment rate of 8.2 percent, while Fall River had an unemployment rate of 8.6 percent. The state average is 5.0 percent.[5]

Improved access to employment markets in Boston would provide employment opportunities for the New Bedford and Fall River labor force that would provide economic benefits for these communities. Commuter rail service could also allow limited "reverse commutes" from area communities like Taunton to New Bedford and Fall River, which would thereby gain access to a larger labor pool within the Southeastern Massachusetts region. Economic benefits are predicted based on data from other regions, which demonstrates that the introduction of commuter rail into previously unserved areas typically has a significant positive impact on residential property values.

Improved transportation access via commuter rail would likely increase attendance at tourism attractions proposed in the New Bedford – Fairhaven Master Plan. It would also alleviate some of the parking constraints at these attractions.[6] The New Bedford Harbor Master Plan provides a comprehensive plan for redevelopment and revitalization of the harbor area, which has recently been designated as the New Bedford Whaling National Historic Park. Attractions at this park, which include the Department of Conservation and Recreation's Schooner Ernestina, the proposed New Bedford Oceanarium, festivals, tours, and a new waterfront visitor destination at the

5 Massachusetts Executive Office of Labor and Workforce Development website. viewed December 2007.
6 RKG Associates, 1999. Task 2 Research Findings: Existing Conditions Analysis. New Bedford Harbor Today.

State Pier, are estimated to attract an additional 120,000 visitors a year and generate $4 Million in gross revenues. The annual waterfront Summerfest currently attracts 100,000 people.[7]

The scale and geographic reach of the South Coast Rail project offer an unprecedented opportunity to generate new economic development and to shape this growth so that the project helps preserve environmental resources. By partnering with municipalities to jointly plan the transportation project along with local land-use, the project can help cluster people and jobs near train stations, opening up new economic development opportunities, while directing growth away from natural areas. This approach curbs sprawl.

2.10 Planning and Policy Context

Public transportation policy has evolved over the past decades as society has become more aware of the consequences of increased traffic congestion. This awareness has resulted in significant changes in transportation policy and the types of solutions proposed to address transportation needs. The interstate highway program was the driving force in transportation policy from the 1950s through the 1980s. This system of limited access highways greatly increased the nation's mobility and allowed people to live further from their jobs located in the urban core. It also encouraged businesses to locate outside the urban core away from much of the public transit system's infrastructure and services.

Several events over the past 35 years on both the federal and state levels helped to shape the current transportation system and the transportation policies of the Commonwealth. The first of these events occurred during the 1970s. On a national level, the gasoline crisis of 1973 and stronger opposition to new highway projects led to an evolution in transportation policy. The focus of public policy began to shift from the single occupant vehicle toward obtaining the greatest efficiency from the existing transportation infrastructure and providing a balanced transportation system.

In early 1970, Massachusetts Governor Francis Sargent signed legislation that removed the construction of the I-95 Southwest Expressway and the Inner Beltway from the state's transportation program. This legislation particularly impacted the Southeastern Massachusetts region as it removed the final link of I-95 between Route 128 in Canton and downtown Boston. This left commuters in the region with limited highway access choices to the metropolitan job core.

7 *FXM Associates, New Bedford/Fairhaven Harbor Master Plan. Technical Memorandum: Expanded Economic Analysis*. 1999.

The next significant change in transportation policy was the passage of the Clean Air Act Amendments in 1990. The Clean Air Act Amendments established stringent requirements for attaining and maintaining national air quality standards. One approach to achieving these air quality goals is to reduce the number of vehicle miles traveled on the nation's roadways. Providing and promoting alternate travel modes are one way to achieve the vehicle miles traveled reduction goal.

The final major policy change was reflected in the Intermodal Surface Transportation Efficiency Act enacted in 1991 and subsequently, the Transportation Equity Act for the 21st Century enacted in 1998. This federal legislation established a national goal of a balanced intermodal transportation system. For the first time, the policy component of the federal transportation funding legislation considered the interaction of the various modes. It encouraged solutions that made intermodal transfers easier and more convenient and attractive to the consumer. The act required coordinated transportation planning between the regions and the state, and mandated that transportation improvements be consistent with and contribute to attaining and maintaining national air quality standards. The Transportation Equity Act for the 21st Century continues many of the integrated goals established under Intermodal Surface Transportation Efficiency Act and provides higher funding levels for transit projects. Although federal funding is not being sought for the South Coast Commuter Rail Extension, these goals are shared by the Commonwealth and establish the basis of its transportation policy.

2.10.1 Anticipated Investment in Transportation Facilities and Services

Each metropolitan area in the Commonwealth must prepare a Long Range Transportation Plan and a Transportation Improvement Program for their region. These two documents define the programmed transportation improvements to be implemented for that specific metropolitan area. The transportation policy and plan developments of three MPOs impact the South Coast area. The three MPOs are:

- SRPEDD represents the Taunton, New Bedford and Fall River metropolitan areas;
- The Old Colony Planning Council (OCPC) represents the Brockton metropolitan area; and
- The Metropolitan Area Planning Council (MAPC) is the regional planning agency for the Boston metropolitan area. The Boston Metropolitan Planning Organization is the regional MPO.

Two of the regions, SRPEDD and OCPC, represent South Coast communities. The third region, MAPC, represents communities along the primary transportation access routes from the South Coast communities.

The following is a summary of transportation system changes that have occurred or are programmed to occur within the South Coast area by these three MPOs. In addition, changes to the primary access routes to the Boston metropolitan area are included.

New Bedford/Fall River Region (SRPEDD)

A number of small and medium sized transportation improvement projects are programmed for the SRPEDD region; however, major transportation improvement projects that would increase peak period capacity on the region's major highways are not included. Projects included in SRPEDD's Transportation Improvement Plan and Long Range Transportation Plan that affect the South Coast communities and/or the primary access routes to the Boston metropolitan area include:

- Corridor improvements to Route 18 in New Bedford.
- Reconstruct Route 24/Route 140 interchange in Taunton.
- Relocate Route 79 in Lakeville.
- Reconstruct Route 79 in Fall River.
- New interchange on Route 24 in Fall River and Freetown.
- Expand parking at South Attleboro and Mansfield commuter rail stations.
- Study Route 24 between Route 140 and I-495 (corridor and interchange improvements).
- Reconstruct Route 140 and Route 6 in New Bedford.
- Study the cost to convert Route 24 to interstate highway design standards (completed in 2003).

Brockton Region (OCPC)

Several small and medium sized transportation improvement projects are programmed for the OCPC region, but none are major transportation improvement projects that would increase peak period capacity on the region's major highways. Projects included in OCPC's TIP and LRTP that impact the South Coast communities and/or the primary access routes to the Boston metropolitan area include:

- Developing a comprehensive Route 24 major investment study as described under SRPEDD.
- Studying creating HOV lanes on highways to Boston.
- Studying to provide additional parking capacity at the Stoughton Commuter Rail Station.

Boston Region (MAPC)

Although no South Coast communities fall within the Boston region, the primary corridor from the South Coast – Route 24 to I-93/Route 128 to I-93/Route 3 – is included in the region. Planned and programmed improvements to the highway, commuter rail, and transit systems within the Boston region that could impact access from the South Coast area include:

- Modifications to the Route 128/Route 24 Interchange.
- Providing additional parking capacity at the Quincy Adams Red Line station located at the junction of I-93/Route 128 and I-93/Route 3 in Quincy.
- Reconstructing Columbia Junction on the Red Line.
- Studying extending commuter rail service along the Middleborough Line to Wareham.

2.10.2 Transportation Goals and Objectives

The South Coast Rail Study is part of a comprehensive effort to achieve a series of broad study area transportation and development goals, as well as specific objectives for improving the quality of transportation services and the equity of the distribution of services within the South Coast area. These goals and objectives have been developed as part of both broad-based policies and specific regional documents. The following two sections summarize the relevant studies and policies and their applicability to this Project.

Statewide Policy Documents and Studies

A number of important studies, reports, and policy statements have helped to document the development of transportation policy in eastern Massachusetts. Among these are:

- The MBTA's Program for Mass Transportation. The Program for Mass Transportation is the mass transit plan for the Boston region and was updated in 1978, 1994, and 2003. The objective of the Program for Mass Transportation is to identify and recommend projects that will result in a cost-effective transit system that serves the greatest number of people in a way that respects the environment and enhances responsible economic development. The 2003 update identified mass transit needs through the year 2030 that would require capital expenditures. Commuter rail service to New Bedford and Fall River was included as a transit project in the 1994 and 2003 updates of the Program for Mass Transportation.[8]
- The Boston Transportation Planning Review (1970-1973) re-examined the highway construction program in the Boston area following Governor Sargent's cancellation of the I-95 Southwest Expressway and Inner Beltway highway projects in 1970. The results of the Boston Transportation Planning Review established a new transportation strategy with a strong emphasis on transit as a means to provide additional transportation capacity into Boston. This document helped define the Central Artery Project as well as the highway system that connects the Boston core with Southeastern Massachusetts.
- Toward a New Growth Policy for Massachusetts (1977), a state cabinet-level report, documented the need to maintain downtown Boston as a strong and healthy economic and employment core for the eastern Massachusetts region, and encouraged redevelopment of the older urban areas across the state. This document is related to the South Coast communities in two ways. First, it encourages redevelopment of older urban areas across the state. Both New Bedford and Fall River are older urban areas seeking economic development opportunities. The two cities are designated as both federal and state economic target zones. Second, the Southeastern Massachusetts area provides affordable housing opportunities for professionals working in the metropolitan Boston area.
- South Coast Rail Plan for Action (2007) identified the South Coast of Massachusetts as one of the fastest growing regions in the state, and stated that restoration of passenger rail service could be a catalyst for economic development and job growth in the region. The plan also stated that the Project would reach under-served populations and promote smart growth.

8 *Commuting Into a New Century:* The New Program for Mass Transportation, Executive Office of Transportation and Construction, March 1, 1994.

Goals and Objectives for Each Metropolitan Planning Region

Regional transportation goals provide the basis for evaluating options for improvement of transportation services and facilities in the South Coast area. They support improvements to transportation services, increase mobility, provide transit services that are cost effective, and provide a more equitable distribution of transportation benefits. The objectives have been utilized, in part, for evaluating the alternatives described in this document. These locally adopted goals and objectives support the broad, long-term study area development and transportation strategy.

New Bedford/Fall River/Taunton Region

The SRPEDD has adopted a multi-level set of transportation goals and objectives in the region's 2007 Regional Transportation Plan.[9] This planning document includes eight goals and objectives in support of the region's overall goal of developing and maintaining an effective, safe, and accessible transportation system that promotes sustainable economic development and preserves the region's quality of life. Those relevant to the Purpose and Need of this Project include:

- Support the economic vitality of the metropolitan area, especially enabling global competitiveness, productivity, and efficiency.
- Increase the accessibility and mobility options available to all people and freight.
- Protect and enhance the environment, promote energy conservation, and improve quality of life.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and for freight.
- Emphasize preservation of the existing transportation system.

The plan specifically states that continued support for extending commuter rail service to Taunton, Fall River, and New Bedford helps achieve these goals.

Brockton Region

The OCPC has adopted a multi-level set of transportation goals and objectives in the region's 2007 Regional Transportation Plan.[10] This planning document includes 14 goals and objectives in support of community vision.

9 *2007 Regional Transportation Plan*, Southeastern Regional Planning and Economic Development District, 2007.
10 *2007 Regional Transportation Plan*, Old Colony Planning Council, March 31, 2007.

Those relevant to the Purpose and Need of this Project include:

- Provide an aesthetic transportation system that supports the economic vitality of the region and enables global competitiveness, productivity, and efficiency.
- Increase the accessibility and mobility options available to all people and freight.
- Promote a transportation system that protects and enhances the environment, conserves scenery, and improves quality of life in the region.
- Enhance the integration and connectivity of the transportation system, across and between a well-balanced network of modes, for people and freight.
- Emphasize preservation and modernization of the existing transportation system.
- Support smart growth principles and provide a transportation system that is regionally coordinated and based on effective transportation and land use planning.

Boston Region

The MAPC adopted eight visions and corresponding policies in their 2007 Regional Transportation Plan.[11] These goals and policies are based on a vision for the region that emphasizes the maintenance, management, and operation of a multimodal transportation system that provides a high degree of mobility for all people. The visions of the Boston area's transportation program relevant to the Purpose and Need of this Project include:

- Emphasize preservation, modernization, and efficiency of the existing transportation system.
- Provide a coordinated mix of transportation modes and services to give users increased opportunities for convenient, reliable, speedy, affordable, and accessible travel.
- Reduce air quality degradation and other environmental degradations caused by transportation.
- Ensure that low-income and minority residents share equally in access to the transportation network and its mobility benefits.
- Integrate transportation planning with land-use and economic-development planning, and use transportation rights-of-way to maximize public benefits.

11 *2007 Transportation Plan of the Boston Region Metropolitan Planning Organization*, Boston Metropolitan Planning Organization, 2007.

2.11 Other Regional Transportation Projects

The communities, regional planning agencies, and state transportation agencies are pursuing a number of transportation and development projects within the study area. The key features of these undertakings are described below and shown in Figure 2-3. As the information provided in this section demonstrates, the projects currently included in regional transportation planning will not meet the transportation needs of the region, identified in the previous sections.

Projects included in the Transportation Improvement Plans are projects under design for which funding has been allocated (Table 2-6). The projects below are listed in the Transportation Improvement Plan for the Boston MAPC, OCPC, and SRPEDD. Only projects of significance to South Coast Rail are included. Other projects under consideration, but not currently funded, are listed in Table 2-7.

Table 2-6 Projects Funded in Regional Transportation Improvement Plans

Project	Year Programmed
Reconstruct Route 106 Underpass, Mansfield	2008
Replace Brightman Street Bridge, Fall River/Somerset	2008-2011
Replace Southeastern Regional Transportation Authority Terminal, Fall River	2008
Attleboro Intermodal Center, Engineering and Construction	2008-2009
Route 128 Add-A-Lane Project, Randoph-Wellesley	2008-2011
Relocate Route 79, Lakeville	2009
Reconstruct Route 18, New Bedford	2009
Wareham Intermodal Center, Wareham	2009-2011
Reconstruct Columbia Junction, Red Line	2009-2011
New Route 24 Interchange, Fall River/Freetown, Design and Study	2010
Relocate Route 6 Bridge, Acushnet River New Bedford/Fairhaven, Feasibility Study, Design and Environmental Study	2010
Multi-Modal Center Improvements and Facilities, New Bedford	2010
Southeastern Massachusetts Freight Rail Corridor Improvements	2010
MBTA/GATRA Improvements, South Attleboro/Attleboro/Mansfield	2010
New Route 24 Interchange, Fall River/Freetown, Construction	2011
Freight Rail Improvements, New Bedford	2011

Table 2-7 Projects Not Yet Funded or Approved

Project	Notes
Reconstruct Route 24-Route 140 Interchange, Taunton	FY 2006 "earmark"
Relocate Route 79, Fall River	FY 2003-2006
Construct Attleboro Intermodal Center ($200M)	TIP Future Element
Reconstruct Route 24 to Interstate Standards, Fall River – Raynham ($84M)	TIP Future Element
Widen Route 24 between Route 140 and I-495 ($50M)	TIP Future Element
Reconstruct Route 24 – Route 140 Interchange ($50M)	TIP Future Element

2.11.1 Route 24 Corridor Study

Over the last decade, there has been considerable interest in improving Route 24 to meet modern interstate safety and geometric standards, in order that the highway might receive an interstate number. In 2003, SRPEDD produced a Special Report on Route 24, summarizing studies on this and other initiatives along the Route 24 Corridor.

The study recommends upgrading Route 24 to an interstate by increasing bridge clearances, widening shoulders, and lengthening substandard acceleration and deceleration lanes. To distribute the cost, the work is proposed to occur over a twelve-year period. The study also recommends for reconstructing substandard interchange ramps, constructing an additional travel lane between I-495 and Route 140, and studying the need for an additional travel lane between Route 140 and Airport Road in New Bedford.

To date, these proposals have not advanced beyond the study level, and no funds for improvements to Route 24 have been allocated. Other initiatives discussed in the report have advanced, and are discussed in more detail in sections below.

2.11.2 Route 24 – Route 140 Interchange

Although Route 140 is a limited-access facility south of Route 24, which is limited-access throughout, the interchange between the two in Taunton is a simple partial cloverleaf interchange, with ramps in the northeast and southwest quadrants (traffic exiting Route 24 on the inner loop) and an additional slip ramp from Route 24 north to Route 140 south. Major traffic movements between the two limited-access

roadways are not directly subject to delays at the ramp intersections, but regular congestion occurs due to the tight geometry, substandard acceleration and deceleration lanes, and proximity of at-grade intersections. It is not unusual for traffic to back up onto Route 24 at the southbound exit.

Long-range SRPEDD plans have recommended that this interchange be reconstructed into a more standard freeway to freeway interchange. Short-term improvements, including extending acceleration and deceleration lanes, were recently completed. Long-term improvements have been moved through the Functional Design Report stage, but no preferred alternative has been selected. Congress has earmarked funds for this Project.

2.11.3 Route 24 – Route 128/I-93 Interchange

A major source of congestion on the primary access route from the South Coast region to the Boston metropolitan area is the interchange of Route 24 and Route 128/I-93 in Randolph. Problems include a center lane merges on Route 24 south and Route 128 south/I-93 north, a two-lane merge into the high speed lane on Route 128 north/I-93 south, a left exit on Route 128 north/I-93 south, and short weaving distances to the exits on Route 128/I-93.

Central Transportation Planning Staff (CTPS) has recently completed a study evaluating a range of potential improvements to the interchange. These options include reconstructing the direct ramps as semi-direct ramps to eliminate left exits and merges, auxiliary lanes to eliminate center lane merges, and modifying Exit 3 (Ponkapoag Trail) and Exit 5 (Route 28) on Route 128/I-93 to ease congestion caused by weaving movements. These proposals have not advanced beyond study, and no funds have been allocated.

2.11.4 Braintree Split Study

Another major source of congestion on the primary access route from the South Coast region to the Boston metropolitan area is the interchange of Route 128/I-93, Route 3, and the Southeast Expressway in Braintree. This interchange suffers many of the same problems as the Route 24 – Route 128/I-93 interchange, including left exits and merges, and short weaving distances to the next interchange on all approaches. The Southeast Expressway HOV lane begins/terminates just north of the interchange, resulting in heavy weaving for vehicles entering or exiting HOV lane. Problems further from the interchange, including the Route 24 – Route 128/I-93 interchange, the Granite Avenue and Neponset Circle interchanges on the Southeast Expressway, the Union Street and Route 18 interchanges on Route 3, and the lane drop on Route 3 also caused congestion.

CTPS has recently completed a study on this interchange, offering two potential packages of improvements, one to improve traffic safety only and one to improve traffic flow. The proposed traffic safety improvements include lengthening deceleration lanes, prohibiting some movements to eliminate the worst weaves, and relocating one on-ramp to increase weaving distance. The proposed traffic flow improvements include extending the HOV lane through the interchange, adding a fourth lane on Route 3 south, adding a fifth lane to Route 128/I-93 between the split and Route 24, and improving ramps at Exit 6 (Route 37) on Route 128/I-93. These proposals have not advanced beyond study, and no funds have been allocated.

2.11.5 Route 18 Reconstruction

Route 18 is a major, partially access-controlled, north-south arterial in New Bedford, connecting the city's core with I-195. However, it also effectively separates the urban core of the city from the waterfront. Between I-195 and Cove Street, a distance of 2.8 miles, there are only eight locations where pedestrians can cross the highway. Three of these are at pedestrian bridges, while several others are at busy intersections. The highway makes it especially difficult to access the central waterfront, including commercial and tourist destinations, such as New Bedford Whaling National Historic Park, the New Bedford Oceanarium, and State Pier.

As part of efforts to promote economic development downtown, plans have been developed to reconstruct Route 18 by Massachusetts Highway Department, especially near the urban core. The plan includes new "gateway" intersections, more at-grade intersections, and design elements to transform Route 18 from an expressway into an urban boulevard. Plans are currently at the 25% Review stage of the Massachusetts Highway Department design process.

2.11.6 New Bedford/Fairhaven Harbor Plan

In August 2002, New Bedford and Fairhaven partnered to develop the New Bedford/Fairhaven Harbor Master Plan, with assistance from the Coastal Zone Management Office at EOEEA. This plan includes a wide range of goals, reflecting the wide variety of harbor uses. New Bedford remains one of the country's most important seaports, especially for the fishing industry. The New Bedford waterfront includes many commercial and industrial enterprises dependent on a quality harbor for trade. The harbor is also important for transportation services, including ferry service to Vineyard Haven and Cuttyhunk. There are also proposals to expand service to Martha's Vineyard and introduce passenger and freight service to Nantucket.

The Harbor Plan proposes improvements to Fish Island, Popes Island, North Terminal, South Terminal, and a new terminal adjacent to North Terminal. It also recommends integrating transportation services at the new terminal, including bus, ferry, and future commuter rail. The plan also recommends relocating the Route 6 Bridge to the north between Popes Island and the New Bedford mainland. The existing bridge is a swinging truss that must open for large vessels to reach Popes Island, Fish Island, North Terminal, and points north. The aging span is a significant barrier to commercial and industrial development along the harbor to the north; mechanical failures on the bridge could cripple a venture dependent on access to ocean shipping. The proposed span would run north along Popes Island, and then cross the harbor at the proposed terminal north of North Terminal. This would directly connect Route 6 to the proposed intermodal transportation facility and would be consistent with plans to reconstruct Route 18 downtown by freeing up land at the Route 18/Route 6 interchange. Funds for study, design, and environmental review have been appropriated for 2010.

2.11.7 Route 24 – New Fall River/Freetown Interchange

Several parties have expressed interest in developing a new office, commercial, and industrial area near the border of Fall River and Freetown. This Project, known as Fall River Executive Park, would contain up to 9 million square feet of new development. Other developments in the area include Fall River Industrial Park, Riverside Business Park, and Campanelli Industrial Park. The vehicular traffic generated by these developments is expected to overload existing interchanges connecting local roads to Route 24.

A new interchange on Route 24 near the city line is required to support this development, and is supported by Fall River and SRPEDD. This interchange would connect with a new roadway, linking the proposed development and South Main Street. A Final Environmental Impact Report (FEIR) was submitted to EOEA in January 2008. The Secretary issued a Certificate for the Fall River Executive Park (EEA# 12902A) on February 15, 2008, which requested a Supplemental FEIR.

2.11.8 Route 79 Relocation – Fall River

Route 79 in Fall River is a major, limited-access, north-south arterial, connecting with I-195. It separates the urban core from the waterfront, in Fall River the Taunton River separates the city from commercial and industrial enterprises, and forms a pedestrian barrier to the waterfront and tourist attractions, such as Battleship Cove. Between Columbia Street and North Main Street, a distance of 2.8 miles, there are only five

locations where pedestrians can cross the highway. Several of these are underpasses, and another is at a very busy intersection.

In order to reconnect the city with the waterfront, Fall River has proposed to eliminate the Route 79 freeway south of the Brightman Street Bridge, and replace it with an at-grade urban boulevard. A study of potential impacts on adjacent neighborhoods and traffic began in early 2007.

2.11.9 Kings Highway Corridor Study

The Kings Highway – Tarkiln Hill Road corridor is a major arterial in New Bedford, and experiences considerable congestion due to nearby large retail development. As part of a 2005 study, SRPEDD recommended widening the corridor to five lanes, making traffic signal and intersection improvements, and reconstructing the Route 140 interchange. This Project has been designed, and the contractor was given notice to proceed in September 2007. Signal improvements at Mount Pleasant and Kings Highway began construction in summer 2007 and completion is expected in summer 2008.

2.11.10 Route 128 Add-a-Lane Project, Randolph to Wellesley

This Project consists of adding a fourth general purpose travel lane in each direction to Route 128 between Route 24 in Randolph and Route 9 in Wellesley. Construction is underway on several Project elements, but the Project is not expected to be complete for several years. This Project will have an indirect impact on access from the South Coast region to Boston, because changes to traffic patterns on Route 128 could affect traffic on Route 24 in the vicinity of the Route 24/Route 128 interchange.

2.12 Information Sources

Information in this document was obtained from the following sources:

- *United States Census*, 1990 and 2000
- *Journey-to-Work*, 1990 and 2000
- SRPEDD planning documents, reports, and studies
- OCPC planning documents, reports, and studies
- MAPC planning documents, reports, and studies
- CTPS planning documents, reports, and studies

- Executive Office of Labor and Workforce Development
- EOT
- Massachusetts Highway Department Accident Database
- Massachusetts Highway Department Traffic Volume Database
- Massachusetts Highway Department record right-of-way plans
- MBTA
- Southeastern Regional Transportation Authority
- Greater Attleboro Taunton Regional Transit Authority
- Brockton Area Transit Authority
- *New Bedford/Fall River Commuter Rail Extension Final Environmental Impact Report*, MBTA, 2002
- *New Bedford/Fall River Commuter Rail Extension Supplemental Draft Environmental Impact Report*, MBTA, 2000
- *New Bedford/Fall River Commuter Rail Extension Draft Environmental Impact Report*, MBTA, 1999
- *New Bedford/Fall River Commuter Rail Project Expanded Alternatives Analysis*, MBTA, 1997
- *New Bedford/Fall River Commuter Rail Project Environmental Notification Form*, MBTA, 1995
- *New Bedford/Fall River Commuter Rail Extension Feasibility Study*, MBTA, 1990
- *South Station Operations Analysis Report*, MBTA, 1999
- *Commuter Rail Infrastructure Needs Assessment*, MBTA, 2004
- Community master plans, housing plans, transportation plans, open space plans, and community development plans
- *New Bedford/Fairhaven Harbor Master Plan*, 2002
- MBTA and CSX existing track charts
- New York, New Haven, and Hartford Railroad historic track charts; and
- Peter Pan Bonanza, DATTCO Inc., and Bloom bus schedules.

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4

Phase 1 Screening Methodology

This chapter describes the Phase 1 screening process. This Phase 1 screening analysis is intended to provide the information needed for the Corps (in consultation with other Interagency Coordinating Group federal and state agencies) to agree on the range of alternatives that will be carried forward to the Phase 2 MEPA and NEPA processes, and follows the process described in the *Highway Methodology* [1] Phase 1 screening.

4.1 Introduction

As stated in the *Highway Methodology*, Phase 1 is intended to identify a limited number (usually one to six) of practicable alternatives to carry forward to Phase 2 environmental review. It is important to note that the Phase 1 alternatives are preliminary and conceptual station locations will be identified at later stages of the South Coast Rail study. The intent of this evaluation was to identify those alternative concepts that meet or exceed the Project evaluation criteria, then to narrow the initial broad range of alternatives to a reasonable number of practicable options that can be carried forward to a more detailed level of analysis in Phase 2 (Phase 2 of the *Highway Methodology*).

The Interagency Coordinating Group, composed of federal and state agencies with purview over the Project, oversaw the three-step screening process. In each step, the group assessed whether each alternative met the criteria and recommended poor-performing alternatives be dismissed from further analysis. The public were also consulted in mid-March in a series of regional Civic Engagement Meetings, and the Interagency Coordinating Group considered comments and opinions presented before finalizing the list of alternatives that will be advanced to an in-depth environmental

1 United States Army Corps of Engineers. NEDEP-360-1-30, *The Highway Methodology.* October 1993.

analysis. This screening process dismissed alternatives that:

- Did not meet the Project Purpose (Step 1)
- Were not practicable to construct or operate (Step 2)
- Were likely to result in substantially higher environmental impacts than other practicable alternatives (Step 3)

4.2 Screening Criteria

Specific screening criteria were developed for Step 1, Step 2, and Step 3 after taking into account input received during the January 2008 Civic Engagement Meetings. These criteria were reviewed and accepted by the Interagency Coordinating Group on January 10, 2008. Chapters 5, 6, and 7 of this report provide detailed explanations of the screening criteria used in each step of the analysis.

Each alternative was rated for each criterion on a scale ranging from Highly Favorable to Highly Unfavorable.


Highly Favorable – highly positive impact and/or substantially exceeding the intent of the criterion


Favorable – small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion


Neutral – neutral or no impact and/or partial failure to meet the criterion


Unfavorable – small or marginal negative impact and/or partial failure to meet the criterion


Highly Unfavorable – highly negative impact and/or complete failure to meet the criterion

3

Phase 1 Alternatives

This chapter describes how the Phase 1 alternatives were developed and provides descriptions of the Phase 1 Alternatives.

3.1 Development of Phase 1 Alternatives

EOT identified a broad range of 65 potential alternatives by reviewing previous studies and soliciting ideas from the MBTA, the Interagency Coordinating Group, the Commuter Rail Task Force, and the interested stakeholders through the Civic Engagement process. Table 3-1, *Master List of Alternatives*, presents the full list of potential alternatives.

The 65 alternatives included various mode types, including commuter rail (conventional, diesel multiple unit, and electrified), heavy rail, light rail, monorail, bus rapid transit, and enhanced bus service. They included several different components along four main corridors – the Attleboro route, Stoughton route, Middleborough route and the Highway route. These routes include active heavy rail lines, active commuter rail lines, active freight rail lines, abandoned and inactive rail lines, highway corridors, and new transportation alignments (Figure 3-1).

These 65 alternatives were combined into 38 alternatives by grouping similar alternatives together. For example, Alternative 5, *Diesel Multiple Units Commuter Rail to Attleboro Station*, and Alternative 8, *Light Rail to Attleboro Station*, use the same route. Both of these alternatives would be capable of providing a relatively high-frequency service along that route, and both would require a transfer at Attleboro Station to access Boston. These alternatives provide the same transportation benefits to the region using different modes. Because DMU commuter rail can operate on the same track as freight trains, while light rail cannot, DMU was determined to be the more reasonable of the two. Alternative 8 was considered to be sufficiently similar to Alternative 5 and was absorbed into it. The detailed information on how the list of

65 alternatives was reduced to 38 is included in Appendix A and B. At the January 10 meeting, the Interagency Coordinating Group concurred on this list of the 38 Phase 1 Alternatives.

It is important to note that these alternatives are preliminary and conceptual and that specific aspects such as station locations will be identified at later stages of the South Coast Rail study. The intent of the Phase 1 evaluation was to identify those alternative concepts that meet or exceed the Project evaluation criteria, then to narrow the initial broad range of alternatives to a reasonable number of practicable options that can be carried forward to a more detailed level of analysis in Phase 2 of the alternatives analysis.

3.2 Description of Corridors

The following sections describe the corridors under consideration as part of the 38 alternatives (Figure 3-1). The first section describes the transportation corridors, including location, current conditions, constraints, issues, and ownership.

3.2.1 Through Attleboro and Mansfield

This section provides an overview of four components of the transportation corridor through Attleboro and Mansfield that are under consideration. These components include the Northeast Corridor, the Attleboro Bypass, the Attleboro Secondary, and the Mansfield Line.

Northeast Corridor

The Northeast Corridor is an active rail line running between New York and South Station in Boston. The portion of interest for this Project runs from Attleboro to Boston (Figure 3-1). The corridor experiences heavy use, including Amtrak Regional and Acela service, MBTA commuter rail service, and freight rail service. The MBTA Providence Line uses the entire length of this portion of the corridor; the Stoughton Line, Franklin Line, and Needham Line join further north at Canton Junction, Readville, and Forest Hills, respectively.

The corridor has at least two tracks on this section, with three tracks from Readville to Boston. There are also two station siding tracks at Attleboro Station. The corridor is electrified, meaning that both diesel and electric trains can operate, and is designed and signaled for high-speed rail operations. The corridor is owned by the MBTA. Train operations are controlled by Amtrak.

Attleboro Bypass

The Attleboro Bypass would be a new rail corridor connecting the Northeast Corridor and the Attleboro Secondary (described in the following section). The line would follow an existing National Grid electric transmission line right-of-way from the Northeast Corridor near the Attleboro/Norton/Mansfield town line to the Attleboro Secondary near Chartley Pond at the Attleboro/Norton town line. The line would be owned by the MBTA.

The number of tracks would be determined in the next phase of the Project, as this would be an entirely new facility. The line would pass through some wetlands, and could potentially impact Chartley Pond. Modifications to the transmission lines might be required.

Attleboro Secondary

The Attleboro Secondary is an active rail line running from the Northeast Corridor in Attleboro through Norton to the Stoughton Line and New Bedford Secondary at Weir Junction in Taunton. The line is in service for freight only at the present time. The line is mostly one track, with a two track section just east of the Northeast Corridor in Attleboro. The line is currently owned by CSX.

The line runs through some environmentally sensitive areas, including Chartley Pond and the proposed Three Mile River Area of Critical Environmental Concern (ACEC). It also has many grade crossings in downtown Taunton, because it runs directly through the densely developed core of the city.

Mansfield Line

The Mansfield Line is an abandoned rail line running from the Northeast Corridor in Mansfield to the Attleboro Secondary in Taunton. The line is not in service, and tracks have been removed. Ownership of the line is uncertain, and may vary.

The line runs through some environmentally sensitive areas, including the proposed Three Mile River ACEC. Other constraints include I-495, which was constructed at the same grade as the former railroad, a regional sewer interceptor within the right-of-way and a bike path along the route in Mansfield. The former right-of-way was converted to a local street in downtown Mansfield. The route is also constrained because it crosses Route 106 at-grade, immediately adjacent to where Route 106 passes under the Northeast Corridor just west of where it crosses the Mansfield Line.

3.2.2 Through Middleborough

This section provides an overview of two components of the transportation corridor through Middleborough that are under consideration. These components include the Old Colony Main Line and the Middleborough Line, and the Middleborough Secondary.

Old Colony Main Line and Middleborough Line

The Old Colony Main Line and Middleborough Line are active rail lines running from South Station in Boston to Middleborough/Lakeville Station. The Old Colony Main Line runs from South Station to Braintree, and serves all three branches of the Old Colony commuter rail lines (Greenbush, Kingston, and Middleborough). The Middleborough Line runs from Braintree to the Middleborough/Lakeville Station. In addition to commuter trains, there is limited freight service on the lines. The lines are owned by the MBTA.

The Old Colony Main Line is a single-track route, with a passing siding in the middle. The Middleborough Line is also mostly single-track, with three passing sidings, including a long section of double-track in Brockton. The capacity of the Old Colony Main Line is a severely constrained, because there is little space for additional trains to run through the so-called Braintree "bottleneck", a single-track section which runs through the densely developed area from Braintree north to Boston.

Middleborough Secondary

The Middleborough Secondary is an active rail line running from the Middleborough Line north of the Middleborough/Lakeville Station to the New Bedford Secondary at Cotley Junction in Taunton (Figure 3-1). The line is in service for freight only at the present time. The line is mostly single-track, with a two-track section approaching the Middleborough Line. The line is owned by CSX.

3.2.3 Through Stoughton

This section provides an overview of two components of the transportation corridor through Stoughton that are under consideration. These components include the Stoughton Main Line and the Whittenton Branch. Alternatives through Stoughton would also use the Northeast Corridor north of Canton Junction (for a description of the Northeast Corridor, see Section 3.2.1).

Stoughton Main Line

The Stoughton Line is a rail line running from the Northeast Corridor at Canton Junction to the Attleboro Secondary and New Bedford Secondary at Weir Junction in Taunton (Figure 3-1). The line is active between Canton Junction and Stoughton Station serving commuter rail on the MBTA Stoughton Line and freight rail to customers in Canton and Stoughton. A short piece of the line north of Weir Junction is active, serving freight only. The remainder of the line, from Stoughton Station to Taunton, is abandoned, and tracks were removed. The active sections of the corridor are single-track, except at the approach to Canton Junction, where there are two tracks. The corridor is owned by the MBTA, north of Britton Street in Raynham. Parts of the right-of-way south of Longmeadow Road in Taunton were sold and in various public/private ownership. The active rail segment north of Weir Junction is operated by the MassCoastal Railroad.

The corridor runs through some environmentally sensitive areas, including the Pine Swamp in Raynham and the Hockomock Swamp ACEC Easton. The Hockomock Swamp is one of the most important wetlands in the state for rare species habitat and protects regional water quality.

Whittenton Branch

The Whittenton Branch is an abandoned rail line in Raynham and Taunton, running around the northwest edge of the core of the City of Taunton and connecting the Stoughton Line with the Attleboro Secondary. The line is not in service, and is not explicitly included in any of the 38 alternatives, but is considered as a possible variant to any option using the Stoughton Line.

3.2.4 Through the "Southern Triangle"

This section provides an overview of three components of the transportation system south of Cotley Junction, referred to as the "Southern Triangle." These components include the New Bedford Secondary, the Fall River Secondary and the Dartmouth Secondary. The New Bedford Secondary and the Fall River Secondary are included in all of the rail alternatives.

New Bedford Secondary

The New Bedford Secondary is an active rail line running from the Attleboro Secondary at Weir Junction in Taunton to the waterfront piers in New Bedford. The line connects with the Middleborough Secondary at Cotley Junction and to the Fall River Secondary at Myricks Junction. The line is in service for freight only at the present time. The line is mostly single track (but was constructed to carry two tracks), with a two-track section north of Cotley Junction. The line is owned by CSX.

The line passes through some environmentally sensitive areas, including the Assonet Cedar Swamp in Berkley and Lakeville and is adjacent to the Acushnet Cedar Swamp State Reservation in New Bedford. Other constraints include dense development along the line in New Bedford.

Fall River Secondary

The Fall River Secondary is an active rail line running between the New Bedford Secondary at Myricks Junction in Berkley to the waterfront in Fall River. The line is in service for freight only at the present time. The line is all single-track, and is owned by CSX.

The line passes through some environmentally sensitive areas, including the Assonet Cedar Swamp in Berkley. Other constraints include dense development along the line in Fall River, and large slopes above and below the line in Fall River along the Taunton River.

Dartmouth Secondary

The Dartmouth Secondary is a rail line running between the New Bedford Secondary in New Bedford and the east side of Fall River, passing through Dartmouth and Westport. The line is active for freight service between the New Bedford Secondary and a point near the Dartmouth/Westport town line. From there to Fall River, the line is abandoned. The line is owned by the state (although ownership of the

abandoned segment west of I-195 may have been transferred), with freight service provided by Massachusetts Coastal Railroad.

The line passes through some environmentally sensitive areas, including many wetlands in Dartmouth and Westport. In Fall River, the line is adjacent to South Watuppa Pond, and runs along an embankment in the middle of the Quequechan River. In Fall River, the line is separated from the Fall River Secondary by dense development and a grade difference of over 100 feet.

3.2.5 Using the Highway System

This section provides an overview of four components of the highway transportation system. These components include using Route 24, Route 140, Route 128 (Interstate 95/Interstate 93) and the Southeast Expressway (Interstate 93/Route 3) (Figure 3-1).

Route 24

Route 24 is a major north-south freeway, providing the primary link between the South Coast region and the Boston region. The highway is two lanes in each direction between I-195 and I-495, and three lanes in each direction between I-495 and Route 128. The median width varies, but is generally less than 20 feet wide.

The highway runs through some environmentally sensitive areas, including the Hockomock Swamp ACEC in West Bridgewater and the Fowl Meadow – Ponkapoag Bog ACECs in Randolph. It also borders portions of the Blue Hills State Reservation in Randolph. The highway experiences congestion during the peak periods, especially between Route 140 in Taunton and Route 128 in Randolph.

Route 140

Route 140 is a major north-south freeway connecting New Bedford to Route 24 in Taunton. The highway is two lanes in each direction throughout. The median width varies, but outside of New Bedford it is generally at least 40 feet wide.

Route 128 (I-95/I-93)

Route 128 is the beltway running around the City of Boston, from Braintree to Gloucester. The portion of concern for this Project runs from the Braintree Split (the Route 3/I-93/I-128 Interchange) to University Avenue in Westwood. This section is three lanes in each direction between University Avenue and Route 24, and four lanes in each direction from Route 24 to the Braintree Split. The median varies, and is widest near Route 24, but is generally less than 30 feet wide. East of the I-95 Interchange, Route 128 is designated as I-93, while west of the interchange it is designated as I-95.

The highway runs through some environmentally sensitive areas, including the Fowl Meadow – Ponkapoag Bog ACECs in Randolph, Milton, Canton, Dedham, and Westwood. It also borders the Blue Hills State Reservation on both sides in Quincy, Randolph, Milton, and Canton. The highway experiences severe congestion in both directions during peak periods.

Southeast Expressway (I-93/Route 3)

The Southeast Expressway is the only freeway connecting the downtown core of Boston to points south and the Route 128 beltway. It runs from the Braintree Split to downtown. It is four lanes in each direction throughout, with one lane from the off-peak direction used to make an HOV lane for the peak direction during rush hours between the Braintree Split and Columbia Road in Boston.

The highway runs through very densely developed areas in Quincy, Milton, and Boston. It experiences severe congestion in both directions, often even during off-peak hours.

3.3 Description of Modes

The following sections describe the modes used by the 38 Phase 1 alternatives and the operating assumptions used to evaluate each mode.

3.3.1 Commuter Rail

Commuter rail refers to a fixed-guideway system with steel wheels operating on steel rails, with one or two locomotives pulling a number of passenger coaches; on the MBTA system, trains are generally six to nine coaches. Coaches may be single level or bi-level, to increase capacity. Commuter rail locomotives are powered by diesel engines. Figure 3-2 depicts a typical cross-section of a conventional commuter rail.

For commuter rail, the maximum speed was assumed to be 79 mph, the maximum currently operated on the MBTA system. For purposes of comparing alternatives, headways for commuter rail alternatives were set at 40 minutes on the branches and 20 minutes on the trunk, during the peak period in the peak direction. Scheduled travel times on existing services were not altered.

3.3.2 Diesel Multiple Units Commuter Rail

DMU commuter rail refers to a fixed-guideway system with steel wheels operating on steel rails, with trains consisting of up to three self-propelled cars. Cars were assumed to be single-level, because there are no bi-level DMU systems currently in operation. DMU trains are propelled by on-board diesel engines. Figure 3-2 depicts a typical cross-section of a DMU commuter rail.

For DMU, the maximum speed was assumed to be 70 mph, the maximum speed per a prominent manufacturer's specifications. For purposes of comparing alternatives, headways for DMU alternatives were set at 15 minutes on the branches and 7.5 minutes on the trunk, during the peak period in both directions. Because of these short headways, DMUs require double-track throughout.

3.3.3 Electrified Commuter Rail

Electrified commuter rail refers to a fixed-guideway system with steel wheels operating on steel rails, with one or two locomotives pulling a number of passenger coaches. For consistency with the MBTA system, trains are assumed to be six to nine coaches. Coaches may be single level or bi-level, to increase capacity. Commuter rail locomotives are powered by an overhead electrical contact system. Figure 3-3 depicts a typical cross-section of an electrified commuter rail.

For electric commuter rail, the maximum speed was assumed to be 110 mph, the maximum speed that can be operated without incurring significant signal costs because of the need to signal civil restrictions. For purposes of comparing alternatives, headways for electric commuter rail alternatives were set at 40 minutes on the branches and 20 minutes on the trunk, during the peak period in the peak direction. Travel times on existing tracks were based on Amtrak schedules for the Attleboro and Stoughton corridors where possible or on track geometry.

3.3.4 Bus Rapid Transit

Bus rapid transit is a bus system designed to provide the quality and reliability of rail and the flexibility of bus. Buses operate in mixed traffic, exclusive lanes, or exclusive roadways. Vehicles have a capacity similar to a standard 40-foot bus, and are usually diesel powered. Figure 3-4 depicts a typical cross-section of a bus rapid transit.

For bus rapid transit, travel times were based on existing auto travel times, less a travel time savings for using exclusive lanes or HOV lanes. For purposes of comparing alternatives, headways for bus rapid transit were set at 30 minutes for services to Taunton and 15 minutes for services to New Bedford and Fall River, since these cities are larger. Because of the short headways, bus rapid transit would require two lanes where it uses a dedicated right-of-way.

3.3.5 Monorail

Monorail is a fixed-guideway system, with rubber-tired vehicles operating on a single concrete straddle beam. Monorail requires a separate right-of-way and full grade separation. Monorail vehicles are powered by an overhead electrical contact system or a third rail system, usually the latter. Figure 3-5 depicts a typical cross-section of a monorail.

For monorail, the maximum speed was assumed to be 50 mph, based on existing systems and previous studies. For purposes of comparing alternatives, headways for monorail were set at 40 minutes on the branches and 20 minutes on the trunk, during the peak period in the peak direction.

3.3.6 Light Rail

Light rail is a fixed-guideway system with steel wheels operating on steel rails, with trains consisting of up to three self-propelled cars. Light rail vehicles are propelled by an overhead electrical contact system or a third rail. Figure 3-6 depicts a typical cross-section of light rail.

For light rail, the maximum speed was assumed to be 55 mph, based on existing MBTA light rail service vehicles (Green Line). For purposes of comparing alternatives, headways for light rail alternatives were set at 20 minutes on the branches and 10 minutes on the trunk, during the peak period.

3.3.7 Heavy Rail

Heavy rail is a fixed-guideway system with steel wheels operating on steel rails, with trains consisting of up to six self-propelled cars. Train length was based on the maximum operated in current MBTA heavy rail services (Red Line or Orange Line). Heavy rail vehicles are propelled by an overhead electrical contact system or a third rail. Figure 3-7 depicts a typical cross-section of heavy rail.

For heavy rail, the maximum speed was assumed to be 55 mph, based on existing MBTA heavy rail service vehicles. For purposes of comparing alternatives, headways for heavy rail alternatives were set at 20 minutes on the branches and 10 minutes on the trunk, during the peak period.

Table 3-1
South Coast Rail
Master List of Alternatives

Route	Alt #	Name	Description	How we Propose to Address Alternative	Origin
THROUGH ATTLEBORO	***ATTLEBORO SECONDARY***				
	1	Commuter Rail to South Station via Attleboro Bypass	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then west along Attleboro Secondary; new track bypass along National Grid right-of-way to tie into Northeast Corridor north of Attleboro station	Advanced for further consideration	Executive Office of Transportation
	2	Commuter Rail to South Station via Attleboro Station with Reverse Move	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then west along Attleboro Secondary to Northeast Corridor; reverse move at Attleboro Station to merge onto Northeast Corridor	Advanced for further consideration	Executive Office of Transportation
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	Commuter rail along Dartmouth Secondary and New Bedford Mainline north to Cotley Junction, then west along Attleboro Secondary; new track bypass along National Grid right-of-way to tie into Northeast Corridor near Mansfield/Attleboro/Norton town line	Advanced for further consideration	Civic Engagement Process
	4	Bus Rapid Transit to Attleboro Station	Bus Rapid Transit adjacent to New Bedford Main Line track and Fall River Secondary track north to Cotley Junction, then adjacent to Attleboro Secondary west; transfer to Northeast Corridor at Attleboro Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then west along Attleboro Secondary; transfer to Attleboro Station	Advanced for further consideration	Civic Engagement Process
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then west along Attleboro Secondary; transfer to Attleboro Station; additional line along Dartmouth Secondary between New Bedford and Fall River	Advanced for further consideration	Civic Engagement Process
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	Electrified commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then west along Attleboro Secondary; new track bypass along National Grid right-of-way to tie into Northeast Corridor near Mansfield/Attleboro/Norton town line	Advanced for further consideration	Civic Engagement Process
	8	Light Rail to Attleboro	Light rail transit along New Bedford Main Line and Fall River Secondary north to Cotley Junction then west along Attleboro Secondary; transfer to Commuter Rail at Attleboro Station	Similar operational benefits to Alternative 5 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process
	9	Light Rail to Attleboro w/ New Bedford to Fall River connection	Light rail transit along New Bedford Main Line and Fall River Secondary north to Cotley Junction then west along Attleboro Secondary; transfer to Attleboro Station; additional line along Interstate 195 or Dartmouth Secondary between New Bedford and Fall River	Similar operational benefits to Alternative 6 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process
	10	Combination Connection to Boston and Providence via Northeast Corridor	Combination of commuter rail on Attleboro Secondary to Boston and commuter bus to connect to Providence, using Interstate 195 corridor	Boston service covered by other alternatives. Providence service does not meet basic Project Purpose	Civic Engagement Process
	MANSFIELD FORMER RIGHT-OF-WAY				
	11	Commuter Rail to South Station via Mansfield	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, northwest along Attleboro Secondary, then northwest along former right-of-way through Taunton, Norton, and Mansfield to tie into Northeast Corridor near Mansfield Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	12	Bus Rapid Transit to Mansfield Station	Bus Rapid Transit adjacent to New Bedford Main Line track and Fall River Secondary track north to Cotley Junction, then adjacent to Attleboro Secondary track, then northwest along former right-of-way through Taunton, Norton, and Mansfield; transfer to Northeast Corridor at Mansfield Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	13	Diesel Multiple Units Commuter Rail to Mansfield Station	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then northwest along Attleboro Secondary, then northwest along former right-of-way through Taunton, Norton, and Mansfield; then transfer to Mansfield Commuter Rail	Advanced for further consideration	Civic Engagement Process
	14	Diesel Multiple Units to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then northwest along Attleboro Secondary to Whittenton Junction, then northwest along former right-of-way through Taunton, Norton, and Mansfield; then transfer to Mansfield Commuter Rail Station; additional line along Dartmouth Secondary between New Bedford and Fall River	Advanced for further consideration	Civic Engagement Process
	15	Electrified Commuter Rail to South Station via Mansfield	Electrified commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then northwest along Attleboro Secondary to Whittenton Junction, then northwest along former right-of-way through Taunton, Norton, and Mansfield to tie into Northeast Corridor near Mansfield Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	16	Light Rail to Mansfield	Light rail transit along New Bedford Main Line and Fall River Secondary north to Cotley Junction then northwest along Attleboro Secondary to Whittenton Junction, then northwest along former right-of-way through Taunton, Norton, and Mansfield; then transfer to Mansfield Commuter Rail Station	Similar operational benefits to Alternative 13 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process

Table 3-1
South Coast Rail
Master List of Alternatives

Route	Alt #	Name	Description	How we Propose to Address Alternative	Origin
THROUGH MIDDLEBOROUGH	***MIDDLEBOROUGH SECONDARY***				
	17	Commuter Rail to South Station via Middleborough	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary to tie into Middleborough Line	Advanced for further consideration	Executive Office of Transportation
	18	Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary to tie into Middleborough Line at new Middleborough/Lakeville Commuter Rail Station relocated north; convert Red Line Braintree Branch to commuter rail	Advanced for further consideration	Civic Engagement Process
	19	Heavy Rail to Middleborough	Extend the Red Line to Middleborough/Lakeville Station via the Middleborough Commuter Rail Line with feeder bus from New Bedford and Fall River	Variation of Alternative 61 (greater infrastructure requirements with no transportation benefits)	Civic Engagement Process
	20	Bus Rapid Transit to Middleborough/Lakeville Station	Bus Rapid Transit adjacent to New Bedford Main Line track and Fall River Secondary track north to Cotley Junction, then east adjacent to Middleborough Secondary; transfer to Middleborough Line at Middleborough/Lakeville Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	21	Diesel Multiple Units Commuter Rail to Middleborough/Lakeville Station	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary; transfer to Middleborough/Lakeville Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	22	Diesel Multiple Units to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary; transfer to Middleborough/Lakeville Commuter Rail Station; additional line along Dartmouth Secondary between New Bedford and Fall River	Advanced for further consideration	Civic Engagement Process
	23	Commuter Rail to South Station via Middleborough (via Cotley) - w/ reverse move	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary to tie into Middleborough Line just north of Middleborough/Lakeville Commuter Rail Station w/ reverse move to serve Middleborough/Lakeville Station	Variation of Alternative 17 (similar infrastructure requirements with no transportation benefits)	Executive Office of Transportation
	24	Light Rail to Middleborough (via Cotley)	Light rail transit along New Bedford Main Line and Fall River Secondary north to Cotley Junction then east along Middleborough Secondary; transfer to Middleborough/Lakeville Commuter Rail Station	Similar operational benefits to Alternative 21 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process
	63	Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary to tie into Middleborough Line; then extend Middleborough Commuter Rail Line to Wareham and/or Buzzards Bay	Advanced for further consideration	Civic Engagement Process
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along Middleborough Secondary to tie into Middleborough Line; no improvements to Old Colony Main Line	Advanced for further consideration	Interagency Coordinating Group
	MIDDLEBOROUGH FORMER RIGHT-OF-WAY				
	25	Commuter Rail to South Station via Middleborough (via Myricks)	Commuter rail along New Bedford Main Line and Fall River Secondary north to Myricks Junction then northeast along former right-of-way parallel to Route 79 through Berkley and Lakeville to tie into Middleborough Line at new Middleborough/Lakeville Commuter Rail Station relocated north	Variation of Alternative 17 with minimal transportation improvements and significant environmental impacts (right-of-way takings)	Civic Engagement Process
	26	Commuter Rail to South Station via Middleborough (via Myricks) - w/ reverse move	Commuter rail along New Bedford Main Line and Fall River Secondary north to Myricks Junction then northeast along former right-of-way parallel to Route 79 through Berkley and Lakeville to tie into Middleborough Line just north of Middleborough/Lakeville Commuter Rail Station w/ reverse move to serve Middleborough/Lakeville Station	Variation of Alternative 17 with minimal transportation improvements and significant environmental impacts (right-of-way takings)	Civic Engagement Process
	27	Light Rail to Middleborough (via Myricks)	Light rail transit along New Bedford Main Line and Fall River Secondary north to Myricks Junction, then northeast along former right-of-way parallel to Route 79 through Berkley and Lakeville; transfer to Middleborough/Lakeville Commuter Rail Station	Similar operational benefits to Alternative 21 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process
	28	Bus Rapid Transit to Middleborough (via Myricks)	Bus Rapid Transit adjacent to New Bedford Main Line track and Fall River Secondary track north to Myricks Junction, then northeast along former right-of-way parallel to Route 79 through Berkley and Lakeville; transfer to Middleborough Line at Middleborough/Lakeville Commuter Rail Station	Variation of Alternative 20 with minimal transportation improvements and significant environmental impacts (right-of-way takings)	Civic Engagement Process
	29	Diesel Multiple Units Commuter Rail to Middleborough (via Myricks)	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Myricks Junction, then northeast along former right-of-way parallel to Route 79 through Berkley and Lakeville; transfer to Middleborough/Lakeville Commuter Rail Station	Variation of Alternative 21 with minimal transportation improvements and significant environmental impacts (right-of-way takings)	Civic Engagement Process

Table 3-1
South Coast Rail
Master List of Alternatives

Route	Alt #	Name	Description	How we Propose to Address Alternative	Origin
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then north along existing right-of-way through Raynham, Easton, and Stoughton to tie into Stoughton Line at Stoughton Commuter Rail Station	Advanced for further consideration	Executive Office of Transportation
	31	Bus Rapid Transit to Stoughton Station	Bus Rapid Transit adjacent to New Bedford Main Line track and Fall River Secondary track north to Cotley Junction, then north along existing right-of-way through Raynham, Easton, and Stoughton; transfer to Stoughton Line at Stoughton Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then north along existing right-of-way through Raynham, Easton, and Stoughton; transfer to Stoughton Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	Diesel Multiple Units commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then north along existing right-of-way through Raynham, Easton, and Stoughton; transfer to Stoughton Commuter Rail Station; additional line along Dartmouth Secondary between New Bedford and Fall River	Advanced for further consideration	Civic Engagement Process
	34	Electrified Commuter Rail to South Station via Stoughton	Electrified commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction, then north along existing right-of-way through Raynham, Easton, and Stoughton to tie into Stoughton Line at Stoughton Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	35	Commuter Rail to South Station via Stoughton (Whittenton Branch)	then northwest along Attleboro Secondary to Whittenton Junction, northeast along Whittenton Branch, and north along existing right-of-way through Raynham, Easton, and Stoughton to tie into Stoughton Line at Stoughton Commuter Rail Station	Variation of Alternative 30 with similar transportation benefits (could be evaluated in Phase 2 as option to Alternative 30)	Civic Engagement Process
	36	Light Rail to Stoughton	Light rail transit along New Bedford Main Line and Fall River Secondary north to Cotley Junction then north along existing right-of-way through Raynham, Easton, and Stoughton; transfer to Stoughton Commuter Rail Station	Similar operational benefits to Alternative 32 but requires additional infrastructure due to incompatibility of light rail vehicles operating on national rail network	Civic Engagement Process
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via Attleboro Bypass and Middleborough Line	Commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction; then one branch west along Attleboro Secondary with new track bypass along National Grid right-of-way to tie into Northeast Corridor north of Attleboro station; second branch along Middleborough Secondary to tie into Middleborough Line just north of Middleborough/Lakeville	Advanced for further consideration	Executive Office of Transportation
	65	Electrified Commuter Rail to South Station via Attleboro and Middleborough	Diesel and electric commuter rail along New Bedford Main Line and Fall River Secondary north to Cotley Junction; then one electric branch west along Attleboro Secondary with new track bypass along National Grid right-of-way to tie into Northeast Corridor north of Attleboro station; one diesel branch along Middleborough Secondary to tie into Middleborough Line just north of Middleborough/Lakeville Station (Middleborough Line not electrified)	Advanced for further consideration	Interagency Coordinating Group
USING HIGHWAY SYSTEM	37	Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway	Monorail along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east and Southeast Expressway right-of-way north to South Station	Advanced for further consideration	Civic Engagement Process
	38	Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128	Monorail along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east; transfer to Quincy Adams Red Line Station	Advanced for further consideration	Civic Engagement Process
	39	Monorail to Route 128 Station via Route 140, Route 24, and Route 128	Monorail along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128 right-of-way west; transfer to Route 128 Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	40	Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor	Commuter rail along New Bedford Main Line and Fall River Secondary north to just south of Cotley Junction, then new track along Route 24 right-of-way north to Randolph and along Route 128/I-93 right-of-way west; tie into Northeast Corridor north of Route 128 Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	Heavy or light rail transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128 right-of-way west; transfer to Route 128 Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	42	Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line	Heavy rail transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east; tie into Red Line at Quincy Adams Red Line Station	Advanced for further consideration	Civic Engagement Process
	43	Express Bus in Dedicated Lane to Route 128 Station via Route 24 and Route 128	Add HOV lanes on Route 24 from Interstate 495 north to Randolph, then on Route 128 west; transfer to Route 128 Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	44	Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast	Add HOV lanes on Route 24 from Interstate 495 north to Randolph, then on Route 128/93 east to Southeast Expressway HOV Lane to South Station	Advanced for further consideration	Civic Engagement Process
	45	Enhanced Bus Service on Existing Private Carrier Routes	Increased bus service and increased parking for bus commuters along existing private bus carrier lines from Fall River, New Bedford, and Taunton to South Station	Advanced for further consideration	Executive Office of Transportation

Table 3-1
South Coast Rail
Master List of Alternatives

Route	Alt #	Name	Description	How we Propose to Address Alternative	Origin
USING HIGHWAY SYSTEM (cont'd)	46	Light Rail to Route 128 Station	Light rail transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128 right-of-way west; transfer to Route 128 Commuter Rail Station	Included in Alternative 41	Civic Engagement Process
	47	Light Rail to Quincy Adams Station	Light rail transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east; transfer to Quincy Adams Red Line Station	Provides fewer transportation benefits (requires transfer) than Alternative 42 with similar environmental impacts/benefits	Civic Engagement Process
	48	Light Rail to South Station	Light rail transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east and Southeast Expressway right-of-way north to South Station	Provides similar transportation benefits to HOV lane and similar environmental impacts than Alternative 43	Civic Engagement Process
	49	Bus Lane to Route 128	Bus lanes on Route 24 from 495 north to Randolph, then on Route 128 west; transfer to Route 128 Commuter Rail Station	Same transportation and environmental benefits as Alternative 43	Civic Engagement Process
	50	Bus Lane to South Station	Bus lanes on Route 24 from 495 north to Randolph, then on Route 128/93 east to Southeast Expressway HOV Lane to South Station	Same transportation and environmental benefits as Alternative 44	Civic Engagement Process
	51	Combination Connection to Boston and Providence via Route 24	Combination of commuter bus services along I-195 and Routes 24/140 to connect South Coast cities with Providence and Boston	Boston service covered by other alternatives . Providence service does not meet basic Project Purpose	Civic Engagement Process
	52	Park-and-Ride Improvements	Improve the Park-and-Ride system serving the South Coast	Not a public transit alternative. Does not meet basic project purpose	Civic Engagement Process
	53	Advanced Rapid Transit to Route 128 Station	Advanced rapid transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128 right-of-way west; transfer to Route 128 Commuter Rail Station	Provides same transportation and environmental benefits/impacts as Alternative 37 (could be evaluated in Phase 2 as option to Alternative 37)	Civic Engagement Process
	54	Advanced Rapid Transit to Quincy Adams Station	Advanced rapid transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east; transfer to Quincy Adams Red Line Station	Provides same transportation and environmental benefits/impacts as Alternative 38 (could be evaluated in Phase 2 as option to Alternative 38)	Civic Engagement Process
	55	Advanced Rapid Transit to South Station	Advanced rapid transit along Routes 24/140 right-of-way from Fall River/New Bedford north to Randolph, then along Route 128/93 right-of-way east and Southeast Expressway right-of-way north to South Station	Provides same transportation and environmental benefits/impacts as Alternative 39 (could be evaluated in Phase 2 as option to Alternative 39)	Civic Engagement Process
Other	56	Commuter Rail to South Station via Providence	Commuter rail along Dartmouth Secondary and old right-of-way through Rhode Island to Providence; tie into Northeast Corridor just north of Providence Commuter Rail Station	Advanced for further consideration	Civic Engagement Process
	57	Enhanced bus on Interstate 195	Public transit service along Interstate 195 between Wareham and Providence	Advanced for further consideration	Civic Engagement Process
	58	Commuter Rail to Wareham via Middleborough	Extend the Middleborough Commuter Rail Line to Wareham and/or Buzzards Bay	Advanced for further consideration	Civic Engagement Process
	59	Appoint a czar		Not a public transportation alternative	Civic Engagement Process
	60	Encourage Telecommuting/Video Conferencing		Not a public transportation alternative	Civic Engagement Process
	61	Feeder Bus Network to Middleborough/Lakeville Station	Feeder bus network from New Bedford/Fall River area feeding into existing commuter rail network (may require new station)	Advanced for further consideration	Interagency Coordinating Group

3.4 Description of Phase 1 Alternatives

The following section describes and graphically depicts the 38 Phase 1 alternatives, organized by route, evaluated in the Phase 1 evaluation (Table 3-2). The figures following this table illustrate the route of each alternative, and provide the locations of required infrastructure improvements for that alternative.

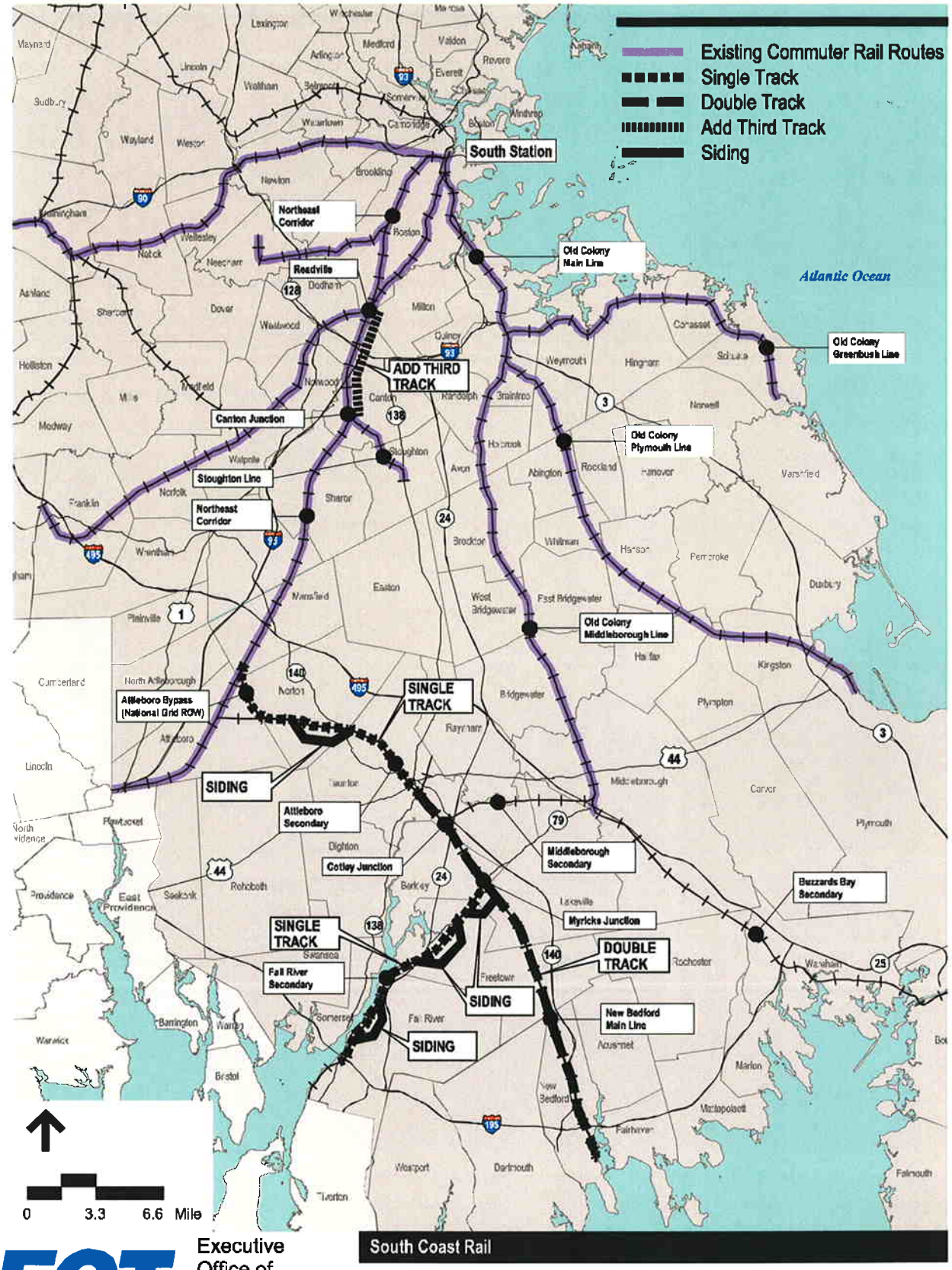
Table 3-2 Phase 1 Alternatives

Name
Through Attleboro
Attleboro Secondary
1 Commuter Rail to South Station via Attleboro Bypass
2 Commuter Rail to South Station via Attleboro Station with Reverse Move
3 Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass
4 Bus Rapid Transit to Attleboro Station
5 Diesel Multiple Unit Commuter Rail to Attleboro Station
6 Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary
7 Electrified Commuter Rail to South Station via Attleboro Bypass
Mansfield Former Right-of-Way
11 Commuter Rail to South Station via Mansfield
12 Bus Rapid Transit to Mansfield Station
13 Diesel Multiple Unit Commuter Rail to Mansfield Station
14 Diesel Multiple Unit Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary
15 Electrified Commuter Rail to South Station via Mansfield
Through Middleborough
Middleborough Secondary
17 Commuter Rail to South Station via Middleborough
18 Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail
20 Bus Rapid Transit to Middleborough/Lakeville Station
21 Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station
22 Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary
63 Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham
64 Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

Table 3-2 Phase 1 Alternatives (continued)

Name
Through Attleboro and Middleborough
62 Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line
Through Stoughton
30 Commuter Rail to South Station via Stoughton
31 Bus Rapid Transit to Stoughton Station
32 Diesel Multiple Unit Commuter Rail to Stoughton Station
33 Diesel Multiple Unit Commuter Rail to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary
34 Electrified Commuter Rail to South Station via Stoughton
Using Highway System
37 Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway
38 Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128
39 Monorail to Route 128 Station via Route 140, Route 24, and Route 128
40 Commuter Rail to South Station via Route 24 and route 128 to Northeast Corridor
41 Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route128
42 Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line
43 Express Bus in Dedicated Lane to Route 128 Station via Route 24 and Route 128
44 Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane
45 Enhanced Bus Service on Existing Private Carrier Routes
Other Routes
56 Commuter Rail to South Station via Providence
57 Enhanced Bus on Interstate 195
58 Commuter Rail to Wareham via Middleborough
61 Feeder Bus Network to Middleborough/Lakeville Station

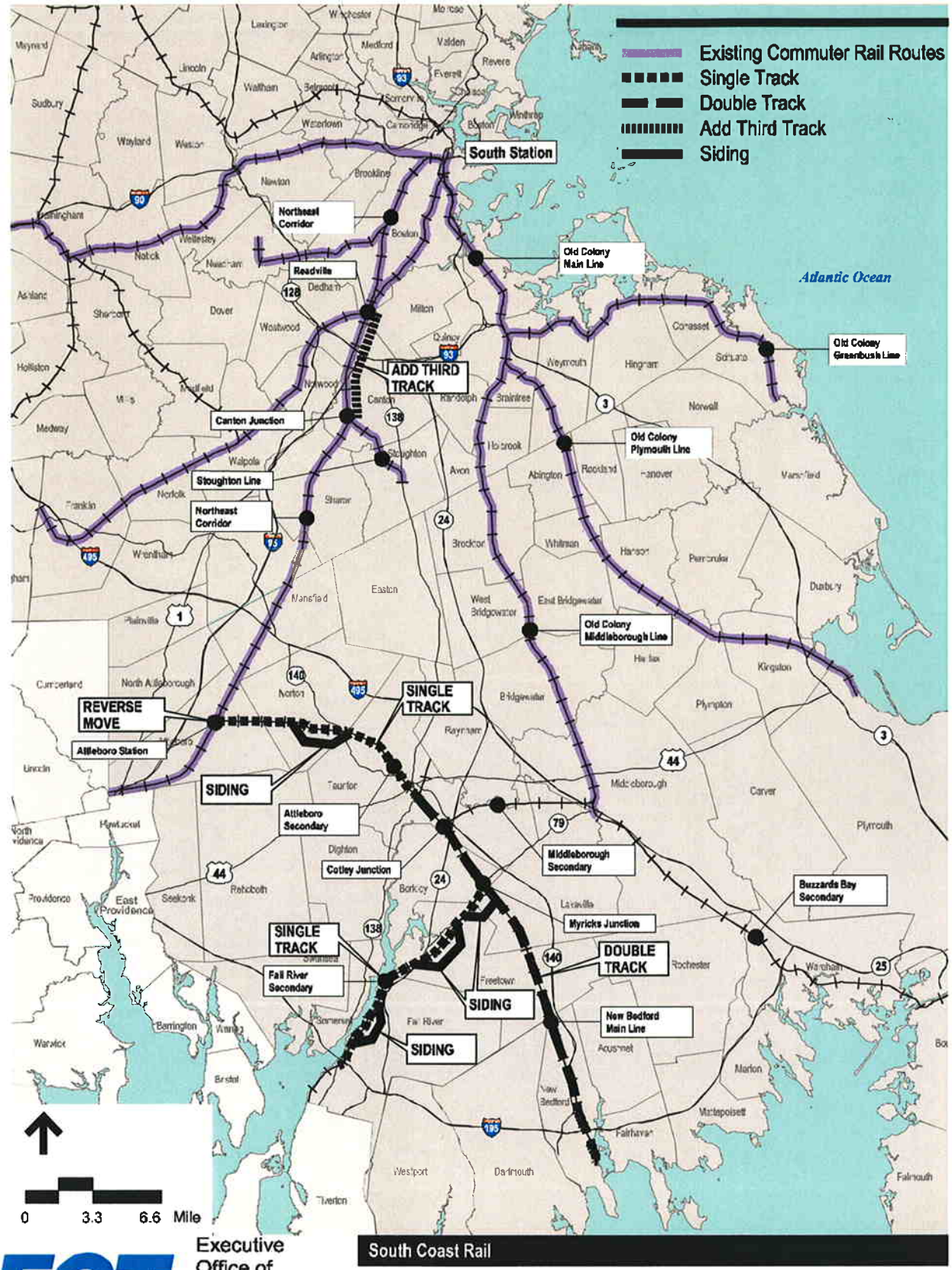
\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2A.dwg



Executive Office of Transportation & Public Works

Alternative 1
Commuter Rail to South Station via Attleboro Bypass

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then west along the Attleboro Secondary. A new track bypass approximately 2.5 miles long would be needed from the Attleboro Secondary along a National Grid electric transmission easement to tie into the Northeast Corridor north of the Attleboro Station near the Mansfield, Attleboro, and Norton town lines.

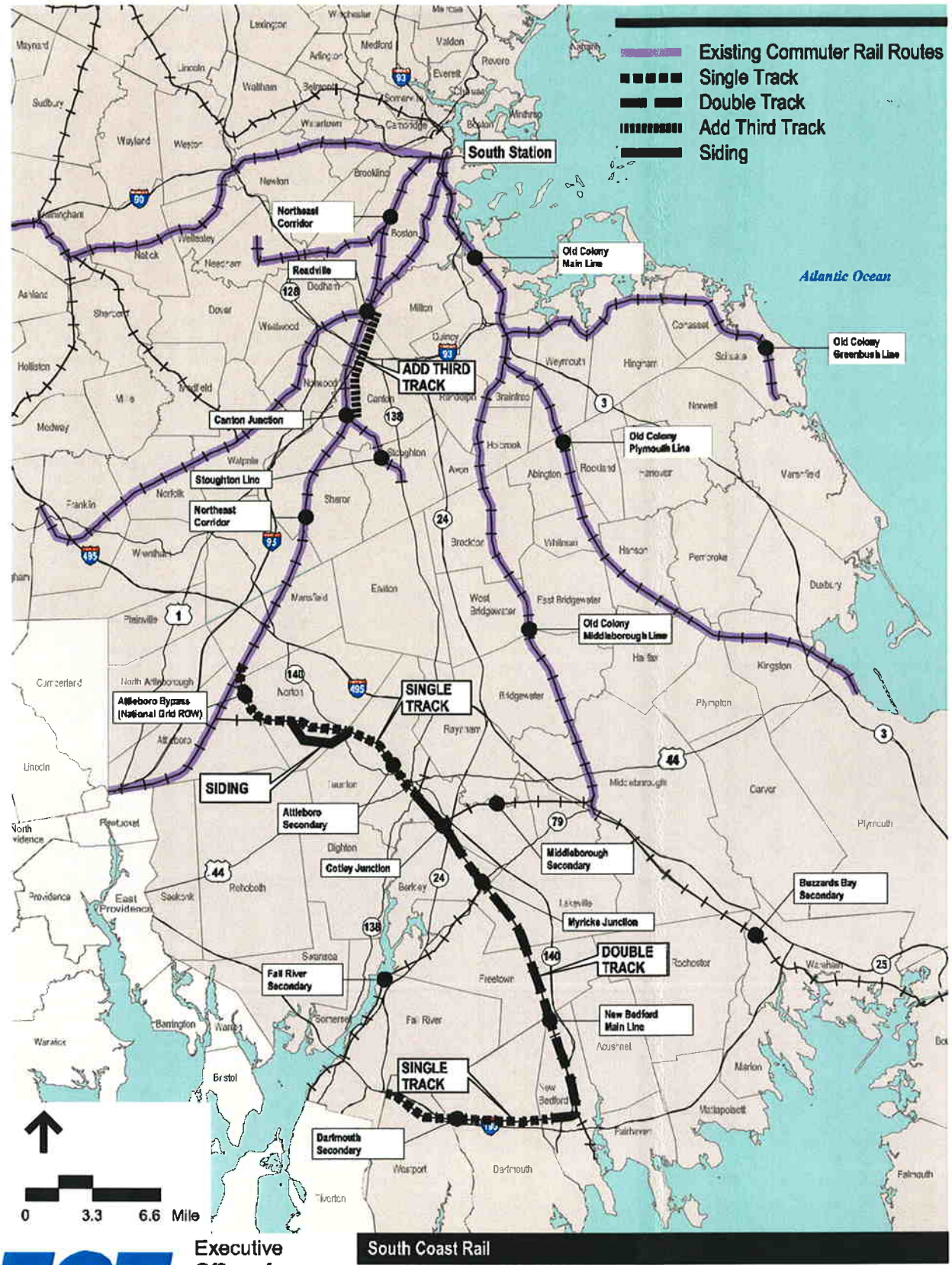


Executive Office of Transportation & Public Works

Alternative 2
Commuter Rail to South Station via Attleboro Station with Reverse Move

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then west along the Attleboro Secondary to the Northeast Corridor. Trains would have to perform a reverse move at the Attleboro Station when traveling in either direction. A reverse move is a maneuver in which the train pulls into a station, the engineer gets out, walks to the other end of the train, and performs a brake test, and the train departs in the opposite direction. This move requires 10 minutes to perform.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2K.dwg

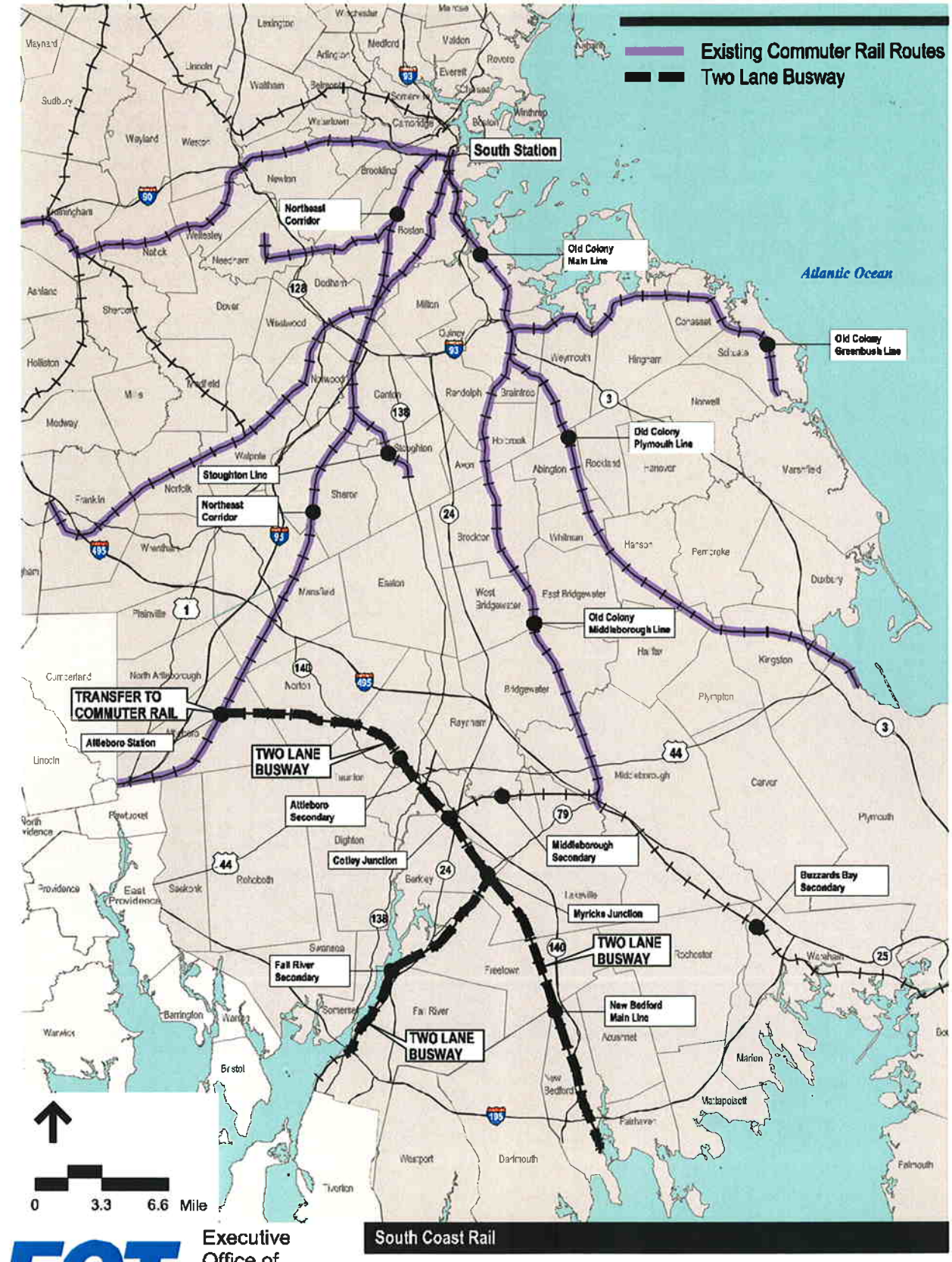


Executive Office of Transportation & Public Works

Alternative 3
Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass

This alternative would provide commuter rail service along the Dartmouth Secondary and the New Bedford Main Line north to Cotley Junction, then west along the Attleboro Secondary. A new track bypass would be needed along a National Grid electric transmission easement to tie into the Northeast Corridor north of Attleboro Station near the Mansfield, Attleboro, and Norton town line. This alternative would not provide service on the Fall River line.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A7A.dwg

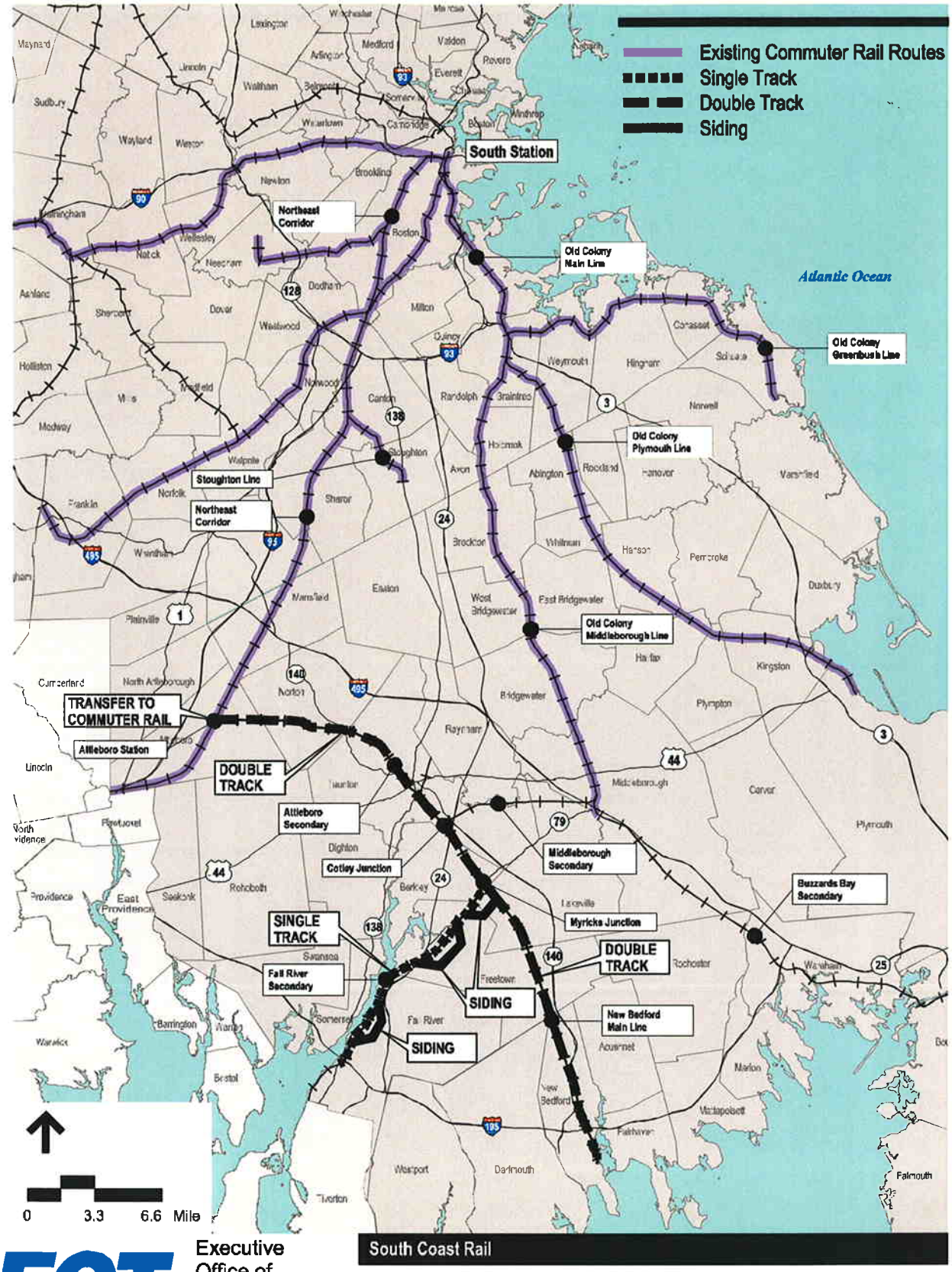


Executive Office of Transportation & Public Works

Alternative 4
Bus Rapid Transit to Attleboro Station

This alternative would provide bus rapid transit service on a new bus roadway adjacent to the New Bedford Main Line track and the Fall River Secondary track north to Cotley Junction, and then run adjacent to the Attleboro Secondary west. A transfer would be needed to access the existing Providence Line commuter rail service at Attleboro Station. A new station would be needed with a transfer connection.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8A.dwg

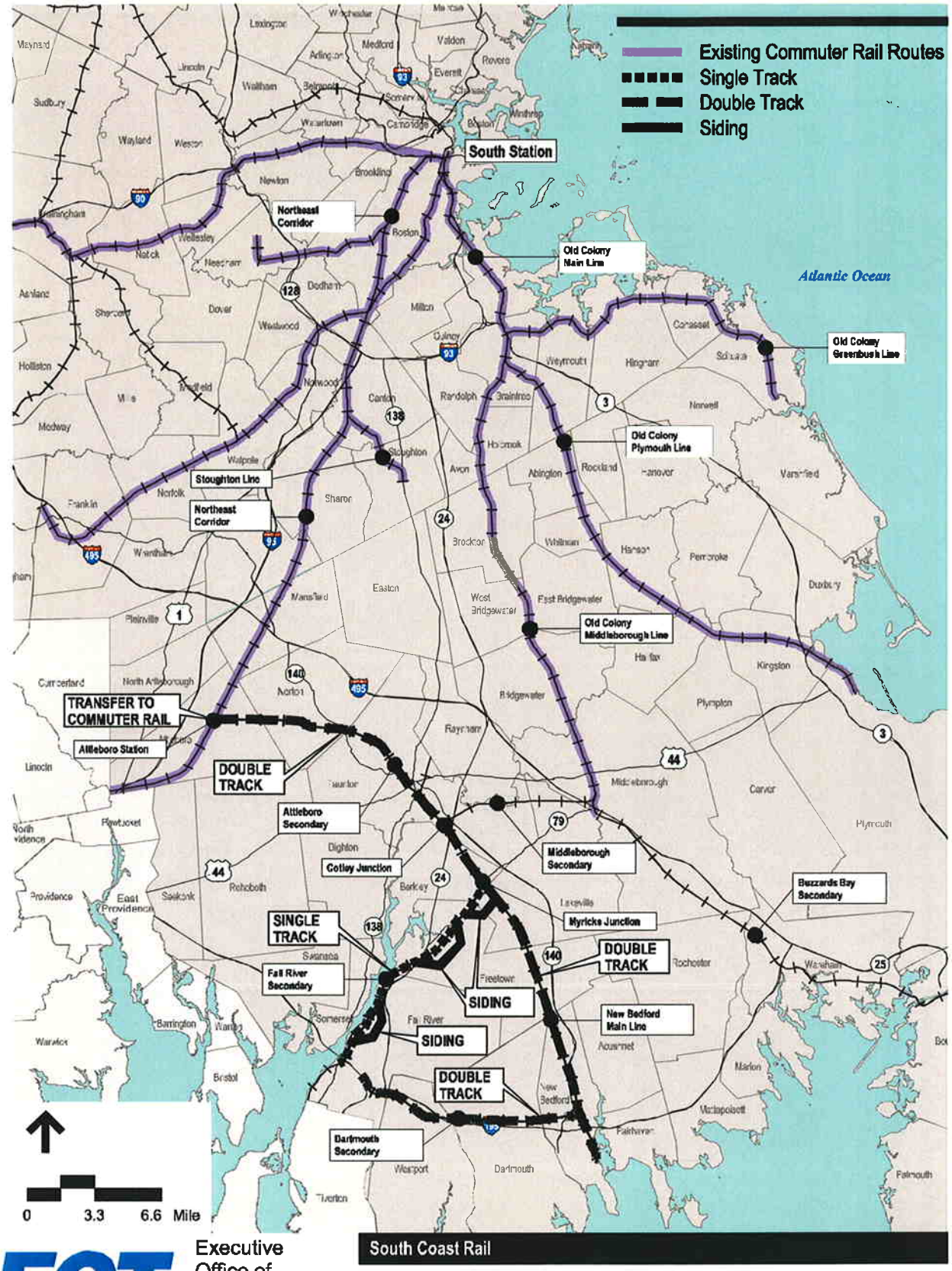


Executive Office of Transportation & Public Works

Alternative 5
Diesel Multiple Units Commuter Rail to Attleboro Station

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then west along the Attleboro Secondary. A transfer would be needed to connect to the existing Providence Line commuter rail service at Attleboro Station. A new station would be needed with a transfer connection.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8F.dwg

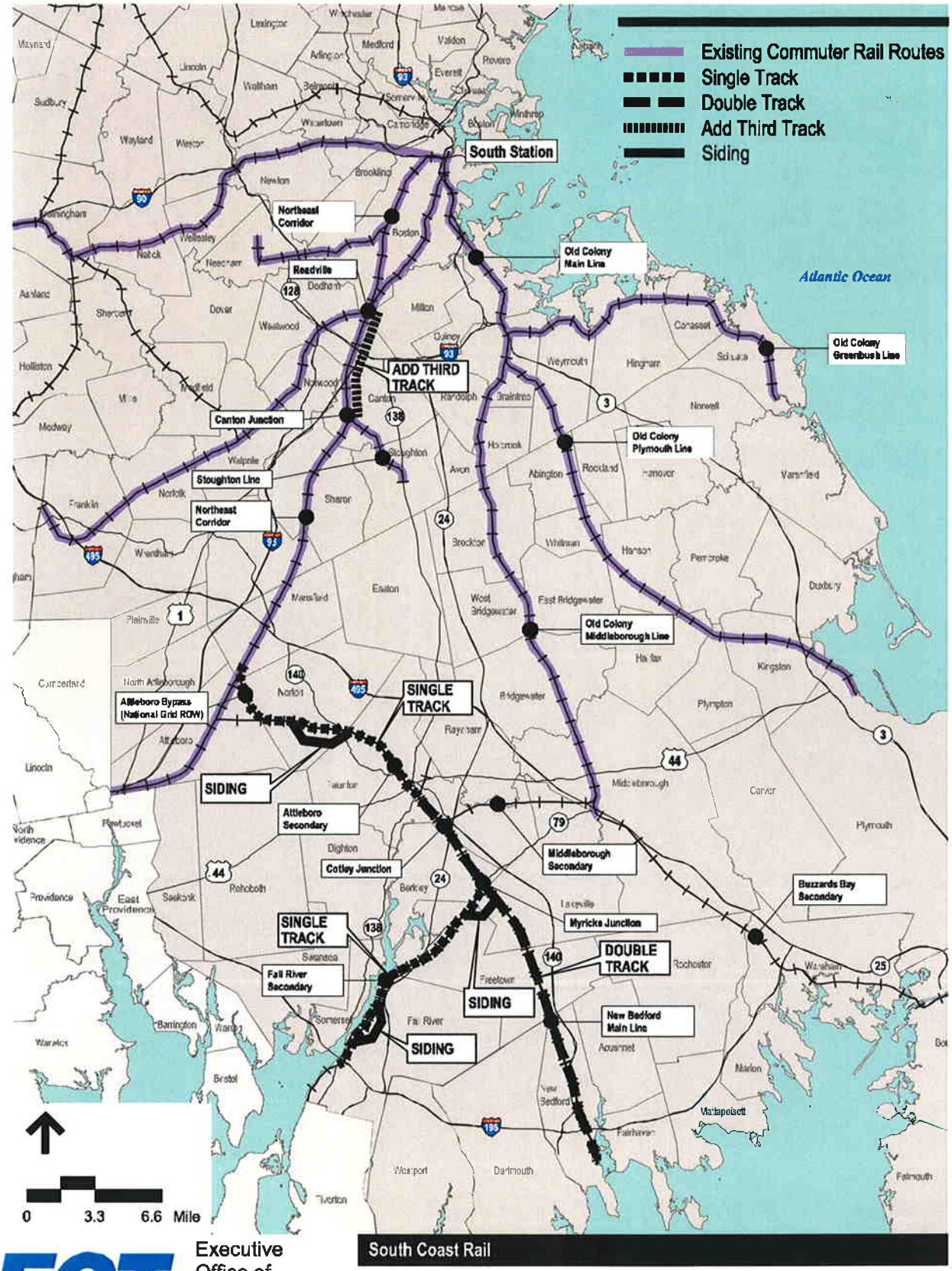


Executive Office of Transportation & Public Works

Alternative 6
Diesel Multiple Units to Attleboro Station with
New Bedford to Fall River Connection via Dartmouth Secondary

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary. A transfer would be needed to connect to the existing Providence Line commuter rail service at Attleboro Station with a new transfer station platform. An additional service would be provided along the Dartmouth Secondary between New Bedford and Fall River.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A12A.dwg

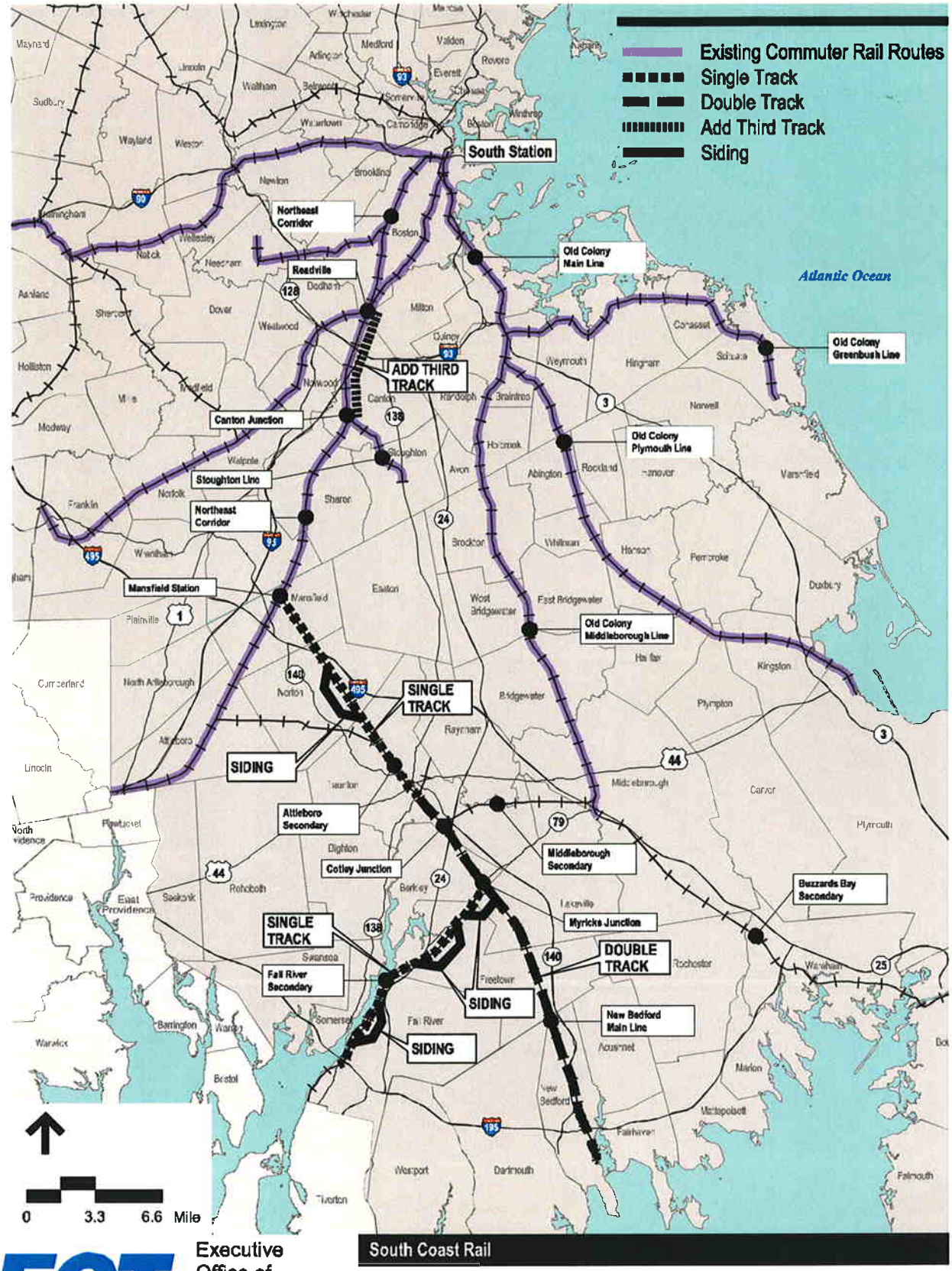


Executive Office of Transportation & Public Works

Alternative 7
Electrified Commuter Rail to South Station via Attleboro Bypass

This alternative would provide electrified commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, west along the Attleboro Secondary. A new track bypass would be necessary along a National Grid electric transmission line easement to tie into the Northeast Corridor north of the Attleboro Station near the Mansfield, Attleboro, and Norton town lines.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2B.dwg

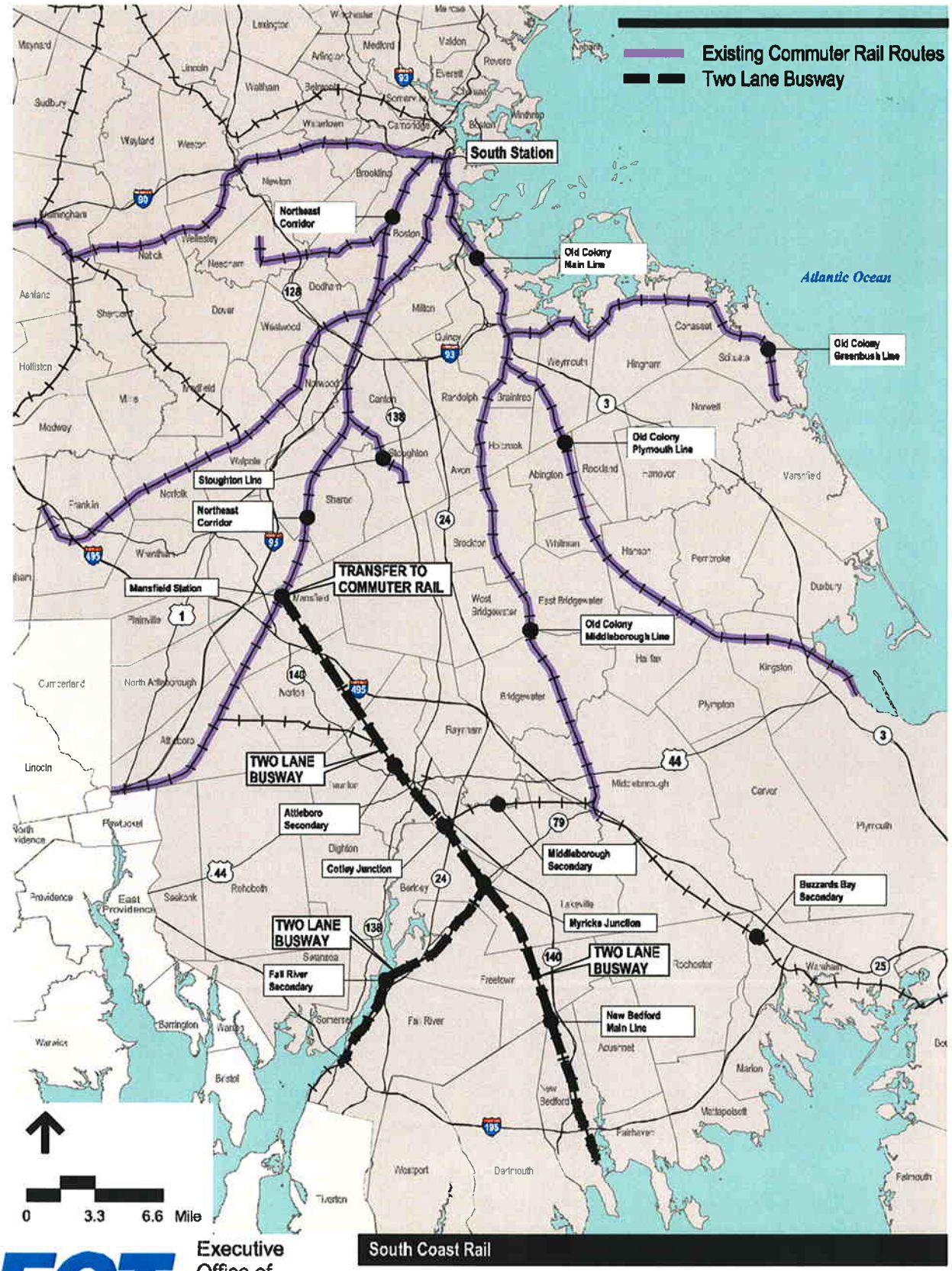


Executive Office of Transportation & Public Works

Alternative 11
Commuter Rail to South Station via Mansfield

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, northwest along the Attleboro Secondary, then northwest along the former Mansfield Secondary right-of-way through Taunton, Norton, and Mansfield. It would tie into the Northeast Corridor near Mansfield Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A7B.dwg

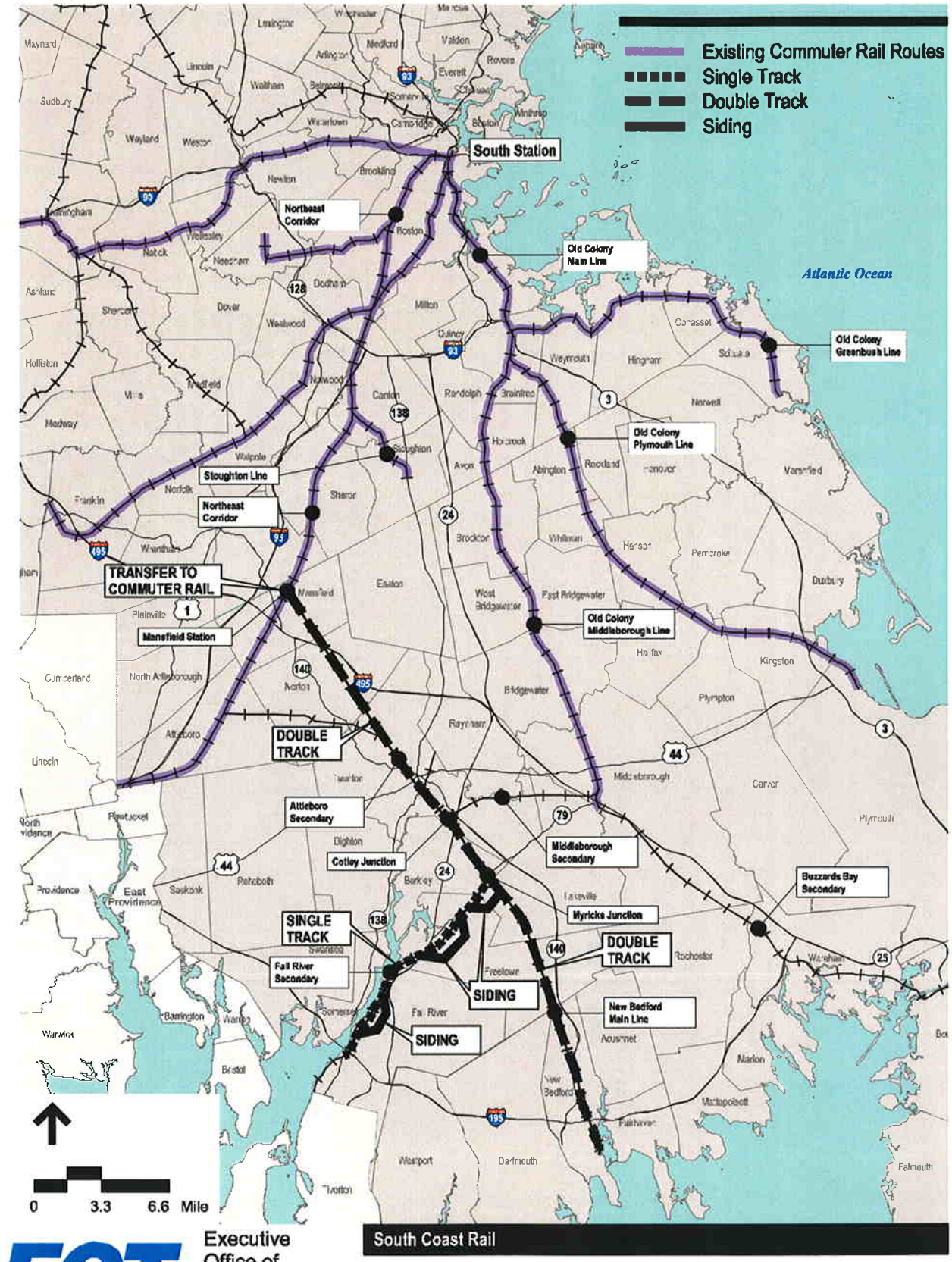


Executive Office of Transportation & Public Works

Alternative 12
Bus Rapid Transit to Mansfield Station

This alternative would provide bus rapid transit service on a new bus roadway adjacent to the New Bedford Main Line track and the Fall River Secondary track north to Cotley Junction, adjacent to the Attleboro Secondary track, then northwest along the former right-of-way through Taunton, Norton, and Mansfield. A transfer would be needed to connect to the existing Providence Line commuter rail service at Mansfield Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8B.dwg

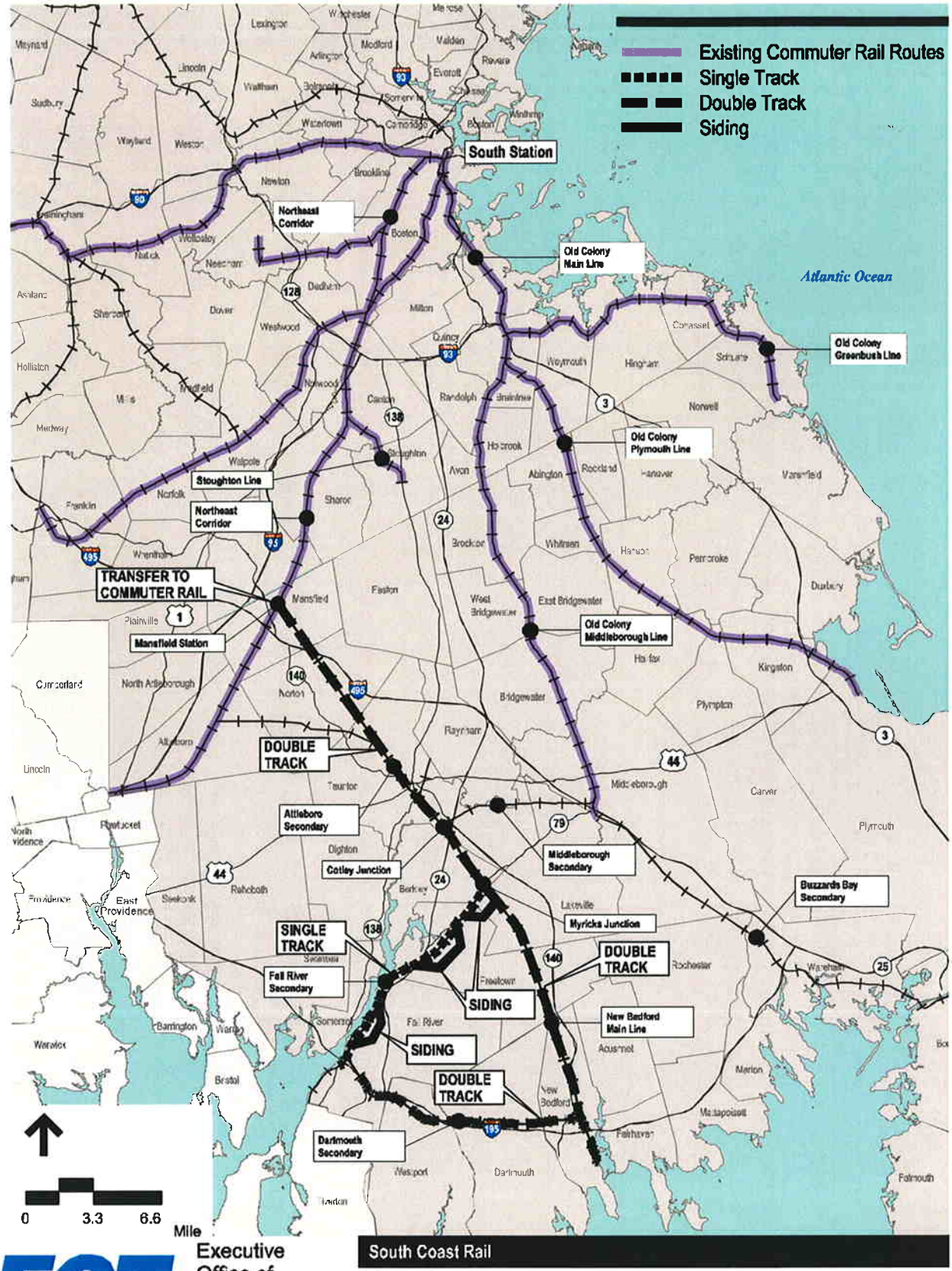


Executive Office of Transportation & Public Works

Alternative 13
Diesel Multiple Units Commuter Rail to Mansfield Station

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, along the Attleboro Secondary, then northwest along the former right-of-way through Taunton, Norton, and Mansfield. A transfer would be needed to connect to the existing Providence Line commuter rail service at Mansfield Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8G.dwg

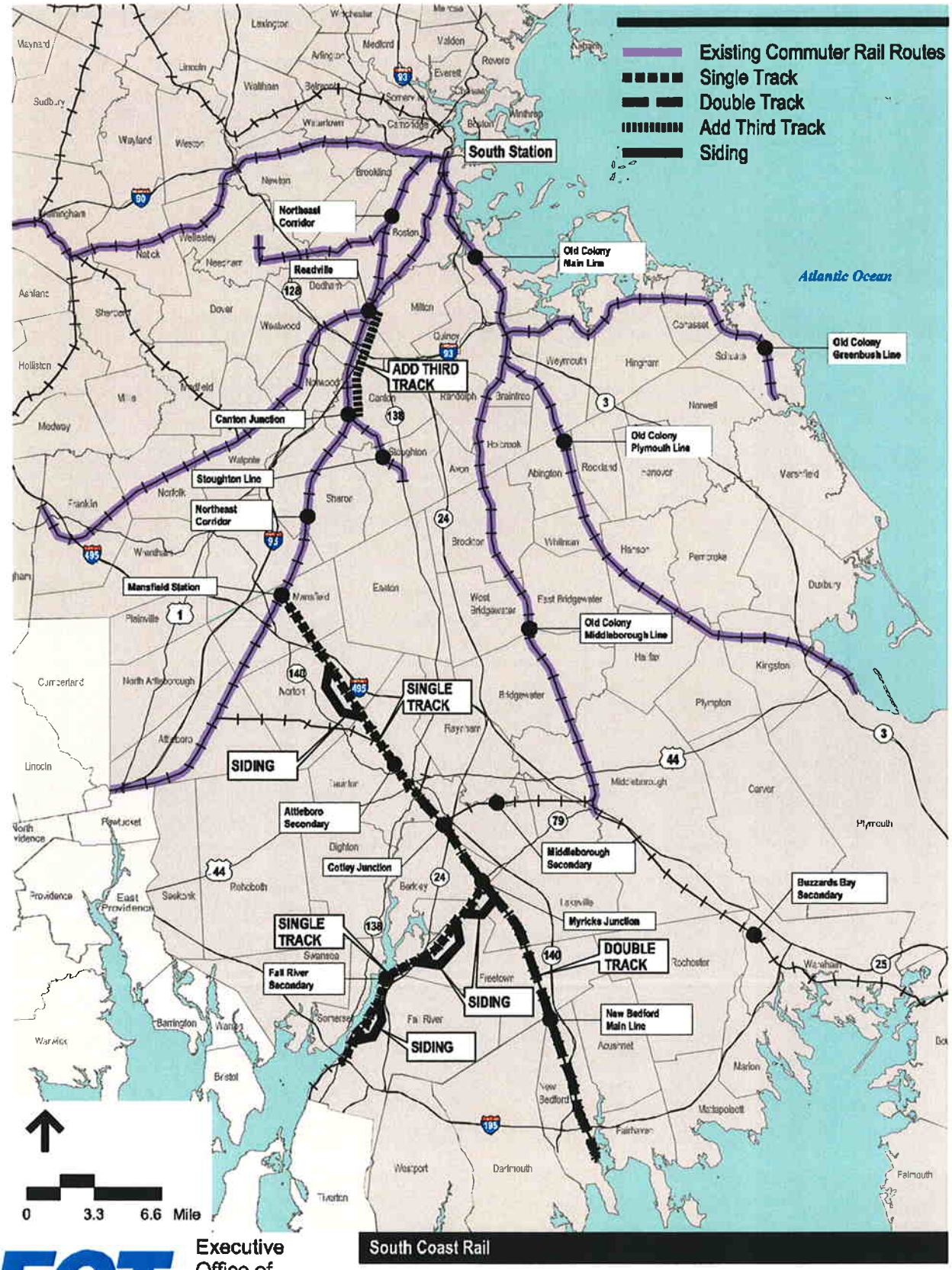


Executive Office of Transportation & Public Works

Alternative 14
Diesel Multiple Units Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, along the Attleboro Secondary to Whittenton Junction in Taunton, then northwest along the former Mansfield Secondary right-of-way through Taunton, Norton, and Mansfield. A transfer would be needed to connect to the existing Providence Line commuter rail service at Mansfield Station. An additional service would be provided between New Bedford and Fall River along the Dartmouth Secondary.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A12B.dwg

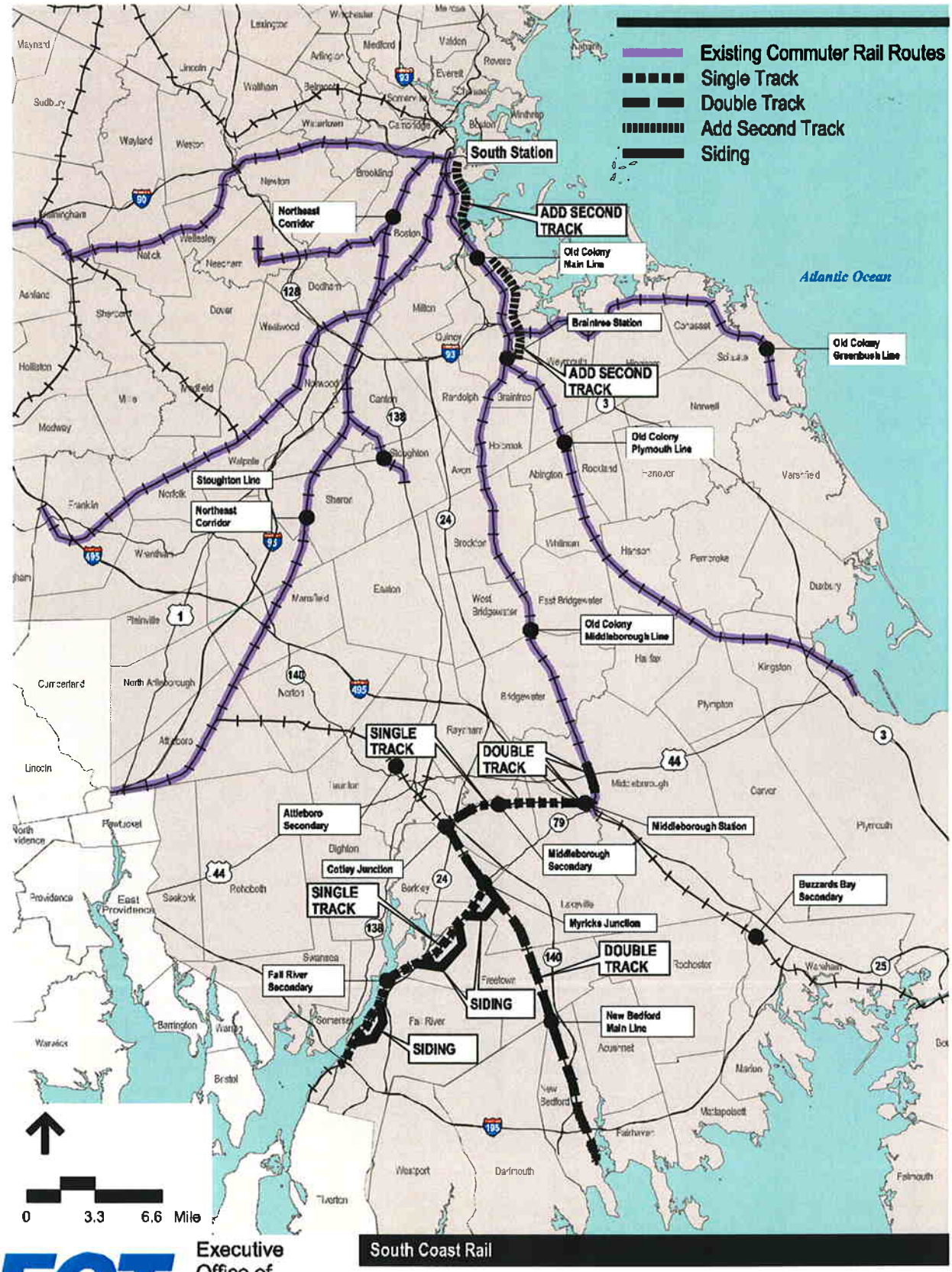


Executive Office of Transportation & Public Works

Alternative 15
Electrified Commuter Rail to South Station via Mansfield

This alternative would provide electrified commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, northwest along the Attleboro Secondary to Whittenton Junction in Taunton, then northwest along the former Mansfield Secondary right-of-way through Taunton, Norton, and Mansfield. It would tie into the Northeast Corridor near Mansfield Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A20.dwg

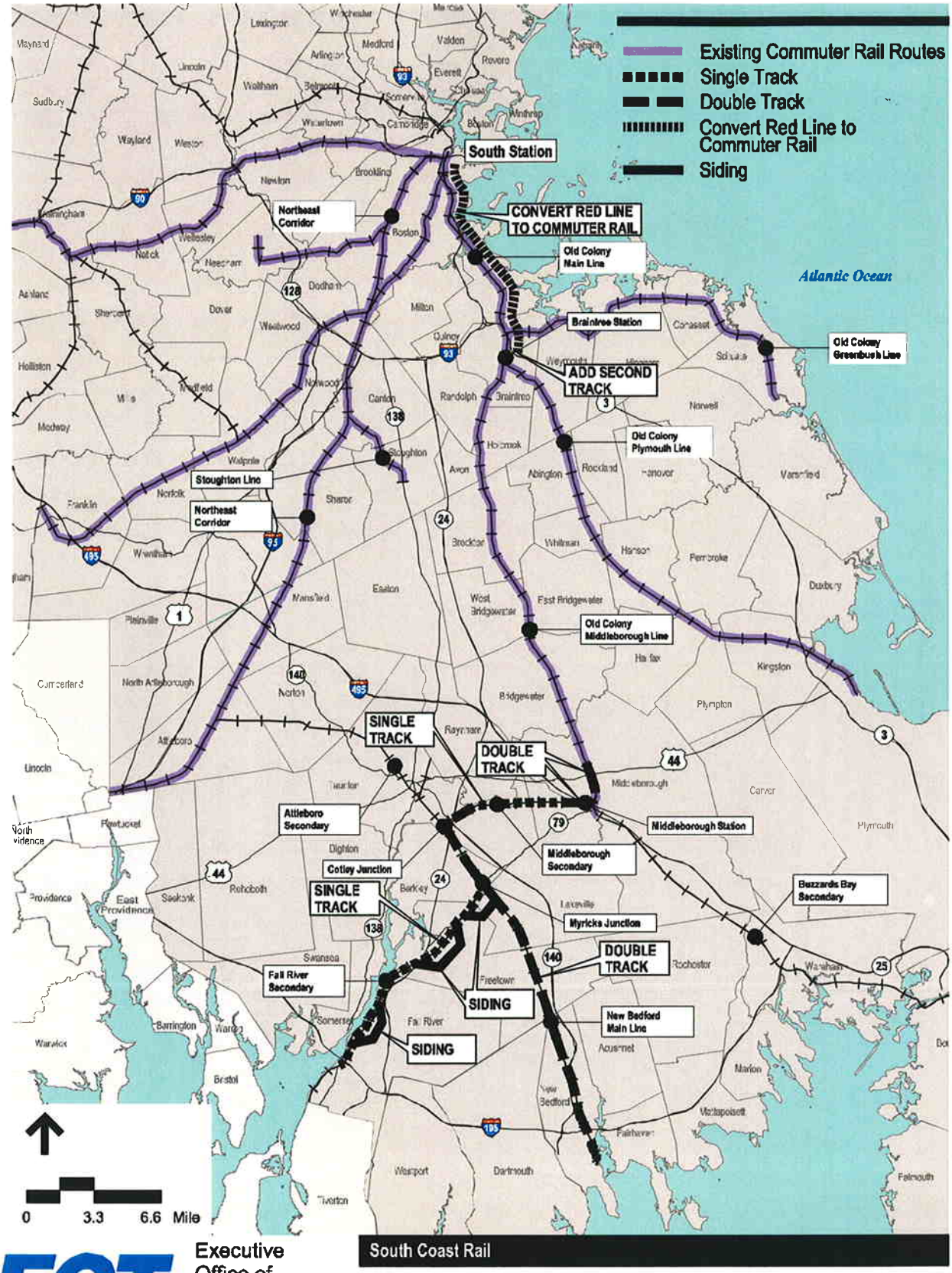


Executive Office of Transportation & Public Works

Alternative 17
Commuter Rail to South Station via Middleborough

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary to tie into the Middleborough Line at a new Middleborough/Lakeville Station, located north of the existing station. This alternative would require massive improvements to add a second track along the Old Colony Main Line through Braintree and Quincy.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2L.dwg

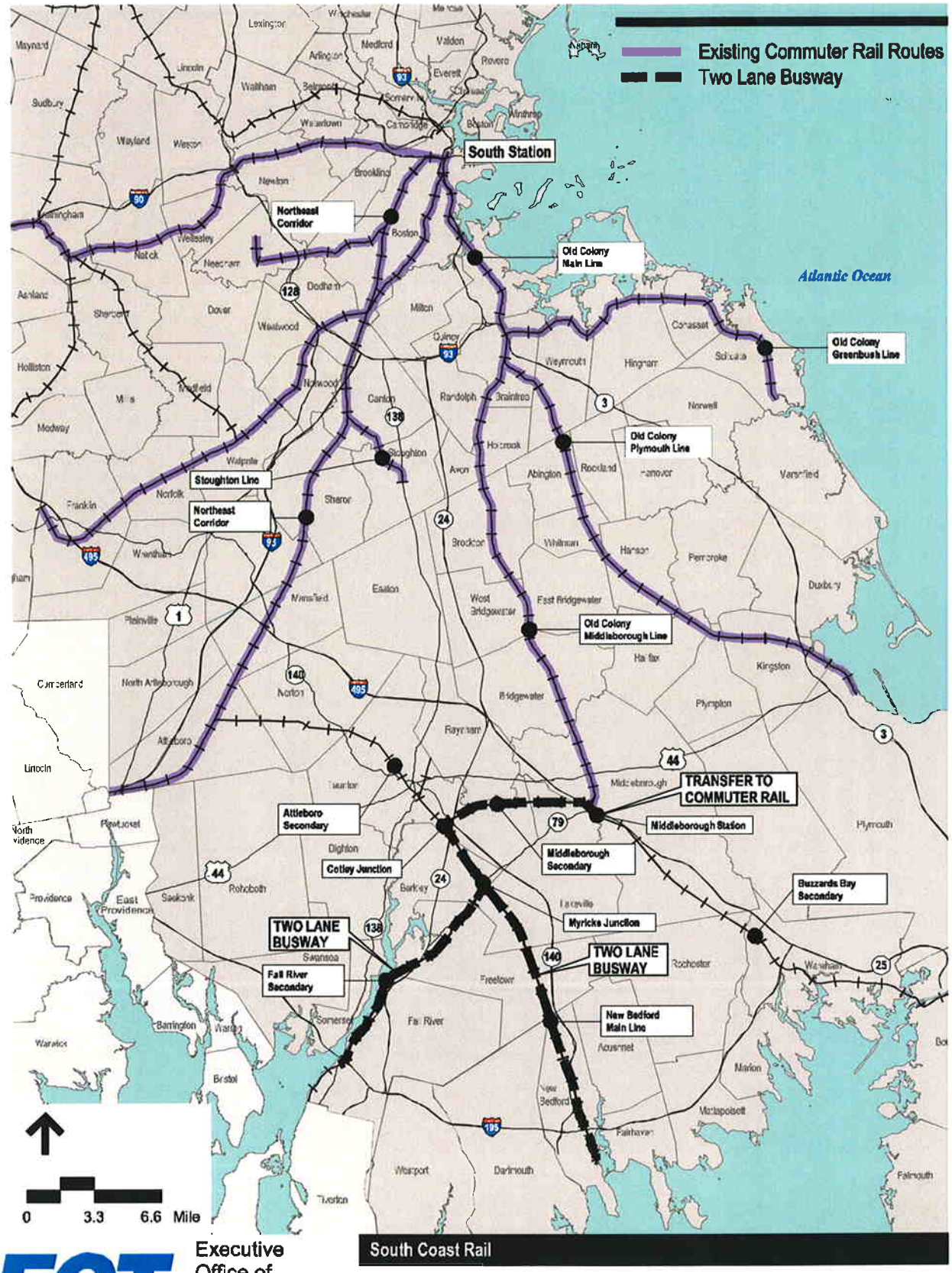


Executive Office of Transportation & Public Works

Alternative 18
Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary to tie into the Middleborough Line at a new Middleborough/Lakeville Station, located north of the existing station. The Red Line Braintree Branch would be converted to commuter rail to provide additional tracks for the Old Colony Main Line. This would increase the Old Colony Main Line from one track with a siding to three full tracks and eliminate the Red Line Braintree Branch.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A20.dwg

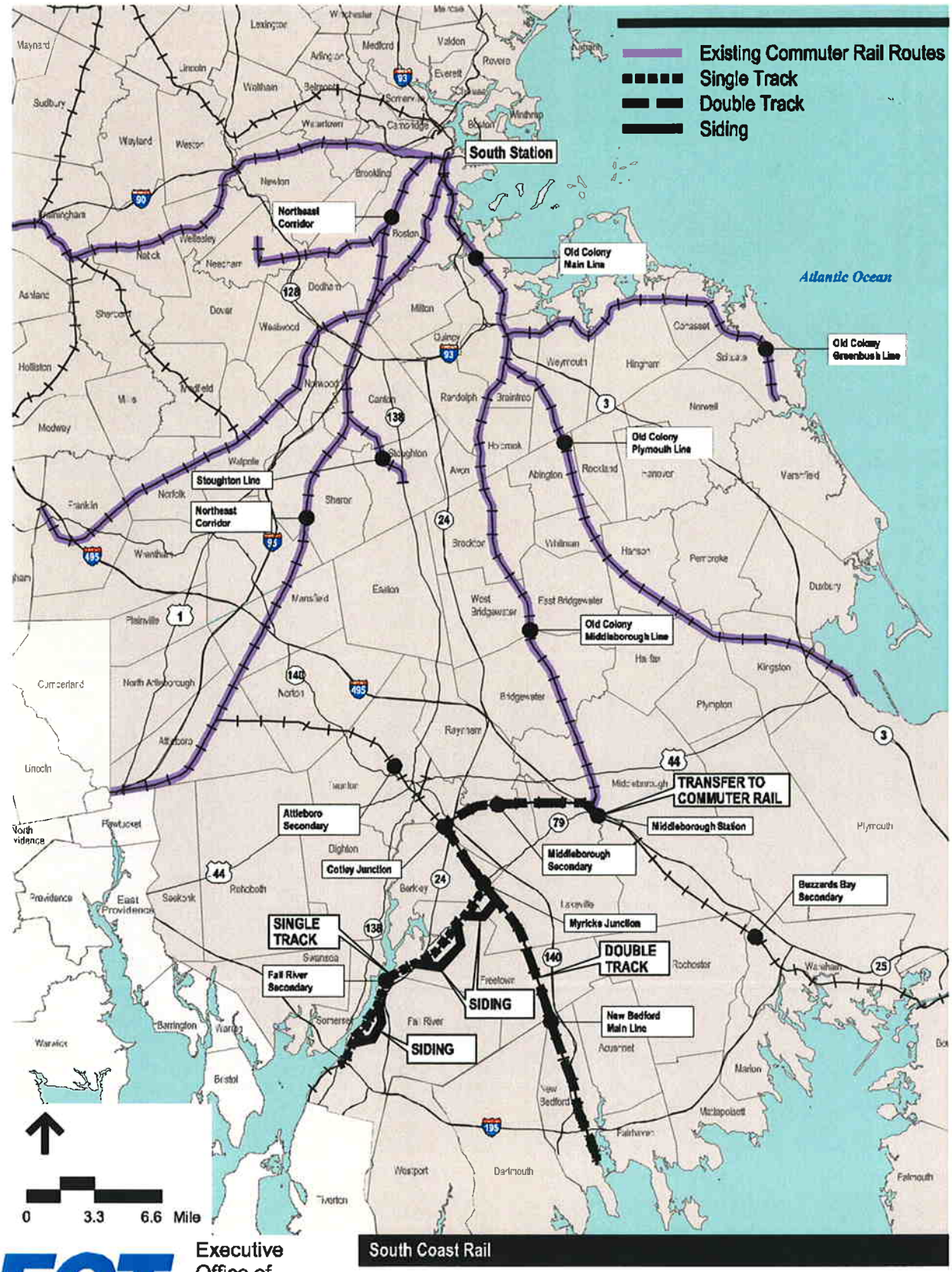


Executive Office of Transportation & Public Works

Alternative 20
Bus Rapid Transit to Middleborough/Lakeville Station

This alternative would provide bus rapid transit service on a new bus roadway adjacent to the New Bedford Main Line track and the Fall River Secondary track north to Cotley Junction, then east adjacent to the Middleborough Secondary. A transfer would be needed to connect to the existing Middleborough Line commuter rail service at Middleborough/Lakeville Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8D.dwg

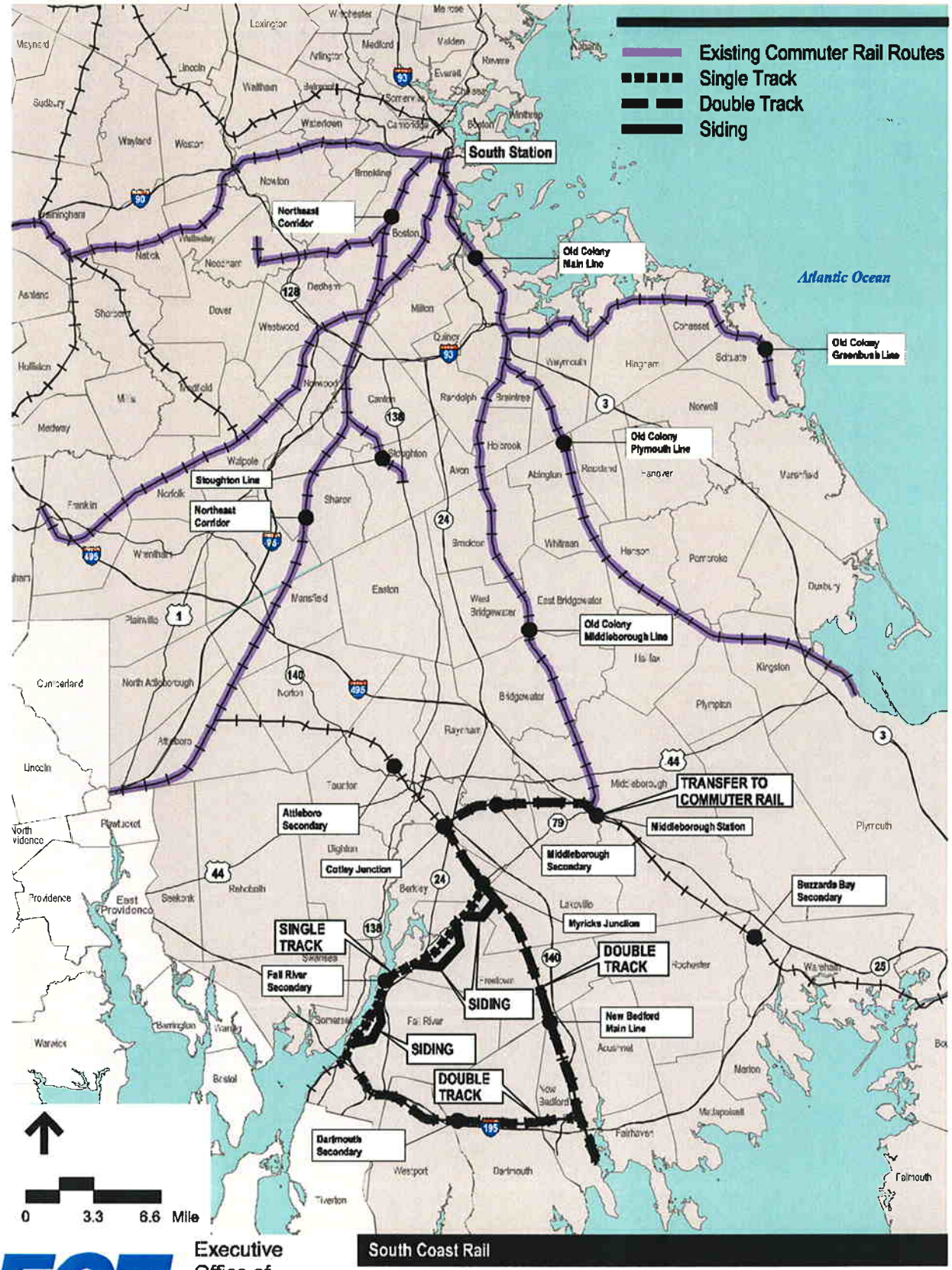


Executive Office of Transportation & Public Works

Alternative 21
Diesel Multiple Units Commuter Rail to Middleborough/Lakeville Station

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary. A transfer would be needed to connect to the existing Middleborough Line commuter rail service at Middleborough/Lakeville Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8H.dwg



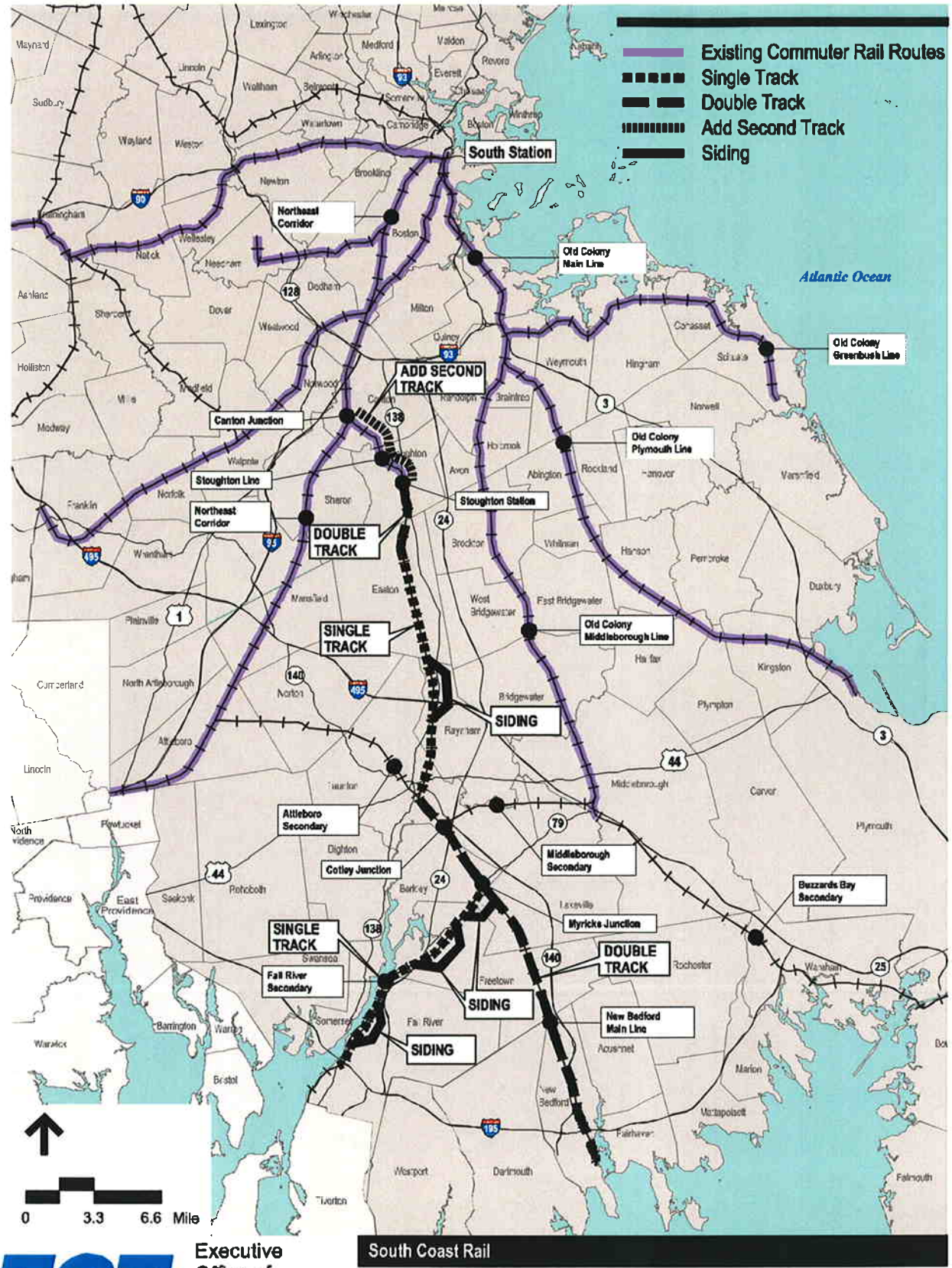
South Coast Rail

Executive Office of Transportation & Public Works

Alternative 22
Diesel Multiple Units to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Darthmouth Secondary

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary. A transfer would be needed to connect to the existing Middleborough Line commuter rail service at the Middleborough/Lakeville Station. An additional service would be provided along the Dartmouth Secondary between New Bedford and Fall River.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2C.dwg

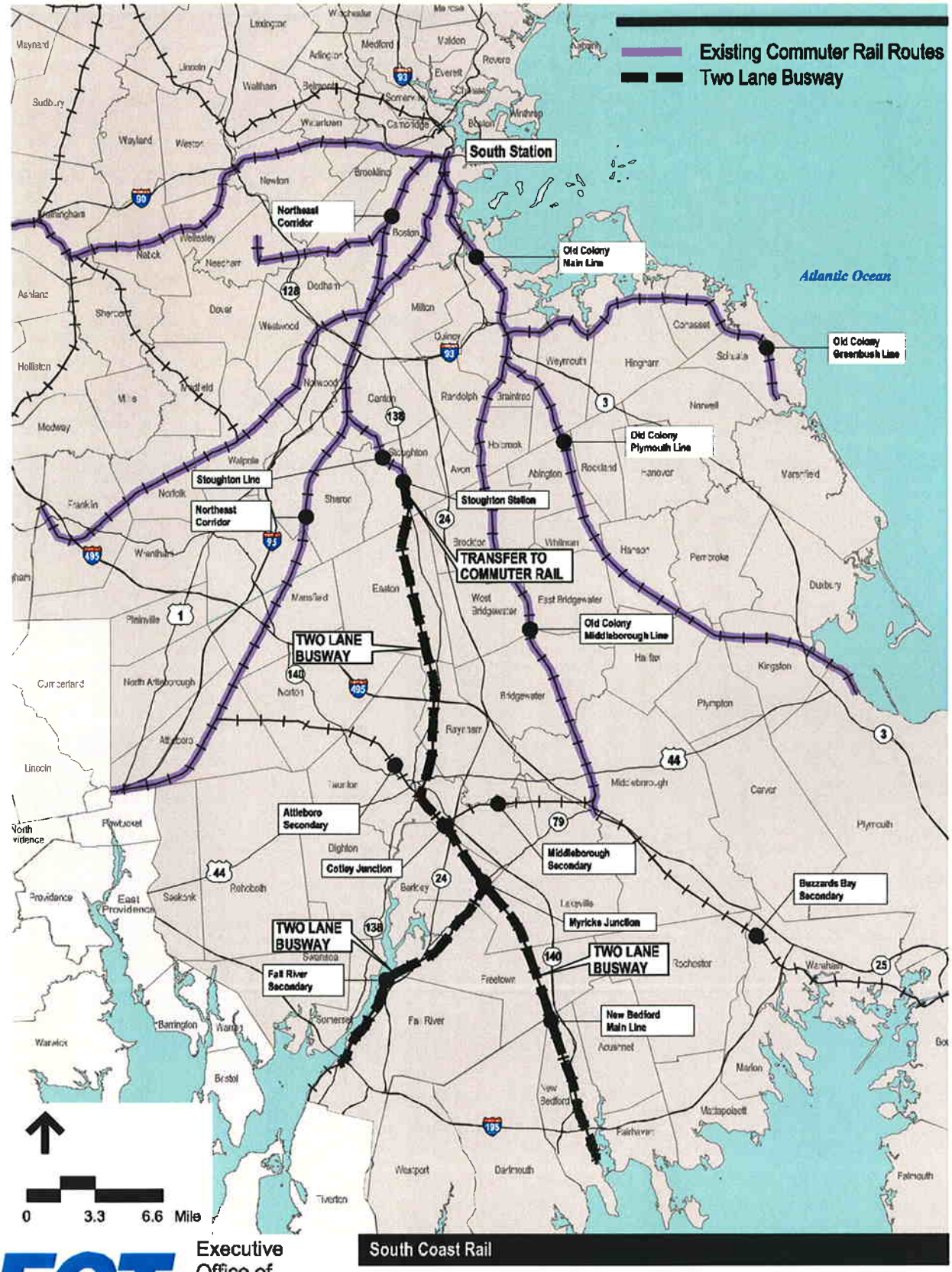


Executive Office of Transportation & Public Works

Alternative 30
Commuter Rail to South Station via Stoughton

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then north along the existing right-of-way through Raynham, Easton, and Stoughton to tie into the Stoughton Line at Stoughton Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A7C.dwg

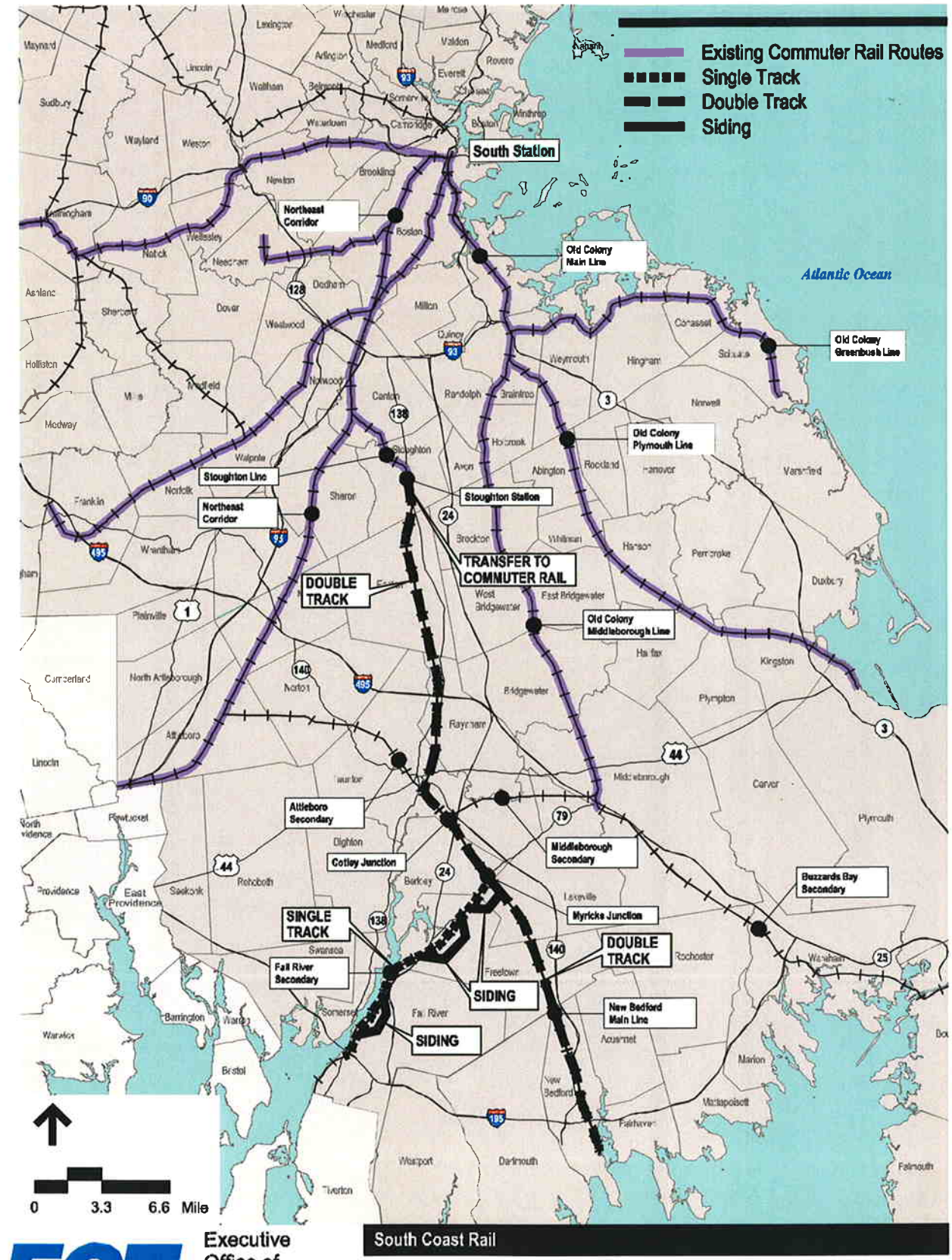


Executive Office of Transportation & Public Works

Alternative 31
Bus Rapid Transit to Stoughton Station

This alternative would provide bus rapid transit service on a new bus roadway adjacent to the New Bedford Main Line track and the Fall River Secondary track north to Cotley Junction, then north along the exising right-of-way through Raynham, Easton, and Stoughton. A transfer would be needed to connect to the existing Stoughton Line commuter rail service at Stoughton Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A8C.dwg

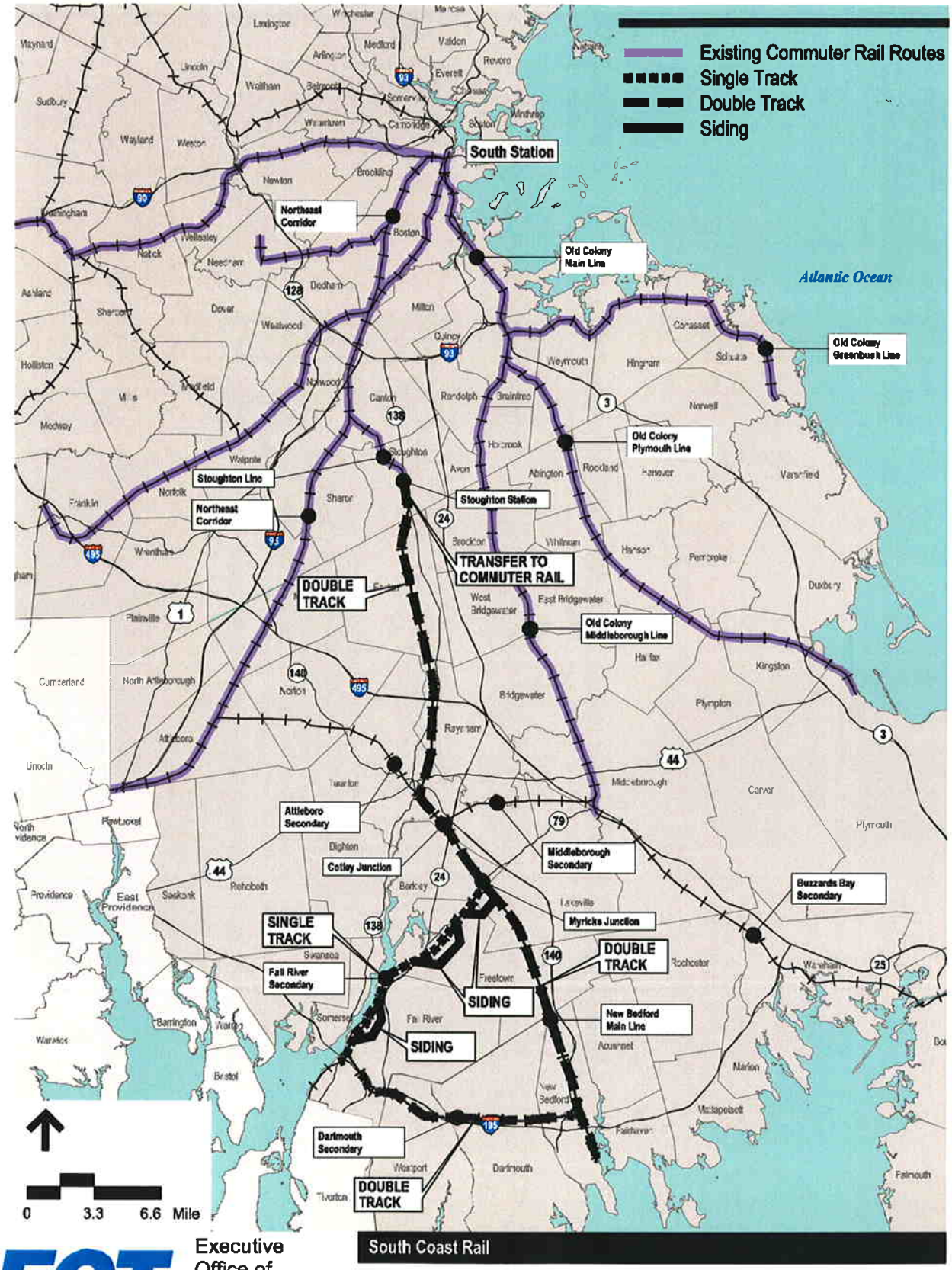


Executive Office of Transportation & Public Works

Alternative 32
Diesel Multiple Units Commuter Rail to Stoughton Station

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then north along the existing right-of-way through Raynham, Easton, and Stoughton. A transfer would be needed to connect to the existing Stoughton Line commuter rail service at Stoughton Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A81.dwg



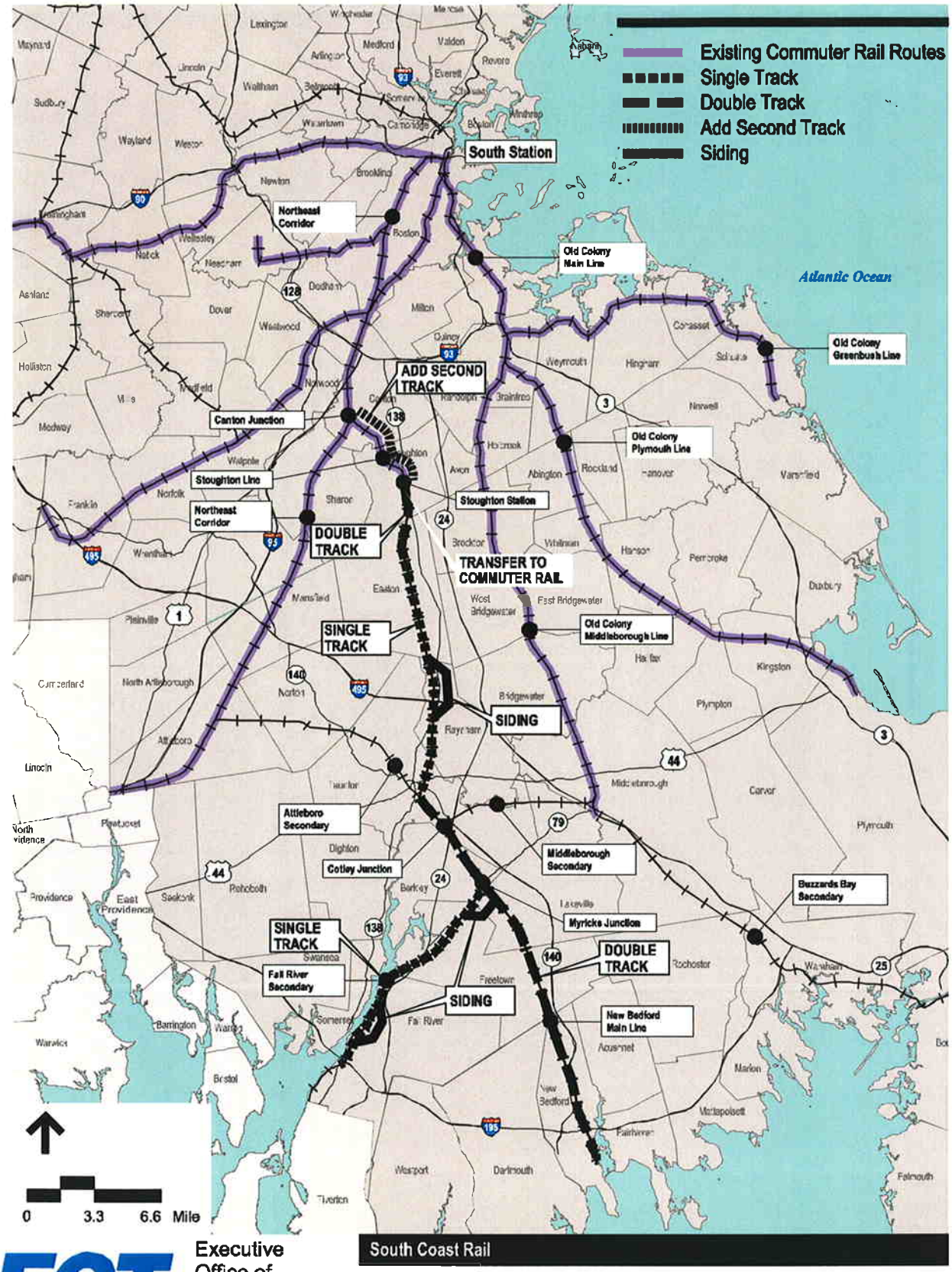
South Coast Rail

Executive Office of Transportation & Public Works

Alternative 33
Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Darthmouth Secondary

This alternative would provide commuter rail service using diesel multiple units along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then north along the existing right-of-way through Raynham, Easton, and Stoughton. A transfer would be needed to connect to the existing Stoughton Line commuter rail service at Stoughton Station. An additional service would be provided along the Dartmouth Secondary between Fall River and New Bedford.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A12C.dwg

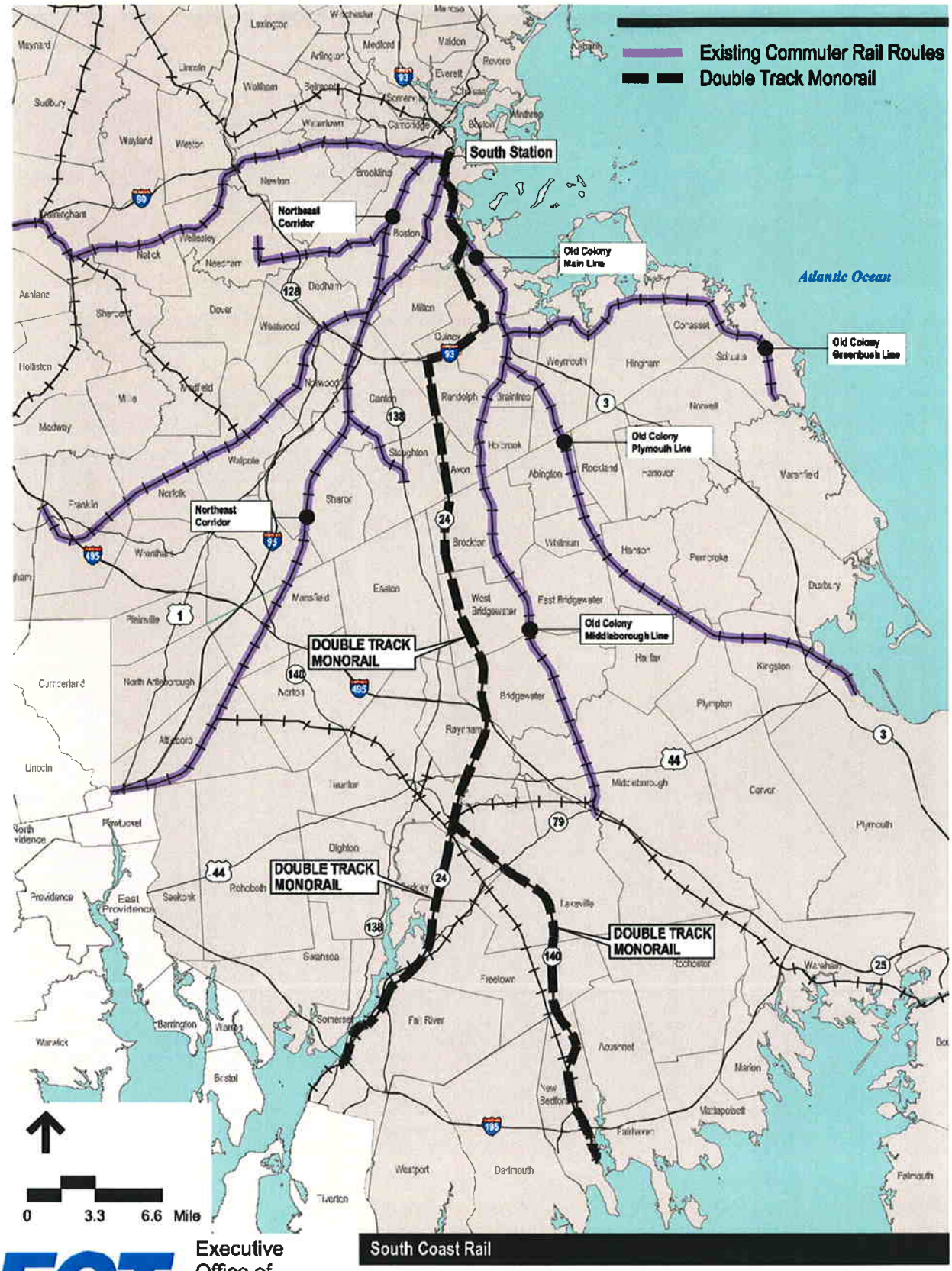


Executive Office of Transportation & Public Works

Alternative 34
Electrified Commuter Rail to South Station via Stoughton

This alternative would provide electrified commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then north along the existing rights-of-way through Raynham, Easton, and Stoughton to tie into the Stoughton Line at Stoughton Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A1C.dwg



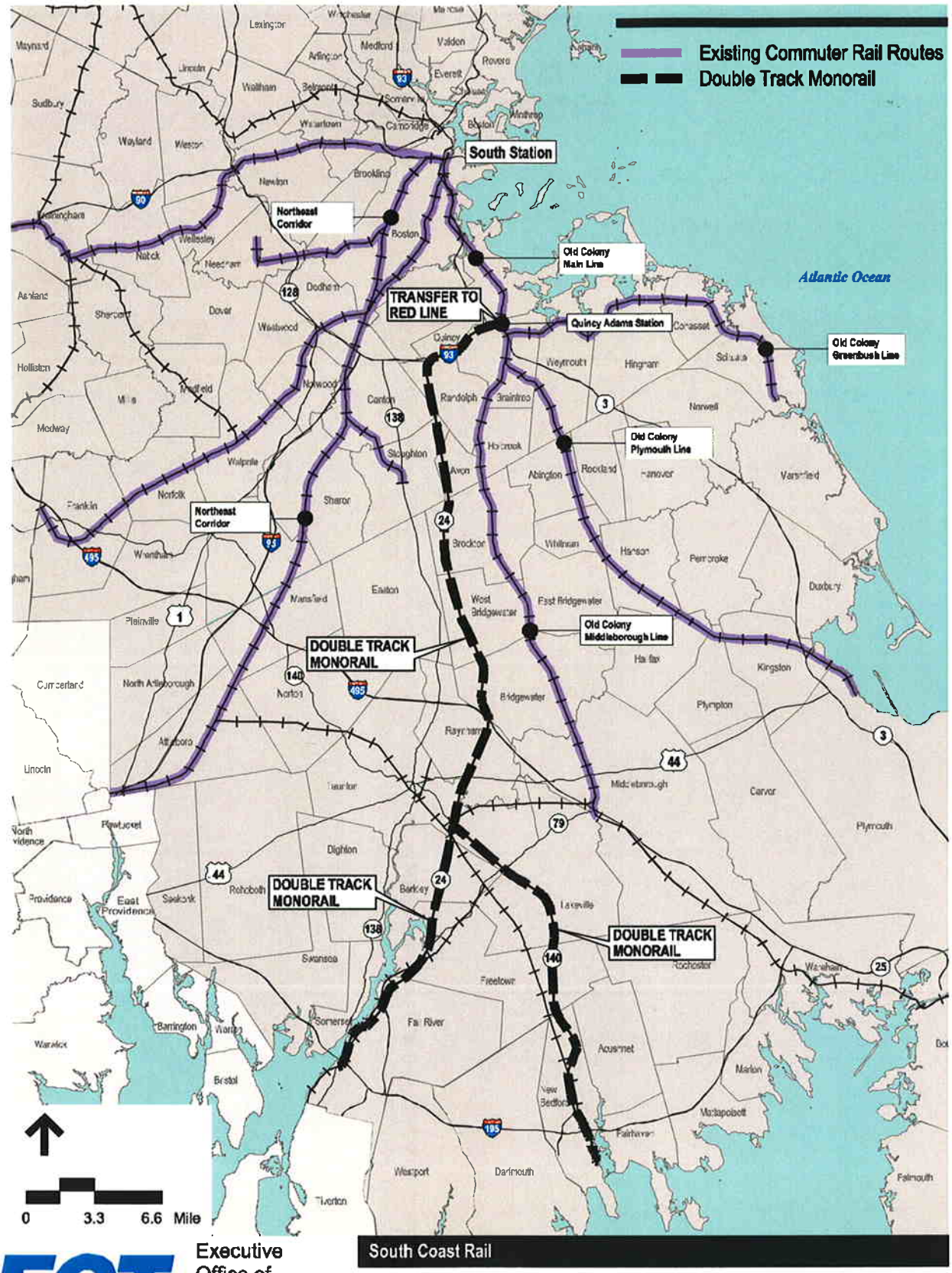
South Coast Rail

Executive Office of Transportation & Public Works

Alternative 37
Monorail to South Station via Route 140, Route 24, Route 128 and Southeast Expressway

This alternative would provide monorail service along the Route 24 and Route 140 rights-of-way from Fall River/New Bedford north to Randolph, then along the Route 128/I-93 right-of-way, and north along the Southeast Expressway right-of-way to South Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A18.dwg

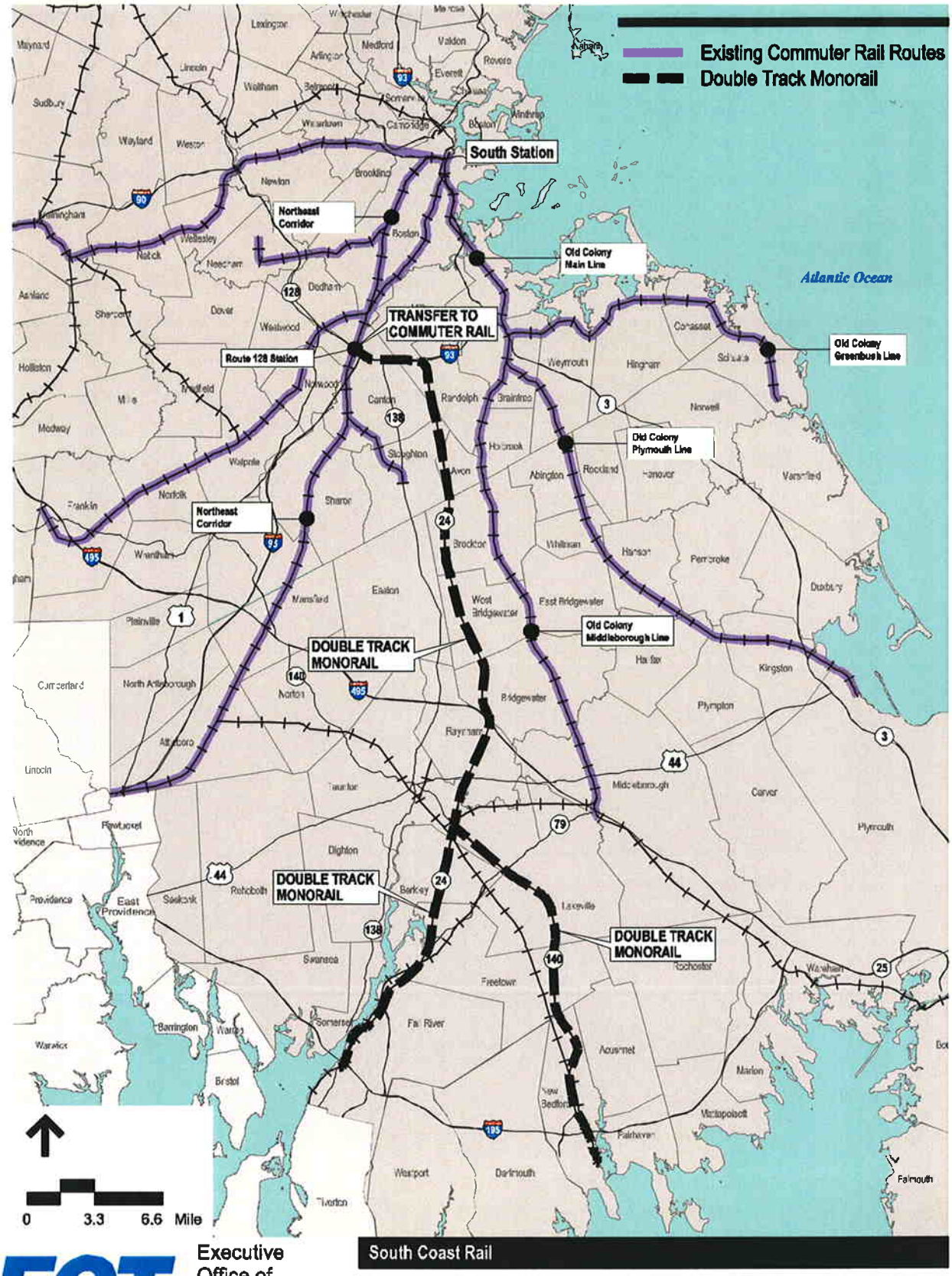


Executive Office of Transportation & Public Works

Alternative 38
Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128

This alternative would provide monorail service along the Route 24 and Route 140 rights-of-way from Fall River/New Bedford north to Randolph, then east along the Route 128/I-93 right-of-way. A transfer would be needed to connect to the existing Red Line rapid transit service at Quincy Adams Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A1A.dwg

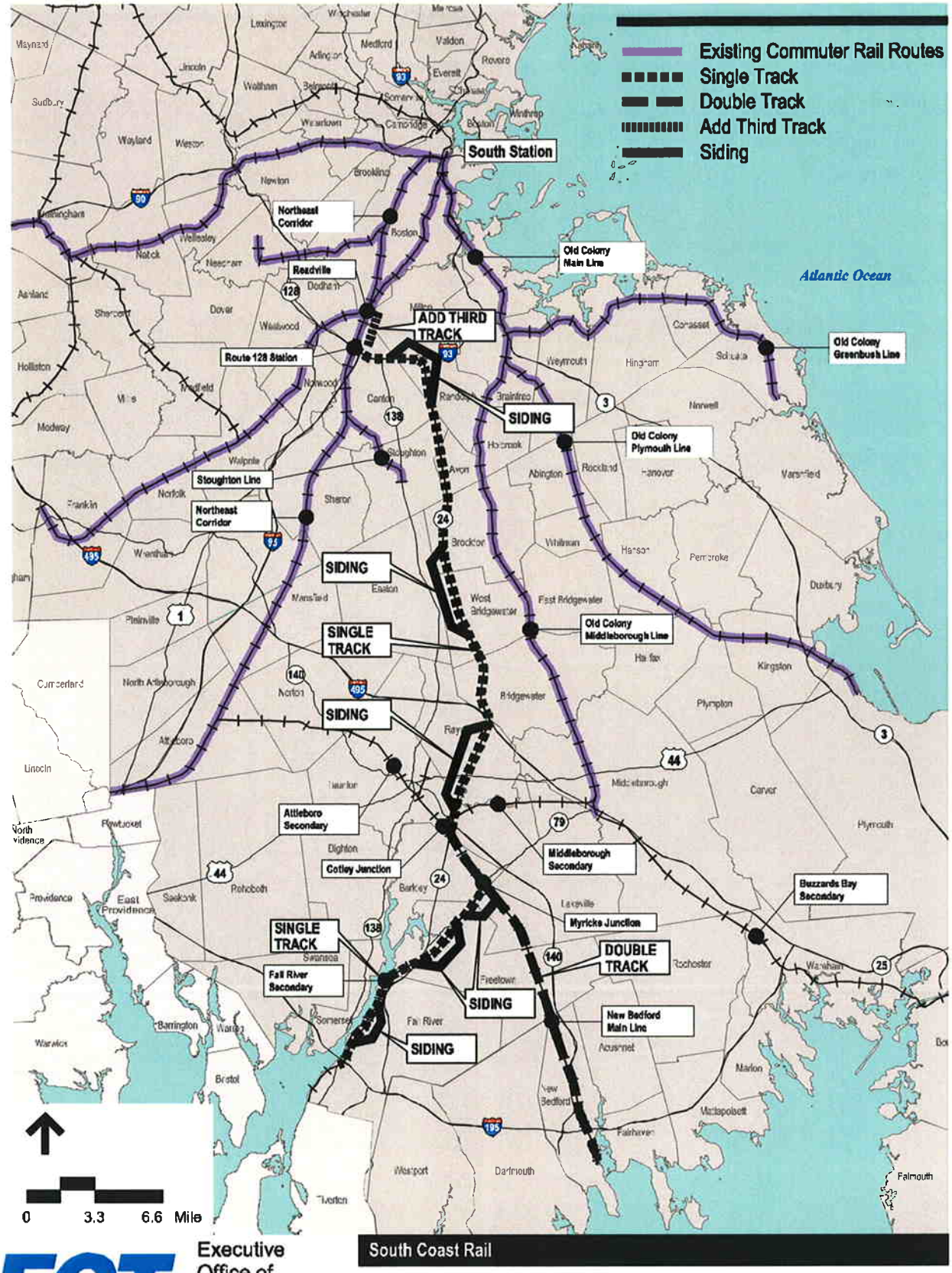


Executive Office of Transportation & Public Works

Alternative 39
Monorail to Route 128 Station via Route 140, Route 24, and Route 128

This alternative would provide monorail service along the Route 24 and Route 140 rights-of-way from Fall River/New Bedford north to Randolph, then west along the Route 128/I-93/I-95 right-of-way. A transfer would be needed to connect to the existing Providence Line and Stoughton Line commuter rail service at the Route 128 Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A21.dwg



Executive Office of Transportation & Public Works

Alternative 40
Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then on new track along the Route 24 right-of-way north to Randolph, and west along the Route 128/I-93 right-of-way. This alternative would tie into the Northeast Corridor near the Route 128 Station.

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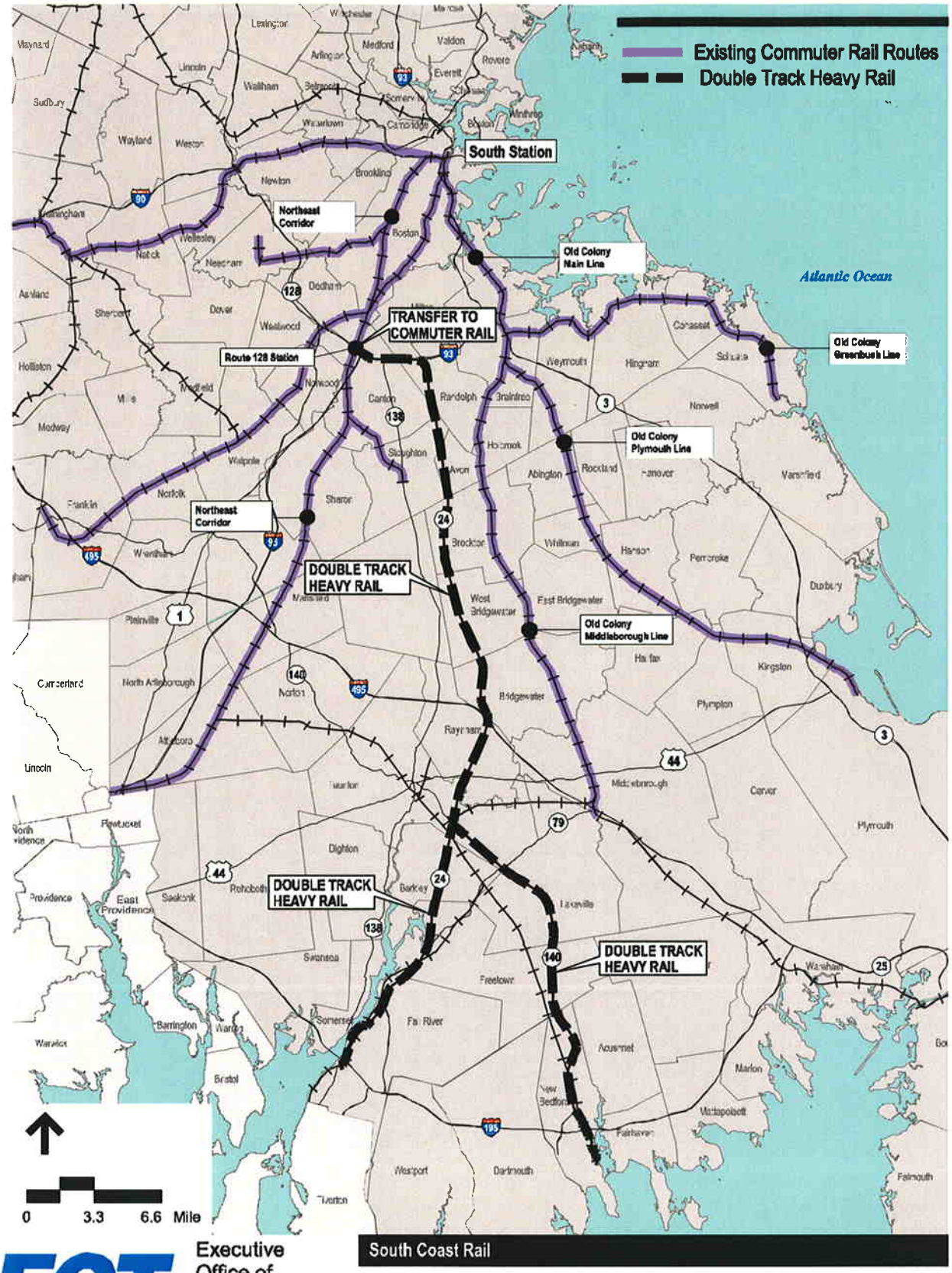

Executive Office of Transportation & Public Works

Alternative 41
Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128

This alternative would provide heavy or light rail transit service along the Route 24 and Route 140 rights-of-way from Fall River/New Bedford north to Randolph, then west along the Route 128/I-93/I-95 rights-of-way. A transfer would be needed to connect to the existing Providence Line and Stoughton Line commuter rail service at the Route 128 Station.

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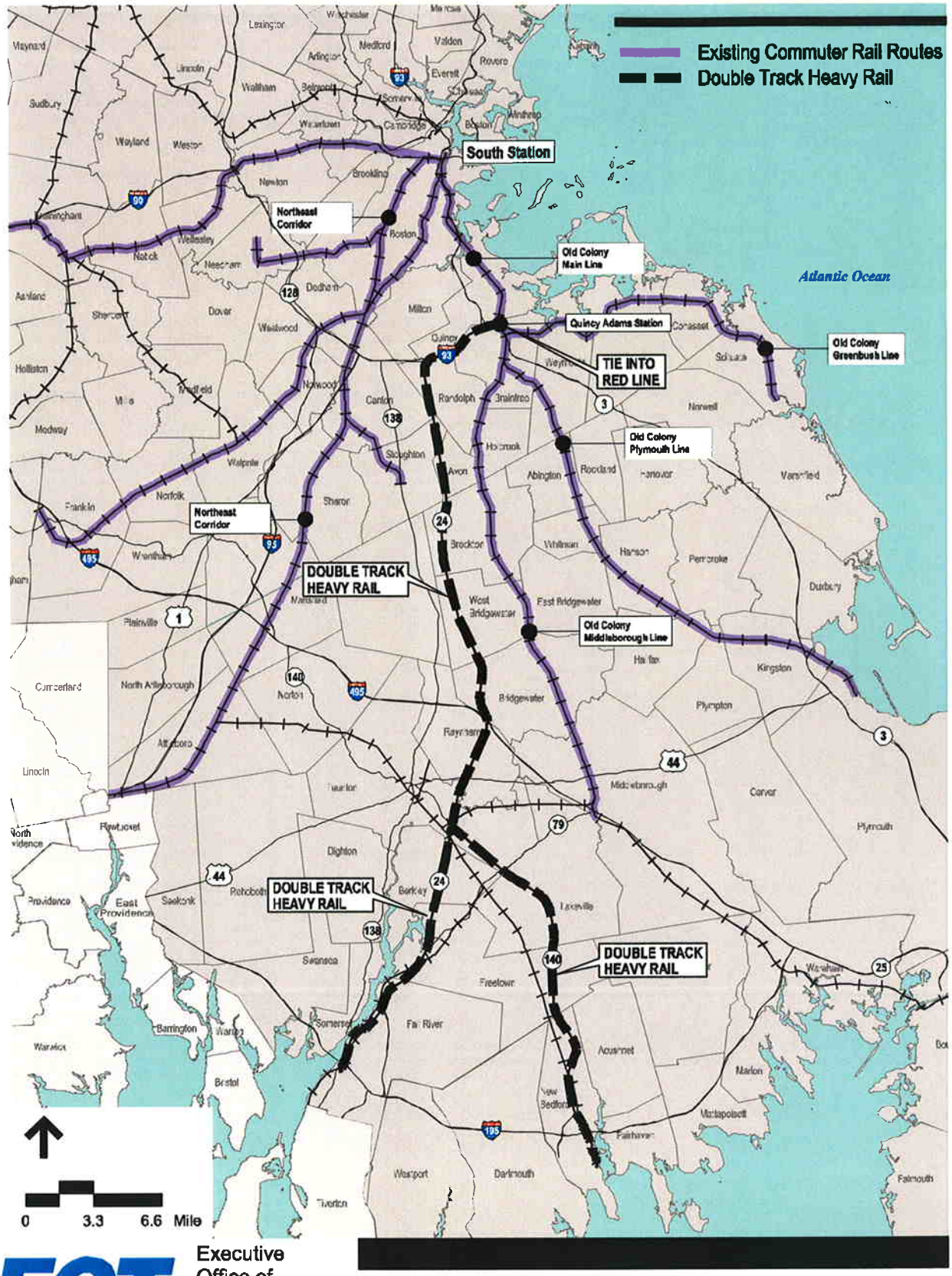

Executive Office of Transportation & Public Works

Alternative 42
Heavy Rail to South Station ia Route 140, Route 24, Route 128, and Red Line

This alternative would provide heavy rail transit service along the Route 24 and Route 140 rights-of-way from Fall River/New Bedford north to Randolph, then east along the Route 128/I-93 right-of-way. This alternative would tie into the Red Line at the Quincy Adams Red Line Station.

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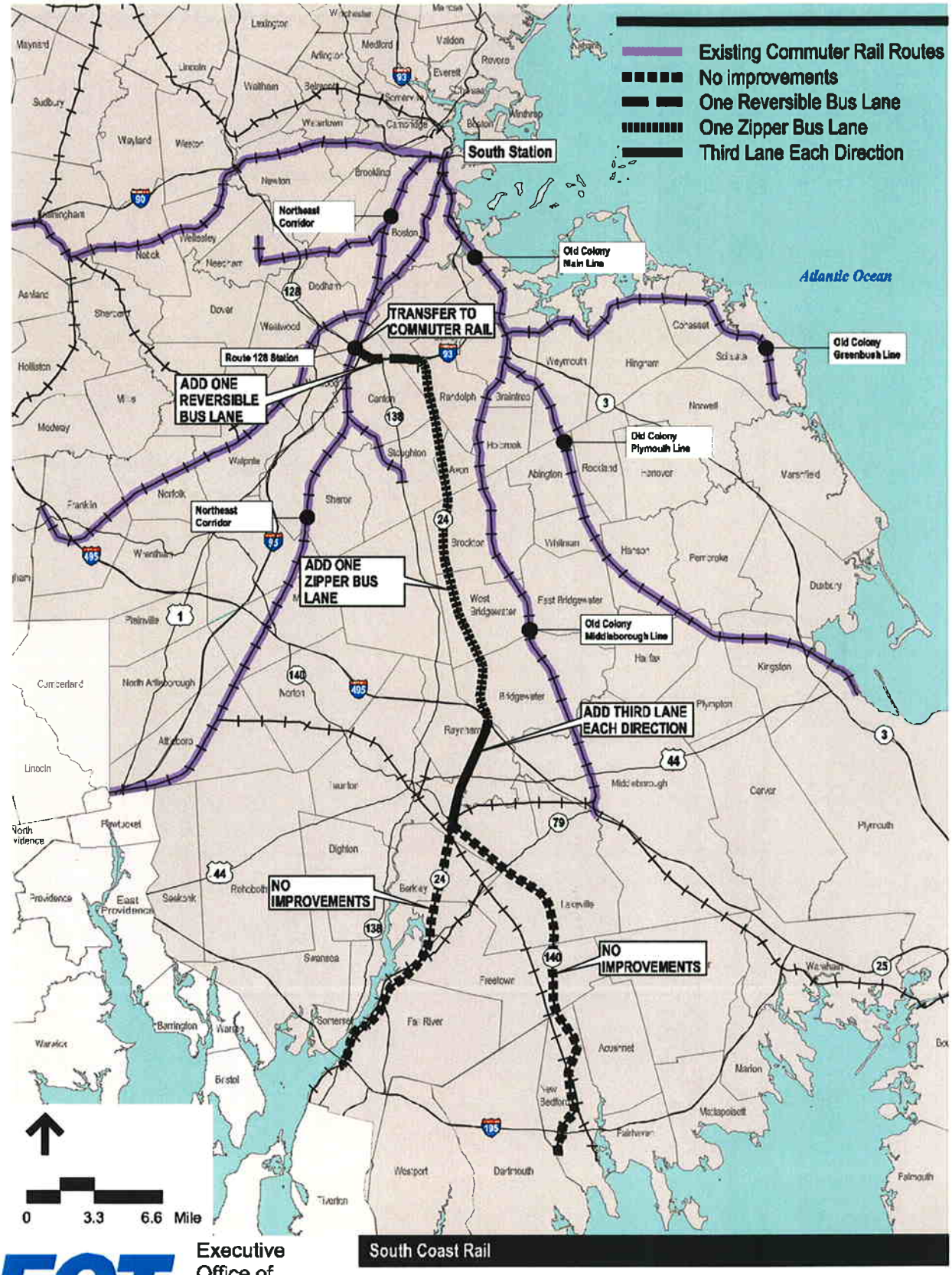
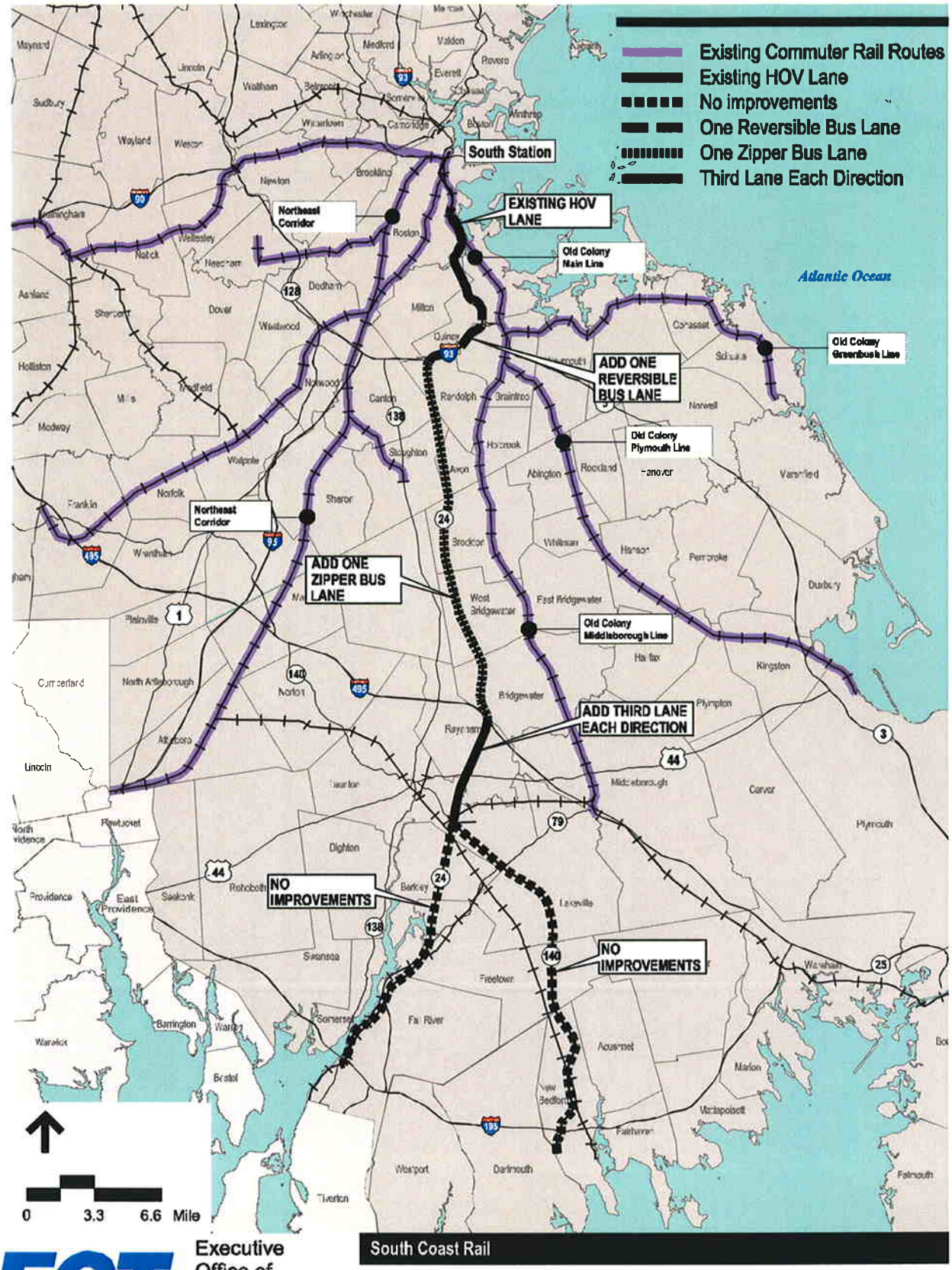


Executive Office of Transportation & Public Works

Alternative 43
Express Bus in Dedicated Lane to Route 128 Station via Route 24 and Route 128

This alternative would provide an exclusive bus lane on Route 24 from I-495 north to Randolph, then west on Route 128. A transfer would be needed to connect to the existing Providence Line and Stoughton Line commuter rail service at the Route 128 Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A58.dwg

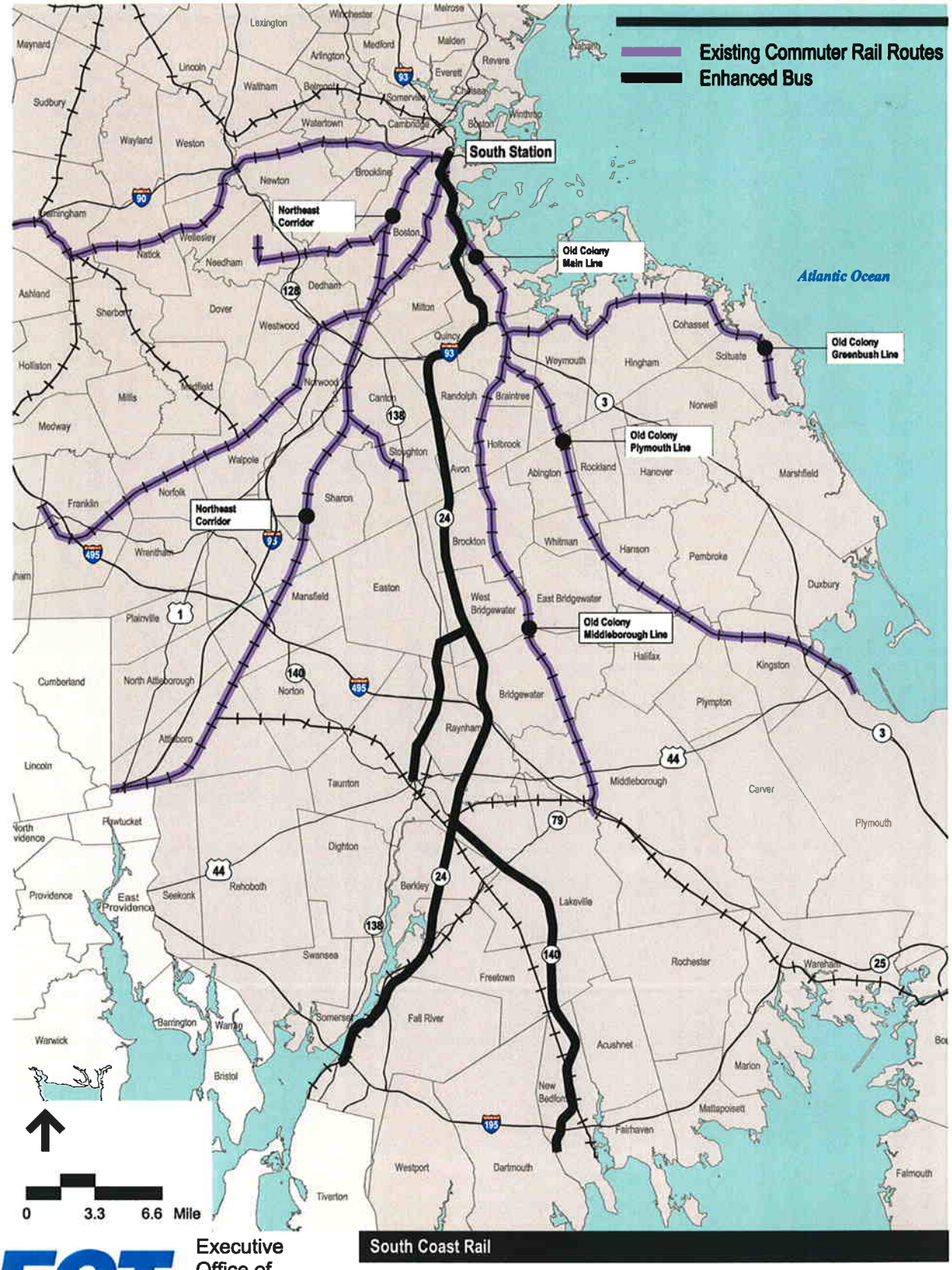


Executive Office of Transportation & Public Works

Alternative 44
Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway

This alternative would provide an exclusive bus lane on Route 24 from I-495 north to Randolph, then east on Route 128/I-93 to connect to the existing Southeast Expressway HOV Lane to South Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A9.dwg

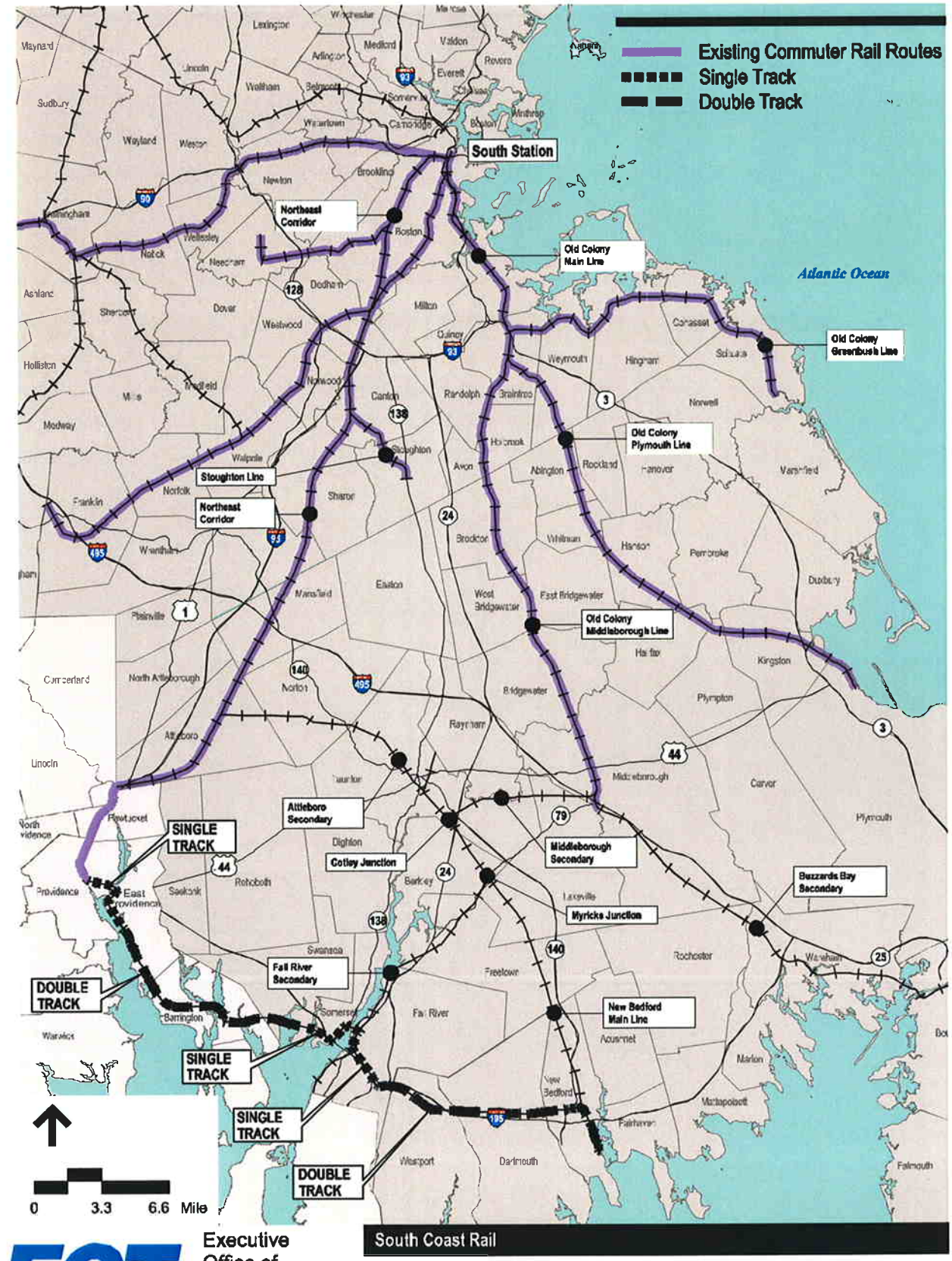


Executive Office of Transportation & Public Works

Alternative 45
Enhanced Bus Service on Existing Private Carrier Routes

This alternative would provide increased bus service and increased parking for bus commuters along the existing private bus carrier lines from Fall River, New Bedford, and Taunton to South Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2J.dwg

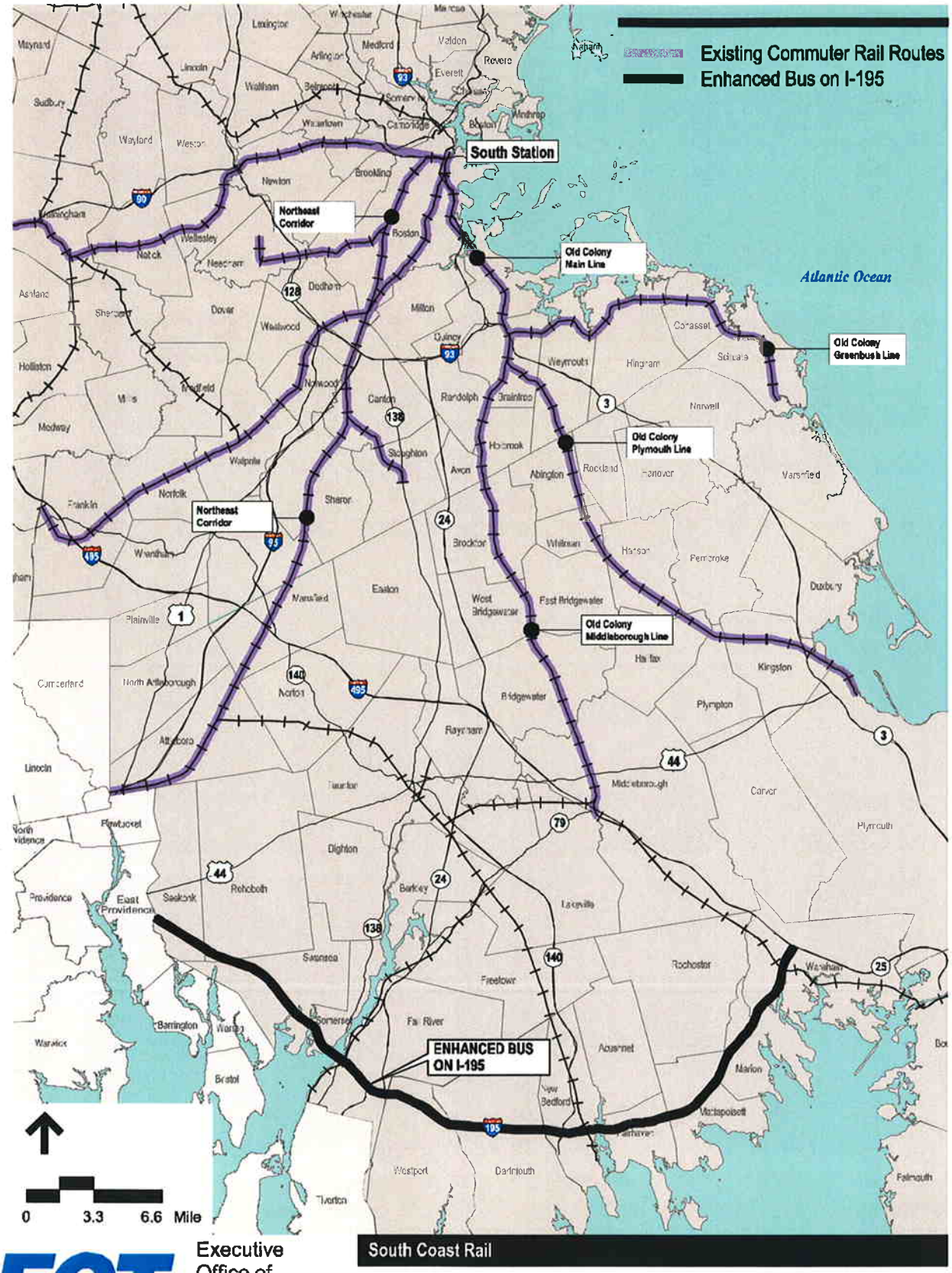


Executive Office of Transportation & Public Works

Alternative 56
Commuter Rail to South Station via Providence

This alternative would provide commuter rail service along the Dartmouth Secondary and an old right-of-way through Rhode Island between New Bedford, Fall River, and Providence, Rhode Island. It would tie into the Northeast Corridor just north of Providence Station, and trains would continue north to South Station.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A10.dwg

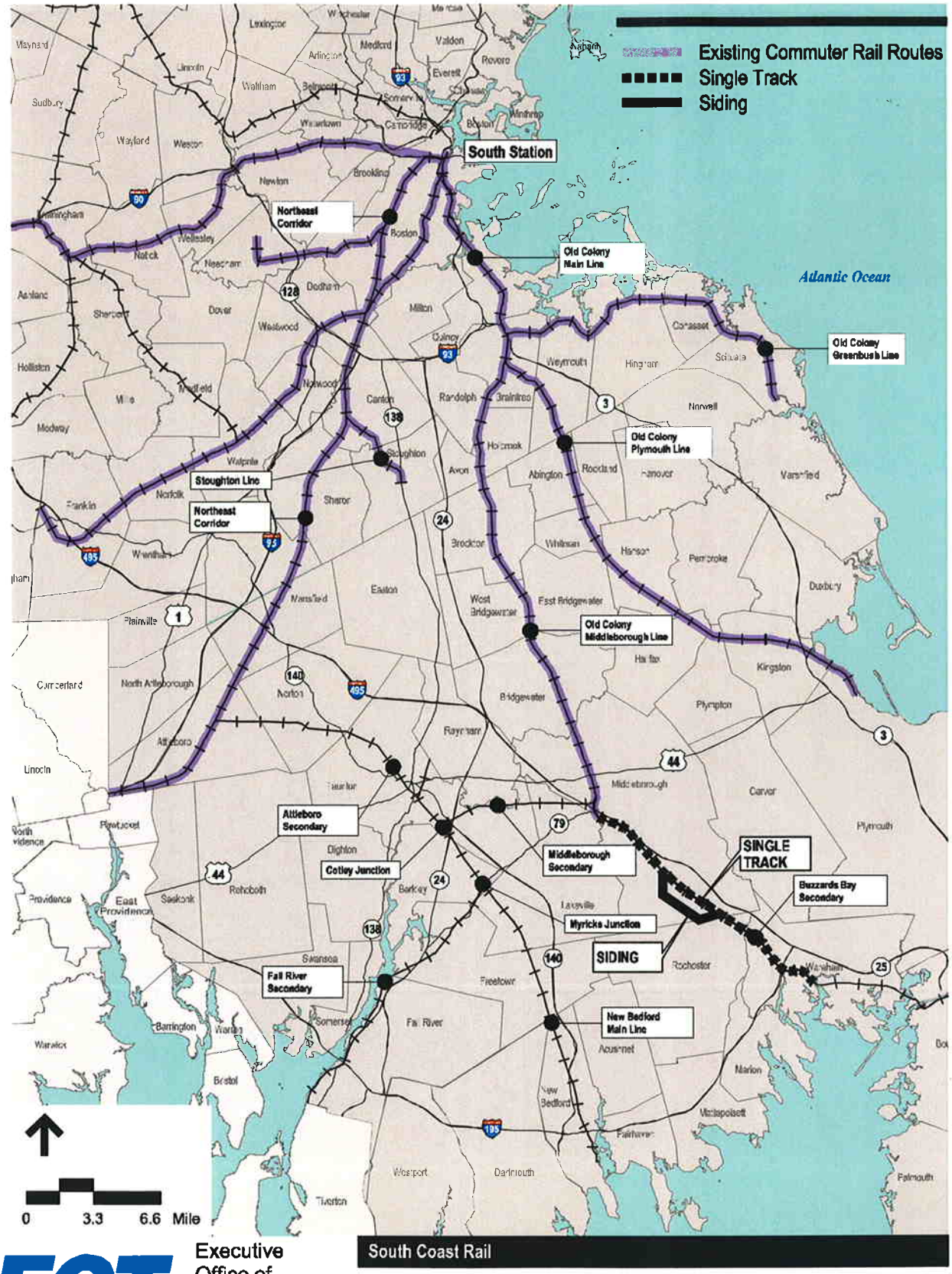


Executive Office of Transportation & Public Works

Alternative 57
Enhanced Bus on Interstate 195

This alternative would provide increased bus service along Interstate 195 between Wareham and Providence.

\\Mabas\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A11.dwg



South Coast Rail

Executive Office of Transportation & Public Works

Alternative 58
Commuter Rail to Wareham

This alternative would extend the existing Middleborough Line commuter rail service to Wareham and/or Buzzards Bay.

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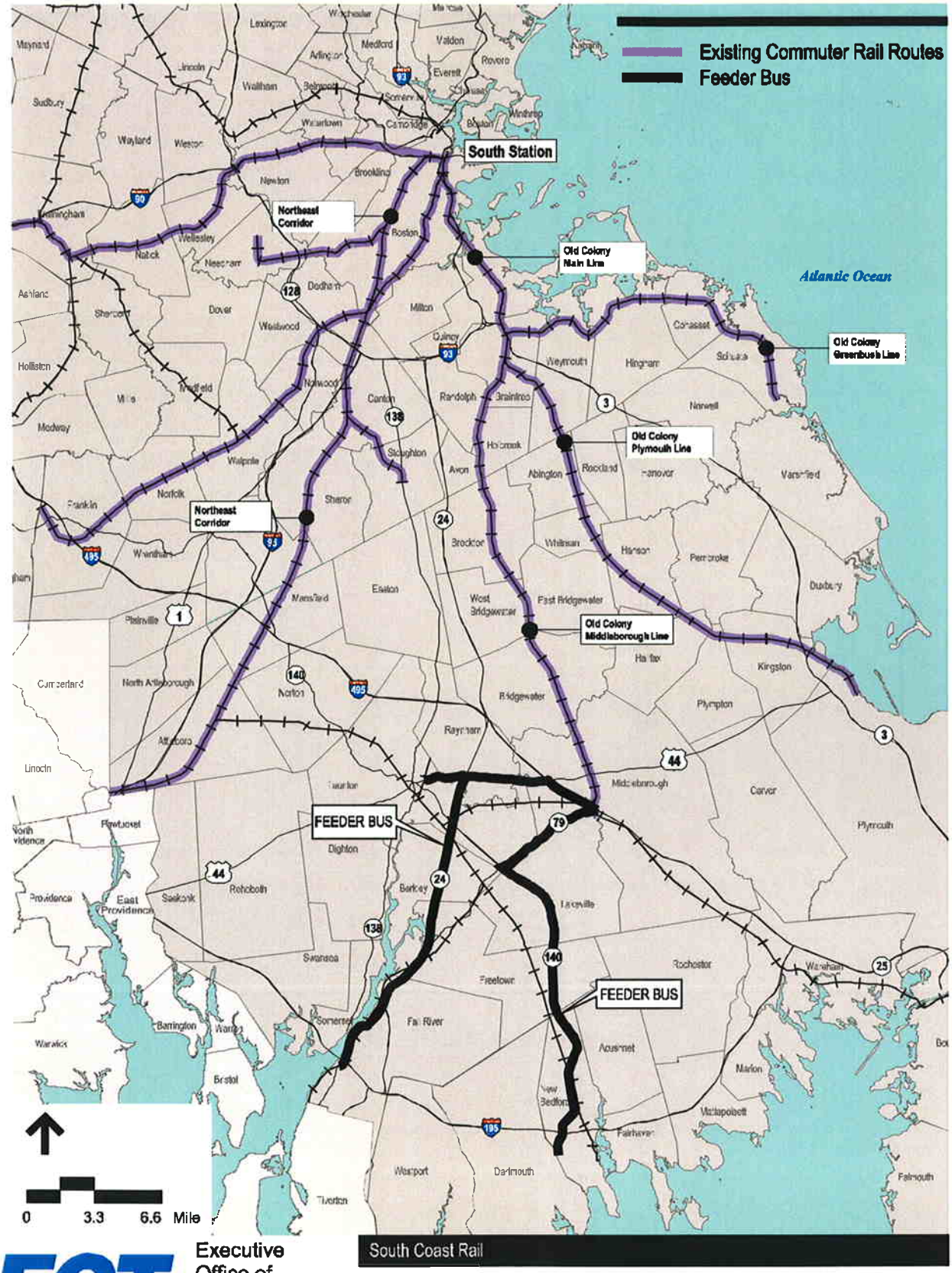
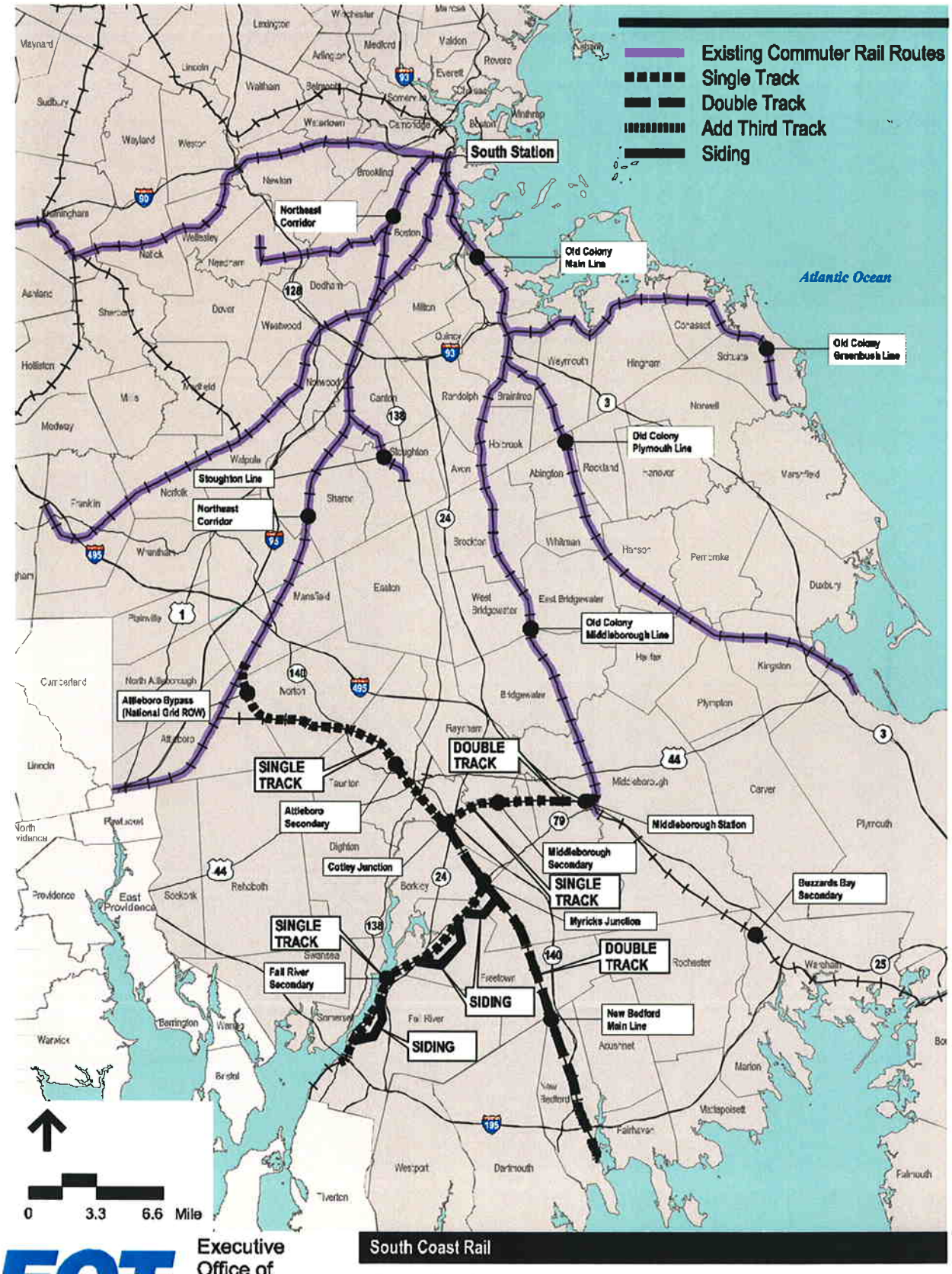


Executive Office of Transportation & Public Works

Alternative 61
Feeder Bus Network to Middleborough/Lakeville Station

This alternative would provide feeder bus network service from the New Bedford /Fall River area to transfer to the Middleborough Line commuter rail service at the Middleborough/Lakeville Station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2N.dwg



Executive Office of Transportation & Public Works

Alternative 62
Commuter Rail to South Station via Attleboro Bypass and Middleborough Line

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction. One branch would go west along the Attleboro Secondary with a new track bypass along the National Grid electric transmission right-of-way to tie into the Northeast Corridor near the Mansfield, Attleboro, and Norton town lines. A second branch would go east along the Middleborough Secondary and tie into the Middleborough Line at a new relocated Middleborough/Lakeville Station, located north of the existing station.

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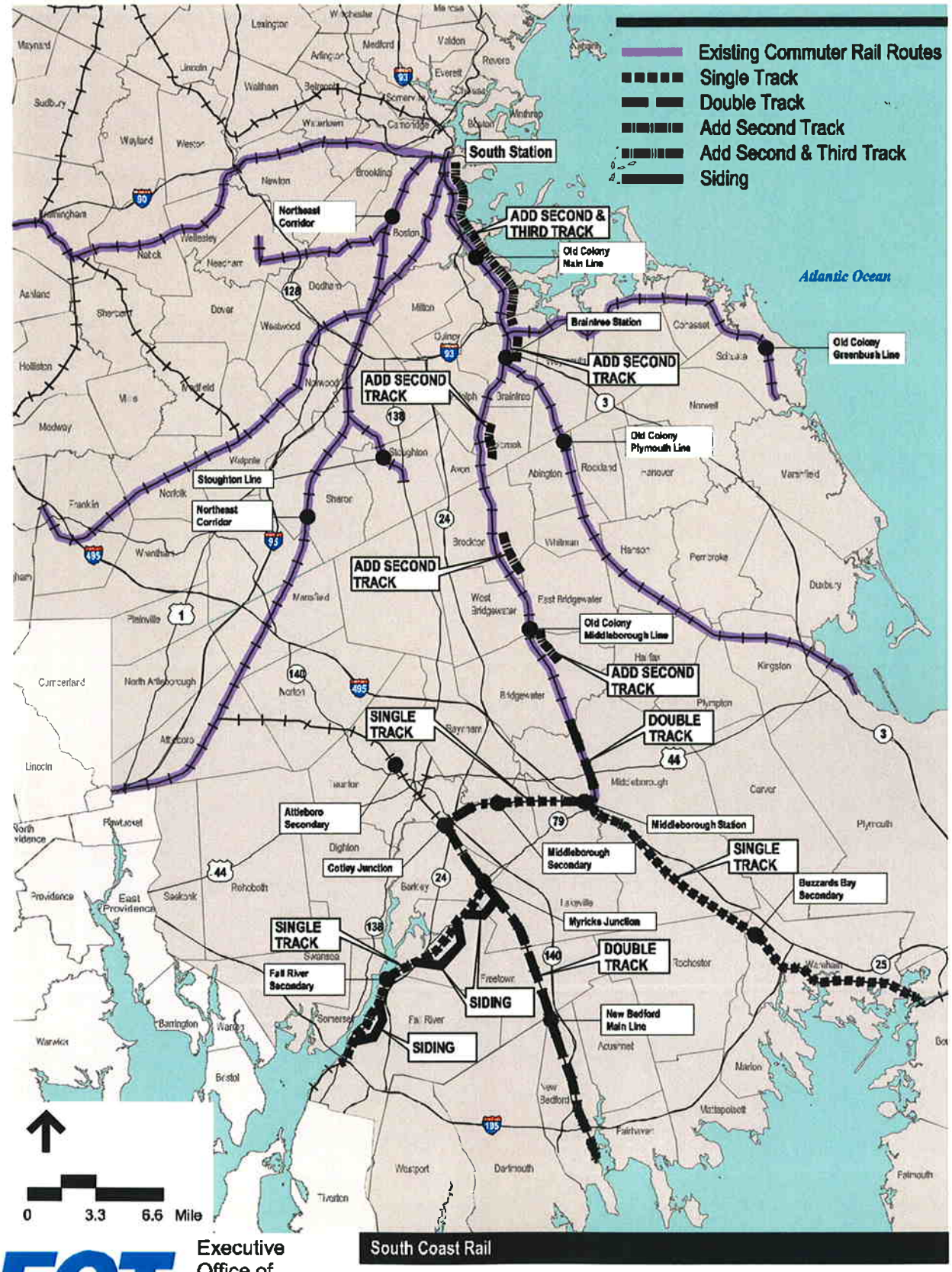
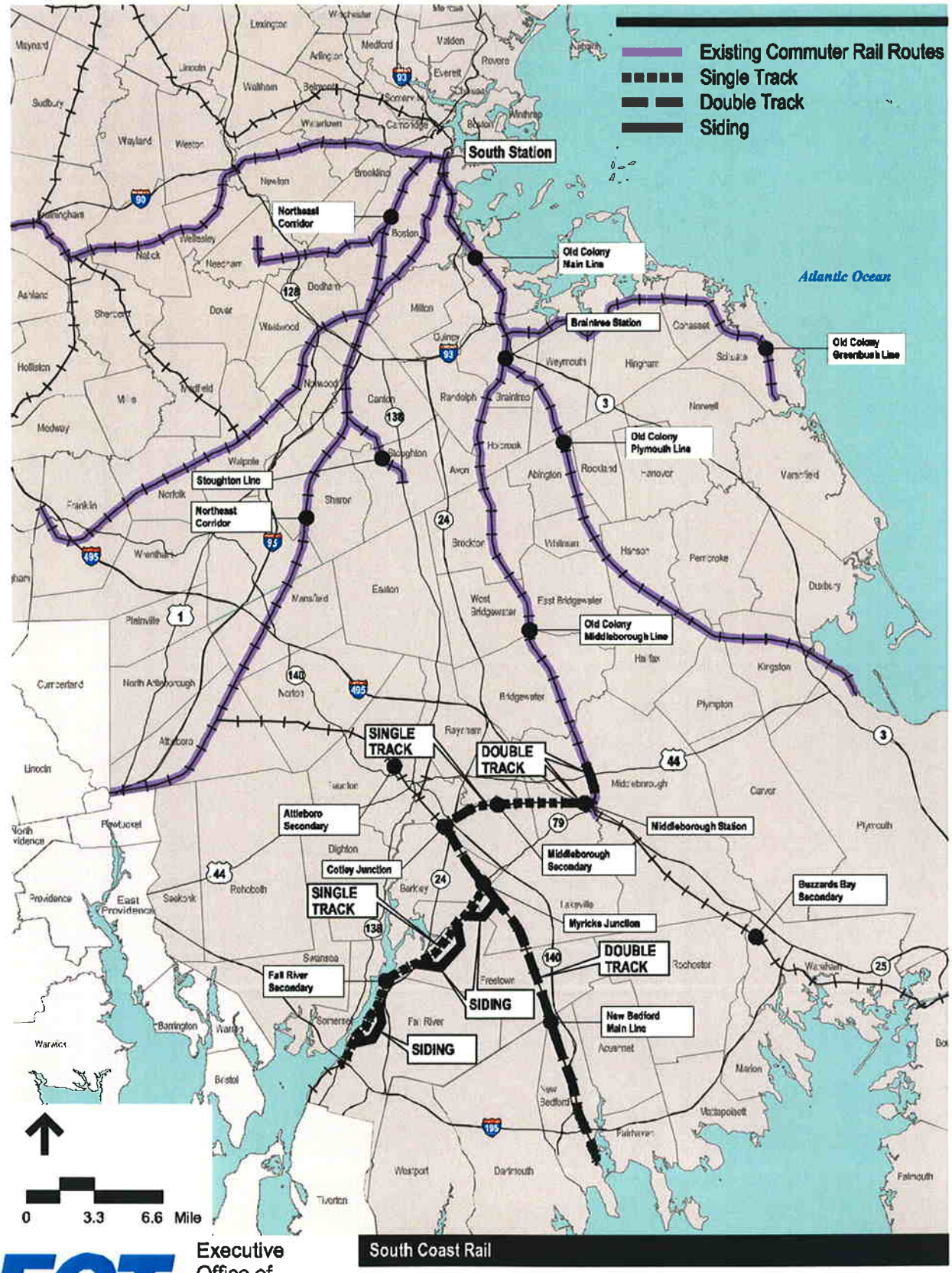


Executive Office of Transportation & Public Works

Alternative 63
Commuter Rail to South Station via Middleborough, also extend Middleborough Line to Wareham

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary to tie into the Middleborough Line just north of Middleborough/Lakeville Station. It would also extend the existing Middleborough Line commuter rail service to Wareham and/or Buzzards Bay.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111A2P.dwg

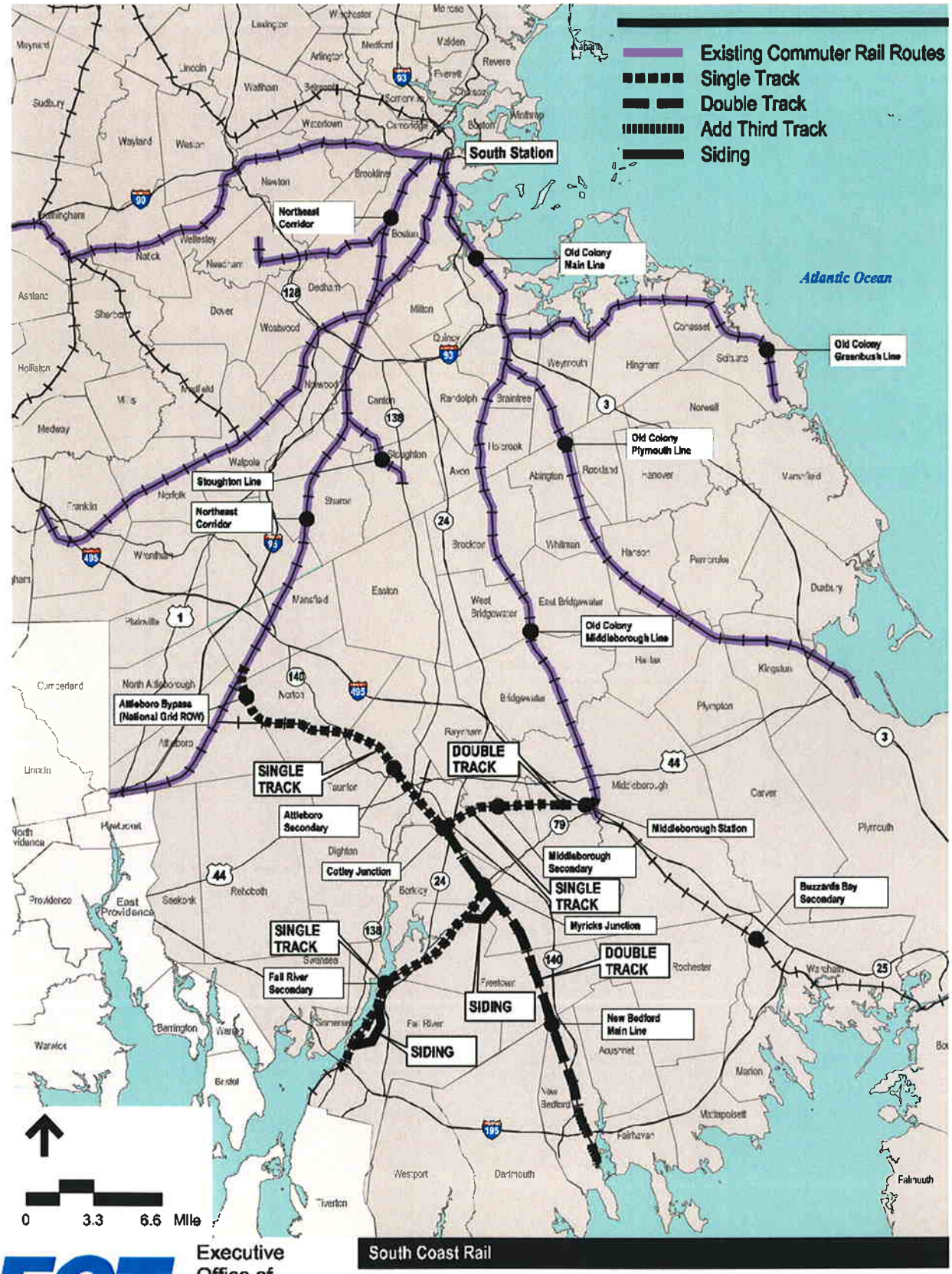


Executive Office of Transportation & Public Works

Alternative 64
Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

This alternative would provide commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction, then east along the Middleborough Secondary to tie into the Middleborough Line at a new Middleborough/Lakeville Station, located north of the existing station.

\\Mabos\projects\10111.00\graphics\FIGURES\Tier 1 Alternatives\Rev Alts 041608\10111ALT 65.dwg



Executive Office of Transportation & Public Works

Alternative 65
Electrified Commuter Rail to South Station via Attleboro Bypass and Middleborough

This alternative would provide diesel and electric commuter rail service along the New Bedford Main Line and the Fall River Secondary north to Cotley Junction. One electric branch would head west along the Attleboro Secondary with a new track bypass along the National Grid right-of-way to tie into the Northeast Corridor north of the Attleboro station. One diesel branch would travel along the Middleborough Secondary to tie into the Middleborough Line just north of the Middleborough/Lakeville Station. The Middleborough Line would not be electrified.

5

Step 1 Analysis

This chapter describes the first screening step to determine if a proposed alternative was capable of achieving the Project purpose.

5.1 Introduction

Step 1 evaluated whether an alternative meets the Project purpose, "to more fully meet the existing and future demand for public transportation between Fall River/ New Bedford and Boston, Massachusetts to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities." Two sub-criteria were used to evaluate the 38 Phase 1 alternatives.[1]

- 1.1 – Improve regional mobility
- 1.2 – Improve quality of service

The Step 1 screening criteria were applied to the entire range of potential alternatives, and relied on easily identifiable attributes of the conceptual alternatives. Alternatives that do not meet the Step 1 criteria were dismissed from further consideration. Alternatives which were not dismissed at this stage were advanced to Step 2, which will evaluate whether they are practicable to construct and operate. The specific measures for each criterion are described below.

Table 5-1 provides the measures used to evaluate the Step 1 Criteria.

[1] One other alternative was added to the analysis in Step 4 (Alternative 65, the Attleboro-Middleborough combination with both diesel and electric service).

Table 5-1 Measures Used to Evaluate Step 1

Criterion	Measure	Rating	
1.1 Improve Regional Mobility	Provide public transit connections between New Bedford/Fall River and Boston and provide public transit connections between South Coast cities (New Bedford, Fall River, Taunton, and others)	●	Connects New Bedford and Fall River to Boston, and provides connections between New Bedford and Fall River as well as other local destinations
		◑	Connects New Bedford and Fall River to Boston
		⊘	Doesn't connect New Bedford and Fall River to Boston
1.2 Improve Quality of Service	Provide a transit trip that is competitive to (or better than) travel by car (existing travel time by car to New Bedford during peak commuting periods is 90 minutes)	●	Trip time less than 65 minutes
		◑	Trip time between 65 and 90 minutes
		○	Trip time between 91 and 98 minutes (assumes commuters will accept a transit trip that is 10 minutes longer than by car)
		⊘	Trip time between 99 and 105 minutes
		⊗	Trip time more than 105 minutes
	Provide a transit trip that is reliable (travel times are consistent, scheduled arrival/departure times are consistently met) with minimal unanticipated delays	◑	Highly reliable because there is an exclusive right-of-way not shared with another mode or service
		○	Medium reliability because requires a transfer between modes (for example, between high frequency DMUs and low-frequency commuter rail)
		⊘	Low reliability because right-of-way is shared with another mode (freight and commuter rail) or with another commuter rail service, or because transfers are required between modes
	Provide a transit trip that is comfortable and minimizes transfers	◑	Comfortable - no transfers, "one-seat ride"
		⊘	Less comfortable - one transfer (commuter comfort decreased by waiting on platform, changing seats)

5.1.1 Criterion 1.1 — Improve Regional Mobility

Criterion: *Does the Alternative Improve Regional Mobility?*

To meet the Project purpose, an alternative must improve regional mobility between Fall River/New Bedford and downtown Boston by providing options for travel between New Bedford/Fall River and downtown Boston other than automobiles. An alternative will be rated more favorably if it enhances mobility between points within the region as well.

5.1.2 Criterion 1.2 — Improve Quality of Service

Criterion: *Does the Alternative Improve Quality of Service?*

An alternative that does not improve the quality of transit services over the existing services provided in the region provides no functional benefit to the communities. Quality of service is assessed based on commuting time, reliability, comfort, convenience, and safety. For the purposes of the screening process, EOT is only considering travel time, reliability, and the number of transfers as subcriteria. Since New Bedford/Fall River commuters currently rely on cars and private bus services, an improved quality of service would provide a comparable or competitive travel time and improved reliability with respect to existing commuter options during peak commuting periods. The average commuting time by car is 90 minutes during rush hour. For the Step 1 evaluation, it was assumed that commuters will accept a transit trip that is 10 minutes longer than by car (90 minutes). The travel time of the different alternatives is based on the typical operating speed of each mode (monorail, light rail, bus, commuter rail, electric commuter rail, etc.) as well as the transfer times if an alternative requires a transfer between modes. Reliability is evaluated by the potential for a service to be delayed by external factors, such as congestion on an alternative running in mixed traffic (such as a bus on a highway).

Detailed information on typical operating speeds is provided in Chapter 3 and transfer times for each alternative is provided in Appendix A. These trip times are for comparative purposes in this step of the Phase 1 analysis. When operating plans are developed for the alternatives in Phase 2, and station locations are identified, the estimated trip times are likely to change and may be longer than estimated in this Phase 1 comparison.

5.2 Step 1 Results

The following sections describe the results of the Step 1 evaluation. Table 5-2 shows the Step 1 ratings and recommendations for each alternative. If an alternative was ranked "Highly Unfavorable" for any criterion, EOT recommended that it be dismissed from further consideration.

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Table 5-2
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 1

FINAL
04/30/08

Number of Alternatives for Step 1 = 38

Route	Alt #	Name	CRITERION 1.1 - Improves Regional Mobility? RANK	CRITERION 1.2 - Improves Quality of Service? Trip Time (minutes)	# of Transfers	Reliability (High, Medium, Low)	RANK	Step 1 Rationale	Recommend to Advance to Step 2
THROUGH ATTLEBORO OR MANSFIELD		***ATTLEBORO SECONDARY***							
	1	Commuter Rail to South Station via Attleboro Bypass	◑	74 ◑	0 ◑	High ◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	2	Commuter Rail to South Station via Attleboro Station with Reverse Move	◑	94 ○	0 ◑	Medium ○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, no transfer, and medium reliability	YES
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	●	87 ◑	0 ◑	High ◑	◑	1.1) HIGHLY FAVORABLE = Connects New Bedford/Fall River to Boston and provides mobility within the South Coast region 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	4	Bus Rapid Transit to Attleboro Station	◑	106 ⊗	1 ⊘	Medium ○	⊗	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY UNFAVORABLE = Does not improve quality of service since trip time is 16 minutes longer than auto drive time and affects passenger comfort and convenience (requires a transfer)	**NO**
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	◑	97 ○	1 ⊘	Medium ○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive drive time but affects passenger comfort and convenience (requires a transfer and has medium reliability)	YES
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	●	96 ○	1 ⊘	Medium ○	○	1.1) HIGHLY FAVORABLE = Connects New Bedford/Fall River to Boston and provides mobility within the South Coast region 1.2) NEUTRAL = Competitive drive time but affects passenger comfort and convenience (requires a transfer and has medium reliability)	YES
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	◑	56 ●	0 ◑	High ◑	●	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
		MANSFIELD FORMER RIGHT-OF-WAY							
	11	Commuter Rail to South Station via Mansfield	◑	70 ◑	0 ◑	High ◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	12	Bus Rapid Transit to Mansfield Station	◑	97 ○	1 ⊘	Medium ○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive drive time but affects passenger comfort and convenience (requires a transfer and has medium reliability)	YES
	13	Diesel Multiple Units Commuter Rail to Mansfield Station	◑	87 ◑	1 ⊘	Medium ○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	14	Diesel Multiple Units to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary	●	87 ◑	1 ⊘	Medium ○	○	1.1) HIGHLY FAVORABLE = Connects New Bedford/Fall River to Boston and provides mobility within the South Coast region 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	15	Electrified Commuter Rail to South Station via Mansfield	◑	51 ●	0 ◑	High ◑	●	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY FAVORABLE = Competitive trip time, no transfer, and high reliability	YES

LEGEND

- ● **Highly Favorable**
- ◑ **Favorable**
- ○ **Neutral**
- ⊘ **Unfavorable**
- ⊗ **Highly Unfavorable**

Trip Times (minutes)*

≤ 64 = Highly Favorable (Level of Service = A)

65 -90 = Favorable (Level of Service = A)

90 = Existing auto drive time

91-98 = Neutral (Level of Service = B)

99-105 = Unfavorable (Level of Service = C)

≥ 106 = Highly Unfavorable (Level of Service = D)

Trip Time Assumptions

1. No speed restrictions, except for road/track geometry. Phase 2 travel times may be larger due to civil speed restrictions.

2. Dwell time at station stops is 1 minute, not including acceleration/deceleration.

3. Maximum speeds (mph): Monorail/Light Rail/Heavy Rail 50; Bus 55; Diesel Multiple Unit 70; Commuter Rail 79; Electric Commuter Rail 110.

# of Transfers

0 = Favorable

1 = Unfavorable

Reliability

High = Favorable; Has exclusive right-of-way and no transfers

Medium = Neutral; Has exclusive right-of-way but requires transfer

Low = Unfavorable; Subject to delays from traffic congestion

Source: *Transit Capacity and Quality of Service Manual - 2nd Edition.* Transit Cooperative Research Program. Part 3, Chapter 3, pp. 3-49 to 3-50.

* These trip times are for comparative purposes in this step of the Phase 1 analysis. When operating plans are developed for the alternatives in Phase 2, and station locations are identified, the estimated trip times are likely to change and may be longer than estimated in this Phase 1 comparison.

Table 5-2
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 1

FINAL
04/30/08

Number of Alternatives for Step 1 = 38

Route	Alt #	Name	CRITERION 1.1 - Improves Regional Mobility? RANK	CRITERION 1.2 - Improves Quality of Service? Trip Time (minutes)		# of Transfers		Reliability (High, Medium, Low)	RANK	Step 1 Rationale	Recommend to Advance to Step 2
	MIDDLEBOROUGH SECONDARY										
THROUGH MIDDLEBOROUGH	17	Commuter Rail to South Station via Middleborough	◑	82	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	18	Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail	◑	82	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	20	Bus Rapid Transit to Middleborough/Lakeville Station	◑	110	⊗	1	⊘	Medium	○	⊗	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY UNFAVORABLE = Does not improve quality of service since trip time is 20 minutes longer than auto drive time and affects passenger comfort and convenience (requires a transfer)	**NO**
	21	Diesel Multiple Units Commuter Rail to Middleborough/Lakeville Station	◑	100	⊘	1	⊘	Medium	○	⊘	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) UNFAVORABLE = Does not improve quality of service since trip time is 10 minutes longer than auto drive time and affects passenger comfort and convenience (requires a transfer)	**NO**
	22	Diesel Multiple Units to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary	●	100	⊘	1	⊘	Medium	○	⊘	1.1) HIGHLY FAVORABLE = Connects New Bedford/Fall River to Boston and provides mobility within the South Coast region 1.2) UNFAVORABLE = Does not improve quality of service since trip time is 10 minutes longer than auto drive time and affects passenger comfort and convenience (requires a transfer)	**NO**
	63	Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham	◑	82	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	◑	82	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	◑	82	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	◑	70	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	31	Bus Rapid Transit to Stoughton Station	◑	101	⊘	1	⊘	Medium	○	⊘	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) UNFAVORABLE = Does not improve quality of service since trip time is 11 minutes longer than auto drive time and affects passenger comfort and convenience (requires a transfer)	**NO**
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	◑	90	◑	1	⊘	Medium	○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	●	90	◑	1	⊘	Medium	○	○	1.1) HIGHLY FAVORABLE = Connects New Bedford/Fall River to Boston and provides mobility within the South Coast region 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	34	Electrified Commuter Rail to South Station via Stoughton	◑	53	●	0	◑	High	◑	●	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY FAVORABLE = Competitive trip time, no transfer, and high reliability	YES

LEGEND

- ● **Highly Favorable**
- ◑ **Favorable**
- ○ **Neutral**
- ⊘ **Unfavorable**
- ⊗ **Highly Unfavorable**

Trip Times (minutes)*

≤ 64 = Highly Favorable (Level of Service = A)

65 -90 = Favorable (Level of Service = A)

90 = Existing auto drive time

91-98 = Neutral (Level of Service = B)

99-105 = Unfavorable (Level of Service = C)

≥ 106 = Highly Unfavorable (Level of Service = D)

Trip Time Assumptions

1. No speed restrictions, except for road/track geometry. Phase 2 travel times may be larger due to civil speed restrictions.

2. Dwell time at station stops is 1 minute, not including acceleration/deceleration.

3. Maximum speeds (mph): Monorail/Light Rail/Heavy Rail 50; Bus 55; Diesel Multiple Unit 70; Commuter Rail 79; Electric Commuter Rail 110.

# of Transfers

0 = Favorable

1 = Unfavorable

Reliability

High = Favorable; Has exclusive right-of-way and no transfers

Medium = Neutral; Has exclusive right-of-way but requires transfer

Low = Unfavorable; Subject to delays from traffic congestion

Table 5-2
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 1

FINAL
04/30/08

Number of Alternatives for Step 1 = 38

Route	Alt #	Name	CRITERION 1.1 - Improves Regional Mobility? RANK	CRITERION 1.2 - Improves Quality of Service? Trip Time (minutes)		# of Transfers		Reliability (High, Medium, Low)		RANK	Step 1 Rationale	Recommend to Advance to Step 2
USING HIGHWAY SYSTEM	37	Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway	◑	73	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	38	Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128	◑	92	○	1	⊘	Medium	○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	39	Monorail to Route 128 Station via Route 140, Route 24, and Route 128	◑	86	◑	1	⊘	Medium	○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	40	Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor	◑	60	●	0	◑	High	◑	●	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	◑	94	○	1	⊘	Medium	○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	42	Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line	◑	89	◑	0	◑	High	◑	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and high reliability	YES
	43	Express Bus in Dedicated Lane to Route 128 Station via Route 24 and Route 128	◑	67	◑	1	⊘	Medium	○	○	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) NEUTRAL = Competitive trip time, requires a transfer, and medium reliability	YES
	44	Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane	◑	70	◑	0	◑	Low	⊘	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and low reliability	YES
	45	Enhanced Bus Service on Existing Private Carrier Routes	◑	80	◑	0	◑	Low	⊘	◑	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) FAVORABLE = Competitive trip time, no transfer, and low reliability	YES
Other	56	Commuter Rail to South Station via Providence	◑	111	⊗	0	◑	High	◑	⊗	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) HIGHLY UNFAVORABLE = Does not improve quality of service since trip time is 21 minutes longer than auto drive time	**NO**
	57	Enhanced bus on Interstate 195	⊗								1.1) HIGHLY UNFAVORABLE = Does not provide service to Boston	**NO**
	58	Commuter Rail to Wareham via Middleborough	⊗								1.1) HIGHLY UNFAVORABLE = Does not provide service to Fall River/New Bedford	**NO**
	61	Feeder Bus Network to Middleborough/Lakeville Station	◑	94	○	1	⊘	Low	⊘	⊘	1.1) FAVORABLE = Connects New Bedford/Fall River to Boston 1.2) UNFAVORABLE = Does not improve quality of service with respect to passenger comfort and convenience because of transfer and low reliability	**NO**

Number of Alternatives Advancing to Step 2 = 29

LEGEND

- ● **Highly Favorable**
- ◑ **Favorable**
- ○ **Neutral**
- ⊘ **Unfavorable**
- ⊗ **Highly Unfavorable**

Trip Times (minutes)*

≤ 64 = Highly Favorable (Level of Service = A)

65 -90 = Favorable (Level of Service = A)

90 = Existing auto drive time

91-98 = Neutral (Level of Service = B)

99-105 = Unfavorable (Level of Service = C)

≥ 106 = Highly Unfavorable (Level of Service = D)

Trip Time Assumptions

1. No speed restrictions, except for road/track geometry. Phase 2 travel times may be larger due to civil speed restrictions.

2. Dwell time at station stops is 1 minute, not including acceleration/deceleration.

3. Maximum speeds (mph): Monorail/Light Rail/Heavy Rail 50; Bus 55; Diesel Multiple Unit 70; Commuter Rail 79; Electric Commuter Rail 110.

# of Transfers

0 = Favorable

1 = Unfavorable

Reliability

High = Favorable; Has exclusive right-of-way and no transfers

Medium = Neutral; Has exclusive right-of-way but requires transfer

Low = Unfavorable; Subject to delays from traffic congestion

* *Transit Capacity and Quality of Service Manual - 2nd Edition.* Transit Cooperative Research Program. Part 3, Chapter 3, pp. 3-49 to 3-50.

* These trip times are for comparative purposes in this step of the Phase 1 analysis. When operating plans are developed for the alternatives in Phase 2, and station locations are identified, the estimated trip times are likely to change and may be longer than estimated in this Phase 1 comparison.

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Alternative 1 – Commuter Rail to South Station via Attleboro Bypass

Alternative 1, *Commuter Rail to South Station via Attleboro Bypass*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 16 minutes faster (74 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 1 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.
- Recommend: Advance to the Step 2 evaluation.

Alternative 2 – Commuter Rail to South Station via Attleboro Station with Reverse Move

Alternative 2, *Commuter Rail to South Station via Attleboro Station with Reverse Move,*[2] meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip of 94 minutes; would provide medium reliable service, due to the potential for problems with the reverse move; but would be comfortable and not require any transfers.

Recommend: Advance to the Step 2 evaluation.

[2] A reverse move is a maneuver in which a train pulls into a station, the engineer exits the train, walks to the other end of the train, performs a brake test, and the train departs in the opposite direction.

Alternative 3 – Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass

Alternative 3, *Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston and provides connections between New Bedford and Fall River as well as other local destinations.
- *Criterion 1.2* – it would provide a transit trip that would be three minutes faster (87 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 3 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 4 – Bus Rapid Transit to Attleboro Station

Alternative 4, *Bus Rapid Transit to Attleboro Station*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would not improve quality of service since the trip time would be 16 minutes longer (106 minutes) than the auto drive time (90 minutes); would offer medium reliability because of the transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Dismiss from further consideration.

Alternative 5 – Diesel Multiple Unit Commuter Rail to Attleboro Station

Alternative 5, *Diesel Multiple Unit Commuter Rail to Attleboro Station*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip of 97 minutes; would offer medium reliability because of the transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 6 – Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 6, *Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford and Fall River to Boston and provide connections between New Bedford and Fall River as well as other local destinations.
- *Criterion 1.2* – it would provide a transit trip of 96 minutes; would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 7 – Electrified Commuter Rail to South Station via Attleboro Bypass

Alternative 7, *Electrified Commuter Rail to South Station via Attleboro Bypass*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – it would provide a transit trip that would be 34 minutes faster (56 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 7 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 11 – Commuter Rail to South Station via Mansfield

Alternative 11, *Commuter Rail to South Station via Mansfield*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 20 minutes faster (70 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 11 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 12 – Bus Rapid Transit to Mansfield Station

Alternative 12, *Bus Rapid Transit to Mansfield Station*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip of 97 minutes; would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 13 – Diesel Multiple Unit Commuter Rail to Mansfield Station

Alternative 13, *Diesel Multiple Unit Commuter Rail to Mansfield Station*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be three minutes faster (87 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 14 – Diesel Multiple Unit Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 14, *Diesel Multiple Unit Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston and provide connections between New Bedford and Fall River as well as other local destinations.
- *Criterion 1.2* – it would provide a transit trip that would be three minutes faster (87 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 15 – Electrified Commuter Rail to South Station via Mansfield

Alternative 15, *Electrified Commuter Rail to South Station via Mansfield*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – it would provide a transit trip that would be 39 minutes faster (51 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 15 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 17 – Commuter Rail to South Station via Middleborough

Alternative 17, *Commuter Rail to South Station via Middleborough*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be eight minutes faster (82 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 17 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 18 – Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail

Alternative 18, *Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be eight minutes faster (82 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 18 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 20 – Bus Rapid Transit to Middleborough/Lakeville Station

Alternative 20, *Bus Rapid Transit to Middleborough/Lakeville Station*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would not improve quality of service since trip time is 20 minutes longer (110 minutes) than auto drive time (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Dismiss from further consideration.

Alternative 21 – Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station

Alternative 21, *Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be ten minutes longer (100 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Dismiss from further consideration.

Alternative 22 – Diesel Multiple Units to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 22, *Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston and provide connections between New Bedford and Fall River as well as other local destinations.
- *Criterion 1.2* – it would provide a transit trip that would be ten minutes longer (100 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Dismiss from further consideration.

Alternative 30 – Commuter Rail to South Station via Stoughton

Alternative 30, *Commuter Rail to South Station via Stoughton*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 20 minutes faster (70 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 30 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 31 – Bus Rapid Transit to Stoughton Station

Alternative 31, *Bus Rapid Transit to Stoughton Station*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – would not improve quality of service since trip time is 11 minutes longer (101 minutes) than auto drive time (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Dismiss from further consideration.

Alternative 32 – Diesel Multiple Unit Commuter Rail to Stoughton Station

Alternative 32, *Diesel Multiple Unit Commuter Rail to Stoughton Station*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be the same as travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 33 – Diesel Multiple Unit to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 33, *Diesel Multiple Unit Commuter Rail to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston and provide connections between New Bedford and Fall River as well as other local destinations.
- *Criterion 1.2* – it would provide a transit trip that would be the same as travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 34 – Electrified Commuter Rail to South Station via Stoughton

Alternative 34, *Electrified Commuter Rail to South Station via Stoughton*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 37 minutes faster (53 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 34 would provide a comfortable transit trip with no transfers, and also would provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 37 – Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway

Alternative 37, *Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 17 minutes faster (73 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 37 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 38 – Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128

Alternative 38, *Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip of 92 minutes would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 39 – Monorail to Route 128 Station via Route 140, Route 24, and Route 128

Alternative 39, *Monorail to Route 128 Station via Route 140, Route 24, and Route 128*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – it would provide a transit trip that would be four minutes faster (86 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 40 – Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor

Alternative 40, *Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 30 minutes faster (60 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 40 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 41 – Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128

Alternative 41, *Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip of 94 minutes; would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 42 – Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line

Alternative 42, *Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line,* meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be one minute faster (89 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 42 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 43 – Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128

Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 23 minutes faster (67 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would offer medium reliability because of transfer between modes; and would affect passenger comfort and convenience by requiring a transfer.

Recommend: Advance to the Step 2 evaluation.

Alternative 44 – Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane

Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway High Occupancy Vehicle (HOV) Lane,* meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – it would provide a transit trip that would be 20 minutes faster (70 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 44 would provide a comfortable transit trip with no transfers, but would provide low reliability service because this portion of the route on the Southeast Expressway is shared with mixed HOV lane traffic and general purpose traffic.

Recommend: Advance to the Step 2 evaluation.

Alternative 45 – Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane

Alternative 45, *Express Bus in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane,* meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be 10 minutes faster (80 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 45 would provide a comfortable transit trip with no transfers, but would provide low reliability service because this portion of the route on the Southeast Expressway is shared with mixed HOV lane traffic and general purpose traffic.

Recommend: Advance to the Step 2 evaluation.

Alternative 56 – Commuter Rail to South Station via Providence

Alternative 56, *Commuter Rail to South Station via Providence*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service*.

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – would not improve quality of service since trip time is 21 minutes longer (111 minutes) than auto drive time (90 minutes); would offer high reliability because of exclusive right-of-way not shared with another mode of service; provides a comfortable transit trip with no transfers.

Recommend: Dismiss from further consideration.

Alternative 57 – Enhanced Bus on Interstate 195

Alternative 57, *Enhanced Bus on Interstate 195*, does not meet the Basic Project Purpose because it fails to meet Criterion 1.1, *Improve Regional Mobility.*

- *Criterion 1.1* – it does not connect New Bedford/Fall River and Boston.

Recommend: Dismiss from further consideration.

Alternative 58 – Commuter Rail to Wareham via Middleborough

Alternative 58, *Commuter Rail to Wareham via Middleborough*, does not meet the Basic Project Purpose because it fails to meet Criterion 1.1, *Improve Regional Mobility.*

- *Criterion 1.1* – it does not connect New Bedford/Fall River and Boston.

Recommend: Dismiss from further consideration.

Alternative 61 – Feeder Bus Network to Middleborough/Lakeville Station

Alternative 61, *Feeder Bus Network to Middleborough/Lakeville Station*, does not meet the Basic Project Purpose because, although it meets Criterion 1.1, *Improve Regional Mobility*, this alternative fails to meet Criterion 1.2, *Improve Quality of Service.*

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.

- *Criterion 1.2* – it would provide a transit trip of 94 minutes; but would provide low reliability service because buses would operate in mixed traffic and therefore be subject to delays from congestion, and because it requires a transfer.

Recommend: Dismiss from further consideration. However, the Interagency Coordinating Group, at the February 14, 2008 meeting, requested that Alternative 61 be retained and incorporated into a baseline or Transportation System Management Alternative.

Alternative 62 – Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line

Alternative 62, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be eight minutes faster (82 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 62 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 63 – Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham

Alternative 63, *Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham*, meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be eight minutes faster (82 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes); would provide a comfortable transit trip with no transfers; provides highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

Alternative 64 – Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements,* meets the Basic Project Purpose because:

- *Criterion 1.1* – it would provide public transit connections between New Bedford/Fall River and Boston.
- *Criterion 1.2* – it would provide a transit trip that would be eight minutes faster (82 minutes) than travel by car to New Bedford during peak commuting periods (90 minutes). Alternative 64 would provide a comfortable transit trip with no transfers, and also provide highly reliable service by traveling within an exclusive right-of-way not shared with another mode of service.

Recommend: Advance to the Step 2 evaluation.

5.3 Step 1 Recommendations

Nine alternatives were recommended to be dismissed based on the results of the Step 1 Screening Evaluation (Table 5-3). The Interagency Coordinating Group, at the February 14, 2008 meeting, requested that Alternative 61 be retained and incorporated into a baseline or Transportation System Management Alternative. At the meeting on February 14, 2008, the Interagency Coordinating Group agreed to dismiss the alternatives listed in Table 5-3.

Table 5-3 Alternatives Dismissed in Step 1

Number	Alternative	Reason(s) Why Alternative was Dismissed *(by Criterion)*
4	Bus Rapid Transit to Attleboro Station	1.2 Does not improve quality of service since trip time is 16 minutes longer than auto drive time and is unfavorable for passenger comfort and convenience (requires a transfer)
20	Bus Rapid Transit to Middleborough/Lakeville Station	1.2 Does not improve quality of service since trip time is 20 minutes longer than auto drive time and is unfavorable for passenger comfort and convenience (requires a transfer)
21	Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station	1.2 Does not improve quality of service since trip time is 10 minutes longer than auto drive time and is unfavorable for passenger comfort and convenience (requires a transfer)
22	Diesel Multiple Unit Commuter Rail to Middleborough/Lakeville Station with New Bedford to Fall River Connection via Dartmouth Secondary	1.2 Does not improve quality of service since trip time is 10 minutes longer than auto drive time and is unfavorable for passenger comfort and convenience (requires a transfer)
31	Bus Rapid Transit to Stoughton Station	1.2 Does not improve quality of service since trip time is 11 minutes longer than auto drive time and is unfavorable for passenger comfort and convenience (requires a transfer)
56	Commuter Rail to South Station via Providence	1.2 Does not improve quality of service since trip time is 21 minutes longer than auto drive time
57	Enhanced Bus on Interstate 195	1.1 Does not provide service to Boston
58	Commuter Rail to Wareham to Middleborough	1.1 Does not provide service to Fall River/New Bedford
61	Feeder Bus Network to Middleborough/Lakeville Station	1.2 Does not improve quality of service with respect to passenger comfort and convenience because it requires a transfer and would have low reliability *The Interagency Coordinating Group, at the February 14, 2008 meeting requested Alternative 61 be retained as the baseline or Transportation System Management Alternative*

6

Step 2 Analysis

This chapter describes the second screening step used to determine if a proposed alternative is not practicable to construct or operate.

6.1 Introduction

Step 2 evaluated those alternatives that met the Project Purpose as determined in Step 1. In Step 2, "practicable" was defined as capable of being constructed and operated after taking into consideration cost, existing technology and logistics in light of the overall Project purpose. Alternatives that are not practicable were preliminarily dismissed from further consideration. An alternative rated "highly unfavorable" for any of the five Step 2 criteria would not be practicable and EOT recommended that it be dismissed from further consideration.

For the Step 2 analysis, EOT developed a quantitative and qualitative assessment of each alternative, based on information on the route, typical cross-section of each mode, likely infrastructure improvements, and conceptual operating assumptions for each alternative. Descriptions of the concepts and infrastructure improvements for each alternative can be found in Appendix A. Assumptions were made to ensure that each alternative provided the same level of service to the terminal stations, for an "apples-to-apples" comparison in this Phase 1 analysis. For those alternatives that advance to Phase 2, the operating assumptions will be refined and may change from those used in Phase 1.

6.1.1 Criterion 2.1 — Is operationally compatible with the existing transportation infrastructure

A practicable alternative must be compatible with the existing transportation infrastructure. An alternative that would introduce a new mode of transportation

that does not fit with existing infrastructure would present challenges that other modes would not. For example, running light rail cars on the same tracks as freight rail might violate safety laws because the light rail vehicle would be more compromised in a collision. This criterion was qualitatively judged by the compatibility of an alternative with the existing infrastructure.

Table 6-1 Measures Used to Evaluate Criterion 2.1

Criterion	Measure	Rating
2.1	Operationally compatible with existing infrastructure. This measure takes into account whether the MBTA has the facilities to maintain and store the different type of equipment required by the alternative and whether the existing physical infrastructure can accommodate the new mode or service.	● Extends existing service and mode using compatible equipment; utilizes existing active transportation corridors; no changes to existing infrastructure required ◑ Utilizes existing active and/or inactive transportation corridors; compatible with existing services, modes, and equipment; minor changes to existing infrastructure ○ Utilizes existing active and/or inactive transportation corridors; compatible with existing services, modes, and equipment but facilities expansion likely required; moderate changes to existing infrastructure ⊘ Utilizes inactive or requires new transportation corridor and: • Compatible with existing services, modes, and equipment but facilities expansion likely required • Requires major changes to existing right of way or tracks to support mode or increase capacity • Existing topography not compatible with transit mode requirements ⊗ Incompatible with existing services, modes, and equipment; new facilities required; major changes to existing infrastructure

6.1.2 Criterion 2.2 — Does not significantly adversely affect the existing or future capacity, reliability, and quality of the regional transportation system

While an alternative might offer large benefits for the transit system in the South Coast region, it may have adverse consequences for the rest of the transportation network within the region or on the transportation system in other regions, such as the Old Colony Commuter Rail Lines, the Northeast Corridor, or South Station. For example, adding trains to the Old Colony line might have an adverse impact on the ability to expand or maintain existing levels of service for other branches. It is undesirable to improve options for one part of the transportation network or for one region at the expense of another, and transportation choices made today will have a lasting impact on future transportation system flexibility. Alternatives were

qualitatively judged on both their positive and negative impacts on existing, planned or proposed capacity, reliability, and quality of transportation services in southeastern Massachusetts[1].

Table 6-2 Measures Used to Evaluate Criterion 2.2

Criterion	Measure	Rating
2.2	Affects existing or planned future capacity, reliability, and quality of transportation system.	● Increases capacity, safety, and reliability of existing, planned or proposedr future services and system ◑ No adverse effects on existing, planned or proposed future services and system ○ Adds some service to existing routes; minor decrease in overall capacity of the existing system ⊘ There are several ways that an alternative could be rated unfavorable: • Adds new service (branch) to existing route, decreasing capacity and affecting reliability • Extends the end points of existing service, decreasing reliability • Restricts freight operations • Likely to overcrowd trains on existing lines • Restricts future planned or proposed expansion of service ⊗ There two ways that an alternative could be rated highly unfavorable: • Significantly reduces capacity and reliability of existing services and system • Replaces an existing high-frequency transit service with lower-frequency service (reduces reliability and quality)

6.1.3 Criterion 2.3 — Could be constructed without substantial impacts to the existing transportation system and within a reasonable timeframe

The constructability of an alternative was assessed using two sub-criteria – the potential for adverse short-term construction impacts to the existing transportation

▼

[1] Planned transportation improvements are included in the approved regional Transportation Improvement Plan (TIP) are are reasonably forseeable. Proposed transportation improvements are currently being considered, but have not been incorporated into the TIP.

system and the duration of construction. An alternative might not present engineering or construction challenges in and of itself, but the proximity of the alignment to existing transportation facilities and construction duration are important considerations. An alternative that requires modifying an existing facility will be more difficult to construct, and it will cause larger impacts and delays to existing system users. Examples include an alternative that requires reconstructing an existing highway, which would impact current highway users during construction, or adding railroad tracks adjacent to existing tracks, which would impact existing commuter or freight rail services. Alternatives were judged qualitatively on the potential for construction operations to affect existing transportation facilities and services, and on the magnitude of those potential impacts.

The time required for construction affects the length of time that these short-term impacts would occur and it affects the startup date for new transit services. The time required for construction also affects construction costs, which typically escalate over time (particularly with regard to the cost of materials such as steel or concrete). Alternatives were evaluated to determine whether they are capable of being constructed within a reasonable, four-year, timeframe in order to achieve the transportation and smart growth benefits.

Table 6-3 Measures Used to Evaluate Criterion 2.3

Criterion	Measure	Rating
2.3	Could be constructed without substantial impacts to the existing system and in a reasonable (four-year) timeframe. This measure evaluates the temporary construction impacts of each alternative to the existing system – the extent to which construction would disrupt service. It also identifies extraordinary construction measures that would be required (tunnels, interchange reconstruction) and their ability to affect construction timeframes.	● Minimal or no impacts to existing transportation system during construction; no construction elements that would extend construction time ◑ Some temporary impacts to existing transportation system; no construction elements that would extend construction time ○ Some temporary impacts to existing transportation system; some construction elements would extend construction time ⊘ There are several ways that an alternative could be rated unfavorable: • Moderate temporary impacts to traffic on Route 24; increased construction timeframes for highway reconstruction • Extensive reconstruction of tracks along the Northeast Corridor • Requires constructing new grade-separated roadway crossing or special structure through sensitive area ⊗ There are several ways that an alternative could be rated highly unfavorable: • Major temporary impacts to traffic on Route 24; substantially increased construction timeframes for reconstruction of bridges and overpasses • Extensive reconstruction of tracks along the Old Colony Line • Extensive property acquisition required that would delay construction

6.1.4 Criterion 2.4 — Provides transportation system benefits at a reasonable capital cost

This criterion evaluated whether an alternative was practicable based on cost effectiveness. Prohibitively high capital cost could increase the difficulty of advancing an alternative. Therefore, an important consideration in determining the feasibility of an alternative was the approximate cost effectiveness, including preliminary cost estimates for rights-of-way acquisition. These approximate capital cost estimates were based on the conceptual design and used readily available information. The capital cost estimates can be found in the detailed descriptions of each alternative in Appendix A.

More detailed cost estimates - including costs of land acquisition, environmental mitigation, brownfields site remediation, and other construction elements - will be developed for the alternatives in Phase 2 based on a more refined preliminary engineering design.

A measure of 2030 ridership for each alternative was evaluated using a simplified version of the CTPS regional model. Inputs to the model include 2000 Journey-to-Work data, travel time, transfer time, fare structure, and headways (the time between trains/buses). To provide a fair basis of comparison, the service plan for each alternative was designed to provide similar capacities, and the fare structure was assumed to be the same.

For each alternative, the approximate capital cost was converted into a score. The Cost Score ranged from a minimum of 0 for the most expensive alternative to a theoretical maximum of 100 for a zero cost alternative. Higher scores indicate the more favorable alternatives. The equation for calculating the score was:

$$\textit{Cost Score} = 100 - (\textit{cost} \times 100) / \textit{maximum cost}$$

Ridership estimates provided by CTPS were also converted into a score. The Ridership Score ranged from a minimum of 0 for an alternative that would attract no riders to a maximum of 100 for the highest ridership alternative. Again, the higher the score, the more favorable the alternative. The equation for calculating the score was:

$$\textit{Ridership Score} = (\textit{ridership} \times 100) / \textit{maximum ridership}$$

The Cost Effectiveness Score was calculated by averaging the Cost and Ridership Scores.

6.1.5 Criterion 2.5 — Provides sufficient capacity to meet demand

This criterion evaluated whether an alternative has the capacity to meet the existing and future demand for public transportation between Fall River/New Bedford and Boston. While the current demand for transit services from the South Coast communities has not been quantified, an alternative measure was available to evaluate the ability of an alternative to provide transit services. Demand was measured in terms of the number of daily work-related trips between South Coast communities and Boston.

For this screening analysis, the latent demand for transit, based on 2000 Journey-to-Work (JTW) data, was compared to the maximum ridership capacity of each alternative. According to the JTW, the number of daily work trips from the South Coast region to Boston is approximately 8,000. The maximum capacity of each alternative was determined based on vehicle headways and vehicle capacities. The ability of the alternative to meet possible future ridership potential was calculated as the percent of latent demand that could be served by the alternative's capacity.

Table 6-4 Measures Used to Evaluate Criteria 2.4 and 2.5

Criterion	Measure	Rating
2.4	Provides transportation system benefits at reasonable cost.	● Highest ridership/lowest cost (cost effectiveness score greater than 70)
		◑ Higher ridership/lower cost (cost effectiveness score between 65 and 70)
		○ Moderate ridership/moderate cost (cost effectiveness score between 46 and 64)
		⊘ Low ridership/high cost (cost effectiveness score between 40 and 45)
		⊗ Lowest ridership/highest cost (cost effectiveness score less than 40)
2.5	Provides sufficient capacity to meet demand.	◑ Provides sufficient capacity to meet the total transit demand of the region
		○ Provides sufficient capacity to meet approximately 50% of the demand
		⊘ Provides sufficient capacity to meet less than 50% of the demand

6.2 Step 2 Results

The following sections describe the results for the 29 alternatives evaluated in the Step 2 evaluation (Table 6-5). As noted in Section 6.1, alternatives that are not practicable were preliminarily dismissed from further consideration. An alternative rated "highly unfavorable" for any of the five Step 2 criteria would not be practicable and EOT recommended that it be dismissed from further consideration.

Table 6-5
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 2 SUMMARY

FINAL
04/30/08

Number of Alternatives for **Step 2 = 29**

Route	#	Name	CRITERION 2.1 - IS OPERATIONALLY COMPATIBLE WITH THE EXISTING TRANSPORTATION INFRASTRUCTURE	CRITERION 2.2 - DOES NOT SIGNIFICANTLY ADVERSELY AFFECT EXISTING AND PLANNED FUTURE CAPACITY, RELIABILITY, AND QUALITY OF THE REGIONAL TRANSPORTATION SYSTEM	CRITERION 2.3 - COULD BE CONSTRUCTED WITHOUT SUBSTANTIAL IMPACTS TO THE EXISTING TRANSPORTATION SYSTEM AND WITHIN A REASONABLE TIME FRAME	CRITERION 2.4 - PROVIDES TRANSPORTATION SYSTEM BENEFITS AT A REASONABLE CAPITAL COST	CRITERION 2.5 - PROVIDES SUFFICIENT CAPACITY TO MEET DEMAND	Recommend to Advance to Step 3
THROUGH ATTLEBORO		***ATTLEBORO SECONDARY***						
	1	Commuter Rail to South Station via Attleboro Bypass	○	⊘	⊘	○	◑	YES
	2	Commuter Rail to South Station via Attleboro Station with Reverse Move	○	⊗				**NO**
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	○	⊘	⊘	◑	◑	YES
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	○	⊘	◑	⊘	○	YES
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	⊘	○	⊘	○	YES
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	⊘	⊘	⊘	◑	◑	YES
		MANSFIELD FORMER RIGHT-OF-WAY						
	11	Commuter Rail to South Station via Mansfield	○	⊘	⊗			**NO**
	12	Bus Rapid Transit to Mansfield Station	⊘	⊘	⊗			**NO**
	13	Diesel Multiple Units Commuter Rail to Mansfield Station	○	⊘	⊗			**NO**
	14	Diesel Multiple Units to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	⊘	⊗			**NO**
	15	Electrified Commuter Rail to South Station via Mansfield	⊘	⊘	⊗			**NO**
THROUGH MIDDLEBOROUGH		***MIDDLEBOROUGH SECONDARY***						
	17	Commuter Rail to South Station via Middleborough	○	⊘	⊗	○	◑	**YES***
	18	Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail	○	⊗				**NO**
	63	Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham	○	○	⊗			**NO**
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	○	⊘	◑	○	○	YES

LEGEND

- ● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion
- ◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion
- ○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion
- ⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion
- ⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion
- ▭ **Remove from Further Consideration (In Step 2, Highly Unfavorable causes alternative to be dismissed)**
- * **Removed from Further Consideration but was carried forward to Step 2, Part 2 for comparison purposes at the request of the Interagency Group**

Table 6-5
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 2 SUMMARY

FINAL
04/30/08

Number of Alternatives for Step 2 = 29

Route	#	Name	CRITERION 2.1 - IS OPERATIONALLY COMPATIBLE WITH THE EXISTING TRANSPORTATION INFRASTRUCTURE	CRITERION 2.2 - DOES NOT SIGNIFICANTLY ADVERSELY AFFECT EXISTING AND PLANNED FUTURE CAPACITY, RELIABILITY, AND QUALITY OF THE REGIONAL TRANSPORTATION SYSTEM	CRITERION 2.3 - COULD BE CONSTRUCTED WITHOUT SUBSTANTIAL IMPACTS TO THE EXISTING TRANSPORTATION SYSTEM AND WITHIN A REASONABLE TIME FRAME	CRITERION 2.4 - PROVIDES TRANSPORTATION SYSTEM BENEFITS AT A REASONABLE CAPITAL COST	CRITERION 2.5 - PROVIDES SUFFICIENT CAPACITY TO MEET DEMAND	Recommend to Advance to Step 3
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	◑	⊘	◑	○	◑	YES
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	◑	◑	◑	◑	◑	YES
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	○	⊘	◑	○	○	YES
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	⊘	○	⊘	○	YES
	34	Electrified Commuter Rail to South Station via Stoughton	⊘	◑	○	◑	◑	YES
HIGHWAY SYSTEM	37	Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway	⊘	●	⊗			**NO**
	38	Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128	⊘	⊘	⊗			**NO**
	39	Monorail to Route 128 Station via Route 140, Route 24, and Route 128	⊘	⊘	⊗			**NO**
	40	Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor	⊘	⊘	⊗			**NO**
	41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	⊘	⊘	⊘	⊗		**NO**
	42	Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line	⊘	⊗				**NO**
	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128	◑	⊘	○	○	⊘	YES
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway High Occupancy Vehicle (HOV) Lane	◑	○	○	◑	⊘	YES
	45	Enhanced Bus Service on Existing Private Carrier Routes	●	○	●	●	⊘	YES

LEGEND

Number of Alternatives for Step 3 = 15

- ● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion
- ◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion
- ○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion
- ⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion
- ⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion
- ▭ **Remove from Further Consideration (In Step 2, Highly Unfavorable causes alternative to be dismissed)**
- * **Removed from Further Consideration but was carried forward to Step 2, Part 2 for comparison purposes at the request of the Interagency Group**

Table 6-5
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 2, Part 1

FINAL
04/30/08

Number of Alternatives for Step 2 = 29

Route	#	Name	CRITERION 2.1 - IS OPERATIONALLY COMPATIBLE WITH THE EXISTING TRANSPORTATION INFRASTRUCTURE		CRITERION 2.2 - DOES NOT SIGNIFICANTLY ADVERSELY AFFECT EXISTING AND PLANNED FUTURE CAPACITY, RELIABILITY, AND QUALITY OF THE REGIONAL TRANSPORTATION SYSTEM		CRITERION 2.3 - COULD BE CONSTRUCTED WITHOUT SUBSTANTIAL IMPACTS TO THE EXISTING TRANSPORTATION SYSTEM AND WITHIN A REASONABLE TIME FRAME		Recommend to Advance to Criterion 2.4 and 2.5
			RANK	*Rationale*	*RANK*	*Rationale*	*RANK*	*Rationale*	
THROUGH ATTLEBORO		***ATTLEBORO SECONDARY***							
	1	Commuter Rail to South Station via Attleboro Bypass	○	Utilizes existing transportation corridors; compatible with existing services, modes and equipment; moderate level of capacity improvements; may require expansion of existing maintenance facility	⊘	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion	⊘	High level of construction impacts to Northeast Corridor; moderate impacts to existing passenger service; minimal impact to existing freight service; can be constructed within 4-years; property acquisition required	
	2	Commuter Rail to South Station via Attleboro Station with Reverse Move	○	Utilizes existing transportation corridors; compatible with existing services, modes and equipment; moderate level of capacity improvements; may require expansion of existing maintenance facility	⊗	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion; reverse move at Attleboro station reduces capacity and reliability of existing service more than other Attleboro alternatives			**NO**
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	○	Utilizes existing transportation corridors; compatible with existing services, modes and equipment; moderate level of capacity improvements; may require expansion of existing maintenance facility	⊘	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion	⊘	High level of construction impacts to Northeast Corridor; moderate impacts to existing passenger service; minimal impact to existing freight service; can be constructed within 4-years; property acquisition required	
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	○	Addition of new mode; moderate capacity improvements required; may require expansion of existing maintenance facility	⊘	No adverse affect on existing or planned future transportation system; restricts freight operations; may require additional trains on Northeast Corridor due to overcrowding	◑	Minimal impact to existing freight service; can be constructed within 4-years	
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	Addition of new mode; moderate capacity improvements required; may require expansion of existing maintenance facility	⊘	No adverse affect on existing or planned future transportation system; restricts freight operations; may require additional trains on Northeast Corridor due to overcrowding	○	Minimal impact to existing freight service; can be constructed within 4-years; property acquisition required	
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	⊘	Utilizes existing transportation corridors; moderate capacity improvements required; requires electrification of some corridors; new maintenance facility required	⊘	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion	⊘	High level of construction impacts to Northeast Corridor; high level of construction impacts for electrification; moderate impacts to existing passenger service; minimal impact to existing freight service; difficult to construct within 4-years; property acquisition required	
		MANSFIELD FORMER RIGHT-OF-WAY							
	11	Commuter Rail to South Station via Mansfield	○	Utilizes existing transportation corridors; impacts downtown Mansfield streets; compatible with existing services, modes and equipment; moderate level of capacity improvements; may require expansion of existing maintenance facility	⊘	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion	⊗	High level of construction impacts to Northeast Corridor; moderate impacts to existing passenger service; minimal impact to existing freight service; can be constructed within 4-years; property acquisition required; high level of impact to downtown Mansfield area	**NO**
	12	Bus Rapid Transit to Mansfield Station	⊘	Addition of new mode; moderate capacity improvements required; new maintenance and storage facility required; high level of impact to city street systems	⊘	No adverse affect on existing or planned future transportation system; restricts freight operations; may require additional trains on Northeast Corridor due to overcrowding	⊗	Minimal impact to existing freight service; can be constructed within 4-years; property acquisition required; high level of impact to downtown Mansfield area	**NO**
	13	Diesel Multiple Units Commuter Rail to Mansfield Station	○	Addition of new mode; impacts downtown Mansfield streets; moderate capacity improvements required; may require expansion of existing maintenance and storage facility	⊘	No adverse affect on existing or planned future transportation system; restricts freight operations; may require additional trains on Northeast Corridor due to overcrowding	⊗	Minimal impact to existing freight service; can be constructed within 4-years; property acquisition required; high level of impact to downtown Mansfield area	**NO**
	14	Diesel Multiple Units to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	Addition of new mode; impacts downtown Mansfield streets; moderate capacity improvements required; may require expansion of existing maintenance and storage facility	⊘	No adverse affect on existing or planned future transportation system; restricts freight operations; may require additional trains on Northeast Corridor due to overcrowding	⊗	Minimal impact to existing freight service; can be constructed within 4-years; property acquisition required; high level of impact to downtown Mansfield area	**NO**
	15	Electrified Commuter Rail to South Station via Mansfield	⊘	Addition of new mode; impacts downtown Mansfield streets; moderate capacity improvements required; requires electrification of existing corridors; requires new maintenance and storage facility	⊘	Adds new service to existing Northeast Corridor decreasing capacity and affecting reliability; restricts freight operations; restricts future expansion	⊗	High level of construction impacts to Northeast Corridor; high level of impacts to construct electrification; moderate impacts to existing passenger service; minimal impact to existing freight service; difficult to construct within 4-years; property acquisition required; high level of impact to downtown Mansfield area	**NO**
THROUGH MIDDLEBOROUGH		***MIDDLEBOROUGH SECONDARY***							
	17	Commuter Rail to South Station via Middleborough	○	Compatible extension of an existing mode	⊘	Improves reliability of Old Colony Main Line service; limits future planned or proposed expansion to Wareham/Buzzards Bay; reduces reliability of Middleborough line	⊗	High level of construction impacts to Old Colony Main Line; possible impact to Red Line service; minimal impacts to existing passenger service; minimal impact to existing freight service; cannot be constructed within 4-years	**YES***
	18	Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail	○	Compatible extension of an existing mode	⊗	Extension of existing service improves reliability of Old Colony Main Line; limits future planned expansions; reduces reliability of Middleborough line; replaces rapid transit with low frequency service			**NO**
	63	Commuter rail to South Station via Middleborough, also extend Middleborough line to Wareham	○ N	Uses existing Right-of-way and Lines; High level of capacity improvements; Utilize existing maintenance facilities but expansion may be required	○	Does not impact Northeast Corridor; Increases capacity and reliability of Old Colony Main Line; Decreases reliability of existing Middleborough Line Service	⊗	Minor impacts on existing passenger and freight rail service; Major impact on Red Line and Old Colony Main Line service; Cannot be constructed within 4-years	**NO**
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	○	Compatible extension of an existing mode	⊘	Reliability reduces on Middleborough Line and Old Colony Main Line; limits future planned or proposed expansion to Wareham/Buzzards Bay	◑	Minor impacts to rail traffic; minor impacts to automotive traffic; Can be built within 4-year timeframe	

LEGEND

● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion

◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion

○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion

⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion

⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion

Table 6-5
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 2, Part 1

FINAL
04/30/08

Number of Alternatives for Step 2 = 29

Route	#	Name	CRITERION 2.1 - IS OPERATIONALLY COMPATIBLE WITH THE EXISTING TRANSPORTATION INFRASTRUCTURE		CRITERION 2.2 - DOES NOT SIGNIFICANTLY ADVERSELY AFFECT EXISTING AND PLANNED FUTURE CAPACITY, RELIABILITY, AND QUALITY OF THE REGIONAL TRANSPORTATION SYSTEM		CRITERION 2.3 - COULD BE CONSTRUCTED WITHOUT SUBSTANTIAL IMPACTS TO THE EXISTING TRANSPORTATION SYSTEM AND WITHIN A REASONABLE TIME FRAME		Recommend to Advance to Criterion 2.4 and 2.5
			RANK	*Rationale*	*RANK*	*Rationale*	*RANK*	*Rationale*	
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	◑	Uses existing Right-of-way and Lines; Moderate level of capacity improvements; Utilize existing maintenance facilities but expansion may be required	⊘	Reduces Northeast Corridor capacity; Reliability impacts on Middleborough Line and Old Colony Main Line	◑	Minor impacts to rail traffic; minor impacts to automotive traffic; Can be built within 4-year timeframe	
		STOUGHTON LINE							
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	◑	Uses existing Right-of-way and Lines; Moderate level of capacity improvement; Utilize existing maintenance facilities	◑	Minimizes Northeast Corridor Impacts - Extension of Existing Service; Service Reliability Impacts	◑	Moderate impacts to rail traffic; minor impacts to auto traffic; Can be built within 4-year timeframe	
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	○	Uses existing Right-of-way and Lines; Moderate level of capacity improvements; Utilize existing maintenance facilities but expansion may be required	⊘	May require additional trains on Northeast Corridor; Restricts freight operations	◑	Moderate impacts to rail traffic; minor impacts to automotive traffic; Can be built within 4-year timeframe	
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	○	Uses existing Right-of-way and Lines; Moderate level of capacity improvements; Utilize existing maintenance facilities but expansion may be required	⊘	May require additional trains on Northeast Corridor; Restricts freight operations	○	Moderate impacts to rail traffic; moderate impacts to automotive traffic; Can be built within 4-year timeframe	
	34	Electrified Commuter Rail to South Station via Stoughton	⊘	Uses existing Right-of-way and Lines; Moderate level of capacity improvements; New maintenance facilities required	◑	Minimizes Northeast Corridor Impacts - Extension of Existing Service; Service Reliability Impacts	○	Moderate impacts to rail traffic; minor impacts to automotive traffic; difficult to construct within 4-year timeframe	
HIGHWAY SYSTEM	37	Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway	⊘	New guideway system required within existing transportation corridor; new maintenance and storage facility required	●	No adverse affect on existing or planned future transportation system; no adverse impact on reliability of existing transportation system; limits future expansion of Route 24	⊗	Cannot be constructed within 4-year time frame; high level of construction impacts in Boston area	**NO**
	38	Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128	⊘	New guideway system required within existing transportation corridor; new maintenance and storage facility required	⊘	May require additional trains on Red Line that could impact existing operations and ridership; limits future expansion of Route 24	⊗	Cannot be constructed within 4-year time frame; high level of construction impacts within Quincy Adams area	**NO**
	39	Monorail to Route 128 Station via Route 140, Route 24, and Route 128	⊘	New guideway system required within existing transportation corridor; new maintenance and storage facility required	⊘	May require additional trains on Red Line that could impact existing operations and reliability; limits future expansion of Route 24	⊗	Cannot be constructed within 4-year time frame; high level of construction impacts along Route 128	**NO**
	40	Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor	⊘	New guideway system required within existing transportation corridor; expanding existing maintenance facility may be required	⊘	Improves reliability of Northeast Corridor services with extension of third track; will affect Northeast Corridor operations with new train trips; limits future expansion of Route 24	⊗	High level of impacts to construct major structures, reconstruct 20 interchanges and third track on Northeast Corridor	**NO**
	41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	⊘	New guideway system required within existing transportation corridor; new maintenance and storage facility required	⊘	May require additional trains on Northeast Corridor that could impact existing operations and ridership; limits future expansion of Route 24	⊘	High level of impacts to construct major structures, reconstruct 20 interchanges	
	42	Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line	⊘	New guideway system required within existing transportation corridor; new maintenance and storage facility required	⊗	Reduces reliability of existing Red Line by extending existing service; eliminates existing Braintree station; limits future expansion of Route 24			**NO**
	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128	◑	Utilizes existing transportation corridors; new bus lane on Route 128, park & ride and storage facility required	⊘	May require additional trains on Northeast Corridor that could impact existing operations and reliability	○	Impacts to Route 128 to construct bus lane; utilizes existing Route 24 travel lanes (zipper lane)	
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway High Occupancy Vehicle (HOV) Lane	◑	Utilizes existing transportation corridors; new bus lane on Route 128, park & ride and storage facility required	○	Decreases non-peak direction capacity on Route 24; Decrease user capacity of existing Southeast Corridor High Occupancy Vehicle (HOV) lane	○	Impacts to Route 128 to construct bus lane; utilizes existing Route 24 travel lanes (zipper lane)	
	45	Enhanced Bus Service on Existing Private Carrier Routes	●	Enhances existing service and utilizes existing infrastructure	○	Increases capacity of existing bus service; does not improve the reliability or quality of service	●	No construction impacts to existing facilities	

LEGEND

● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion

◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion

○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion

⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion

⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion

Remove from Further Consideration (In Step 2, Highly Unfavorable causes alternative to be dismissed)

Table 6-5
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 2, Part 2

FINAL
04/30/08

Number of Alternatives for Step 2, Part 2 = 15

Route	#	Name	CRITERION 2.4 - PROVIDES TRANSPORTATION SYSTEM BENEFITS AT A REASONABLE CAPITAL COST				CRITERION 2.5 - PROVIDES SUFFICIENT CAPACITY TO MEET DEMAND			Recommend to Advance to Step 3
			COST SCORE	*RIDERSHIP SCORE*	*COST EFFECTIVENESS SCORE*	*RANKING*	*CAPACITY*	*PERCENT OF TRAVEL DEMAND MET BY CAPACITY*	*RANKING*	
THROUGH ATTLEBORO		***ATTLEBORO SECONDARY***								
	1	Commuter Rail to South Station via Attleboro Bypass	53%	72%	63%	◑	8,640	106%	◑	YES
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	53%	76%	65%	◑	8,640	106%	◑	YES
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	63%	28%	45%	⊘	4,416	54%	○	YES
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	50%	40%	45%	⊘	4,416	54%	○	YES
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	44%	86%	65%	◑	8,640	106%	◑	YES
THROUGH MIDDLEBOROUGH	17	Commuter Rail to South Station via Middleborough	38%	59%	48%	○	8,640	106%	◑	**YES***
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	63%	41%	52%	○	4,320	53%	○	YES
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	56%	61%	59%	○	8,640	106%	◑	YES
THROUGH STOUGHTON		***STOUGHTON LINE***								
	30	Commuter Rail to South Station via Stoughton	53%	84%	69%	◑	8,640	106%	◑	YES
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	53%	40%	47%	○	4,416	54%	○	YES
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	41%	49%	45%	⊘	4,416	54%	○	YES
	34	Electrified Commuter Rail to South Station via Stoughton	38%	100%	69%	◑	8,640	106%	◑	YES
HIGHWAY SYSTEM	41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	0%	37%	19%	⊗				**NO**
	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128	88%	29%	58%	○	2,700	33%	⊘	YES
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway High Occupancy Vehicle (HOV) Lane	88%	49%	68%	◑	2,700	33%	⊘	YES
	45	Enhanced Bus Service on Existing Private Carrier Routes	97%	53%	75%	●	2,700	33%	⊘	YES

LEGEND

● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion
◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent
○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion
⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion
⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion
Remove from Further Consideration (In Step 2, Highly Unfavorable causes alternative to be dismissed)

* **Removed from Further Consideration but was carried forward to Step 2, Part 2 for comparison purposes at the request of the Interagency Group**

COST EFFECTIVENESS SCORE

● Highest Ridership/Lowest Cost (≥ 70%)
◑ Higher Ridership/Lower Cost (65-70%)
○ Moderate Ridership/Moderate Cost (46-64%)
⊘ Lower Ridership/Higher Cost (40-45%)
⊗ Lowest Ridership/Highest Cost (≤ 40%)

PERCENT OF TRAVEL DEMAND MET BY CAPACITY

◑ Provides sufficient capacity to meet the total transit demand of the region
○ Provides sufficient capacity to meet approximately 50% of the demand
⊘ Provides sufficient capacity to meet less than 50% of the demand

Number of Alternatives for Step 3 = 15

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Alternative 1 – Commuter Rail to South Station via Attleboro Bypass

Alternative 1, *Commuter Rail to South Station via Attleboro Bypass*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Except for the Attleboro Bypass, it utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track in order to accommodate additional trains.
  - May require expanding the existing maintenance facility to accommodate additional commuter rail vehicles.
- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
- *Criterion 2.3* - Unfavorable
  - High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - Moderate level of property acquisition required for the Attleboro Bypass.

- *Criterion 2.4* – Neutral
  - Combined cost effectiveness score of 63 percent.
- *Criterion 2.5* – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 2 – Commuter Rail to South Station via Attleboro Station with Reverse Move

Alternative 2, *Commuter Rail to South Station via Attleboro Station with Reverse Move*, is not practicable to construct and operate due to its failure to meet Criterion 2.2.

- *Criterion 2.1* – Neutral
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track in order to accommodate additional trains.
  - May require expanding the existing maintenance facility to accommodate additional commuter rail vehicles.
- *Criterion 2.2* – Highly Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and the Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
  - Reverse move at Attleboro Station severely reduces capacity of the Northeast Corridor and reliability of service, because the move takes at least 10 minutes and increases the chances of mechanical failures. This uses almost all the capacity of one track; there is no space for additional tracks.
- *Criteria 2.3 – 2.5* not evaluated because Alternative 2 failed to meet Criterion 2.2.

Recommend: Dismiss from further consideration. This alternative would significantly impact the existing and planned capacity of the Northeast Corridor for Amtrak service, freight service and for MBTA commuter rail service to Providence. It would restrict windows for freight service, affect the reliability of existing commuter and passenger rail service, and restrict future expansion of these services. In addition, the reverse move at the Attleboro Station would occupy the station platform for 60 to 80 minutes during each 2-hour "peak period", severely reducing the ability of the station to serve the Providence line.

Alternative 3 – Commuter Rail to South Station via Dartmouth Secondary, the New Bedford Main Line, and Attleboro Bypass

Alternative 3, *Commuter Rail to South Station via Dartmouth Secondary, the New Bedford Main Line, and Attleboro Bypass*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Except for the Attleboro Bypass, utilizes existing transportation corridors on the New Bedford Main Line, the Dartmouth Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track to accommodate additional trains.
  - May require expanding the existing maintenance facility to accommodate additional commuter rail vehicles.
- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.

- *Criterion 2.3* – Unfavorable
  - High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
  - Can be constructed within four-year timeframe.
  - High level of property acquisition required for the Attleboro Bypass and restoration of Dartmouth Secondary in Westport and Fall River.
- *Criterion 2.4* – Favorable
  - Combined cost effectiveness score of 65 percent.
- *Criterion 2.5* – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 5 – Diesel Multiple Unit Commuter Rail to Attleboro Station

Alternative 5, *Diesel Multiple Unit Commuter Rail to Attleboro Station*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, and Fall River Secondary.
  - May require expanding existing maintenance facility
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future transportation system because trains do not enter existing public transportation system.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Attleboro Station.

- *Criterion* 2.3 – Favorable
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
- *Criterion* 2.4 – Unfavorable
  - Combined cost effectiveness score of 45 percent.
- *Criterion* 2.5 – Neutral
  - Capacity of operating plan is 4,416 passengers, 55% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 6 – Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 6, *Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary.
  - May require expanding the existing maintenance facility.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future transportation system because trains do not enter existing public transportation system.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Attleboro Station.

- *Criterion* 2.3 – Neutral
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - Moderate level of property acquisition required for restoration of Dartmouth Secondary in Westport and Fall River.
- *Criterion* 2.4 – Unfavorable
  - Combined cost effectiveness score of 45 percent.
- *Criterion* 2.5 – Neutral
  - Capacity of operating plan is 4,416 passengers, 55% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 7 – Electrified Commuter Rail to South Station via Attleboro Bypass

Alternative 7, *Electrified Commuter Rail to South Station via Attleboro Bypass*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Unfavorable
  - Addition of new mode not currently operated by the MBTA, reducing the ability of the operator to switch equipment and crews between branches.
  - Except for the Attleboro Bypass, utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track to accommodate additional trains.
  - Requires electrification of the Attleboro Secondary, the New Bedford Main Line, the Fall River Secondary, and third track on the Northeast Corridor from Back Bay to Readville.
  - Requires new maintenance facility or maintenance agreement with an operator with an appropriate facility.

- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
- *Criterion 2.3* – Unfavorable
  - High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
  - High level of construction impacts for electrification result from erecting catenary wire above tracks.
  - Minimal impact to existing freight service.
  - Difficult to construct within four-year timeframe.
  - Moderate level of property acquisition required for the Attleboro Bypass.
- *Criterion 2.4* – Favorable
  - Combined cost effectiveness score of 65 percent.
- *Criterion 2.5* – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 11 – Commuter Rail to South Station via Mansfield

Alternative 11, *Commuter Rail to South Station via Mansfield*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Neutral
  - Except for the Mansfield Line, utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track to accommodate additional trains.
  - May require expanding the existing maintenance facility to accommodate additional commuter rail vehicles.
  - Reduces street network function in downtown Mansfield by eliminating streets.
- *Criterion 2.2* - Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
- *Criterion 2.3* – Highly Unfavorable
  - High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
  - Minimal impact to existing freight service.
  - Can be constructed within a four-year timeframe.
  - High level of property acquisition required in Mansfield to restore abandoned right-of-way on Mansfield Line.

- High level of impacts in downtown Mansfield result from the need to restore a rail corridor currently used as a local street and bike path, and the need to significantly modify the existing grade-separated structure at Route 106.
- High level of impacts to I-495 result from the need to construct a new grade-separated structure. At this location, the highway and rail bed are at approximately the same elevation, making separation difficult.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 11 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because the infrastructure improvements required to restore the commuter rail line through downtown Mansfield would have significant adverse effects to the downtown, resulting in permanent street closures and the loss of a bike path. The required grade-separated crossings at I-495 and Route 106 would not be practicable to build, and the rail line may be within the runway safety areas/object free areas of the Mansfield Airport, which would be incompatible with airport safety.

Alternative 12 – Bus Rapid Transit to Mansfield Station

Alternative 12, *Bus Rapid Transit to Mansfield Station*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - New maintenance and storage facility required.
  - High level of impact to city street systems in New Bedford, Fall River, and Mansfield due to number of buses needed to operate the service.
  - Reduces street network function in downtown Mansfield by eliminating streets.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because vehicles will not enter the system.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches
- *Criterion 2.3* – Highly Unfavorable
  - Minimal impact to existing freight service
  - Can be constructed within four-year timeframe.

- High level of property acquisition required in Mansfield to restore abandoned right-of-way on Mansfield Line.
- High level of impacts in downtown Mansfield results from creating a busway along a corridor currently used as a local street and bike path, and the need to significantly modify existing grade-separated structure at Route 106.
- High level of impacts to I-495 results from the need to construct a new grade-separated structure. At this location, the highway and rail bed are at approximately the same elevation, making separation difficult.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 12 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because the infrastructure improvements required to construct a dedicated busway on the former rail right-of-way through downtown Mansfield would have significant adverse effects to the downtown, resulting in permanent street closures and the loss of a bike path. The required grade-separated crossings at I-495 and Route 106 would not be practicable to build, and the bus rapid transit line may be within the runway safety areas/object free areas of the Mansfield Airport, which would be incompatible with airport safety.

Alternative 13 – Diesel Multiple Unit Commuter Rail to Mansfield Station

Alternative 13, *Diesel Multiple Unit Commuter Rail to Mansfield Station*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, and Fall River Secondary.
  - May require expanding existing maintenance facility to accommodate additional DMU vehicles.
  - Reduces street network function in downtown Mansfield by eliminating streets.

- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because trains do not enter system.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Mansfield Station.
- *Criterion 2.3* – Highly Unfavorable
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - High level of property acquisition required in Mansfield to restore abandoned right-of-way on Mansfield Line.
  - High level of impacts in downtown Mansfield result from the need to restore a rail corridor currently used as a local street and bike path, and the need to significantly modify existing grade-separated structure at Route 106.
  - High level of impacts to I-495 results from the need to construct a new grade-separated structure.
- *Criteria 2.4 – 2.5* not evaluated because Alternative 13 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because the infrastructure improvements required to restore the commuter rail line through downtown Mansfield would have significant adverse effects to the downtown, resulting in permanent street closures and the loss of a bike path. The required grade-separated crossings at I-495 and Route 106 would not be practicable to build, and the rail line may be within the runway safety areas/object free areas of the Mansfield Airport, which would be incompatible with airport safety.

Alternative 14 – Diesel Multiple Unit Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 14, *Diesel Multiple Unit Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary.
  - May require expanding existing maintenance facility to accommodate additional DMU vehicles.
  - Reduces street network function in downtown Mansfield by eliminating streets.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because trains do not enter system.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Mansfield Station.
- *Criterion 2.3* – Highly Unfavorable
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - High level of property acquisition required in Mansfield to restore abandoned right-of-way on Mansfield Line and to restore the Dartmouth Secondary in Westport and Fall River.
  - High level of impacts in downtown Mansfield result from the need to restore a rail corridor currently used as a local street and bike path, and the need to significantly modify existing grade-separated structure at Route 106.

  - High level of impacts to I-495 results from the need to construct a new grade-separated structure. At this location, the highway and rail bed are at approximately the same elevation, making separation difficult.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 14 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because the infrastructure improvements required to restore the commuter rail line through downtown Mansfield would have significant adverse effects to the downtown, resulting in permanent street closures and the loss of a bike path. The required grade-separated crossings at I-495 and Route 106 would not be practicable to build, and the rail line may be within the runway safety areas/object free areas of the Mansfield Airport, which would be incompatible with airport safety.

Alternative 15 – Electrified Commuter Rail to South Station via Mansfield

Alternative 15, *Electrified Commuter Rail to South Station via Mansfield*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - Addition of new mode not currently operated by the MBTA, reducing the ability of the operator to switch equipment and crews between branches.
  - Except for the Mansfield Line, utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Northeast Corridor between Canton Junction and Readville by adding third track to accommodate additional trains.
  - Requires electrification of the Attleboro Secondary, the New Bedford Main Line, the Fall River Secondary, and third track on the Northeast Corridor from Back Bay to Readville.
  - Requires new maintenance facility or maintenance agreement with an operator with an appropriate facility.
  - Reduces street network function in downtown Mansfield by eliminating streets.

- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Attleboro Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
- *Criterion 2.3* – Highly Unfavorable
  - High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
  - High level of construction impacts for electrification result from erecting catenary wire above tracks.
  - Minimal impact to existing freight service.
  - Difficult to construct within four-year timeframe.
  - High level of impacts in downtown Mansfield result from the need to restore a rail corridor currently used as a local street and bike path, and the need to significantly modify existing grade-separated structure at Route 106.
  - High level of impacts to I-495 results from the need to construct a new grade-separated structure. At this location, the highway and rail bed are at approximately the same elevation, making separation difficult.
- *Criteria 2.4 – 2.5* not evaluated because Alternative 15 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because the infrastructure improvements required to restore the commuter rail line through downtown Mansfield would have significant adverse effects to the downtown, resulting in permanent street closures and the loss of a bike path. The required grade-separated crossings at I-495 and Route 106 would not be practicable to build, and the rail line may be within the runway safety areas/object free areas of the Mansfield Airport, which would be incompatible with airport safety.

Alternative 17 – Commuter Rail to South Station via Middleborough

Alternative 17, *Commuter Rail to South Station via Middleborough*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Neutral
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Middleborough Secondary, and the Middleborough Line.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires capacity improvements on the Old Colony Main Line between Braintree and South Station by adding second track to accommodate additional trains.
- *Criterion 2.2* – Unfavorable
  - Improves reliability of the Old Colony Main Line service by adding second track between Braintree and South Station.
  - Restricts windows for freight operations on the Middleborough Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Limits future expansion of service to Wareham and Buzzards Bay without further infrastructure improvements to the Old Colony Main Line.
  - Reduces reliability of Middleborough Line by increasing the number of trains.
- *Criterion 2.3* – Highly Unfavorable
  - High level of construction impacts to the Old Colony Main Line result from constructing a second track in a densely developed area while maintaining existing MBTA service.
  - High level of construction impacts to Red Line between South Station and Braintree result from construction on the Old Colony Main Line.
  - Minimal impact to existing freight service.
  - Cannot be constructed within four-year timeframe because of the difficult construction in Quincy, including construction adjacent to and under active tracks.

- High level of property acquisition required along Old Colony Main Line.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 17 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration because of the difficulty and cost of construction on the Old Colony Main Line through Braintree and Quincy. Note: Although Alternative 17 was recommended to be eliminated in Step 2, in Step 4 EOT recommended that this alternative be retained. Although difficult to construct, it may provide long-term transportation benefits by increasing future capacity on the Old Colony Line, and may provide rail access to the casino proposed in Middleborough.

Alternative 18 – Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail

Alternative 18, *Commuter Rail to South Station via Middleborough, convert Red Line Braintree Branch to Commuter Rail*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.2.

- *Criterion 2.1* – Neutral
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Middleborough Secondary, and the Middleborough Line.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires high level of capacity improvements on the Old Colony Main Line between Braintree and South Station by adding second and third track to accommodate additional trains.
- *Criterion 2.2* – Highly Unfavorable
  - Improves reliability of the Old Colony Main Line service by adding second and third track between Braintree and South Station.
  - Restricts windows for freight operations on the Middleborough Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Reduces reliability of Middleborough Line by increasing the number of trains.
  - Replaces the Red Line rapid transit service with a low-frequency commuter rail service. This reduces the capacity of the transit system and provides existing users with a service that is inferior to that which they currently use.

- *Criteria 2.3 – 2.5* not evaluated because Alternative 18 failed to meet Criterion 2.2.

Recommend: Dismiss from further consideration. This alternative was determined not practicable because it would have a significant adverse impact on the Red Line transit service, reducing the capacity of the transit system and degrading the quality of service. In addition, the increased number of trains on the Old Colony Main Line would adversely affect the capacity and reliability of the Middleborough Line.

Alternative 30 – Commuter Rail to South Station via Stoughton

Alternative 30, *Commuter Rail to South Station via Stoughton*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Favorable
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, and the Stoughton Line.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Stoughton Line between Canton Junction and Stoughton by adding second track to accommodate additional trains.
- *Criterion 2.2* – Favorable
  - Fewer Northeast Corridor impacts than Attleboro alternatives, because some trains are an extension of existing service rather than new service.
  - Restricts windows for freight operations on the Stoughton Line, the New Bedford Main Line, and Fall River Secondary.
  - Impacts reliability of service on the Northeast Corridor due to increased number of trains.
- *Criterion 2.3* – Favorable
  - Moderate construction impacts to Stoughton Line result from constructing a second track while maintaining existing MBTA service.
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - Low level of property acquisition required to restore Stoughton Line in Raynham and Stoughton.

  - Trestle increases construction cost.
- *Criterion 2.4* – Favorable
  - Combined cost effectiveness score of 69 percent.
- *Criterion 2.5* – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to the Step 3 evaluation.

Alternative 32 – Diesel Multiple Unit Commuter Rail to Stoughton Station

Alternative 32, *Diesel Multiple Unit Commuter Rail to Stoughton Station*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, and Fall River Secondary.
  - May require expanding existing maintenance facility to accommodate additional DMU vehicles.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future transportation system because trains do not enter existing public transportation system.
  - Restricts windows for freight operations on the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Stoughton Line, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Stoughton Station.
- *Criterion 2.3* – Favorable
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - Low level of property acquisition required to restore Stoughton Line in Raynham and Stoughton.

- *Criterion* 2.4 – Neutral
  - Combined cost effectiveness score of 47 percent.
- *Criterion* 2.5 – Neutral
  - Capacity of operating plan is 4,416 passengers, 55% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 33 – Diesel Multiple Unit to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 33, *Diesel Multiple Unit to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - Moderate capacity improvements required on Attleboro Secondary, New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary.
  - May require expanding existing maintenance facility to accommodate additional DMU vehicles.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future transportation system because trains do not enter existing public transportation system.
  - Restricts windows for freight operations on the New Bedford Main Line, and Fall River Secondary.
  - May result in overcrowding on existing trains on the Stoughton Line, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Stoughton Station.
- *Criterion 2.3* – Neutral
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.

- High level of property acquisition required to restore Stoughton Line in Raynham and Stoughton and to restore Dartmouth Secondary in Westport and Fall River.

- *Criterion 2.4* – Unfavorable
  - Combined cost effectiveness score of 45 percent.
- *Criterion 2.5* – Neutral
  - Capacity of operating plan is 4,416 passengers, 55% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 34 – Electrified Commuter Rail to South Station via Stoughton

Alternative 34, *Electrified Commuter Rail to South Station via Stoughton*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Unfavorable
  - Addition of new mode not currently operated by the MBTA, reducing the ability of the operator to switch equipment and crews between branches.
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires electrification of the Stoughton Line, the New Bedford Main Line, the Fall River Secondary, and third track on the Northeast Corridor from Back Bay to Readville.
  - Requires moderate level of capacity improvements on the Stoughton Line between Canton Junction and Stoughton by adding second track to accommodate additional trains.
  - Requires new maintenance facility or maintenance agreement with an operator with an appropriate facility.

- *Criterion 2.2* – Favorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the Stoughton Line, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
- *Criterion 2.3* – Neutral
  - High level of construction impacts for electrification result from erecting catenary wire above tracks.
  - Minimal impact to existing freight service.
  - Difficult to construct within four-year timeframe.
  - Low level of property acquisition required to restore Stoughton Line in Raynham and Stoughton.
- *Criterion 2.4* – Favorable
  - Combined cost effectiveness score of 69 percent.
- *Criterion 2.5* – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 37 – Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway

Alternative 37, *Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - New guideway system required within existing transportation corridor.
  - New maintenance and storage facility required.

- *Criterion 2.2* – Highly Favorable
  - No adverse effect on existing or planned future public transportation system because vehicles would not enter the existing public transportation system.
  - Limits future expansion of Route 24 by using a portion of the highway right-of-way.
- *Criterion 2.3* – Highly Unfavorable
  - Cannot be constructed within four-year timeframe due to length and complexity of system. At over 70 miles, this would be the longest monorail in the world.
  - High level of construction impacts from monorail being constructed through heavily developed areas along Route 128 and the Southeast Expressway in Braintree, Quincy, Milton, and Boston.
  - High level of impacts in the vicinity of South Station from constructing new monorail terminal station and layover facility.
- *Criteria 2.4 – 2.5* not evaluated because Alternative 37 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. Alternative 37 is the least practicable of the monorail alternatives because of the difficulty of siting and constructing a new monorail between Braintree and Boston. Constructing an elevated monorail would entail widening the median or rebuilding retaining walls to support the structure. Along the Southeast Expressway, the monorail would need to be elevated above the existing bridges and over the plaza in East Milton Square.

Upon reaching South Bay, the monorail route would encounter a maze of highway ramps and rail yards. The monorail guideway would need to be elevated above all of these existing facilities, increasing cost and further impacting this heavily built-up area. North of South Bay, the monorail would terminate at South Station, requiring an entirely new major transit terminal in downtown Boston or major modifications to the existing South Station Transportation Center.

Although Alternative 37 was not evaluated in Criterion 2.4, construction costs would average $150 million per mile. The Braintree – South Station segment would cost greater than $1.5 billion, which is not cost effective.

Alternative 38 – Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128

Alternative 38, *Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - New guideway system required within existing transportation corridor.
  - New maintenance and storage facility required.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because vehicles would not enter the existing public transportation system.
  - Limits future expansion of Route 24 by using a portion of the highway right-of-way.
  - May result in overcrowding on Red Line trains due to volume of transferring passengers at Quincy Adams Station, requiring additional subway trains.
- *Criterion 2.3* – Highly Unfavorable
  - Cannot be constructed within four-year timeframe due to length and complexity of system. At over 60 miles, this would be the longest monorail in the world.
  - High level of construction impacts result from monorail being constructed through heavily developed areas along Route 128 and Route 3 in Braintree and Quincy.
  - High level of impacts in the vicinity of Quincy Adams Station results from constructing new monorail terminal station and layover facility.
- *Criteria 2.4 – 2.5* not evaluated because Alternative 38 failed to meet Criteria 2.3.

Recommend: Dismiss from further consideration. Alternative 38 avoids the impacts and costs of Alternative 37 by placing the northern monorail terminus at Quincy Adams Station. While this eliminates complications to the north, it would increase travel time and reduce passenger comfort and convenience by requiring a transfer. It could increase the demand for service on the Red Line Braintree Branch by several thousand riders because of transferring passengers, resulting in overcrowding on the Red Line. Additional trains on the Red Line during rush hour would be difficult due to constraints on the signal system. Overcrowding would be especially severe on the

first Red Line train to arrive after a monorail train, because the monorail would operate at a lower frequency and discharge a large number of passengers all at once. It would also require complicated construction around and above active highways and railroads at Quincy Adams Station.

Alternative 39 – Monorail to Route 128 Station via Route 140, Route 24, and Route 128

Alternative 39, *Monorail to Route 128 Station via Route 140, Route 24, and Route 128*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - Addition of mode not currently operated in Massachusetts, reducing ability of operator to switch equipment and crews between branches.
  - New guideway system required within existing transportation corridor.
  - New maintenance and storage facility required.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because vehicles would not enter the existing public transportation system.
  - Limits future expansion of Route 24 by using a portion of the highway right-of-way.
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at the Route 128 Station.
- *Criterion 2.3* – Highly Unfavorable
  - Cannot be constructed within four-year timeframe due to length and complexity of system. At over 60 miles, this would be the longest monorail in the world.
  - High level of construction impacts because the monorail would need to be constructed along Route 128 in Canton, Milton, and Randolph.
  - High level of impacts in the vicinity of Route 128 Station from constructing new monorail terminal station and layover facility.
- *Criteria 2.4 – 2.5* not evaluated because Alternative 39 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. Alternative 39 avoids many of the impacts of Alternative 37, but would reduce passenger comfort and convenience

compared to Alternative 37 by requiring a transfer. It could increase the demand for service on the Northeast Corridor by several thousand riders because of transferring passengers, resulting in overcrowding on the Providence Line and Stoughton Line commuter rail services. It would also require complicated construction around and above active highways and railroads at Route 128 Station.

Alternative 40 – Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor

Alternative 40, *Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Unfavorable
  - New guideway system required within existing transportation corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires moderate level of capacity improvements on the Northeast Corridor between Route 128 and Readville by adding third track to accommodate additional trains.
  - May require expanding existing maintenance facility to accommodate additional commuter rail vehicles.
- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability in areas where no improvements would be made.
  - Restricts windows for freight operations on the New Bedford Main Line and the Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor because of reduced capacity.
  - Limits future expansion of Route 24 by using a portion of the highway right-of-way.
- *Criterion 2.3* – Highly Unfavorable
  - Difficult to construct within four-year timeframe because of extensive earthworks and construction along Route 24 and Route 128. Earthworks and structure are unavoidable because commuter rail cannot achieve the same profile grades and horizontal curvature as highways.

- High level of construction impacts to Route 24 and Route 128 result from reconstructing 12 interchanges. Interchange reconstruction is unavoidable because it is impractical to elevate the commuter rail above or below the existing highways, ramps, and bridges, due to the long transition grades required.
- High level of construction impacts to the Northeast Corridor result from constructing a third track while maintaining existing MBTA and Amtrak service.
- Minimal impact to existing freight service.
- Moderate level of property acquisition required along Route 24 near interchanges and near Route 128 Station.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 40 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration. It was determined not practicable to construct a commuter rail line along Route 24 because of the difficulty, cost, and duration of construction. Because commuter rail requires that the track be flat, with extremely low slopes, extensive regrading or structures (viaduct) would be needed along the rolling terrain of Route 24. The commuter rail line would require that every interchange and bridge along Route 24 be reconstructed so that the bridge would be wide and high enough for the commuter rail train, and so that the on- and off-ramps did not cross the track at-grade. Because significant portions of Route 24 do not have a median, constructing commuter rail along Route 24 would require that the highway embankment be widened from Avon south to I-495.

Alternative 41 – Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128

Alternative 41, *Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.4.

- *Criterion 2.1* – Unfavorable
  - Addition of mode not currently operated in the area, reducing ability of operator to switch equipment and crews between branches.
  - New guideway system required within existing transportation corridor.
  - New maintenance and storage facility required.
- *Criterion 2.2* – Unfavorable
  - No adverse effect on existing or planned future public transportation system because vehicles would not enter the existing public transportation system.

- Limits future expansion of Route 24 by using a portion of the highway right-of-way.
- May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Route 128 Station.

- *Criterion 2.3* – Unfavorable
  - Difficult to construct within four-year timeframe.
  - High level of construction impacts to Route 24 and Route 128 result from reconstructing 20 interchanges.
  - High level of impacts in the vicinity of Route 128 Station results from constructing new terminal station and layover facility.
- *Criterion 2.4* – Highly Unfavorable
  - Combined cost effectiveness score of 19 percent.
- *Criterion 2.5* not evaluated because Alternative 41 failed to meet Criterion 2.4.

Recommend: Dismiss from further consideration. It was determined not practicable to construct a commuter rail line along Route 24 because of the difficulty, cost, and duration of construction. Because commuter rail requires that the track be flat, with extremely low slopes, extensive regrading or structures (viaduct) would be needed along the rolling terrain of Route 24. The commuter rail line would require that every interchange along Route 24 be reconstructed so that the bridge was wide and high enough for the commuter rail engine, and/or so that the on- and off-ramps did not cross the track. Because significant portions of Route 24 do not have a median, constructing commuter rail along Route 24 would require that the highway right-of-way be widened, particularly though the Hockomock Swamp ACEC.

Alternative 42 – Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line

Alternative 42, *Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line*, was determined not practicable to construct and operate due to its failure to meet Criterion 2.2.

- *Criterion 2.1* – Unfavorable
  - New guideway system required within existing transportation corridor.
  - New maintenance and storage facility required.

- *Criterion 2.2* – Highly Unfavorable
  - Reduces reliability of Red Line by extending an existing service 50 miles. It would be difficult to maintain headways on a rapid transit line of this length.
  - Limits future expansion of Route 24 by using a portion of the highway right-of-way.
  - May result in overcrowding on Red Line because of long distance and dual function of line as a rapid transit line and a commuter line.
  - Eliminates existing Braintree Station on the Red Line, greatly reducing service for residents and commuters currently using this station.
- *Criteria 2.3 – 2.5* not evaluated because Alternative 42 failed to meet Criterion 2.2.

Recommend: Dismiss from further consideration. This alternative is not practicable because of the significant adverse impacts to Red Line service. By adding trains to the existing Red Line infrastructure and extending the Red Line by 50 miles, this alternative would adversely affect reliability of the system, result in overcrowding of trains, and degrade the level of service.

Alternative 43 – Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128

Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Favorable
  - Utilizes existing transportation corridor on Route 24.
  - Improves operations on Route 128 with new bus lane.
  - Park & Ride and storage/maintenance facility required.
- *Criterion 2.2* – Unfavorable
  - May result in overcrowding on existing trains on the Northeast Corridor, requiring additional trains, longer trains, and/or more bi-level coaches, because of passengers transferring at Route 128 Station.
  - Decreases non-peak-direction capacity on Route 24 by taking a lane for use in the peak direction as the zipper lane.

- *Criterion 2.3* – Neutral
  - Impacts to Route 128 because of temporary traffic shifts needed to construct bus lane.
  - Minimal impacts to Route 24 because zipper lane would use existing travel lanes.
- *Criterion 2.4* – Neutral
  - Cost effectiveness score of 58 percent.
- *Criterion 2.5* – Unfavorable
  - Capacity of operating plan is 2,700 passengers, 34% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 44 – Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane

Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Favorable
  - Utilizes existing transportation corridor on Route 24.
  - Improves operations on Route 128 with new bus lane.
  - Park & Ride and storage/maintenance facility required.
- *Criterion 2.2* – Neutral
  - Decreases non-peak-direction capacity on Route 24 by taking a lane for use in the peak direction as the zipper lane.
  - Decreases user capacity of existing Southeast Expressway HOV lane by increasing traffic volume in the lane.
- *Criterion 2.3* – Neutral
  - Impacts to Route 128 because of temporary traffic shifts needed to construct bus lane.
  - Minor impacts to Route 3 at Braintree Split to construct bus lane.

  - Minimal impacts to Route 24 because zipper lane utilizes existing travel lanes.
- *Criterion* 2.4 – Favorable
  - Combined cost effectiveness score of 68 percent.
- *Criterion* 2.5 – Unfavorable
  - Capacity of operating plan is 2,700 passengers, 34% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 45 – Enhanced Bus on Existing Private Carrier Lines

Alternative 45, *Enhanced Bus on Existing Private Carrier Lines*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Highly Favorable
  - Utilizes existing infrastructure.
- *Criterion 2.2* – Neutral
  - Increases capacity of existing bus service by providing more frequent service.
  - Does not improve the reliability or quality of existing service because no infrastructure improvements are included.
  - Decreases user capacity of existing Southeast Expressway HOV lane by increasing traffic volume in the lane.
- *Criterion* 2.3 – Highly Favorable
  - No construction impacts to existing facilities.
- *Criterion* 2.4 – Highly Favorable
  - Combined cost effectiveness score of 75 percent.
- *Criterion* 2.5 – Unfavorable
  - Capacity of operating plan is 2,700 passengers, 34% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 62 – Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line

Alternative 62, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Favorable
  - Except for the Attleboro Bypass, utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Attleboro Secondary, the Middleborough Secondary, the Middleborough Line, and the Northeast Corridor.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - May require expanding existing maintenance facility to accommodate additional commuter rail vehicles.
- *Criterion 2.2* – Unfavorable
  - Adds new service to the Northeast Corridor, decreasing capacity and affecting reliability.
  - Restricts windows for freight operations on the Attleboro Secondary, the Middleborough Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of services on the Northeast Corridor and on the Old Colony Main Line because of reduced capacity.
  - Limits future expansion of service to Wareham and Buzzards Bay without infrastructure improvements to the Old Colony Main Line.
  - Reduces reliability of the Middleborough Line by increasing the number of trains.
- *Criterion 2.3* – Favorable
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
  - Moderate level of property acquisition required for the Attleboro Bypass.
- *Criterion 2.4* – Neutral
  - Combined cost effectiveness score of 59 percent.

- *Criterion* 2.5 – Favorable
  - Capacity of operating plan is 8,640 passengers, more than the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

Alternative 63 – Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham

Alternative 63, *Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham*, is not practicable to construct and operate due to its failure to meet Criterion 2.3.

- *Criterion 2.1* – Neutral
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Middleborough Secondary, and the Middleborough Line.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
  - Requires high level of capacity improvements on the Middleborough Line by adding a second track and on the Old Colony Main Line by adding second and third tracks.
- *Criterion 2.2* – Neutral
  - Improves reliability of the Middleborough Line and the Old Colony Main Line service by adding second and third track.
  - Restricts windows for freight operations on the Middleborough Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Reduces reliability of the Middleborough Line by increasing the number of trains.
- *Criterion* 2.3 – Highly Unfavorable
  - High level of construction impacts to the Old Colony Main Line result from constructing second and third tracks in a densely developed area while maintaining existing MBTA service.
  - High level of construction impacts to the Red Line between South Station and Braintree result from construction on the Old Colony Main Line.
  - Minimal impact to existing freight service.

- Cannot be constructed within four-year timeframe because of construction adjacent to and under active tracks.
- High level of property acquisition required along the Old Colony Main Line.

- *Criteria 2.4 – 2.5* not evaluated because Alternative 42 failed to meet Criterion 2.3.

Recommend: Dismiss from further consideration because of the difficulty and cost of construction on the Old Colony Main Line through Braintree and Quincy.

Alternative 64 – Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements*, was determined practicable to construct and operate based on the following ratings:

- *Criterion 2.1* – Neutral
  - Utilizes existing transportation corridors on the New Bedford Main Line, the Fall River Secondary, the Middleborough Secondary, and the Middleborough Line.
  - Commuter rail is compatible with existing freight and passenger services, modes, and equipment.
- *Criterion 2.2* – Unfavorable
  - Reduces reliability of the Middleborough Line and the Old Colony Main Line service by increasing the number of trains and using all available capacity.
  - Restricts windows for freight operations on the Middleborough Secondary, the New Bedford Main Line, and Fall River Secondary.
  - Restricts future expansion of service to Wareham and Buzzards Bay without infrastructure improvements to the Old Colony Main Line.
- *Criterion 2.3* – Favorable
  - Minimal impact to existing passenger service.
  - Minimal impact to existing freight service.
  - Can be constructed within four-year timeframe.
- *Criterion 2.4* – Neutral
  - Combined cost effectiveness score of 52 percent.

- *Criterion* 2.5 – Neutral
  - Capacity of operating plan is 4,320 passengers, 54% of the regional demand of 8,000 work trips.

Recommend: Advance to Step 3.

6.3 Step 2 Recommendations

The following 15 Alternatives were recommended to the Interagency Coordinating Group to be dismissed based on the results of the Step 2 Screening Evaluation. On February 28, 2008, the Interagency Coordinating Group agreed to this list (Table 6-6).

Table 6-6 Alternatives Dismissed in Step 2

Number	Alternative	Reason(s) Why Alternative was Dismissed (by Criterion)
2	Commuter Rail to South Station via Attleboro Station with Reverse Move	2.2 Would decrease capacity and affect reliability; restricts freight operations; restricts future expansion; reverse move at Attleboro Station severely reduces capacity and reliability of existing service
11	Commuter Rail to South Station via Mansfield	2.2 Would decrease capacity and affect reliability; restricts freight operations; restricts future expansion 2.3 High level of construction impacts to Northeast Corridor; moderate impacts to existing passenger rail service; high level of property acquisition required; not practicable to restore track through downtown Mansfield
12	Bus Rapid Transit to Mansfield Station	2.1 Addition of new mode; moderate capacity improvements required; new maintenance and storage facility required; high level of impact to city street systems 2.2 Would restrict freight operations; may require additional trains on Northeast Corridor due to overcrowding 2.3 High level of property acquisition required; not practicable to restore right-of-way through downtown Mansfield
13	Diesel Multiple Units Commuter Rail to Mansfield Station	2.2 Would restrict freight operations; may require additional trains on Northeast Corridor due to overcrowding 2.3 High level of property acquisition required; not practicable to restore track through downtown Mansfield
14	Diesel Multiple Units Commuter Rail to Mansfield Station with New Bedford to Fall River Connection via Dartmouth Secondary	2.2 Would restrict freight operations; may require additional trains on Northeast Corridor due to overcrowding 2.3 High level of property acquisition required; not practicable to restore track through downtown Mansfield

Table 6-6 Alternatives Dismissed in Step 2 (continued)

Number	Alternative	Reason(s) Why Alternative was Dismissed (by Criterion)
15	Electrified Commuter Rail to South Station via Mansfield	2.1 Would require the addition of a new mode; impacts to downtown Mansfield streets; moderate capacity improvements required; requires electrification of existing corridors; requires new maintenance and storage facility 2.2 Would restrict freight operations; may require additional trains on Northeast Corridor due to overcrowding 2.3 High level of construction impacts to Northeast Corridor; moderate impacts to existing passenger rail service; high level of property acquisition required; not practicable to restore track through downtown Mansfield
17	Commuter Rail to South Station via Middleborough	2.2 Would limit future planned or proposed expansion to Wareham/Buzzards Bay; reduced reliability of Middleborough Line 2.3 High level of construction impacts to Old Colony Main Line, especially in Quincy; possible impact to Red Line service; cannot be constructed within four-year timeframe
18	Commuter Rail to South Station via Middleborough, Convert Red Line Braintree Branch to Commuter Rail	2.2 Would limit future planned expansions; reduced reliability of Middleborough Line; replace rapid transit with low frequency service
37	Monorail to South Station via Route 140, Route 24, Route 128, and Southeast Expressway	2.1 Would require a new guideway system within existing transportation corridor and new maintenance and storage facility 2.2 Limits future expansion of Route 24 2.3 Cannot be constructed within four-year timeframe; high level of construction impacts to Boston area
38	Monorail to Quincy Adams Station via Route 140, Route 24, and Route 128	2.1 Would require a new guideway system within existing transportation corridor and new maintenance and storage facility 2.2 May require additional trains on Red Line that could impact existing operations and ridership; limits future expansion of Route 24 2.3 Cannot be constructed within four-year timeframe; high level of construction impacts within Quincy Adams area
39	Monorail to Route 128 Station via Route 140, Route 24, and Route 128	2.1 Would require a new guideway system within existing transportation corridor and new maintenance and storage facility 2.2 May require additional trains on Red Line that could impact existing operations and reliability; limits future expansion of Route 24 2.3 Cannot be constructed within four-year timeframe; high level of construction impacts along Route 128
40	Commuter Rail to South Station via Route 24 and Route 128 to Northeast Corridor	2.1 Would require a new guideway system within existing transportation corridor and expanding existing maintenance facility 2.2 Would affect Northeast Corridor operations with new train trips; limits future expansion of Route 24 2.3 High level of impacts to construct major structures; reconstruct 20 interchanges and third track on Northeast Corridor

Table 6-6 Alternatives Dismissed in Step 2 (continued)

Number	Alternative	Reason(s) Why Alternative was Dismissed (by Criterion)
41	Light Rail/Heavy Rail to Route 128 Station via Route 140, Route 24, and Route 128	2.1 Would require a new guideway system within existing transportation corridor and new maintenance and storage facility 2.2 May require additional trains on Northeast Corridor that could impact existing operations and ridership; limits future expansion of Route 24 2.3 High level of impacts to construct major structures, reconstruct 20 interchanges 2.4 Lowest ridership and highest cost when compared to other practicable alternatives
42	Heavy Rail to South Station via Route 140, Route 24, Route 128, and Red Line	2.1 Would require a new guideway system within existing transportation corridor and new maintenance and storage facility 2.2 Reduces reliability of existing Red Line by extending existing service; eliminates existing Braintree station; limits future expansion of Route 24
63	Commuter Rail to South Station via Middleborough, also extend Middleborough line to Wareham	2.3 Minor impacts to existing passenger and freight rail service; major impact on Red Line and Old Colony Main Line service; cannot be constructed within four-year timeframe

7

Step 3 Analysis

This chapter describes the third screening step used to determine the relative magnitude of each alternative's potential impacts on the aquatic and natural environment and consistency with smart growth strategies.

7.1 Introduction

The third step of screening determined if any of the reasonable alternatives should be dismissed based on potential impacts to the aquatic or natural environment and consistency with smart growth strategies. Step 3 considers the potential for other significant adverse environmental consequences to occur as a result of each alternative, particularly to wetlands, federal- and state-listed rare species, public water supplies, and protected open space.

As stated in the EPA Guidelines at 40 Code of Federal Regulations 230.10(a), "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." Therefore, this third step of screening assessed impacts to the aquatic environment under the Clean Water Act, but also assessed other potential impacts to the overall natural environment, as is required under the EPA guidelines. The specific measures for each criterion are listed below.

Because of the large size of the Alternatives Analysis Study Area, and the large number of alternatives being evaluated, this analysis is based on available GIS-level information (a coarse-filter approach at this stage) and will provide comparable results for each alternative. More detailed analysis, based on field investigations and preliminary engineering designs, will be done in the Phase 2 environmental impact analysis.

Step 3 compared the alternatives that were advanced to this step based on six criteria:

- 3.1 – The approximate level of wetland loss (in acres) and relative indirect impacts to wetlands.
- 3.2 – The number of new stream or river crossings.
- 3.3 – The number of acres of mapped Priority Habitat (state-listed rare species) that would be lost.
- 3.4 – The number of acres of protected public open space that would be directly impacted. These are lands that are protected under Massachusetts' State Constitution, Article 97 (parks, conservation lands, recreation areas, wildlife refuges).
- 3.5 – The number of acres of protected public water supply lands (Mapped Wellhead Zone 1, Mapped Surface Water Supply Zone A) that would be directly impacted.
- 3.6 – Consistency with smart growth strategies.

7.1.1 Criterion 3.1 – The approximate level of wetland loss (in acres) and relative indirect impacts to wetlands

Wetland impacts are the principal category of environmental impacts that must be considered for Section 404 permits and variances under the Massachusetts Wetlands Protection Act. Wetland fill quantities will be estimated using available GIS-mapped wetland boundaries within the Alternatives Analysis Study Area. The available GIS mapping does not specify whether the mapped wetlands are subject to Federal jurisdiction (Waters of the United States, as defined at 33 CFR 328.3, which include waters, including adjacent wetlands, that are part of a surface tributary system to navigable waters of the United States) or whether these wetlands are subject to jurisdiction under the Massachusetts Wetlands Protection Act as land under a waterbody, bordering vegetated wetlands or isolated land subject to flooding. This preliminary, comparative analysis assumes that all wetlands are subject to both Federal and state jurisdiction.

The amount of fill will be calculated using GIS. Based on GIS information, the analysis will also calculate the amount of each type of wetland (e.g., forested, shrub, emergent) that would be lost for each alternative. The number of potentially-affected Certified Vernal Pools and potential vernal pools will also be identified using GIS data. This analysis will also evaluate the amount of wetland fill within an ACEC, as wetlands within ACECs receive a higher level of regulatory protection. This analysis included the amount of wetland fill within the proposed Three Mile River ACEC.

Wetland resource area boundaries along the Fall River Secondary, the New Bedford Main Line, and the Stoughton Line were field-delineated and surveyed during preparation of the 2002 FEIR, and impacts to resource areas along those lines were calculated based on a 30 percent engineering design. These more accurate wetland impact numbers have been used in this analysis, where the transit mode did not require widening the railbed.

Relative indirect impacts to wetlands will be evaluated based on the length of each alternative that would cross a wetland on new alignment. While indirect impacts to wetland functions and values (particularly wildlife habitat functions in proximity to the transportation corridor, or fragmentation of wildlife habitat) could occur as a result of reconstruction of an existing rail line or highway, assessing indirect impacts requires detailed analysis of the existing wetland's plant community and functions, as well as detailed analysis of the lateral extent of indirect impacts. Such analyses are not feasible at this preliminary, comparative level of analysis. Because indirect impacts are likely to be more severe along new or abandoned rail or road corridors, and because this metric is easily quantified using GIS analysis, the length of the new or abandoned rail or road corridor was used to estimate the magnitude of potential indirect impacts to wetland functions in this preliminary comparative analysis. Results for this criterion are provided in Appendix B.

Table 7-1 Measures Used to Evaluate Criterion 3.1

Criterion	Measure	Rating
3.1	*Loss of wetlands and indirect impacts to wetlands*	
	➤ Amount of wetland fill (by habitat type) ➤ Amount of wetland fill in an ACEC ➤ Number of vernal pools potentially impacted (certified and potential) ➤ Potential indirect impacts – the length of an alternative crossing wetland on a new alignment	◑ No wetland loss, no loss of wetland in an ACEC, no vernal pools in close proximity, no or minimal indirect impacts ⊘ Minor wetland loss, minor loss of wetland in an ACEC, some vernal pools in close proximity, moderate indirect impacts ⊗ High wetland loss, high loss of wetlands in an ACEC, more vernal pools in close proximity, higher indirect impacts

7.1.2 Criterion 3.2 - The number of stream or river crossings

New crossings of streams or rivers have the potential to result in the loss of aquatic habitat. The amount of aquatic habitat loss will be estimated based on the number of new river/stream crossings.

Although the Interagency Coordinating Group requested that the number of existing bridges or culverts requiring or not requiring widening be provided for

informational purposes but not used to rate the alternatives, this information was not developed in Phase 1. This information will be included in the Phase 2 analysis, and will provide an estimate of locations where construction of the alternative could result in improved fish or wildlife passage by reconstructing an existing culvert or bridge. This minimization or mitigation would be considered in a later phase of analysis.

Table 7-2 Measures Used to Evaluate Criterion 3.2

Criterion	Measure	Rating
3.2	*Impacts to Streams and Rivers*	
	➤ Number of new crossings	◑ No impact (No new crossings)
		◯ Minor impact (Fewer than 5 new crossings)
		⊘ Moderate impact (Five to 15 new crossings)
		⊗ Substantial impact (More than 15 new crossings)

7.1.3 Criterion 3.3 - The number of acres of mapped Priority Habitat (state-listed rare species) that would be lost

Rare species habitat impacts are considered at this step because rare species are considered an important environmental resource, protected under the Massachusetts Endangered Species Act. Obtaining a permit for work within rare species habitat requires an alternatives analysis and the demonstration that the applicant has adequately assessed alternatives to both temporary and permanent impacts to state-listed species.

Potential impacts to rare species habitat will be evaluated based on available GIS mapping. Potential direct impacts to habitat (loss) for both new or abandoned right-of-ways and segments of existing active rail lines requiring track improvements will be estimated using available GIS-mapped polygon boundaries. Relative indirect impacts will be evaluated based on whether the alternative would cross a polygon on new alignment or would cross a polygon on an existing right-of-way. While indirect impacts to rare species habitat (particularly in proximity to the transportation corridor, or fragmentation of wildlife habitat) could occur as a result of reconstruction of an existing rail line or highway, assessing indirect impacts requires detailed analysis of the existing habitat and requirements of the specific species at each location, as well as detailed analysis of the lateral extent of indirect impacts. Such analyses are not feasible at this preliminary, comparative level of analysis.

Because indirect impacts are likely to be more severe along new or abandoned rail or road corridors, and because this metric is easily quantified using GIS analysis, the length of the new or abandoned rail or road corridor was used to estimate the magnitude of potential indirect impacts to rare species in this preliminary comparative analysis.

The NHESP provided an analysis of potential impacts to rare species habitat using two measures: the length of new or abandoned right-of-way within mapped Priority Habitats, and the number of state-listed species within these priority habitats that would potentially be affected by constructing or restoring track. Raw scores in each category were ranked from 1 to 4, and added together to develop a composite index. NHESP then adjusted the scores for four alternatives using more detailed available information. The scores for Alternatives 3, 6, and 33 were reduced because they would impact Priority Habitat near I-195 that is already fragmented. The scores for Alternatives 30 and 34 were reduced because these alternatives incorporate a trestle that would reduce fragmentation and other habitat impacts.

The NHESP combined these scores (which measure impacts on the new and abandoned segments of right-of-way with the total scores for work within mapped Priority Habitat for each alternative. This combined score takes into account the impacts of track improvements/widening on active rail lines as well as the new impacts. While the outcome of the NHESP's application of the above criteria to the Stoughton alternatives resulted in the same combined score range for the at-grade and trestle alternatives ("highly unfavorable" in terms of impacts), the NHESP still regards the trestle alternatives as being significantly better than the at-grade alternatives. This is because, as noted above, the use of a trestle would reduce habitat fragmentation and impacts and facilitate the continued movement of state-listed species across the right-of-way. For these reasons, NHESP does not object to the trestle alternatives (30 and 34) being retained at this early stage in the planning process.

Table 7-3 Measures Used to Evaluate Criterion 3.3

Criterion	Measure	Rating
3.3	*Impacts to state-listed rare species habitat* ➤ Acres of priority habitat within the footprint of the alternative ➤ Length of new or abandoned right-of-way within Priority Habitat ➤ Number of potentially affected state-listed species	◑ Combined score 0-2 ◯ Combined score 4-6 ⊗ Combined score 9-11 [NOTE: the NHESP does not object to Alternatives 30 and 34 (the "trestle" alternatives) being retained at this early stage in the planning process.]

7.1.4 Criterion 3.4 - The number of acres of protected public open space which are protected under Massachusetts' State Constitution, Article 97 (parks, conservation lands, recreation areas, wildlife refuges), that would be directly impacted

The Phase 1 analysis evaluates potential direct impacts to public open space (parks, conservation lands, recreation lands, conservation land, and wildlife refuges) which are protected under Article 97 of the Massachusetts Constitution, and to publicly-owned wildlife sanctuaries and refuges which are considered "special aquatic sites" under the federal 404(b)(1) Clean Water Act Guidelines. Although this Project is not anticipated to require review or funding by a federal transportation agency, this criterion also includes those properties protected under Section 4(f) of the federal Department of Transportation Act.

Potential, approximate impacts to public open space will be evaluated based on available state and local GIS mapping. The amount of land acquisition of each alternative from a public open space parcel will be calculated using GIS, and the area of potential loss will be estimated using the typical cross-section for each alternative. This Phase 1 analysis will not identify indirect effects to public open space that may occur as a result of the location of the alternative (fragmentation), proximity (noise), or other secondary effects that will be evaluated in detail in the Phase 2 environmental impact analysis.

Table 7-4 Measures Used to Evaluate Criterion 3.4

Criterion	Measure	Rating
3.4	*Impacts to Protected Open Space*	
	➢ Amount of land acquisition from protected public open space	◑ No land acquisition from protected open space
		○ Less than 1 acre of acquisition
		⊘ More than 1 acre of acquisition

7.1.5 Criterion 3.5 - The number of acres of protected public water supply lands (Mapped Wellhead Zone 1, Mapped Surface Water Supply Zone A) that would be directly impacted

Public drinking water supplies (wells and surface reservoirs) are important public resources that are protected under Massachusetts and federal regulations. Potential impacts to public drinking water supplies will be evaluated by determining the area of protected Wellhead Zone 1 (the area within a 400-foot radius of an existing well) or Surface Water Supply Zone A (the area within 400 feet of the bank of a Class A surface water, or within 200 feet of a tributary) that would be within the footprint of an alternative that uses a new or abandoned railroad right-of-way, or that would be within the footprint of a highway alternative (outside of the existing highway footprint).

Table 7-5 Measures Used to Evaluate Criterion 3.5

Criterion	Measure	Rating
3.5	*Impacts to Public Drinking Water Supplies* ➤ Amount of loss of land within Wellhead Zone 1 (along a new or abandoned right-of-way) ➤ Amount of loss of land within Surface Water Supply Zone A (along a new or abandoned right-of-way)	◑ No construction within a Zone A or Zone 1 ⊘ Less than 0.5 acre of construction within a Zone A or Zone 1

7.1.6 Criterion 3.6 - Consistent with smart growth strategies

Transportation infrastructure impacts land development patterns by controlling the ease of access to neighborhoods, communities, and commercial and industrial areas, which in turn affects both built and natural environments. The Commonwealth can support smart growth strategies for any alternative by providing technical assistance to communities to zone for homes and jobs in places already well-served by public infrastructure, providing tools to support open space and natural resource conservation, promoting renewable energy technologies and energy efficiency, and ensuring the Project meets social equity objectives. (For more detail on the Commonwealth's smart growth goals, see the Commonwealth's Sustainable Development Principles.[1]) Even though any alternative can promote some level of smart growth with the right policy choices, alternatives are not all created equal. EOT will evaluate an alternative's potential to support smart growth based on the extent to which an alternative:

- Serves historic population and job centers, such as downtowns and village centers;
- Has the potential to promote brownfields and grayfields redevelopment;
- Protects land and ecosystems, as assessed in Criteria 3.1-3.4;
- Preserves existing agricultural lands, drinking water supplies, forests, and wildlife habitat;
- Preserves historic and archaeological resources; and
- Avoids or minimizes siting stations or parking in undeveloped areas.

Detailed results for this criterion are provided in Appendix B.

▼

[1] Commonwealth's Sustainable Development Principles (http://www.mass.gov/Agov3/docs/smart_growth/patrick-principles.pdf)

Table 7-6 Measures Used to Evaluate Criterion 3.6

Criterion	Measure	Rating
3.6	*Consistency with Smart Growth Strategies* ➤ Service to population and job centers ➤ Potential to promote brownfields and grayfields redevelopment ➤ Impacts to historic and archaeological resources (number of known historic and archaeological resources within the footprint) ➤ Potential to locate stations within developed areas	● Meets all criteria – Provides service to the most population or job centers; substantial amount of potentially redevelopable brownfields sites close to the population centers; no impacts to historic resources; all stations can be located within developed areas with potential for stations near highways to reach a larger population ◑ Meets most criteria – provides service to fewer population or job centers; smaller number of potentially developable brownfields sites; no impacts to historic resources; all stations can be located within developed areas with potential for stations near highways to reach a larger population ○ Meets some criteria – provides service to fewer population or job centers; few potentially developable brownfields sites; no impacts to historic resources; all stations can be located within developed areas with potential for stations near highways to reach a larger population ⊘ Meets few criteria – provides service to two population or job centers; negligible number of potentially developable brownfields sites; minor impacts to historic resources; two stations can be located within developed areas, all other stations can only be located near developed areas ⊗ Does not provide service to population or job centers; negligible potential for brownfields redevelopment; substantial impacts to historic resources; no stations could be located in developed areas

7.2 Step 3 Results

The following sections describe the results of the 14 alternatives evaluated in the Step 3 evaluation. Table 7-7 provides a summary of the results of this analysis. Figures 7-1 through 7-7 provide environmental resource information for each of the corridors under consideration. The rankings were developed for comparative purposes, and rank each alternative with respect to each criterion in relationship to the other alternatives. EOT generally recommended that any alternative with a "highly unfavorable" ranking be dismissed from further consideration.

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Table 7-7
SOUTH COAST RAIL
Phase 1 Alternatives Analysis - Step 3

FINAL
04/30/08

Number of Alternatives for Step 3 = 15

Route	Alt #	Name	CRITERION 3.1 - The approximate level of wetland loss (in acres)					CRITERION 3.2 - The number of stream or river crossings with impact		CRITERION 3.3 - Potential Impacts to Priority Habitats (State-Listed Species Habitats)		CRITERION 3.4 - The number of acres of protected public open space that would be directly impacted		CRITERION 3.5 - The number of acres of protected public water supply lands that would be directly impacted		CRITERION 3.6 - Consistent with smart growth strategies	RETAINED FOR FURTHER CONSIDERATION
			Acres	Acres in ACEC	Number of Vernal Pools - *Certified (Potential)*	Length of Wetland *(feet)* (Indirect Impact)	***RANK***	Number	***RANK***	Score	***RANK***	Acres	***RANK***	Acres	***RANK***	***RANK***	
THROUGH ATTLEBORO	1	Commuter Rail to South Station via Attleboro Bypass	7.82	0.46	2 (7)	6,300	⊘	4	○	4	○	0.65	○	0	◑	◑	YES
	3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	9.74	0.46	2 (6)	15,800	⊗	12	⊘	6	○	2.21	⊘	0.09	⊘	◑	**NO**
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	5.32	0	2 (8)	0	◑	0	◑	2	◑	0	◑	0	◑	●	YES
	6	Diesel Multiple Units to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	10.89	0	3 (11)	9,500	⊗	8	⊘	5	○	2.25	⊘	0.14	⊘	●	**NO**
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	8.46	0.46	2 (10)	6,300	⊘	4	○	4	○	0.65	○	0	◑	◑	YES
THROUGH MIDDLEBOROUGH	17	Commuter Rail to South Station via Middleborough	3.61	0	0(4)	0	◑	1	○	2	◑	0	◑	0	◑	◑	**YES***
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	3.61	0	0 (4)	0	◑	0	◑	2	◑	0	◑	0	◑	◑	YES
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	7.92	0	2 (11)	6,300	⊘	4	○	5	○	0.65	○	0	◑	◑	YES
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	6.74	0.76	9 (17)	6,400	⊘	10	⊘	9 **	⊗	3.06	⊘	0	◑	◑	YES
	32	Diesel Multiple Units Commuter Rail to Stoughton Station	8.95	1.41	9 (17)	6,400	⊘	10	⊘	10	⊗	4.4	⊘	0	◑	◑	**NO**
	33	Diesel Multiple Units to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	14.52	1.41	10 (20)	15,900	⊗	18	⊗	11	⊗	6.96	⊘	0.14	⊘	◑	**NO**
	34	Electrified Commuter Rail to South Station via Stoughton	7.25	0.83	9 (17)	6,400	⊘	10	⊘	9**	⊗	3.3	⊘	0	◑	◑	YES
HIGHWAY SYSTEM	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128	0.31	0.25	0	0	◑	0	◑	1	◑	7.33	⊘	0	◑	⊘	YES
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway High Occupancy Vehicle (HOV) Lane	0.1	0	0	0	◑	0	◑	1	◑	4.03	⊘	0	◑	⊘	YES
	45	Enhanced Bus Service on Existing Private Carrier Routes	0	0	0	0	◑	0	◑	1	◑	0	◑	0	◑	⊘	YES

LEGEND

- ● **Highly Favorable** = highly positive impact and/or substantially exceeding the intent of the criterion
- ◑ **Favorable** = small or marginally positive impact and/or complete satisfaction or marginally exceeding the intent of the criterion
- ○ **Neutral** = neutral impact or no impact and/or minimal satisfaction of the criterion
- ⊘ **Unfavorable** = small or marginally negative impact and/or partial failure to meet the criterion
- ⊗ **Highly Unfavorable** = highly negative impact and/or complete failure to meet the criterion

Remove from Further Consideration (In Step 3, Highly Unfavorable causes alternative to be dismissed)

Ac = **Acres**

* **Although Alternative 17 was recommended to be dismissed in Step 2, EOT requested that this alternative be retained for further analysis.**

Criterion 3.1	Criterion 3.2	Criterion 3.3	Criterion 3.4	Criterion 3.5	Criterion 3.6
See detailed memorandum	0 = ◑ < 5 = ○ 5 -1 5 = ⊘ ≥15 = ⊗	0-2 ◑ 4-6 ○ 9-11 ⊗ ** The NHESP does not object to Alternatives 30 and 34 (the Trestle Alternatives) being retained at this early stage in the planning process	0 = ◑ ≤ 1 Ac = ○ > 1 Ac = ⊘	0 = ◑ < 0.5 Ac = ⊘	See detailed memorandum

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Alternative 1 – Commuter Rail to South Station via Attleboro Bypass

Alternative 1, *Commuter Rail to South Station via Attleboro Bypass*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 7.82 acres of wetland fill (1.65 acres of marsh, 1.95 acres of shrub wetlands, 3.48 acres of forested wetland, and 0.74 acres of open water)
  - 0.46 acres of wetland fill in the Fowl Meadow ACEC
  - Work in proximity to two certified vernal pools (seven potential vernal pools)
  - Moderate indirect impacts to wetlands - 6,300 feet of new railroad construction crossing wetlands
- *Criterion 3.2* – Would require four new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 4 (neutral) based on 52 acres of total work within Priority Habitat, 21,628 feet of work through Priority Habitat, and work on new/abandoned railbed in one Priority Habitat (369 feet)
- *Criterion 3.4* – Would impact 0.65 acres of protected open space (Town of Attleboro at Chartley Pond)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 1 for further study

Alternative 3 – Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass

Alternative 3, *Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass*, was determined likely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Highly Unfavorable for wetland impacts:
  - Would require an estimated 9.74 acres of wetland fill (2.6 acres of marsh, 1.96 acres of shrub wetlands, 4.03 acres of forested wetland, and 1.15 acres of open water)
  - 0.46 acres of wetland fill in the Fowl Meadow ACEC
  - Work in proximity to two certified vernal pools (six potential vernal pools)
  - High indirect impacts to wetlands – 15,800 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Would require 12 new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 6 (neutral) based on 64 acres of total work within Priority Habitat, 27,222 feet of work through Priority Habitat, and work on new/abandoned railbed in two Priority Habitats (3,162 feet)
- *Criterion 3.4* – Would require acquisition of 2.21 acres of protected open space (Town of Attleboro at Chartley Pond, and the Westport Land Trust)
- *Criterion 3.5* – Would impact 0.09 acres of protected public water supply lands (Zone A of South Watuppa Pond)
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Dismiss Alternative 3 from further evaluation due to its failure to meet Criterion 3.1. Alternative 3 would have a high level of direct impacts to wetlands,

including wetlands within an ACEC, and a high level of indirect impacts to wetlands resulting from construction adjacent to and fragmenting wetlands.

Alternative 5 – Diesel Multiple Unit Commuter Rail to Attleboro Station

Alternative 5, *Diesel Multiple Unit Commuter Rail to Attleboro Station*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Favorable for wetland impacts:
  - Would require an estimated 5.32 acres of wetland fill (0.61 acres of marsh, 0.3 acres of shrub wetlands, 3.03 acres of forested wetland, 0.67 acres of salt marsh, and 0.67 acres of open water)
  - No wetland fill in an ACEC
  - Work in proximity to two certified vernal pools (eight potential vernal pools)
  - No indirect impacts to wetlands - no new railroad construction crossing wetlands
- *Criterion 3.2* – No new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 2 (favorable) based on 51 acres of total work within Priority Habitat, 15,246 feet of work through Priority Habitat, and no work on new/abandoned railbed in Priority Habitats
- *Criterion 3.4* – No land acquisition from public open space
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 5 for further study

Alternative 6 – Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 6, *Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary*, was determined likely to result in higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Highly Unfavorable for wetland impacts:
  - Would require an estimated 10.89 acres of wetland fill (2.08 acres of marsh, 0.34 acres of shrub wetlands, 6.06 acres of forested wetland, 0.67 acres of salt marsh, and 1.74 acres of open water)
  - No wetland fill in an ACEC
  - Work in proximity to three certified vernal pools (11 potential vernal pools)
  - High indirect impacts to wetlands – 9,500 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Eight new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 5 (neutral) based on 77 acres of total work within Priority Habitat, 22,721 feet of work through Priority Habitat, and work on new/abandoned railbed in one Priority Habitat (2,793 feet)
- *Criterion 3.4* – Would require acquisition of 2.25 acres of public open space (Westport Land Trust)
- *Criterion 3.5* – Would impact 0.14 acres of protected water supply lands (Zone A of South Watuppa Pond)
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Dismiss Alternative 6 from further evaluation due to its failure to meet Criterion 3.1

Alternative 7 – Electrified Commuter Rail to South Station via Attleboro Bypass

Alternative 7, *Electrified Commuter Rail to South Station via Attleboro Bypass*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 8.46 acres of wetland fill (1.7 acres of marsh, 1.99 acres of shrub wetlands, 3.52 acres of forested wetland, 0.51 acres of salt marsh, and 0.74 acres of open water)
  - 0.46 acres of wetland fill in the Fowl Meadow ACEC
  - Work in proximity to two certified vernal pools (10 potential vernal pools)
  - High indirect impacts to wetlands – 6,300 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Four new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 4 (neutral) based on 64 acres of total work within Priority Habitat, 27,222 feet of work through Priority Habitat, and work on new/abandoned railbed in two Priority Habitats (3,162 feet)
- *Criterion 3.4* – Would require acquisition of 0.65 acres of public open space (Town of Attleboro, Chartley Pond)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 7 for further study

Alternative 30 – Commuter Rail to South Station via Stoughton

Alternative 30, *Commuter Rail to South Station via Stoughton*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 6.74 acres of wetland fill (0.07 acres of marsh, 0.88 acres of shrub wetlands, 5.11 acres of forested wetland, and 0.68 acres of open water)
  - 0.78 acres of wetland fill in the Hockomock Swamp ACEC
  - Work in proximity to nine certified vernal pools (17 potential vernal pools)
  - High indirect impacts to wetlands – 6,400 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Ten new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 9 (highly unfavorable) based on 71 acres of total work within Priority Habitat, 22,796 feet of work through Priority Habitat, and work on new/abandoned railbed in three Priority Habitats (7,994 feet). [NOTE: the NHESP does not object to Alternatives 30 and 34 (the "trestle" alternatives) being retained at this early stage in the planning process.]
- *Criterion 3.4* – Would require acquisition of 3.06 acres of public open space (Town of Raynham, Pine Swamp)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves four historic population centers (New Bedford, Fall River, Taunton, Easton)
  - Could promote redevelopment in five clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 30 for further study

Alternative 32 – Diesel Multiple Unit Commuter Rail to Stoughton Station

Alternative 32, *Diesel Multiple Unit Commuter Rail to Stoughton Station*, was determined likely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 8.95 acres of wetland fill (0.13 acres of marsh, 1.08 acres of shrub wetlands, 6.17 acres of forested wetland, 0.67 acres of salt marsh, and 0.9 of open water)
  - 1.41 acres of wetland fill in the Hockomock Swamp ACEC
  - Work in proximity to nine certified vernal pools (17 potential vernal pools)
  - High indirect impacts to wetlands – 6,400 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Ten new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 10 (highly unfavorable) based on 76 acres of total work within Priority Habitat, 22,796 feet of work through Priority Habitat, and work on new/abandoned railbed in three Priority Habitats (7,994 feet)
- *Criterion 3.4* – Would require acquisition of 4.4 acres of public open space (Town of Raynham, Pine Swamp)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves four historic population centers (New Bedford, Fall River, Taunton, Easton)
  - Could promote redevelopment in five clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Dismiss Alternative 32 from further evaluation due to its failure to meet Criterion 3.3

Alternative 33 – Diesel Multiple Unit to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary

Alternative 33, *Diesel Multiple Unit to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary*, was determined likely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Highly Unfavorable for wetland impacts:
  - Would require an estimated 14.52 acres of wetland fill (1.6 acres of marsh, 1.12 acres of shrub wetlands, 9.2 acres of forested wetland, 0.67 acres of salt marsh, and 1.93 acres of open water)
  - 1.41 acres of wetland fill in the Hockomock Swamp ACEC
  - Work in proximity to ten certified vernal pools (20 potential vernal pools)
  - High indirect impacts to wetlands – 15,900 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – 18 new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 11 (highly unfavorable) based on 102 acres of total work within Priority Habitat, 30,271 feet of work through Priority Habitat, and work on new/abandoned railbed in four Priority Habitats (10,787 feet)
- *Criterion 3.4* – Would require acquisition of 6.96 acres of public open space (Town of Raynham, Pine Swamp)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves four historic population centers (New Bedford, Fall River, Taunton, Easton)
  - Could promote redevelopment in five clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Dismiss Alternative 33 from further evaluation due to its failure to meet Criteria 3.1, 3.3, and 3.4. This alternative would have a high level of both direct and indirect wetland impacts, the largest amount of wetland fill within an ACEC,

and would have unacceptable adverse impacts to the priority habitat of state-listed species as a result of constructing two at-grade tracks through the Hockomock Swamp.

Alternative 34 – Electrified Commuter Rail to South Station via Stoughton

Alternative 34, *Electrified Commuter Rail to South Station via Stoughton*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 7.25 acres of wetland fill (0.07 acres of marsh, 0.88 acres of shrub wetlands, 5.11 acres of forested wetland, 0.51 acres of salt marsh, and 0.68 acres of open water)
  - 0.83 acres of wetland fill in the Hockomock Swamp ACEC
  - Work in proximity to nine certified vernal pools (17 potential vernal pools)
  - High indirect impacts to wetlands – 6,400 feet of new/abandoned railroad construction crossing wetlands
- *Criterion 3.2* – Ten new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 9 (highly unfavorable) based on 71 acres of total work within Priority Habitat, 22,796 feet of work through Priority Habitat, and work on new/abandoned railbed in three Priority Habitats (7,994 feet). [NOTE: the NHESP does not object to Alternatives 30 and 34 (the "trestle" alternatives) being retained at this early stage in the planning process.]
- *Criterion 3.4* – Would require acquisition of 3.3 acres of public open space (Town of Raynham, Pine Swamp)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves four historic population centers (New Bedford, Fall River, Taunton, Easton)
  - Could promote redevelopment in five clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources

- All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 34 for further study

Alternative 43 – Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128

Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Favorable for wetland impacts:
  - Would require an estimated 0.31 acres of wetland fill (0.05 acres of marsh, 0.01 acres of forested wetland, and 0.25 acres of open water)
  - 0.25 acres of wetland fill in the Fowl Meadow ACEC
  - No work in proximity to certified or potential vernal pools
  - No indirect impacts to wetlands
- *Criterion 3.2 – No new stream/river crossings*
- *Criterion 3.*3 – NHESP assigned a combined score of 1 (favorable) based on 9 acres of total work within Priority Habitat, 4,218 feet of work through Priority Habitat, and no work on new/abandoned railbed in Priority Habitats
- *Criterion 3.*4 – Would require acquisition of 7.33 acres of public open space (Blue Hills State Reservation)
- *Criterion 3.*5 – No impact to protected water supply lands
- *Criterion 3.*6 – Consistent with smart growth principles:
  - Serves two historic population centers (New Bedford, Fall River)
  - Could promote redevelopment in four clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - Fall River and New Bedford stations could be located in developed areas, all other stations would be located in undeveloped areas near highways

Recommend: Retain Alternative 43 for further study

Alternative 44 – Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane

Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Favorable for wetland impacts:
  - Would require an estimated 0.1 acres of wetland fill (0.08 acres of marsh and 0.02 acres of forested wetland)
  - No wetland fill in the Fowl Meadow ACEC
  - No work in proximity to certified or potential vernal pools
  - No indirect impacts to wetlands
- *Criterion 3.2* – No new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 1 (favorable) based on 23 acres of total work within Priority Habitat, 5,468 feet of work through Priority Habitat, and no work on new/abandoned railbed in Priority Habitats
- *Criterion 3.*4 – Would require acquisition of 4.03 acres of public open space (Blue Hills State Reservation)
- *Criterion 3.*5 – No impacts to protected water supply lands
- *Criterion 3.*6 – Consistent with smart growth principles:
  - Serves two historic population centers (New Bedford, Fall River)
  - Could promote redevelopment in four clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - Fall River and New Bedford stations could be located in developed areas, all other stations would be located in undeveloped areas near highways

Recommend: Retain Alternative 44 for further study

Alternative 45 – Enhanced Bus

Alternative 45, *Enhanced Bus*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Favorable for wetland impacts:
  - Would require no wetland fill
  - No wetland fill in an ACEC
  - No work in proximity to certified or potential vernal pools
  - No indirect impacts to wetlands
- *Criterion 3.2* – No new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 1 (favorable) based on no work within Priority Habitat
- *Criterion 3.4* – Would not require land acquisition from public open space
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in five clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - Taunton, Fall River and New Bedford stations could be located in developed areas, all other stations would be located in undeveloped areas near highways

Recommend: Retain Alternative 45 for further study

Alternative 62 – Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line

Alternative 62, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Unfavorable for wetland impacts:
  - Would require an estimated 7.52 acres of wetland fill (1.55 acres of marsh, 1.84 acres of shrub wetlands, 3.57 acres of forested wetland, and 0.56 acres of open water)
  - No wetland fill in an ACEC
  - Work in proximity to two certified vernal pools (11 potential vernal pools)
  - Moderate indirect impacts to wetlands - 6,300 feet of new railroad construction crossing wetlands
- *Criterion 3.2* – Would require four new stream/river crossings
- *Criterion 3.3* – NHESP assigned a combined score of 5 (neutral) based on 67 acres of total work within Priority Habitat, 21,695 feet of work through Priority Habitat, and work on new/abandoned railbed in one Priority Habitat (369 feet)
- *Criterion 3.4* – Would impact 0.65 acres of protected open space (Town of Attleboro at Chartley Pond)
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves three historic population centers (New Bedford, Fall River, Taunton)
  - Could promote redevelopment in six clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 62 for further study

Alternative 64 – Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements*, was determined unlikely to result in substantially higher environmental impacts than other practicable alternatives.

- *Criterion 3.1* – Favorable for wetland impacts:
  - Would require an estimated 3.61 acres of wetland fill (0.25 acres of marsh, 0.33 acres of shrub wetlands, 2.67 acres of forested wetland, and 0.36 acres of open water)
  - No wetland fill in an ACEC
  - Work in proximity to no certified vernal pools (four potential vernal pools)
  - Low indirect impacts to wetlands – no new railroad construction crossing wetlands
- *Criterion 3.2* – No new stream/river crossings
- *Criterion 3.3* – NHESP did not assign a score to Alternative 64, which was added to the Step 3 evaluation after NHESP completed their evaluation. Since this alternative does not include work on a new or abandoned right-of-way through Priority Habitat, it would have a score of favorable.
- *Criterion 3.4* – No land acquisition from protected open space
- *Criterion 3.5* – No impact to protected water supply lands
- *Criterion 3.6* – Consistent with smart growth principles:
  - Serves two historic population centers (New Bedford, Fall River)
  - Could promote redevelopment in two clusters of brownfields sites
  - No loss of farmland; smart growth strategies could be implemented to protect farmland from sprawl
  - No impact to historic or archaeological resources
  - All stations could be located in developed areas, with the potential for highway-accessible stations to serve larger populations

Recommend: Retain Alternative 64 for further study

7.3 Step 3 Recommendations

Based on the Step 3 Screening Evaluation described above, EOT recommended that the four Alternatives listed in Table 7-8 be dismissed. The Interagency Coordinating Group concurred with this evaluation on March 4, 3008.

Table 7-8 Alternatives Dismissed in Step 3

Number	Alternative	Reason(s) Why Alternative was Dismissed *(by Criterion)*
3	Commuter Rail to South Station via Dartmouth Secondary, New Bedford Secondary, and Attleboro Bypass	➤ 3.1 – Would require 9.74 acres of wetland fill; 0.46 acres of wetland fill in an ACEC; 15,800 feet of indirect impact to wetlands ➤ 3.2 – Would require 12 new stream/river crossings ➤ 3.3 – NHESP ranked Highly Unfavorable ➤ 3.4 – Would impact 2.21 acres of protected open space ➤ 3.5 – Would impact 0.09 acres of protected public water supply lands
6	Diesel Multiple Unit Commuter Rail to Attleboro Station with New Bedford to Fall River Connection via Dartmouth Secondary	➤ 3.1 – Would require 10.89 acres of wetland fill; work in proximity to 3 certified vernal pools (11 potential vernal pools); 9,500 feet of indirect impact to wetlands ➤ 3.2 – Would require 8 new stream/river crossings ➤ 3.3 – NHESP ranked Unfavorable ➤ 3.4 – Would impact 2.25 acres of protected open space ➤ 3.5 – Would impact 0.14 acres of protected public water supply lands
32	Diesel Multiple Unit Commuter Rail to Stoughton Station	➤ 3.1 – Would require 8.95 acres of wetland fill; 1.41 acres of wetland fill in an ACEC; work in proximity to 9 certified vernal pools (17 potential vernal pools); 6,400 feet of indirect impact to wetlands ➤ 3.2 – Would require 10 new stream/river crossings ➤ 3.3 – NHESP ranked Highly Unfavorable ➤ 3.4 – Would impact 4.4 acres of protected open space
33	Diesel Multiple Unit Commuter Rail to Stoughton Station with New Bedford to Fall River Connection via Dartmouth Secondary	➤ 3.1 – Would require 14.52 acres of wetland fill; 1.41 acres of wetland fill in an ACEC; work in proximity to 10 certified vernal pools (20 potential vernal pools);15,900 feet of indirect impact to wetlands ➤ 3.2 – Would require 18 new stream/river crossings ➤ 3.3 – NHESP ranked Highly Unfavorable ➤ 3.4 – Would impact 6.96 acres of protected open space ➤ 3.5 – Would impact 0.14 acres of protected public water supply lands

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8

Step 4 Analysis

This chapter describes the fourth screening step used to identify the alternatives recommended to advance to Phase 2.

8.1 Introduction

The purpose of the Phase 1 Alternatives Analysis was to identify a reasonable range of alternatives to advance into the *Highway Methodology* Phase 2 and MEPA/NEPA processes. However, at the conclusion of Step 3 in the Phase 1 Screening process, eleven alternatives remained. These eleven included ten that passed through the screening process and one eliminated in a previous step for which further analysis was requested. In order to reduce the list of alternatives to a reasonable yet comprehensive number and range for the next phase of the Project, it was necessary to "circle back" and look at the remaining alternatives in the context of the Project purpose and all three steps in the Phase 1 Screening. In addition, a new alternative was developed at the request of the Interagency Coordinating Group, bringing the total number of alternatives for this Step 4 analysis to twelve.

The twelve alternatives recommended to advance at the conclusion of Step 3 were re-evaluated to determine if there were other reasonable criteria by which additional alternatives could be dismissed or consolidated with other similar alternatives. Alternatives with similar transportation services were compared to each other, considering environmental impacts, transportation benefits, and available infrastructure.

This process took into account input received from the South Coast Commuter Rail Task Force, the Interagency Coordinating Group, and three Civic Engagement meetings held on March 10, 11 and 12, 2008. The recommendations of Step 4 were reviewed with the Interagency Coordinating Group on March 21 and April 1, 2008, which resulted in expanding the list of alternatives recommended by EOT.

8.2 Step 4 Results

The following section provides a summary of the evaluation process for the 12 alternatives shown in Table 8-1 that was used to dismiss and/or consolidate alternatives to reach the final recommendations by EOT to advance to Phase 2. Tables 8-2 and 8-3 summarize the results of Steps 1-3 for those alternatives.

Table 8-1 Alternatives Advanced into Step 4 Alternatives

#	Alternative Description
1	Commuter Rail to South Station via Attleboro Bypass
5	Diesel Multiple Units to Attleboro Station
7	Electric Commuter Rail to South Station via Attleboro Bypass
17	Commuter Rail to South Station via Middleboro (with Old Colony Main Line Alternatives)
30	Commuter Rail to South Station via Stoughton
34	Electrified Commuter Rail to South Station via Stoughton
43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128
44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane
45	Enhanced Bus Service on Existing Private Carrier Lines
62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line
64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements
65	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line (Hybrid Modes)*

*Alternative 65 was developed and added during the Step 4 Process at the request of the Interagency Coordinating Group.

Table 8-2
SOUTH COAST RAIL
Alternatives Advanced to Step 4 - Summary of Steps 1-3

FINAL
04/30/08

			STEP 1 - Would the Proposed Alternative Achieve the Project Purpose?	STEP 2 - Is the Proposed Alternative Practicable?	STEP 3 - Compare the Magnitude of Impacts to the Natural Environment and Consistency with Smart Growth
Route	**Alt #**	**Name**	***RANK***	***RANK***	***RANK***
THROUGH ATTLEBORO	1	Commuter Rail to South Station via Attleboro Bypass			
	5	Diesel Multiple Units Commuter Rail to Attleboro Station			
	7	Electrified Commuter Rail to South Station via Attleboro Bypass			
THROUGH MIDDLEBOROUGH	17	Commuter Rail to South Station via Middleborough			
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements			
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line			
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton			
	34	Electrified Commuter Rail to South Station via Stoughton			
HIGHWAY SYSTEM	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128			
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane			
	45	Enhanced Bus Service on Existing Private Carrier Routes			

LEGEND

Highly Favorable

Favorable

Neutral

Unfavorable

Highly Unfavorable

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Table 8-3
SOUTH COAST RAIL
Alternatives Advanced to Step 4 - Rank by Criteria

FINAL
04/30/08

Route	Alt #	Name	CRITERION 1.1 RANK	CRITERION 1.2 RANK	CRITERION 2.1 RANK	CRITERION 2.2 RANK	CRITERION 2.3 RANK	CRITERION 2.4 RANK	CRITERION 2.5 RANK	CRITERION 3.1 RANK	CRITERION 3.2 RANK	CRITERION 3.3 RANK	CRITERION 3.4 RANK	CRITERION 3.5 RANK	CRITERION 3.6 RANK
THROUGH ATTLEBORO	1	Commuter Rail to South Station via Attleboro Bypass	◑	◑	○	⊘	⊘	○	◑	⊘	○	○	○	◑	◑
	5	Diesel Multiple Units Commuter Rail to Attleboro Station	◑	○	○	⊘	◑	⊘	○	◑	◑	◑	◑	◑	●
	7	Electrified Commuter Rail to South Station via Attleboro Bypass	◑	●	⊘	⊘	⊘	◑	◑	⊘	○	○	○	◑	◑
THROUGH MIDDLEBOROUGH	17*	Commuter Rail to South Station via Middleborough	◑	◑	○	⊘	⊗	○	◑	◑	○	◑	◑	◑	◑
	64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements	◑	◑	○	⊘	◑	○	○	◑	◑	◑	◑	◑	◑
THROUGH ATTLEBORO AND MIDDLEBOROUGH	62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line	◑	◑	◑	⊘	◑	○	◑	⊘	○	○	○	◑	◑
THROUGH STOUGHTON	30	Commuter Rail to South Station via Stoughton	◑	◑	◑	◑	◑	◑	◑	⊘	⊘	⊗ **	⊘	◑	◑
	34	Electrified Commuter Rail to South Station via Stoughton	◑	●	⊘	◑	○	◑	◑	⊘	⊘	⊗ **	⊘	◑	◑
HIGHWAY SYSTEM	43	Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128	◑	○	◑	⊘	○	○	⊘	◑	◑	◑	⊘	◑	⊘
	44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane	◑	◑	◑	○	○	◑	⊘	◑	◑	◑	⊘	◑	⊘
	45	Enhanced Bus Service on Existing Private Carrier Routes	◑	◑	●	○	●	●	⊘	◑	◑	◑	◑	◑	⊘

LEGEND

- ● **Highly Favorable**
- ◑ **Favorable**
- ○ **Neutral**
- ⊘ **Unfavorable**
- ⊗ **Highly Unfavorable**

*Although Alternative 17 was recommended to be dismissed in Step 2, EOT requested that this alternative be retained for further analysis.

** The NHESP does not object to Alternatives 30 and 34 (the Trestle Alternatives) being retained at this early stage in the planning process

CRITERION 1.1 - Improves Regional Mobility

CRITERION 1.2 - Improves Quality of Service

CRITERION 2.1 - Is Operationally Compatible with the Existing Transportation Infrastructure

CRITERION 2.2 - Does Not Significantly Adversely Affect Existing and Planned Future Capability, Reliability, and Quality of the Regional Transportation System

CRITERION 2.3 - Could be Constructed Without Substantial Impacts to the Existing Transportation System and Within a Reasonable Time Frame

CRITERION 2.4 - Provides Transportation System Benefits at a Reasonable Capital Cost

CRITERION 2.5 - Provides Sufficient Capacity to Meet Demand

CRITERION 3.1 - The approximate level of wetland loss (in acres)

CRITERION 3.2 - The number of stream or river crossings with impact

CRITERION 3.3 - The number of acres of mapped Priority Habitat that would be within the Right-of-Way

CRITERION 3.4 - The number of acres of protected public open space that would be directly impacted

CRITERION 3.5 - The number of acres of protected public water supply lands that would be directly impacted

CRITERION 3.6 - Consistent with smart growth strategies

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Alternative 1 – Commuter Rail to South Station via Attleboro Bypass

Alternative 1, *Commuter Rail to South Station via Attleboro Bypass*, was compared to Alternative 7, *Electric Commuter Rail to South Station via Attleboro Bypass,* since they provide similar service and run along the same corridor. The comparison showed that Alternative 1 and Alternative 7 would have the similar environmental impacts resulting from the track infrastructure and that Alternative 7 provides a better service due to the increased speeds associated with electric commuter rail. The following describes the comparison of alternatives:

- Track infrastructure requirements for Alternative 1 are similar to Alternative 7, so environmental impacts would be similar.
- Alternative 1 operates over the same route as Alternative 7, but provides a slower service. It would attract a lower ridership.
- Electric infrastructure is already available on the Northeast Corridor, facilitating implementation of Alternative 7.
- Alternative 7, which uses electric trains, would result in less noise, vibration, and potential for contamination than Alternative 1.

Recommend: EOT recommended that this be dismissed from further consideration. The Interagency Coordinating Group requested that this alternative be retained because it has the potential to be the LEDPA.

Alternative 5 – Diesel Multiple Units Commuter Rail to Attleboro Station

Alternative 5, *Diesel Multiple Unit Commuter Rail to Attleboro Station*, was compared to Alternative 1, *Commuter Rail Service to South Station via Attleboro Bypass*, and Alternative 7, *Electric Commuter Rail to South Station via Attleboro Bypass*. These alternatives run along the same corridor but provide different service characteristics. The comparison showed that Alternative 5 has a higher environmental impact resulting from the track infrastructure, but Alternatives 1 and 7 provide a better service since they do not require a transfer. The following describes the comparison of alternatives:

- The DMUs provide a much slower service than commuter rail service provided in Alternatives 1 and 7.

- Alternative 5 requires a transfer to existing commuter rail at Attleboro Station which would overcrowd existing Providence Line commuter trains that are currently at capacity.
- The slower service and transfer would also result in a lower ridership than Alternatives 1 and 7.
- Infrastructure requirements on Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are considerably greater than Alternative 1 and Alternative 7, so environmental impact would be larger.

Recommend: Dismiss from further consideration because this alternative would have lower ridership and larger environmental impacts than Alternatives 1 and 7.

Alternative 7 – Electrified Commuter Rail to South Station via Attleboro Bypass

Alternative 7, *Electrified Commuter Rail to South Station via Attleboro Bypass*, was compared to Alternative 1, *Commuter Rail to South Station via Attleboro Bypass,* since they provide similar service and run along the same corridor. The comparison showed that Alternative 1 and Alternative 7 would have the similar impacts resulting from the track infrastructure and that Alternative 7 provides a better service due to the increased speeds associated with electric commuter rail. The following describes the comparison of alternatives:

- Track infrastructure requirements for Alternative 7 are similar to Alternative 1, so environmental impacts would be similar.
- Alternative 7 operates over the same route as Alternative 1, but provides a faster service, attracting a higher ridership.
- Electric infrastructure is already available on the Northeast Corridor, facilitating implementation of Alternative 7.
- The electric trains used in Alternative 7 would result in less noise, vibration, and potential for contamination than Alternative 1.

Recommend: Advance to the Phase 2 Highway Methodology and MEPA/NEPA process.

Alternative 17 – Commuter Rail to South Station via Middleborough

Alternative 17, *Commuter Rail to South Station via Middleborough*, was compared to Alternative 62, *Commuter Rail to South Station via Attleboro Bypass and the Middleborough Line,* and Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Mainline Improvements,* since they run along the Middleborough corridor and provide a comparable service. Though Alternative 17 was dismissed during the Step 2 evaluation due to constructability issues and long construction schedule, the Secretaries of Transportation, Environmental Affairs, and Economic Development have requested that this alternative advance to the next phase of the Project to allow further evaluation of given the long term benefits to Old Colony service and the higher ridership potential that may result from planned developments along the corridor.

Recommend: Advance to the Phase 2 Highway Methodology and MEPA/NEPA process.

Alternative 30 – Commuter Rail to South Station via Stoughton

Alternative 30, *Commuter Rail to South Station via Stoughton,* was compared to Alternative 34, *Electrified Commuter Rail to South Station via Stoughton,* since they provide similar service and run along the same corridor. The comparison showed that Alternative 30 and Alternative 34 would have the similar impacts resulting from the track infrastructure and that Alternative 34 provides a better service due to the increased speeds associated with electric commuter rail. However, since Alternative 34 requires electrification infrastructure through an ACEC (the Hockomock Swamp) it would increase the amount of impact to environmental resources within the ACEC. The analysis completed in Step 2 of this Phase 1 analysis showed that Alternatives 30 and 34 best met the criteria used to measure practicability, especially those related to the transportation system. The following describes the comparison of alternatives:

- Operates over the same route as Alternative 34, but does not require construction of new electrification infrastructure along the new commuter rail corridor and existing Stoughton Line corridor.
- Environmental impacts for Alternative 34 would be greater due to the construction of the new electrification infrastructure and the need for a longer track passing sidings. Electrification may not be feasible to construct within the Hockomock Swamp ACEC due to impacts to this environmental resource.

Recommend: Advance to the Phase 2 Highway Methodology and MEPA/NEPA process.

Alternative 34 – Electrified Commuter Rail to South Station via Stoughton

Alternative 34, *Electrified Commuter Rail to South Station via Stoughton* was compared to Alternative 30, *Commuter Rail to South Station via Stoughton,* since they provide similar service and run along the same corridor. The comparison showed that Alternative 30 and Alternative 34 would have the similar impacts resulting from the track infrastructure and that Alternative 34 provides a better service due to the increased speeds associated with electric commuter rail. However, since Alternative 34 requires electrification infrastructure through an ACEC (the Hockomock Swamp) it would increase the amount of impact in this environmental resource. The following describes the comparison of alternatives:

- Operates over the same route as Alternative 30, but requires construction of new electrification infrastructure along the new commuter rail corridor and existing Stoughton Line corridor.
- Environmental impacts for Alternative 34 would be greater due to the construction of the new electrification infrastructure and the need for a longer track passing sidings. Electrification may not be feasible to construct within the Hockomock Swamp ACEC due to impacts to this environmental resource.
- The existing Stoughton Line does not have existing electric infrastructure.

Recommend: EOT recommended that this be dismissed from further consideration on the basis of the required new infrastructure and greater environmental impacts. The Interagency Coordinating Group requested that it be retained because of potentially higher ridership and reduced air quality impacts.

Alternative 43 – Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128

Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128,* was compared to Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane,* and Alternative 45, *Enhanced Bus Service on Existing Private Carrier Lines*, since they would provide similar service and all would utilize the highway corridors. The comparison showed that Alternative 43 would provide a poorer service because a transfer would be required to crowded trains on the Northeast Corridor. The following describes the comparison of alternatives:

- Alternative 43 would provide poorer quality of service than the other bus options because it would require a transfer.
- Existing commuter rail service on the Northeast Corridor would be negatively impacted, because trains would become overcrowded.
- The need to transfer would result in lower ridership.

Recommend: Dismiss from further consideration because this alternative would have lower ridership and fewer transportation benefits than Alternatives 44 and 45.

Alternative 44 – Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane

Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane*, was compared to Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128,* and Alternative 45, *Enhanced Bus Service on Existing Private Carrier Lines*, since they provide similar service and all would utilize the highway corridors. The comparison showed that Alternative 44 provides a better service since the buses would operate in an exclusive bus lane and HOV lane for the majority of the trip. Alternative 45 operates within the congested existing highway system, while Alternative 43 would require a transfer. The following describes the comparison of alternatives:

- Low capital cost alternative with moderate level of ridership potential.
- Makes good use of existing transportation infrastructure, minimizing potential environmental impacts.
- Would not require a transfer.
- May improve existing highway connections to the existing HOV lanes.

Recommend: Advance to the Phase 2 Highway Methodology and MEPA/NEPA process.

Alternative 45 – Enhanced Bus Service on Existing Private Carrier Lines

Alternative 45, *Enhanced Bus Service on Existing Private Carrier Lines*, was compared to Alternative 43, *Bus Rapid Transit in Dedicated Lane to Route 128 Station via Route 24 and Route 128,* and Alternative 44, *Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane*, since they provide similar

service and all would utilize the highway corridors. The comparison showed that Alternative 44 provides a better service since the buses would operate in a new exclusive bus lane and existing HOV lane for the majority of the trip. Alternative 45 operates within the congested existing highway system, while Alternative 43 requires a transfer.

Although this alternative would increase capacity by adding additional bus service, no improvement in trip times are expected since this alternative utilizes the existing highway system.

Recommend: Dismiss from further consideration as a stand-alone alternative. It is recommended, however, to further consider enhanced bus service in the next phase as part of the No-Build alternative (also known as the Transportation System Management alternative) for comparison to the recommended alternatives.

Alternative 62 – Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line (Diesel)

Alternative 62, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, was compared to Alternative 7, *Electric Commuter Rail to South Station via Attleboro Bypass*, Alternative 17, *Commuter Rail to South Station via Middleborough*, and Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Mainline Improvements*, since they run along the Middleborough corridor and provide a comparable service. Since the service provided and corridors used by Alternative 62 are similar and represented by other alternatives that are advancing (Alternatives 7 and 17), this alternative could be dismissed as a stand-alone alternative. This alternative could be included later in the Phase 2 analysis since much of the environmental analysis will be documented by Alternatives 7 and 17.

- Similar service and infrastructure needs that are already included in the Alternatives 7 and 17.
- Alternative can be returned for further consideration during the Phase 2 analysis.

Recommend: EOT recommended that this be dismissed from further consideration as a stand-alone alternative. The Interagency Coordinating Group recommended that this be retained.

Alternative 64 – Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements

Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements*, was compared to Alternative 17, *Commuter Rail to South Station via Middleborough*, and Alternative 62, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, since they run along the Middleborough corridor. The comparison showed that:

- Alternative 64 uses the same infrastructure and would have similar constructability to Alternative 17 (south of Braintree).
- Alternative 64 would provide poor quality of service because of limited number of trains due to capacity constraints, and therefore would have a lower ridership than Alternative 17

Recommend: EOT recommended that this be dismissed from further consideration as a stand-alone alternative. This alternative could be included later in the Phase 2 analysis since much of the environmental analysis will be documented by other alternatives, but is not necessary to advance as a stand-alone alternative. The Interagency Coordinating Group requested that this alternative be retained, despite the lower level of service.

Alternative 65 – Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line (Hybrid Modes)

Alternative 65, *Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line*, was identified by the Interagency Coordinating Group at the April 1 meeting. It had not been previously identified or evaluated. This alternative would use the same route and service as Alternative 7, *Electric Commuter Rail to South Station via Attleboro Bypass*, and Alternative 64, *Commuter Rail to South Station via Middleborough without Old Colony Mainline Improvements*. The Interagency Group suggested that the Attleboro, New Bedford, and Fall River Lines be constructed to provide electric service. Trains would run on the Attleboro Line using electric service. Hybrid vehicles would run on the Middleborough Line using electric service south of Cotley Junction and diesel power from Cotley Junction to South Station. This alternative has not been evaluated using the Phase 1 Step 1, Step 2, or Step 3 criteria. It would provide similar service to Alternative 62.

Recommend: The Interagency Coordinating Group recommended that this be retained.

8.3 Step 4 Recommendations

As shown in Table 8-4 below, 9 Alternatives, encompassing four routes and three modes, are recommended to be advanced to the Phase 2 of the Highway Methodology and MEPA/NEPA review in addition to the No-Build Alternative:

Table 8-4 Summary of Step 4 Analysis

#	Alternative Description	Recommendation to Advance to Phase 2
1	Commuter Rail to South Station via Attleboro Bypass	Yes
5	Diesel Multiple Units to Attleboro Station	No
7	Electric Commuter Rail to South Station via Attleboro Bypass	Yes
17	Commuter Rail to South Station via Middleboro ("Full Middleborough)	Yes
30	Commuter Rail to South Station via Stoughton	Yes
34	Electrified Commuter Rail to South Station via Stoughton	Yes
44	Bus Rapid Transit in Dedicated Lane to South Station via Route 24, Route 128, and Southeast Expressway HOV Lane	Yes
45	Enhanced Bus Service on Existing Private Carrier Lines	No
62	Commuter Rail to South Station via both Attleboro Bypass and Middleborough Line (Diesel)	Yes
64	Commuter Rail to South Station via Middleborough without Old Colony Main Line Improvements ("Simple Middleborough")	Yes
65	Commuter Rail to South Station via both Attleboro Bypass (Electric) and Middleborough Line (Diesel)	Yes

8.4 Summary of Alternatives Advancing to Phase 2

These alternatives will enter Phase 2, which will include a detailed analysis of operational issues and a full environmental review:

- Through Attleboro: Electric or diesel commuter rail through Attleboro
- Through Middleborough: Commuter rail through Middleborough, with no major infrastructure improvements or the full version, which would add a track to the Old Colony Main Line between Braintree and Quincy
- Through Attleboro and Middleborough: Hybrid option with electric or diesel commuter rail, with some trains going through Attleboro and the some through Middleborough
- Through Stoughton: Electric or diesel commuter rail through Stoughton
- Bus Rapid Transit using the highway system
- Transportation System Management option, also called the No-Build Alternative

8.4.1 Through Attleboro: Electric or Diesel Commuter Rail to South Station via Attleboro Bypass

The Attleboro alternative would offer commuter rail service from Fall River and New Bedford through Attleboro and up the Northeast Corridor, which serves Amtrak, other commuter rail, and freight, to Back Bay and South Station. It offers good, fast service to Boston, but could adversely affect existing transportation infrastructure. The alternative would require constructing a bypass between an existing freight line and the Northeast Corridor and adding a third track through Canton, Westwood, Dedham and the Readville section of Boston. The alternative would have wetland impacts in the south, along the bypass in Norton and Attleboro and in an Area of Critical Environmental Concern in Canton. There would be multiple grade crossings closely spaced together in Taunton. The electric option would provide better service due to the better operating characteristics of these trains. Electric trains would potentially have fewer noise, vibration and air/water quality impacts. Because the Northeast Corridor is already electrified, this option would not require building overhead catenary lines along the entire route. The capital cost of electric service is higher than other options, but it has the potential to attract higher ridership and offer a better travel time.

8.4.2 Through Middleborough: Commuter Rail to South Station via the Middleborough Line with and without Old Colony Main Line Improvements

The Middleborough alternative would offer commuter rail service from Fall River and New Bedford through Middleborough and up to South Station. The full version, which requires significant infrastructure improvements, provides good quality service and could have fewer environmental impacts than other routes because trains would use existing lines for a greater part of the route. Providing full peak service to meet peak demand would have a high capital cost because the Old Colony Main Line, which this alternative joins at Braintree, would have to be double tracked up to South Station, a process called "breaking the bottleneck."

There would be some wetland impacts in the south. The simple version would use the existing Middleborough line, but it would not add capacity to the north on the Old Colony Main Line. As a result, it would provide about half the estimated service of the commuter rail alternatives. It would also foreclose an extension of commuter rail to Wareham. However, the simple version would reduce impacts on the northern communities since the trains would be limited to existing tracks.

8.4.3 Through Attleboro/Middleborough: Hybrid Option with Electric or Diesel Commuter Rail to South Station via Attleboro and Middleborough

This alternative is a combination (hybrid) of the Attleboro and Middleborough simple options. It would send half the trains up one line and half up the other. This alternative offers good quality of service. One advantage of this option is that the infrastructure improvements to break the Braintree bottleneck and to add the third track in Canton would not be necessary. It would have impacts similar to the Attleboro alternative, including the multiple grade crossings in Taunton and the environmental impacts for the bypass and to the south. On the Middleborough side, it would foreclose Wareham commuter rail without added improvements.

Under the diesel option, all trains would be diesel. Under the electric option, all lines south of the Attleboro Bypass would be electrified, so trains operating on the Attleboro route would be electric. Trains on the Middleborough route would be diesel.

8.4.4 Through Stoughton: Electric or Diesel Commuter Rail to South Station via Stoughton

The Stoughton alternative would offer commuter rail service from Fall River and New Bedford through Stoughton and up to Back Bay and South Station. It offers good, fast service to Boston with some impact on existing transportation infrastructure. The alternative would have wetland impacts in the south, the Pine Swamp in Raynham, and in the Hockomock Swamp, an ACEC.

The electric option would provide better service due to the better operating characteristics of these trains. Electric trains would potentially have fewer noise, vibration and air/water quality impacts. Providing electric commuter rail would require building overhead catenary lines along the entire route, however, including through sensitive environmental resources. The capital cost of electric service is higher than other options, but it has potential to attract higher ridership and offer a better travel time.

8.4.5 Bus Rapid Transit Using Highway System: Express Bus in Dedicated Lane to South Station via Routes 24, 128 and the Southeast Expressway HOV Lane

This highway alternative would have buses leaving from Fall River and New Bedford, traveling in mixed traffic until reaching 495 on Route 24. Then this alternative would use a "zipper lane" up Route 24 (in an off-peak direction); would build a new lane along Route 128; and would use the existing zipper lane with mixed HOV traffic along I-93. Express buses would offer a good quality of service using existing infrastructure at a lower capital cost with little direct environmental impact, but they could only handle about one-quarter of the riders commuter rail can transport. Route 128 construction could disturb part of the Blue Hills Reservation. This option would not encourage smart growth as well as the commuter rail options because it would not run through existing villages and town centers.

9

Next Steps

This chapter describes the next steps of the South Coast Rail project, which include Phase 2 of the *Highway Methodology*[1] and the MEPA/NEPA process.

During the Phase 2 evaluation, conceptual operating plans, capital improvement requirements, capital costs, and operating and maintenance costs will be developed for each alternative. Phase 2 alternatives will be modeled by the CTPS using the statewide transportation model, providing quantitative results on the performance of each alternative in terms of ridership, highway/vehicular travel, air quality, environmental justice, and user benefit. Detailed analyses of environmental impacts (to natural resources, air quality, noise and vibration, historic resources, as well as social and economic impacts) will be conducted and documented as will the mitigation measures and smart growth strategies recommended for each alternative.

The steps in this process, and opportunities for public review and comment, are listed below.

9.1 Scoping

Scoping is the initial process conducted under both MEPA and NEPA. Under MEPA, EOT will prepare an Environmental Notification Form (ENF) that describes the range of alternatives proposed to be evaluated in detail, identifies the environmental resources likely to be affected, and identifies the regulatory reviews and permits likely to be required for each alternative. This ENF will be circulated for review by the public and the environmental resource agencies. At the conclusion of the ENF review process, the Secretary of EOEEA will issue a Certificate that specifies the analysis, studies, and information that must be included in a DEIR.

1 United States Army Corps of Engineers. NEDEP-360-1-30, The Highway Methodology Workbook. October 1993.

Under NEPA, the Corps of Engineers will seek public and agency input on the range of alternatives and on the analyses, studies, and information that must be included in either a Draft Environmental Impact Statement (DEIS) or Draft Environmental Assessment (DEA).

EOT anticipates that joint scoping meetings will be held under the MEPA and NEPA processes.

9.2 DEIR/DEIS-DEA

EOT anticipates that a single detailed environmental document, the joint DEIR/DEIS (or DEA) will be prepared by EOT and the Corps. This document will be circulated for public and agency review and comment. A joint public hearing would be held during the public comment period. The document will present detailed descriptions of the alternatives, descriptions of existing environmental conditions (for all natural resources as well as social, economic, land use, air quality, etc.) and analyses of the environmental impacts of each alternative for each resource category. In accordance with Phase 2 of the Highway Methodology, EOT would also file a draft Section 404 Permit Application and the Corps would issue a Public Notice, allowing the public to comment on the permit application.

Based on the review of the alternatives in the MEPA document and public comments on the Section 404 application, EOT will identify a Preferred Alternative. The Corps, at the same time, will identify the LEDPA.

Following the public review and comment period, the Secretary of EOEEA will issue a Certificate that identifies additional analyses, modifications to the preferred alternative, or other information that must be provided in the Final EIR.

9.3 FEIR/FEIS-FEA

EOT anticipates that a single detailed environmental document, the joint FEIR/FEIS (or FEA) will be prepared by EOT and the Corps. This document will be circulated for public and agency review and comment. The document will present detailed descriptions of the Preferred Alternative (LEDPA), descriptions of existing environmental conditions (for all natural resources as well as social, economic, land use, air quality, etc.) and analyses of the environmental impacts alternative for each resource category. This document will also provide detailed information on proposed mitigation measures that would be incorporated into the Preferred Alternative.

Following the public review and comment period, the Secretary of EOEEA will issue a Certificate that finds the FEIR to be "adequate". This final certificate allows the state resource agencies to issue permits for the proposed project, and allows the expenditure of state funds.

The Corps, at the same time, would issue either a Record of Decision (ROD) or Finding of No Significant Impact (FONSI). After an opportunity for further public comment, the Corps could then issue a Section 404 permit for the Preferred Alternative (LEDPA) with specific mitigation requirements and timetables.

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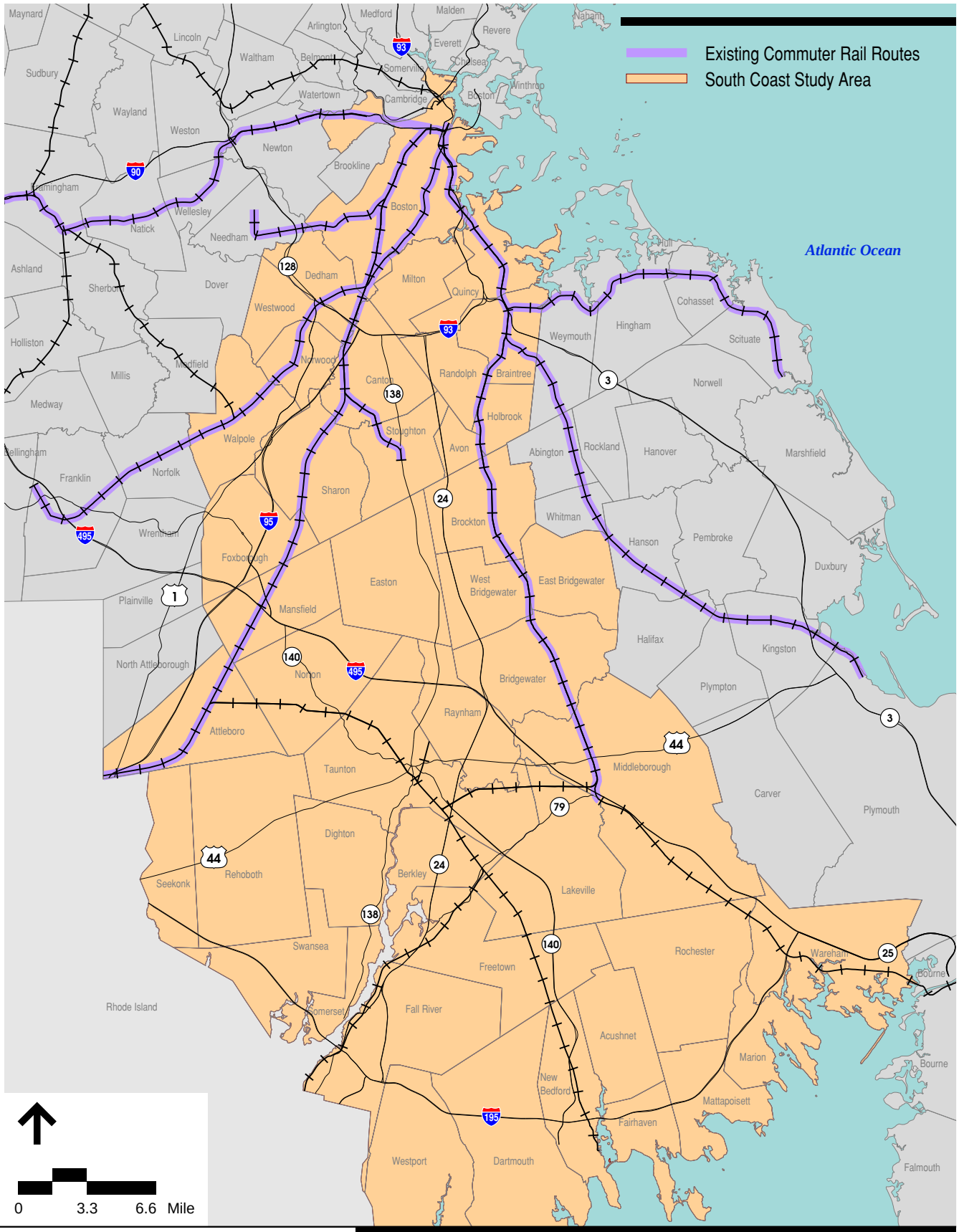
Figures



South Coast Rail

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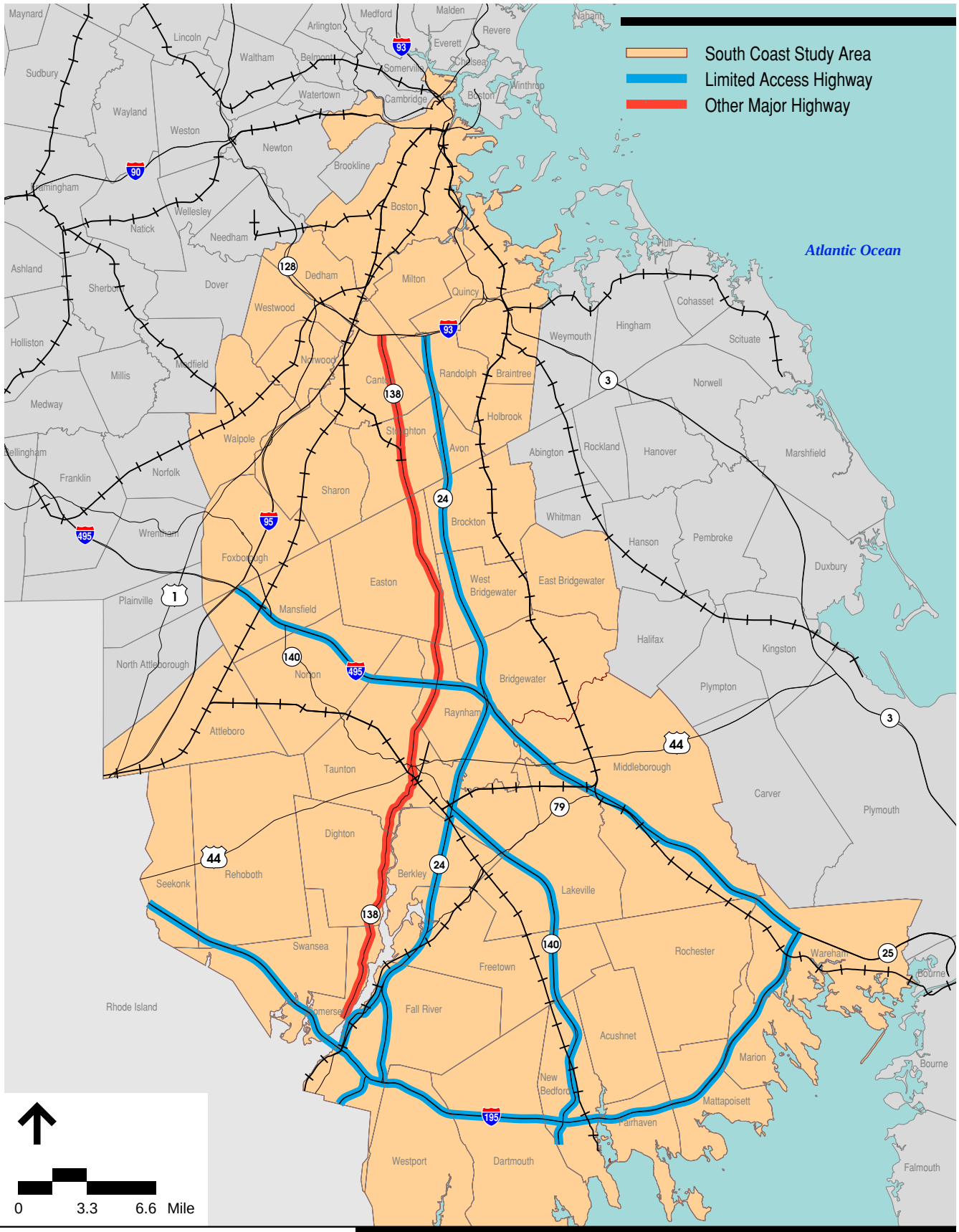
Figure 1-1
Alternatives Analysis Transportation Study Area Communities



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South Coast Rail

Figure 2-1
Existing Highway Transportation System

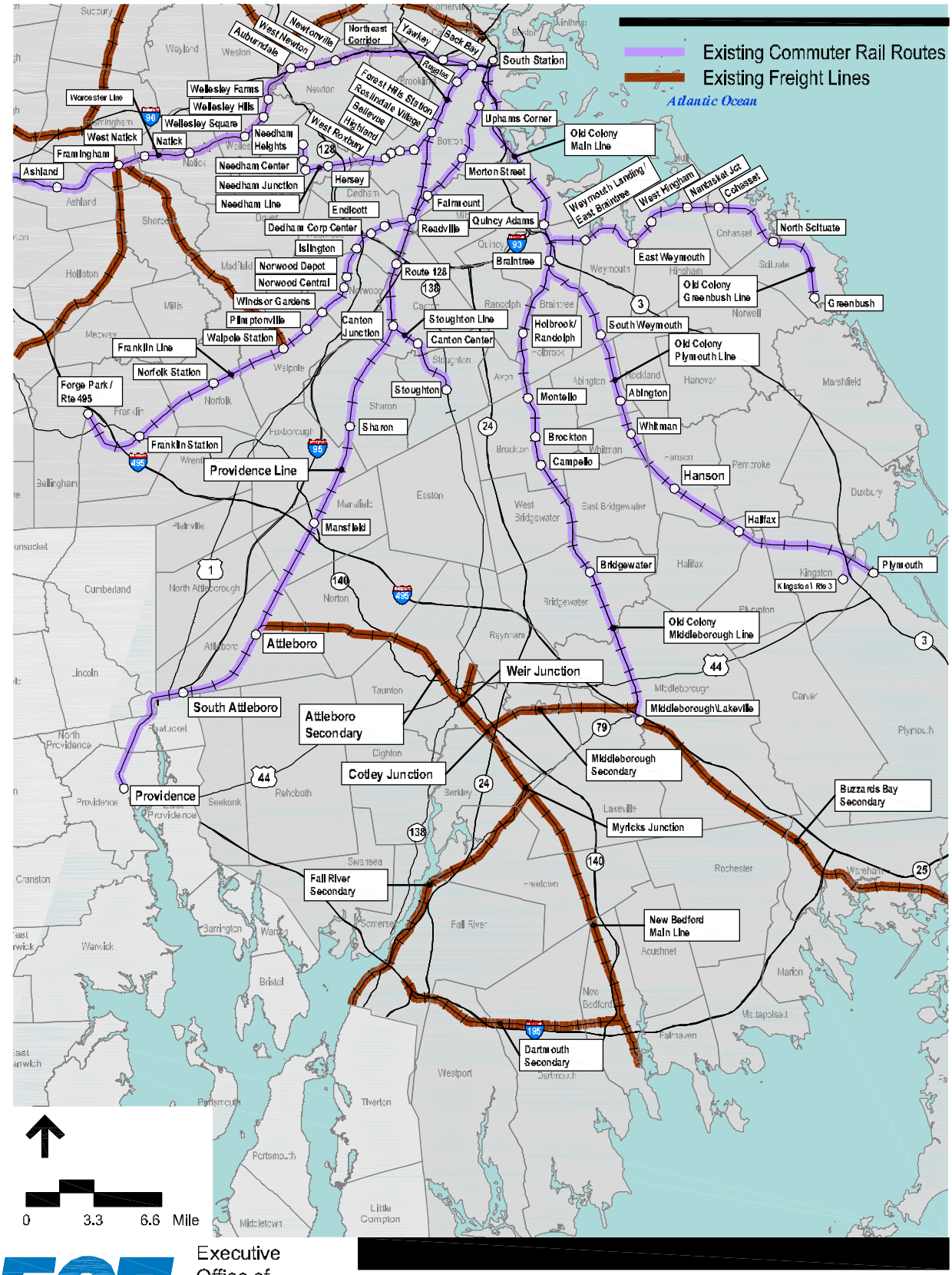

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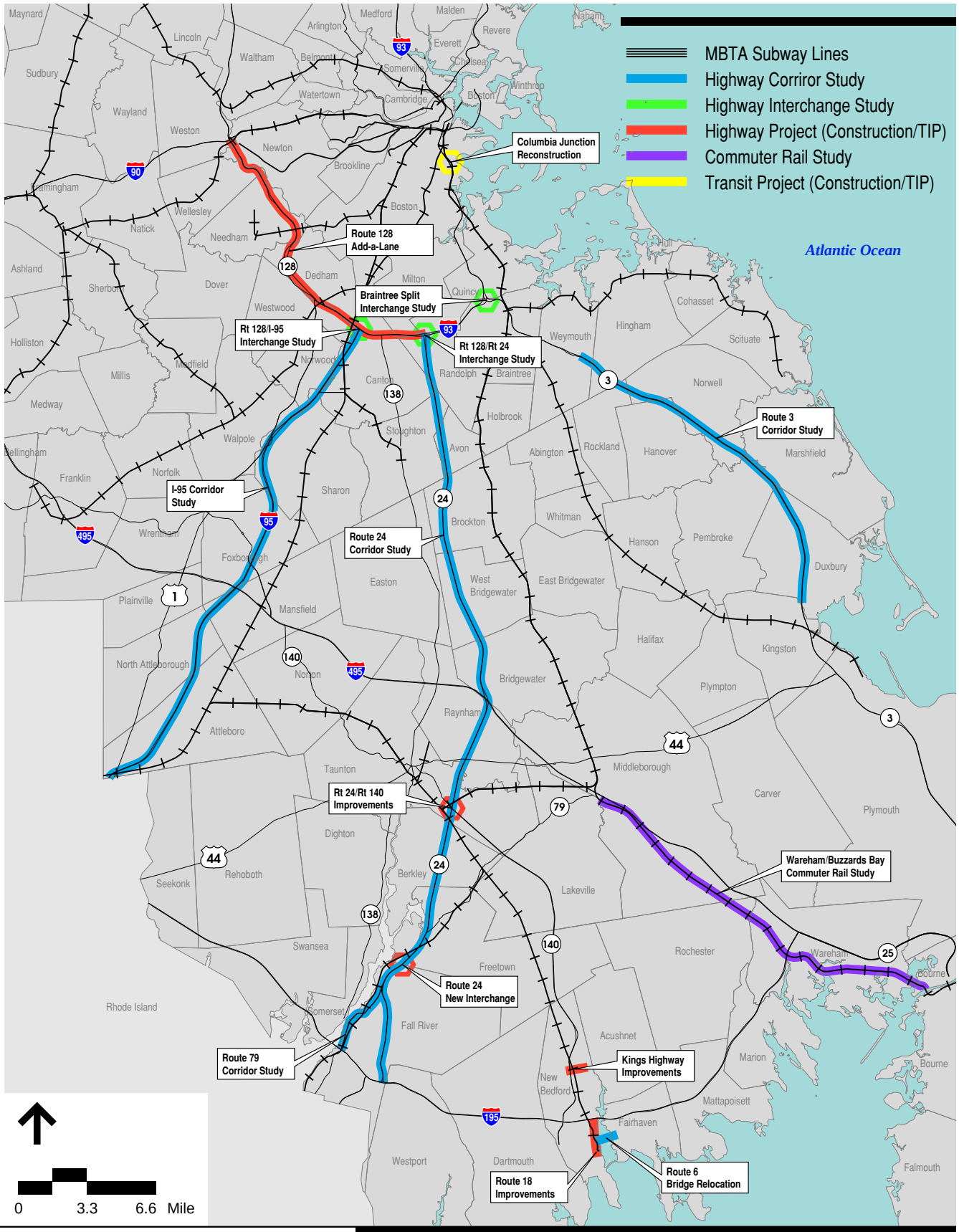
Figure 2-2
Existing Rail Transportation System



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South Coast Rail

Figure 2-3
Major Transportation Projects

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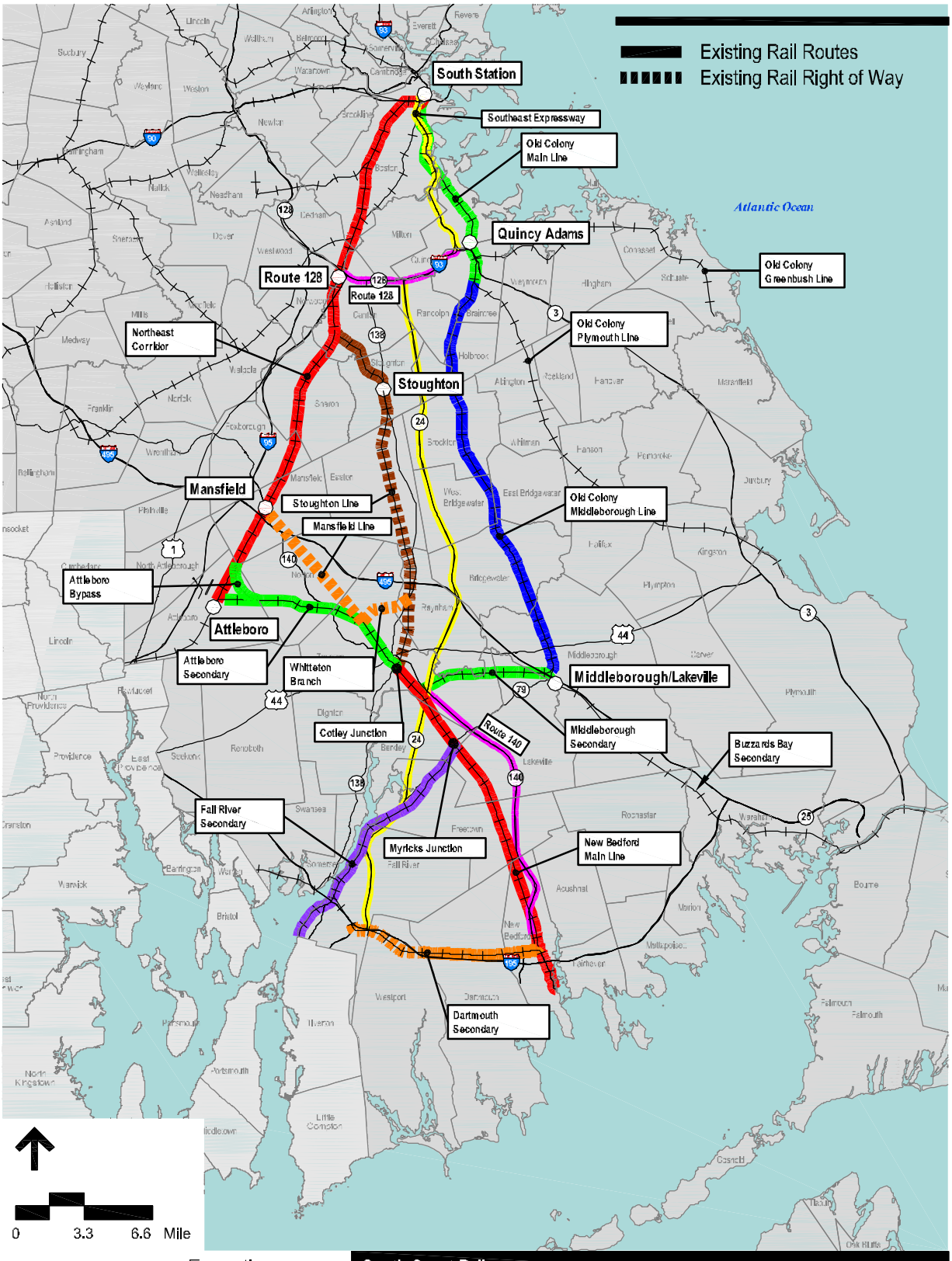

South Coast Rail

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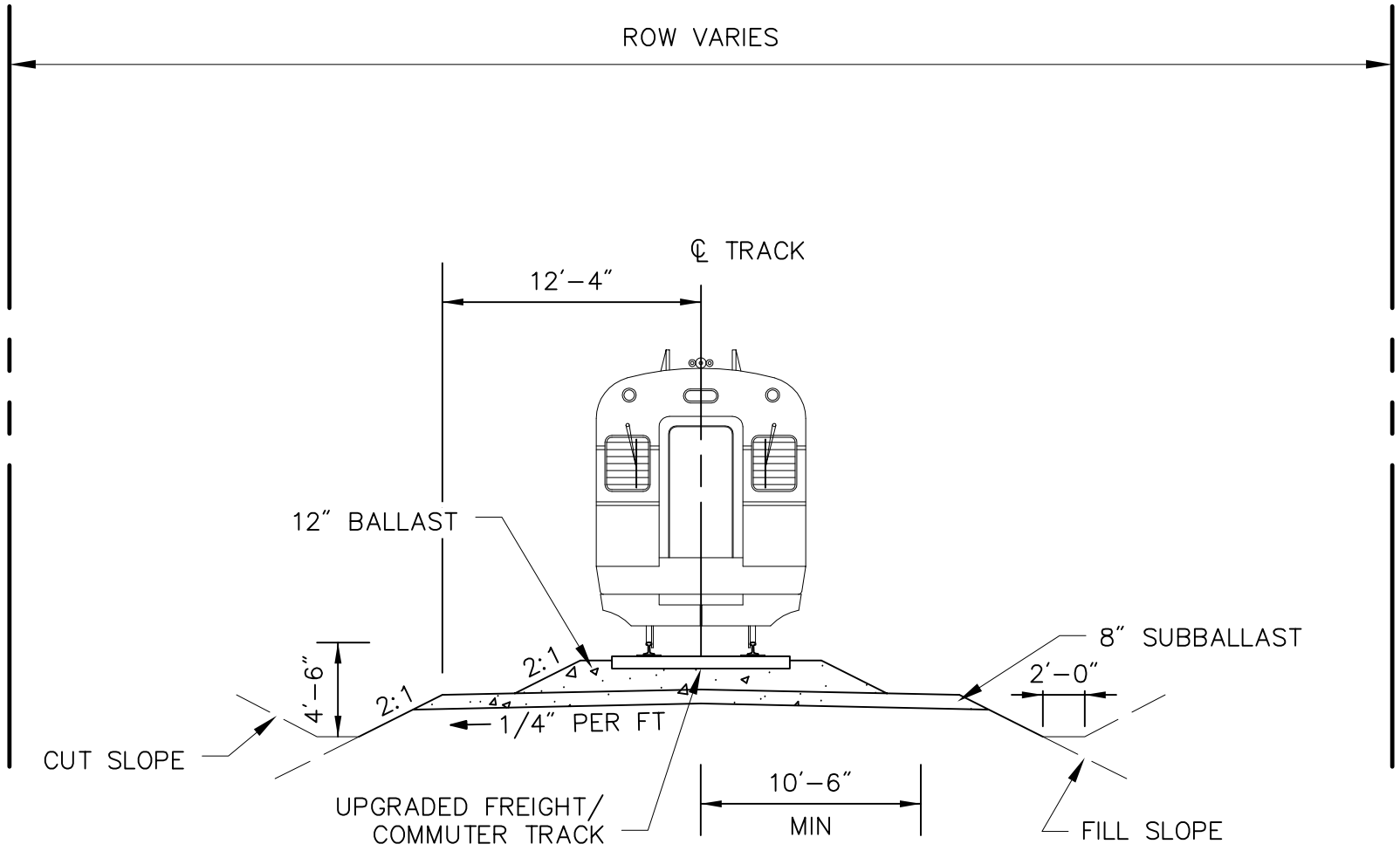
Figure 3-1
Corridors Under Consideration



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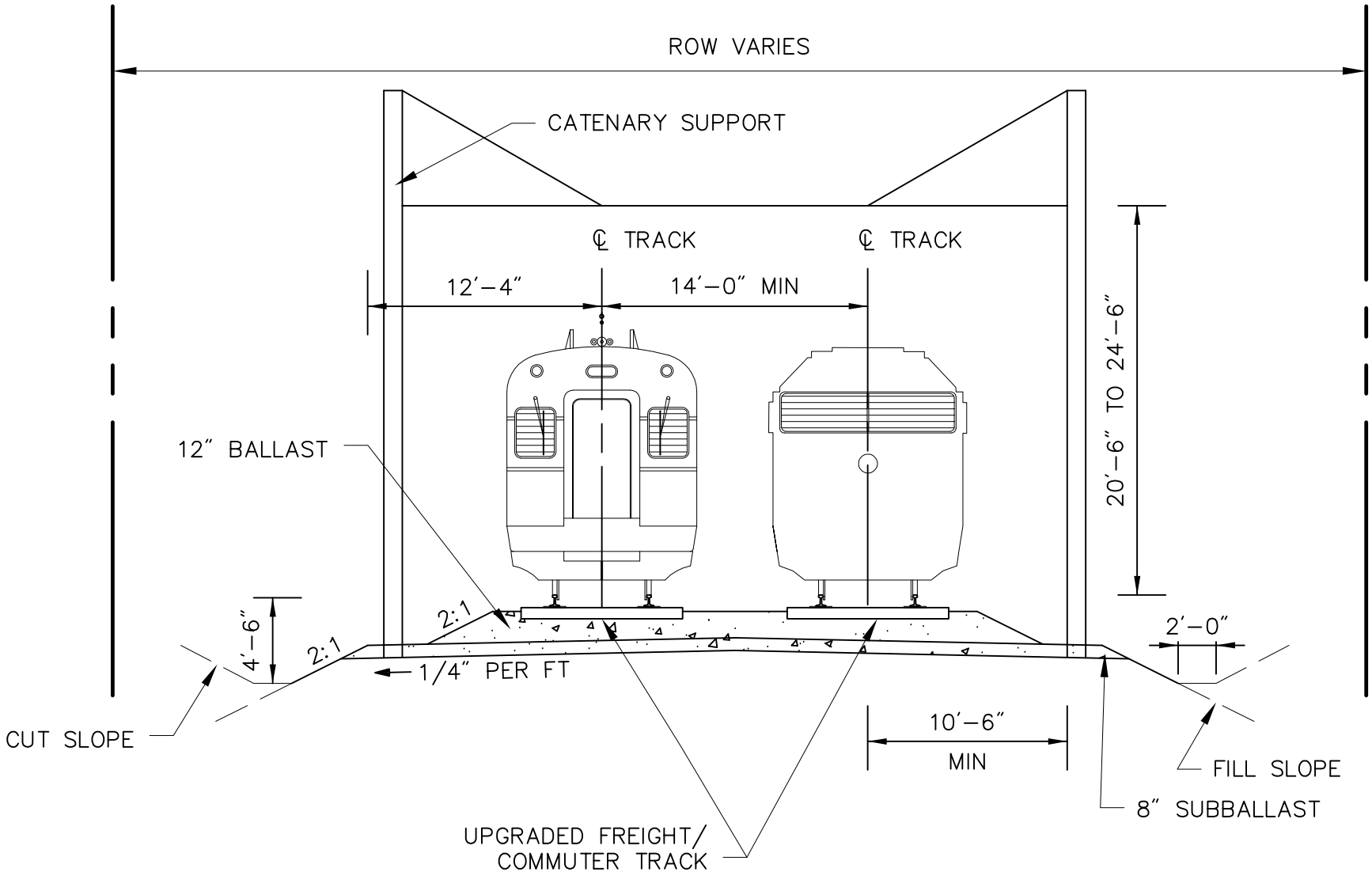
Not to Scale

South Coast Rail

Figure 3-2

Conventional/Diesel Multiple Units
Commuter Rail
Typical Cross Section



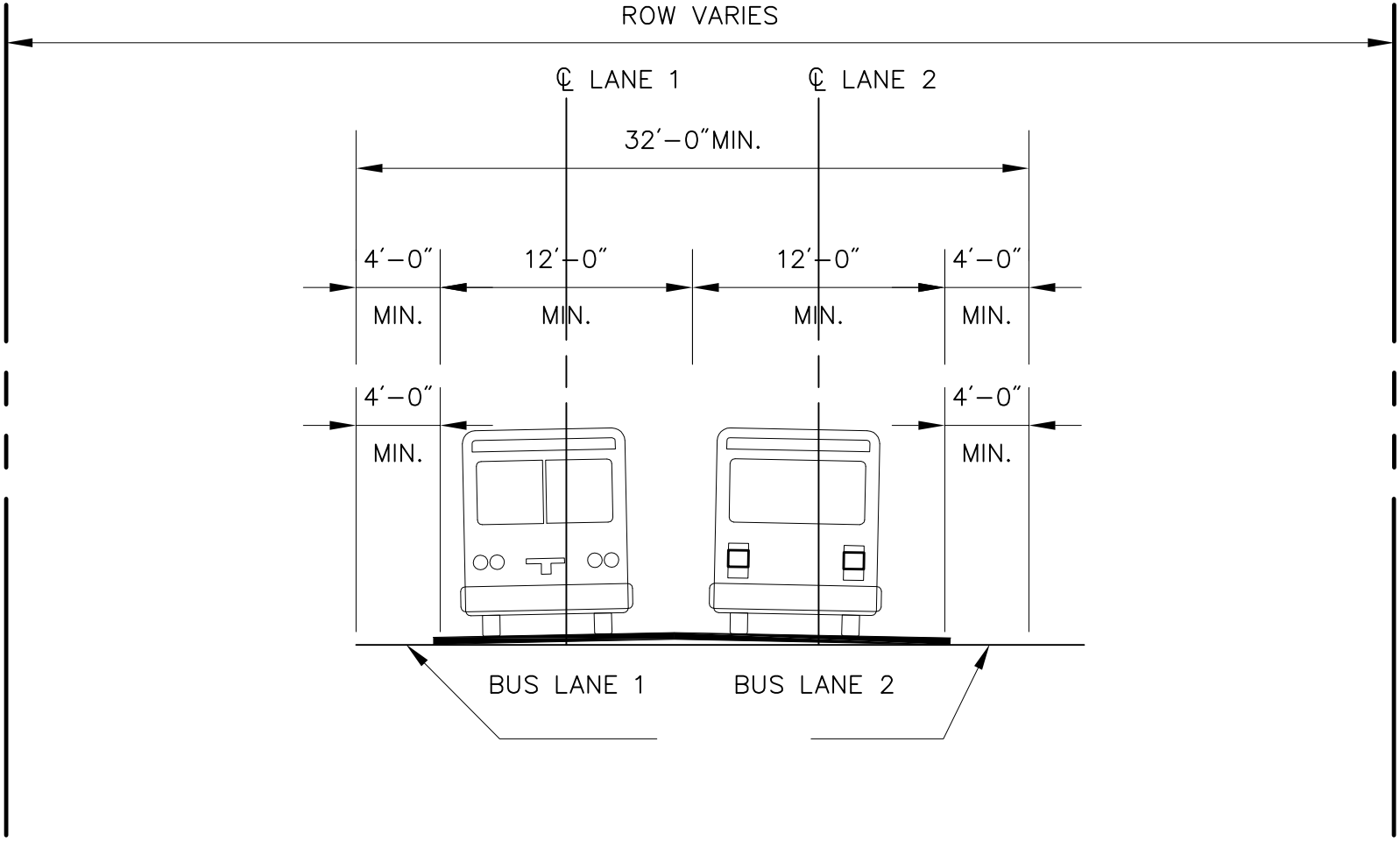
Executive Office of Transportation & Public Works

South Coast Rail

Figure 3-3

Electric Commuter Rail
Typical Cross Section

Not to Scale



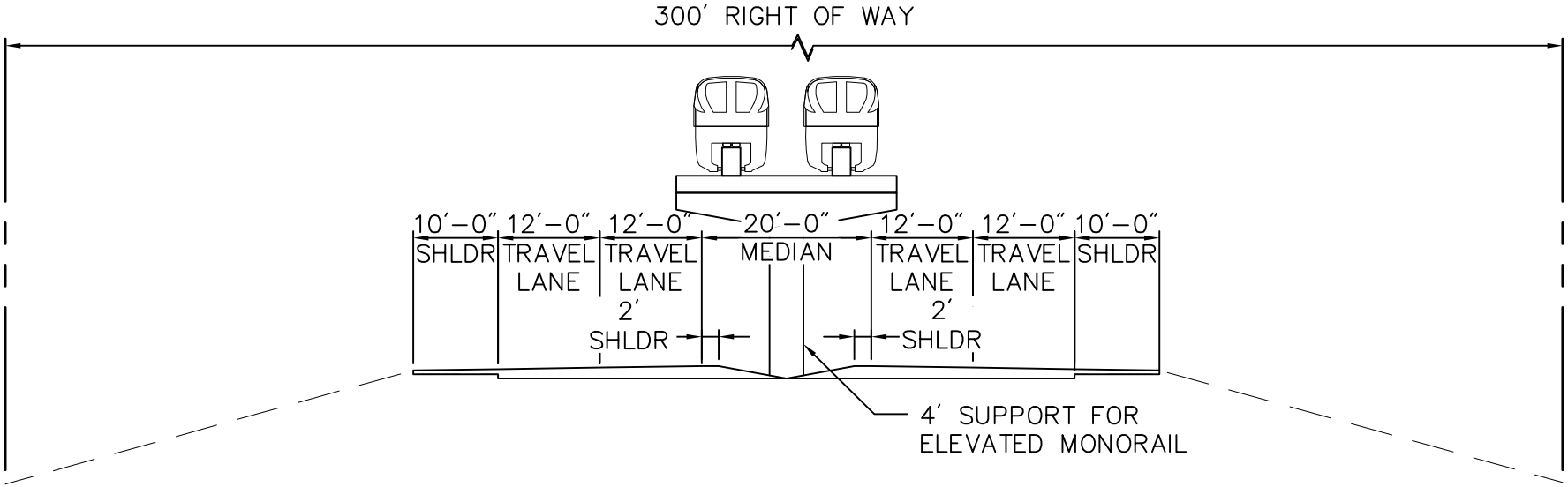
Executive Office of Transportation & Public Works

South Coast Rail

Figure 3-4

Bus Rapid Transit
Typical Cross Section

Not to Scale



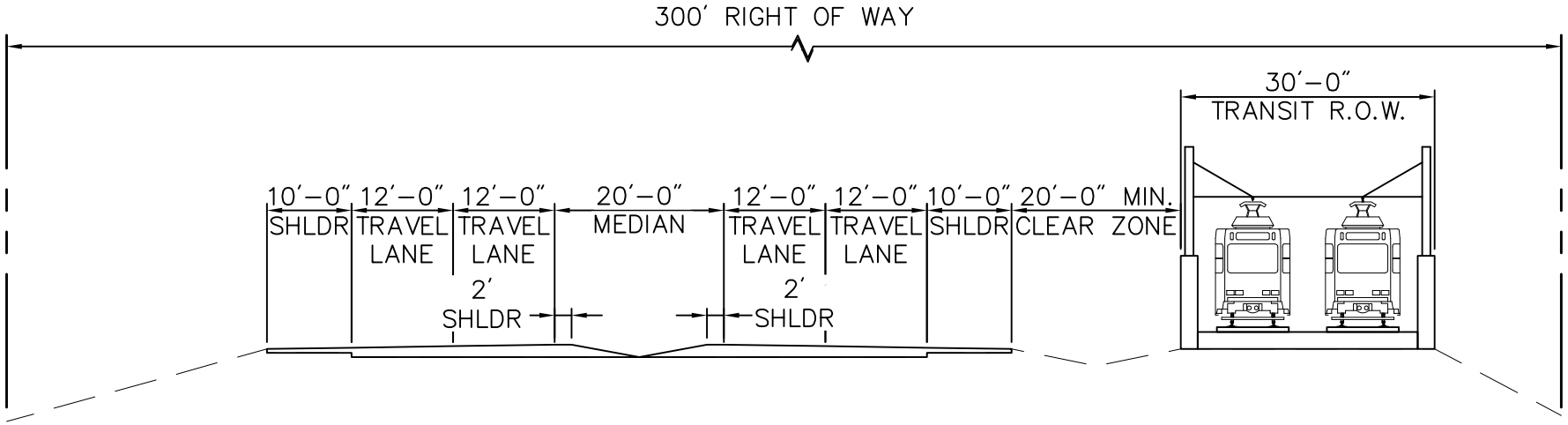
Executive Office of Transportation & Public Works

South Coast Rail

Figure 3-5

Monorail Along Route 24
Typical Cross Section

Not to Scale



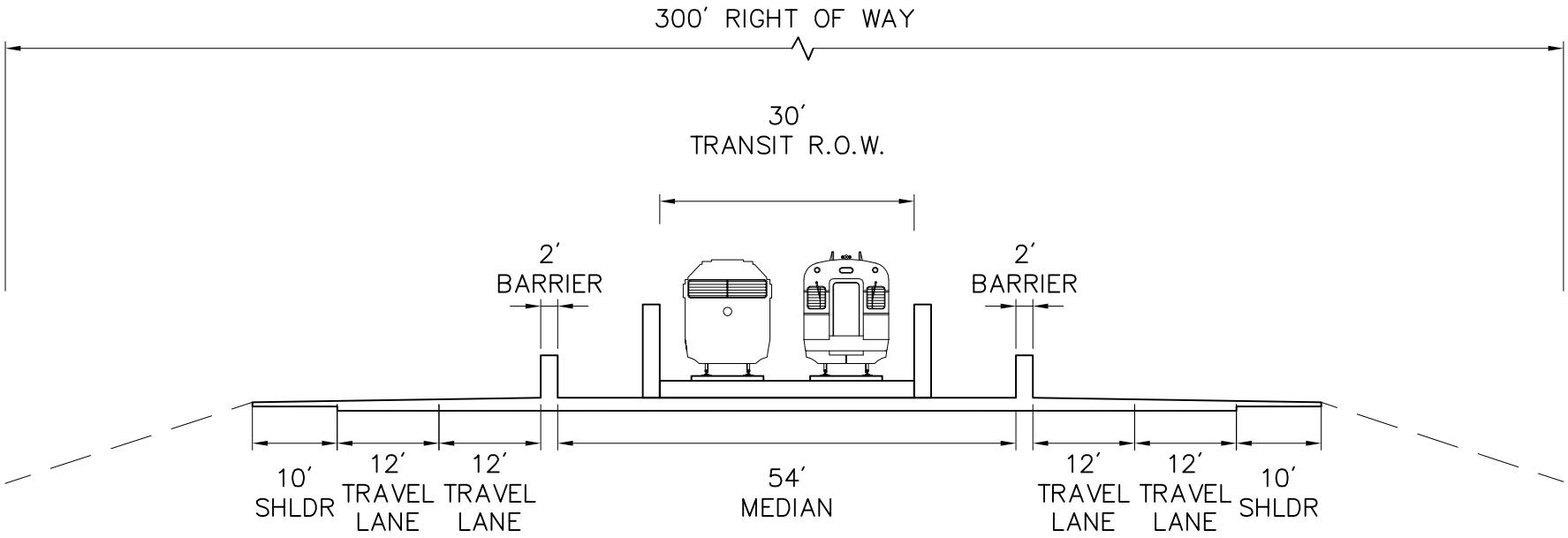
Executive Office of Transportation & Public Works

South Coast Rail

Figure 3-6

Electrified Light Rail Along Route 24
Typical Cross Section

Not to Scale



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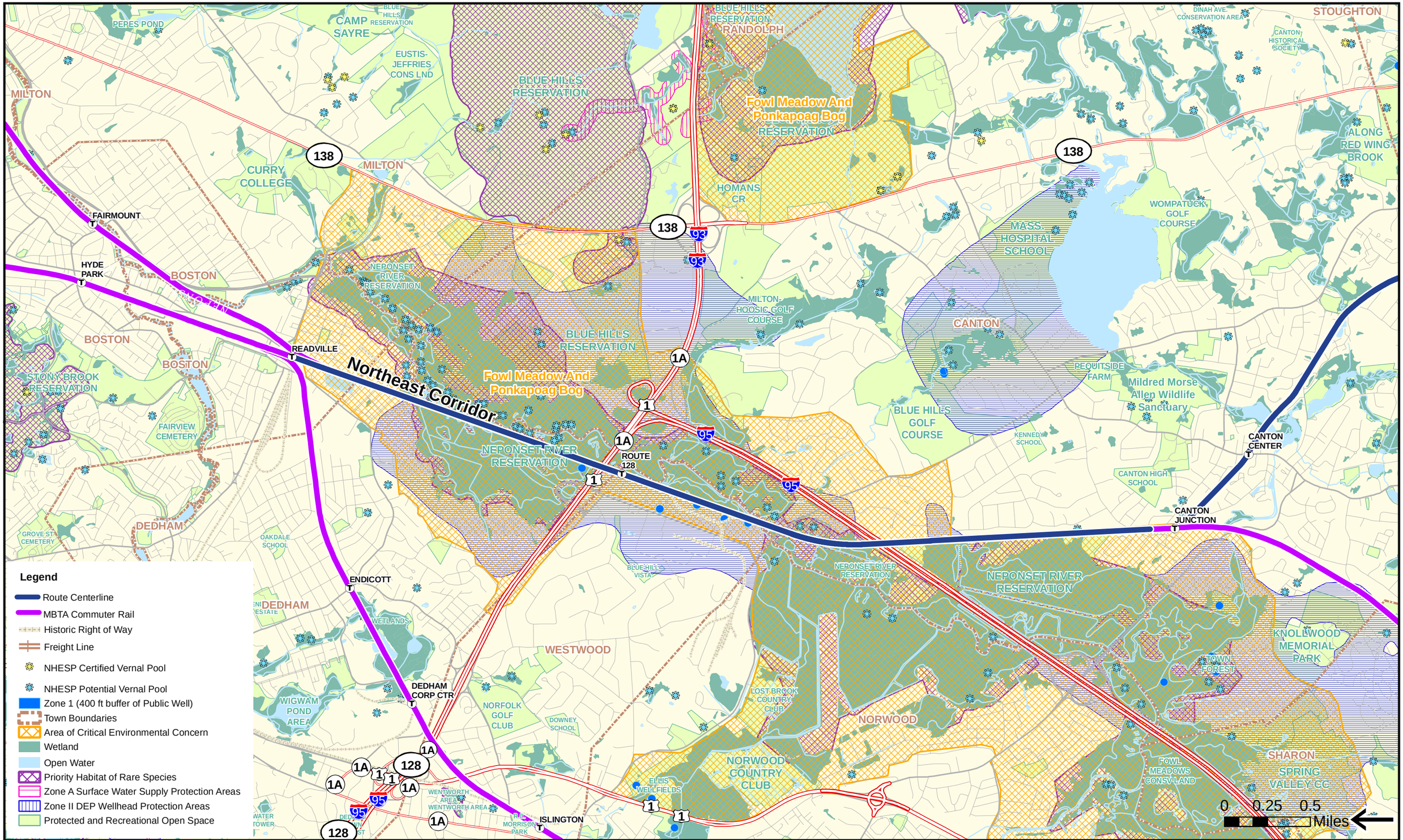
Public Works

South Coast Rail

Figure 3-7

Heavy Rail Along Route 24
Typical Cross Section

Not to Scale



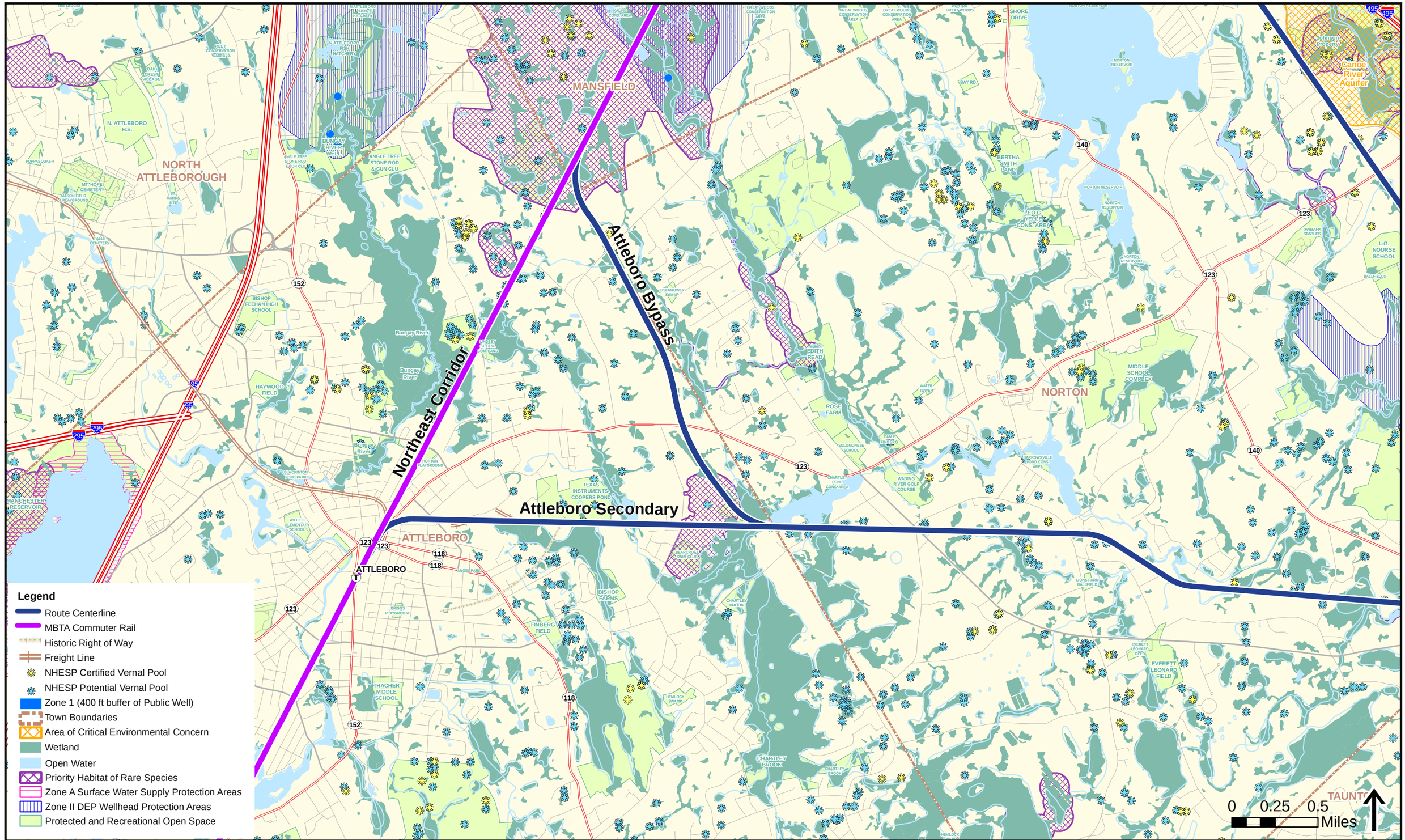
Legend

- Route Centerline
- MBTA Commuter Rail
- Historic Right of Way
- Freight Line
- NHESP Certified Vernal Pool
- NHESP Potential Vernal Pool
- Zone 1 (400 ft buffer of Public Well)
- Town Boundaries
- Area of Critical Environmental Concern
- Wetland
- Open Water
- Priority Habitat of Rare Species
- Zone A Surface Water Supply Protection Areas
- Zone II DEP Wellhead Protection Areas
- Protected and Recreational Open Space

Executive Office of Transportation & Public Works

South Coast Rail

Figure 7-1
Environmental Resources in the Vicinity of the Northeast Corridor (Readville to Canton Junction)



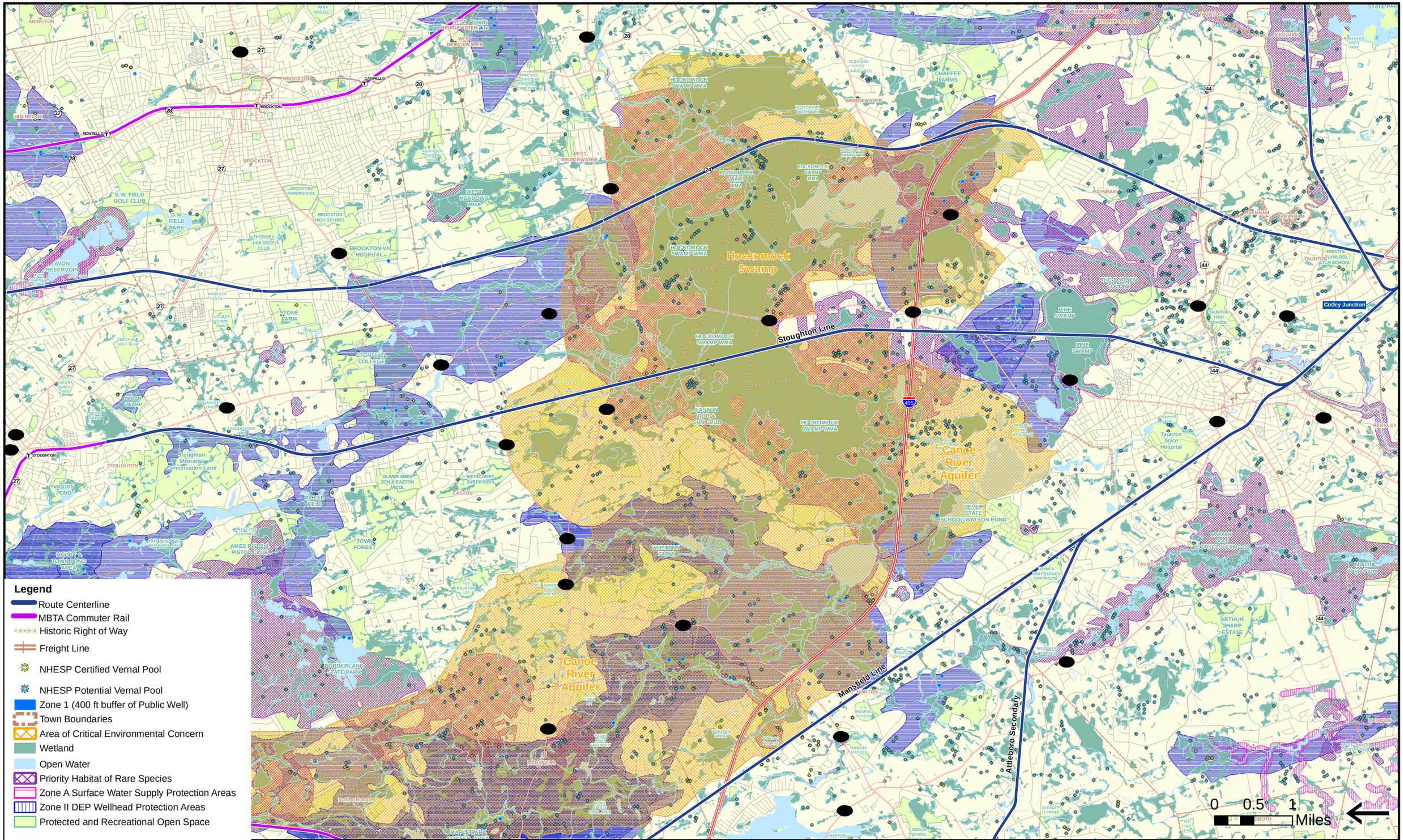
Legend

- Route Centerline
- MBTA Commuter Rail
- Historic Right of Way
- Freight Line
- NHESP Certified Vernal Pool
- NHESP Potential Vernal Pool
- Zone 1 (400 ft buffer of Public Well)
- Town Boundaries
- Area of Critical Environmental Concern
- Wetland
- Open Water
- Priority Habitat of Rare Species
- Zone A Surface Water Supply Protection Areas
- Zone II DEP Wellhead Protection Areas
- Protected and Recreational Open Space

Executive Office of Transportation & Public Works

South Coast Rail

Figure 7-2
Environmental Resources in the Vicinity of the
Attleboro Bypass (Northeast Corridor to Attleboro Secondary)



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South Coast Rail

Figure 7-3
Environmental Resources in the Vicinity of the Stoughton Line (Stoughton Station to Cotley Junction)

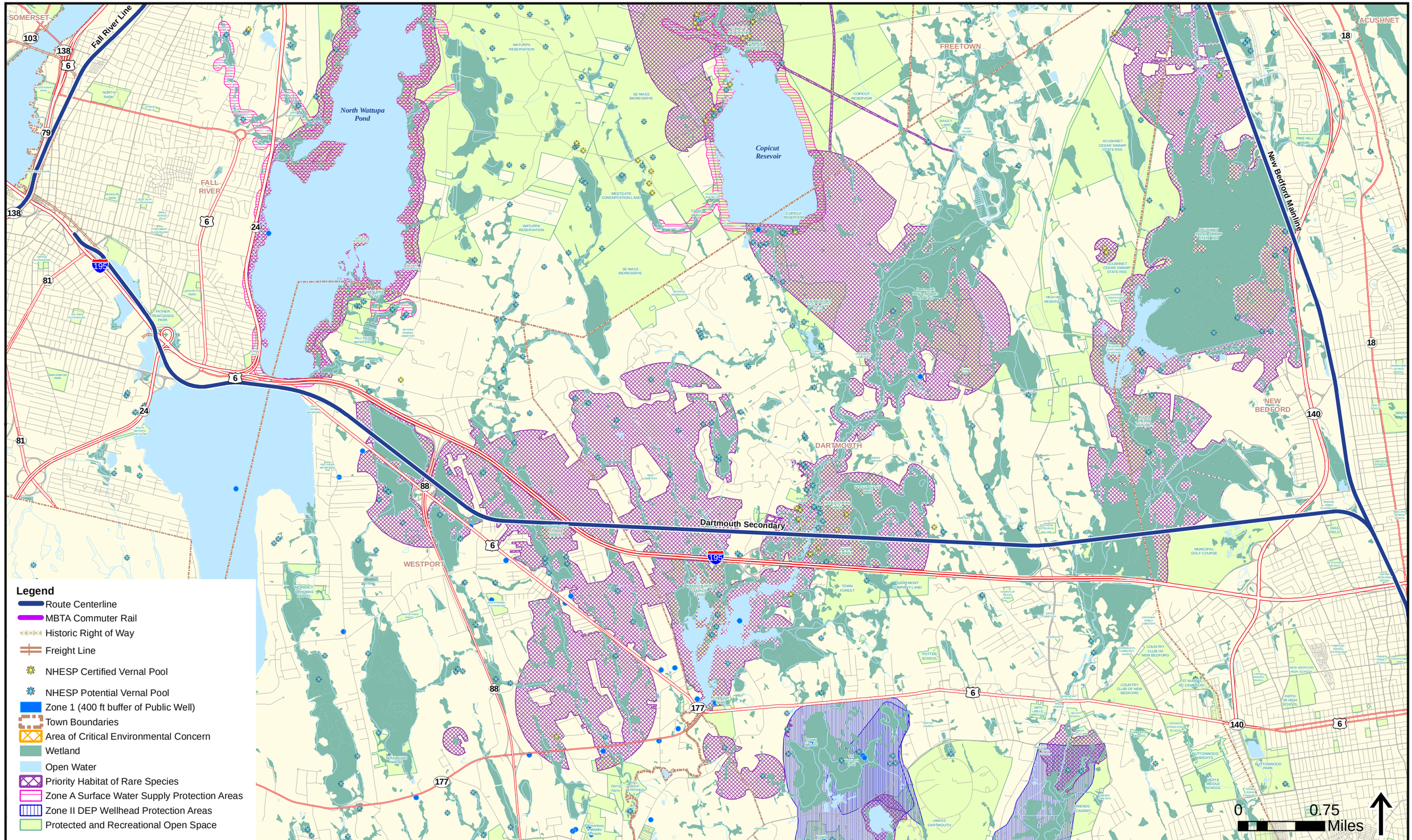

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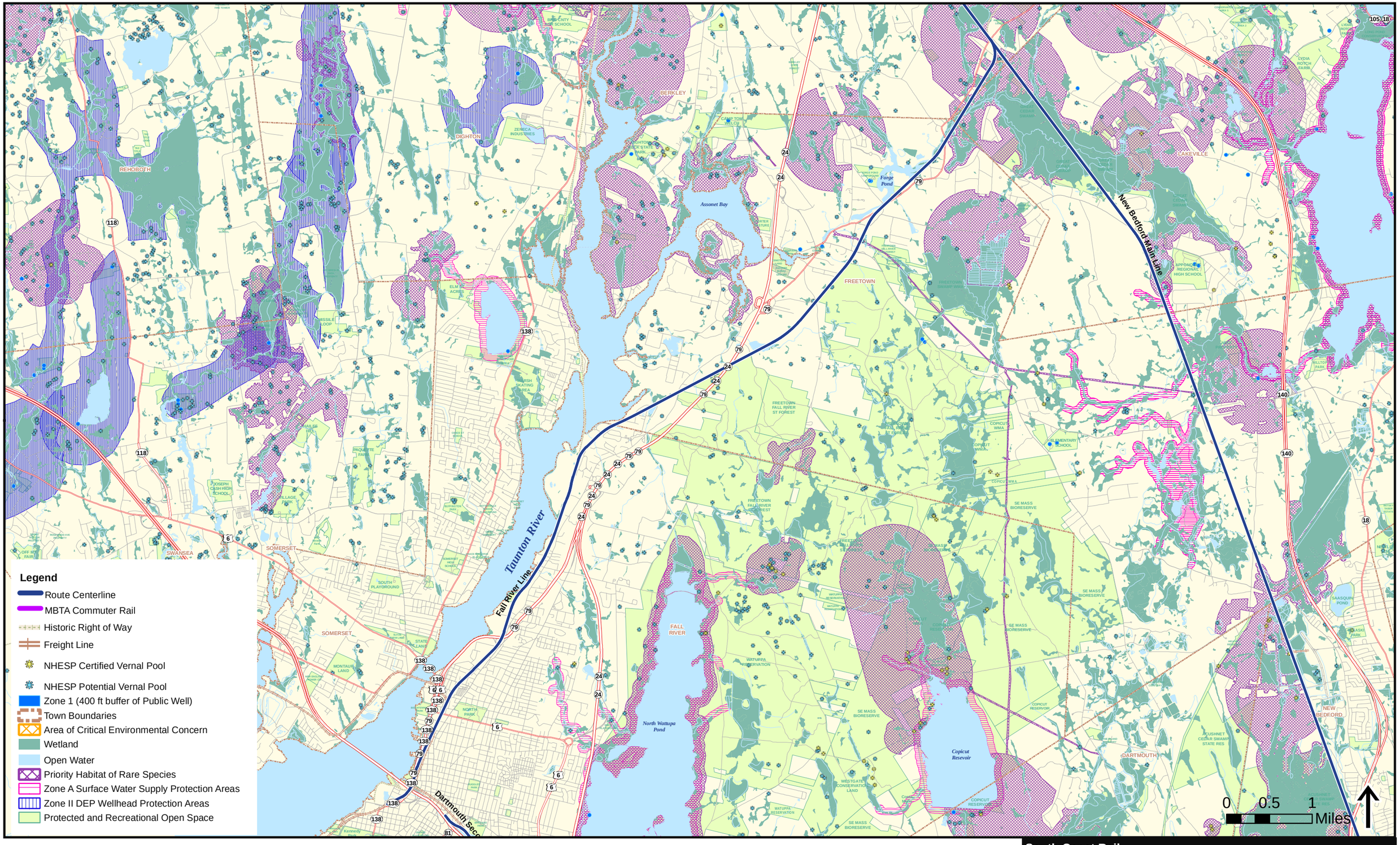
Figure 7-4
Environmental Resources in the Vicinity of the Dartmouth Secondary (Fall River to New Bedford)



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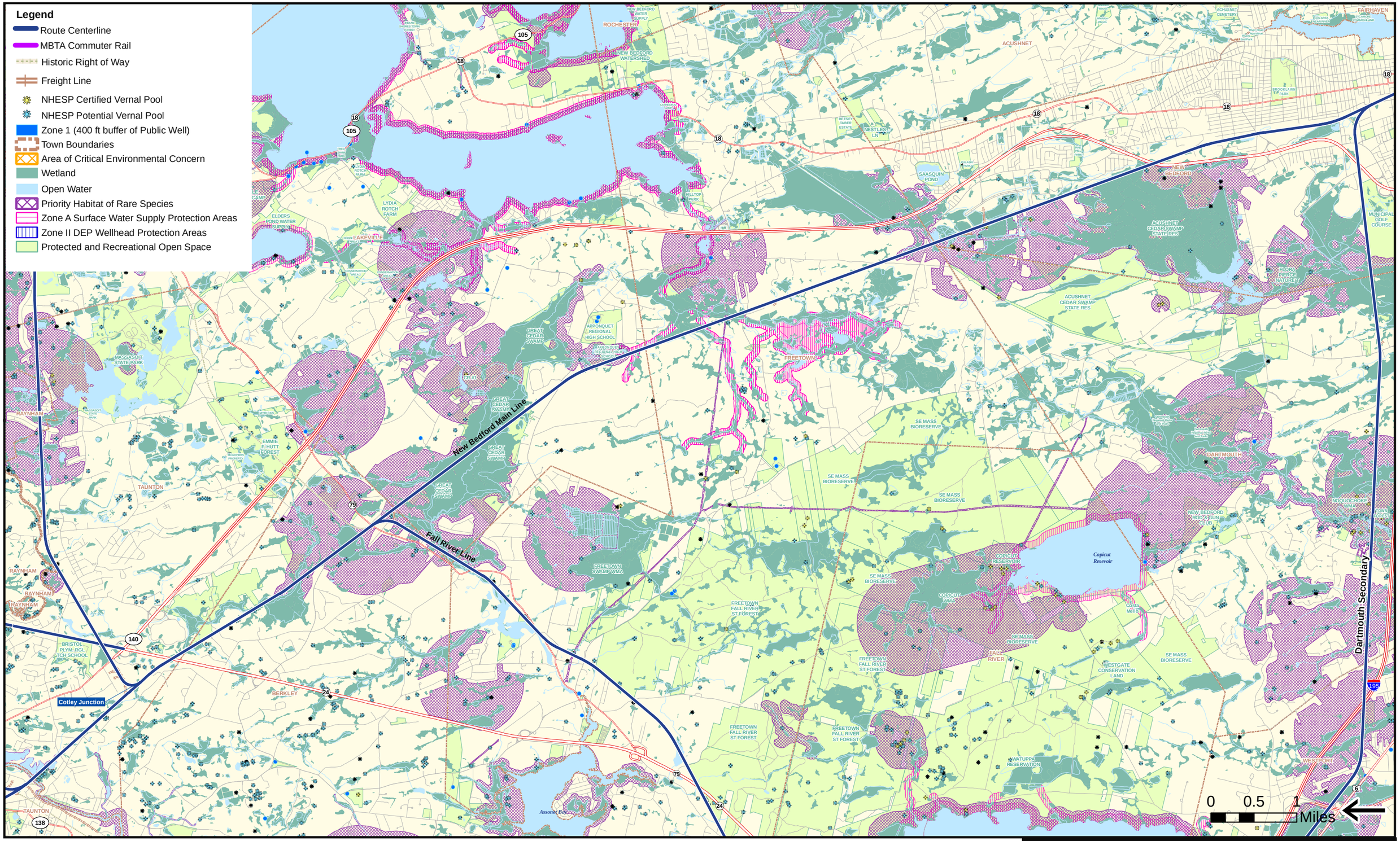
South Coast Rail

Figure 7-5
Environmental Resources in the Vicinity of the
Fall River Line (Myricks Junction to downtown Fall River)



South Coast Rail

Figure 7-6
Environmental Resources in the Vicinity of the
New Bedford Main Line (Cotley Junction to downtown New Bedford)

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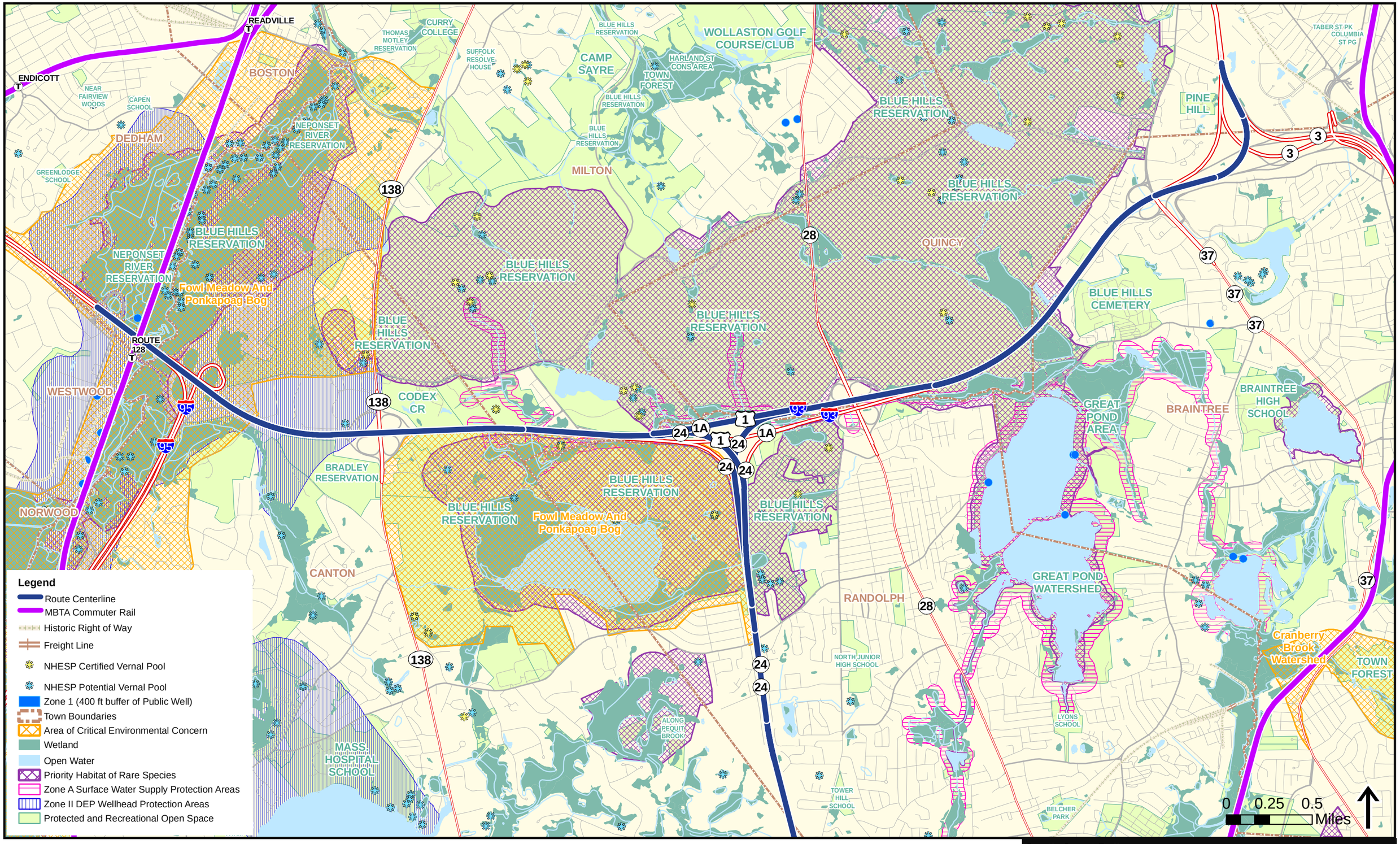

Legend

- Route Centerline
- MBTA Commuter Rail
- Historic Right of Way
- Freight Line
- NHESP Certified Vernal Pool
- NHESP Potential Vernal Pool
- Zone 1 (400 ft buffer of Public Well)
- Town Boundaries
- Area of Critical Environmental Concern
- Wetland
- Open Water
- Priority Habitat of Rare Species
- Zone A Surface Water Supply Protection Areas
- Zone II DEP Wellhead Protection Areas
- Protected and Recreational Open Space

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South Coast Rail

Figure 7-7
Environmental Resources in the Vicinity of the Route 128 (Route 128 Station to Braintree)

Appendix A
Descriptions of Phase 1 Alternatives

Transportation
Land Development
Environmental
Services

Vanasse Hangen Brustlin, Inc.

99 High Street
Boston, Massachusetts 02110
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FAX 617 728-7782

Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 1

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 1. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 1 consists of conventional diesel commuter rail along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and a point near the Attleboro/Mansfield town line, a new track bypass (Attleboro Bypass) along the National Grid right-of-way in Attleboro and Norton, the Attleboro Secondary between a point near the Attleboro/Norton town line and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 1, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 74 and 73 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Northeast Corridor: From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed. Catenary supports and wire would not be constructed for this track, but modifications to the existing supports may be required. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Attleboro Bypass: A new single track Class 5 line would be constructed roughly following the National Grid right-of-way from the Northeast Corridor near the Attleboro/Mansfield/Norton town line (MP 0.00) to the Attleboro Secondary near the Attleboro/Norton town line (MP 2.62). Part of Chartley Pond in Norton might be affected where the line would tie into the Attleboro Secondary.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be single track for the entire length between the Attleboro Bypass and Weir Junction, with a passing siding in Norton (MP 4.49 to MP 6.86).

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). No existing commuter rail stations would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart and graphic.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a large volume of existing

institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. Property acquisition would not be needed.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Attleboro Bypass: The Attleboro Bypass would be constructing along an existing National Grid right-of-way. Modifications to the existing high voltage lines might be required. The right-of-way passes through several wetlands, which would require filling, and crosses Chartley Pond, part of which might be filled or spanned with a trestle. A moderate amount of property acquisition would be required. However, disruption to the existing transportation system would be minimal.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 1 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be new service, not extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

Transportation
Land Development
Environmental
Services

Vanasse Hangen Brustlin, Inc.

99 High Street
Boston, Massachusetts 02110
617 728-7777
FAX 617 728-7782

Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 2

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 2. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 2 consists of conventional diesel commuter rail along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and Attleboro Station, the Attleboro Secondary between Attleboro Station and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This alternative requires a reverse move at Attleboro Station. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 2, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

- Reverse move requires at least 10 minutes because engineer must get off train, walk to other end, and perform a brake test before departing; this is consistent with the minimum time required by the MBTA to change the direction of a train

Travel Time

Travel times from New Bedford and Fall River to Boston would be 94 and 93 minutes, respectively. No transfer would be required. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the reverse move introduces increased chances of mechanical problems. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Northeast Corridor: From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed. Catenary supports and wire would not be constructed for this track, but modifications to the existing supports may be required. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be single track for the entire length between the Attleboro Station and Weir Junction, with a passing siding in Norton (MP 4.49 to MP 6.86).

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). No existing commuter rail stations would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction,

operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing commuter services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

The need for a reverse move at Attleboro Station would cause unacceptable impacts to the Northeast Corridor. Even with minimal turn times of 10 minutes for the reverse move, it is unlikely that more than four trains could be accommodated in an hour on one track. This would present a severe constraint on future expansion and an exceedingly inefficient use of system capacity. Mechanical faults are most frequent during reverse moves, decreasing reliability and increasing the probability of delays that could cascade throughout the Northeast Corridor. There is no space at Attleboro Station for constructing additional tracks without significant disruption to the fabric of the city.

Due to unacceptable impacts to the capacity and reliability of the transportation system, this alternative was removed from further consideration.

Transportation
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Services

Vanasse Hangen Brustlin, Inc.

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FAX 617 728-7782

Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 3

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 3. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 3 consists of conventional diesel commuter rail along the Attleboro and Dartmouth Corridors. This alternative includes the Northeast Corridor between South Station and a point near the Attleboro/Mansfield town line, a new track bypass (Attleboro Bypass) along the National Grid right-of-way in Attleboro and Norton, the Attleboro Secondary between a point near the Attleboro/Norton town line and Weir Junction, the New Bedford Secondary between Weir Junction and the Dartmouth Secondary in New Bedford, and the Dartmouth Secondary between New Bedford and the east side of Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 3, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Due to topographic challenges, Fall River Station would be on the east side of town on the Dartmouth Secondary
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 72 and 87 minutes, respectively. Travel time from New Bedford to Fall River would be 14 minutes (the extra minute in the difference between 72 and 87 is the dwell time at New Bedford Station). The travel time from Fall River is significantly longer than that from New Bedford because of the route configuration, traveling first from Fall River to New Bedford, and then to Boston. The travel time from New Bedford to Boston is slightly less than Alternative 1 because the station was assumed to be located further north for Alternative 3. The location used for Alternative 1, as well as other commuter rail alternatives, could not be used for Alternative 3, because that portion of the New Bedford Secondary is not included in Alternative 3, which diverges west at the Dartmouth Secondary.

No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Northeast Corridor: From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed. Catenary supports and wire would not be constructed for this track, but modifications to the existing supports may be required. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Attleboro Bypass: A new single track Class 5 line would be constructed roughly following the National Grid right-of-way from the Northeast Corridor near the Attleboro/Mansfield/Norton town line (MP 0.00) to the Attleboro Secondary near the Attleboro/Norton town line (MP 2.62). Part of Chartley Pond in Norton might be affected where the line would tie into the Attleboro Secondary.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be single track for the entire length between the Attleboro Bypass and Weir Junction, with a passing siding in Norton (MP 4.49 to MP 6.86).

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and the Dartmouth Secondary. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Dartmouth Secondary: Existing freight track would be upgraded to Class 5. The line would be restored from its present terminus in Westport to the east side of Fall River. The line would be double track for a short distance west of New Bedford (MP 0.36 to MP 0.69). The remainder would be single track, with a passing siding in Dartmouth (MP 4.17 to MP 6.67).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Dartmouth (1), Westport (1), and Fall River (1). No existing commuter rail stations would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Dartmouth Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. Property acquisition would not be needed.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Attleboro Bypass: The Attleboro Bypass would be constructing along an existing National Grid right-of-way. Modifications to the existing high voltage lines might be required. The right-of-way passes through several wetlands, which would require filling, and crosses Chartley Pond, part of which might be filled or spanned with a trestle. A moderate amount of property acquisition would be required. However, disruption to the existing transportation system would be minimal.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Dartmouth Secondary: Construction on the New Bedford Secondary and Dartmouth Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Dartmouth Secondary, because tracks would be located on existing

embankments. A moderate amount of property acquisition would be required to restore the western end of the Dartmouth Secondary, especially in Fall River.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 1 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be new service, not extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 4

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 4. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 4 consists of bus rapid transit (BRT) along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and Attleboro Station, the Attleboro Secondary between Attleboro Station and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 4, the following assumptions were made:

- New 24-foot wide BRT roadway to be constructed adjacent to existing freight rail lines, in order to allow freight operations to continue
- All undergrade bridges to be new structures, adjacent to existing structures if applicable; existing freight rail bridges would not be modified
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Attleboro Station and South Station to accommodate Boston-bound riders
- The busway may terminate just outside urban centers like New Bedford and Fall River, allowing buses to travel on local streets and obviating the need for tremendously expensive busway structures in city centers
- Maximum speed of 55 mph on BRT lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Initial operating plan headways of 5 minutes on the trunk and 10 minutes on the branches in both directions during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 106 and 103 minutes, respectively. One transfer would be required at Attleboro Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. BRT

would not be subject to delays from traffic congestion except in areas where it would operate on city streets. The impact of these sections on travel time and reliability was assumed to be negligible.

Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the BRT line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive buses have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the BRT line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Due to unacceptably long travel times, the need to transfer, and only medium reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 5

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 5. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 5 consists of diesel multiple unit (DMU) commuter rail along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and Attleboro Station, the Attleboro Secondary between Attleboro Station and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 5, the following assumptions were made:

- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Attleboro Station and South Station to accommodate Boston-bound riders
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction)
    - 24 trips in each direction during the peak two hours
- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours
- All trains travel the entire way from New Bedford or Fall River to Attleboro, so only one transfer is required for travel between Boston and the South Coast

Travel Time

Travel times from New Bedford and Fall River to Boston would be 97 and 95 minutes, respectively. One transfer would be required at Attleboro Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive DMU trains have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the DMU line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Conceptual Layout

Northeast Corridor: No improvements would be required, except modifications to Attleboro Station to provide for transfers. It is assumed that DMU platforms would be located on the Attleboro Secondary, as close to the Northeast Corridor as practicable, with a connecting walkway between the DMU platforms and the commuter rail platforms. This eliminates the need for DMU trains to enter the corridor.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Attleboro Station and Weir Junction (MP 0.00 to MP 9.40). Modifications would be required to the existing Attleboro Station to accommodate DMU trains, which would use a separate platform from the conventional diesel commuter rail trains on the Providence Line. The separate platform would be necessary due to the high frequency of service on the DMU line.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis south of Myricks Junction, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station at Attleboro would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the DMU lines. Overnight layover facilities would be constructed at undetermined locations in Attleboro, Fall River, and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing passenger services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the Attleboro Secondary and the New Bedford Secondary would also some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated because of existing services, but restricted to modifications to Attleboro Station. Property acquisition might be needed at Attleboro Station, depending on the platform configuration.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be considerably greater than for conventional commuter rail because of the need to provide two tracks throughout. Property acquisition would not be needed, except at Attleboro Station, where it might be required depending on the platform configuration.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 5 was assumed to be 15 minute peak headways on the branches, resulting in 7.5 minute headways on the trunk. This provides eight peak period trips to each terminal. It was assumed that trains would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three single-deck coaches per train, is 4,416 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 6

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 6. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 6 consists of diesel multiple unit (DMU) commuter rail along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and Attleboro Station, the Attleboro Secondary between Attleboro Station and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, the Fall River Secondary between Myricks Junction and downtown Fall River, and the Dartmouth Secondary between downtown New Bedford and the east side of Fall River. This routing is shown on an attached graphic. This alternative is equivalent to Alternative 5, with the addition of the Fall River – New Bedford line.

Design Assumptions

For Alternative 6, the following assumptions were made:

- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Attleboro Station and South Station to accommodate Boston-bound riders
- Due to topographic challenges, there would be two separate stations in Fall River, one on the west side of the city on the Fall River Secondary, and one on the east side of town on the Dartmouth Secondary
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction); design headway of 5 minutes on the Fall River – New Bedford line
    - 24 trips in each direction during the peak two hours

- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours; initial operating plan headway of 7.5 minutes on the Fall River – New Bedford line in both directions during the peak two hours
- All trains on the Fall River Secondary and New Bedford Secondary branches travel the entire way from New Bedford or Fall River to Attleboro, so only one transfer is required for travel between Boston and stations on these branches
- Trains on the Fall River – New Bedford Line travel only between Fall River and New Bedford; two transfers would be required to reach Boston from a station on this line, one in Attleboro and one in New Bedford

Travel Time

Travel times from New Bedford and Fall River to Boston would be 97 and 95 minutes, respectively. Travel time from New Bedford to Fall River would be 16 minutes. One transfer would be required at Attleboro Station, except for stations on the Fall River – New Bedford Line, from which two transfers would be required. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive DMU trains have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the DMU line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM. The transfer time in New Bedford between the two DMU lines was assumed to be 5 minutes.

Conceptual Layout

Northeast Corridor: No improvements would be required, except modifications to Attleboro Station to provide for transfers. It is assumed that DMU platforms would be located on the Attleboro Secondary, as close to the Northeast Corridor as practicable, with a connecting walkway between the DMU platforms and the commuter rail platforms. This eliminates the need for DMU trains to enter the corridor.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Attleboro Station and Weir Junction (MP 0.00 to MP 9.40). Modifications would be required to the existing Attleboro Station to accommodate DMU trains, which would use a separate platform from the conventional diesel commuter rail trains on the Providence Line. The separate platform would be necessary due to the high frequency of service on the DMU line.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis south of Myricks Junction, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Dartmouth Secondary: Existing freight track would be upgraded to Class 5. The abandoned portion of the line between Westport and Fall River would be restored. The line would entirely double track between the New Bedford Secondary (MP 0.00) and Route 24 in Fall River (MP 11.48). The remainder of the line in Fall River (MP 11.48 to MP 12.45) would be single track, in order to minimize the impact to the Quequechan River and downtown Fall River.

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), Fall River (2,

one on west side and one on east side), Dartmouth (1), and Westport (1). The existing commuter rail station at Attleboro would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the DMU lines. Overnight layover facilities would be constructed at undetermined locations in Attleboro, Fall River, and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart. Walls are assumed to be required in areas of widening or new construction through wetlands, or where required by topography.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing passenger services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the Attleboro Secondary, New Bedford Secondary, and Dartmouth Secondary would also some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated because of existing services, but restricted to modifications to Attleboro Station. Property acquisition might be needed at Attleboro Station, depending on the platform configuration.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be considerably greater than for conventional commuter rail because of the need to provide two tracks throughout. Property acquisition would not be needed, except at Attleboro Station, where it might be required depending on the platform configuration.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Dartmouth Secondary: Construction on the Dartmouth Secondary would be relatively simple. Massachusetts Coastal Railroad runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources might be considerable, because of the need for two tracks, and the proximity of the route in Fall River to South Watuppa Pond and the Quequechan River. A moderate level of property acquisition would be needed to restore the right-of-way through Westport and Fall River.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 6 was assumed to be 15 minute peak headways on the Fall River Secondary and New Bedford Secondary branches, resulting in 7.5 minute headways on the trunk. Headways of 7.5 minutes were assumed on the Fall River – New Bedford line. This provides eight peak period trips between Attleboro and each terminal and 16 peak period trips on the Fall River – New Bedford Line. It was assumed that trains would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three single-deck coaches per train, is 4,416 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 7

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 7. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 7 consists of electric commuter rail along the Attleboro Corridor. This alternative includes the Northeast Corridor between South Station and a point near the Attleboro/Mansfield town line, a new track bypass (Attleboro Bypass) along the National Grid right-of-way in Attleboro and Norton, the Attleboro Secondary between a point near the Attleboro/Norton town line and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 7, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- All existing freight track replaced with Class 7 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 110 mph on new lines; travel times on Northeast Corridor north of Route 128 Station per Amtrak schedules for trains stopping at Route 128 Station and Back Bay Station, as of February 2008; travel times on Northeast Corridor south of Route 128 Station limited by maximum speed, track geometry, and station stops only
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 55 and 56 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Conceptual Layout

Northeast Corridor: Catenary wire would be strung along Track 3 between Tower 1 interlocking (MP 228.50) and Readville (MP 219.00). The overhead supports required are in place along this section; all that would be needed is the wire and any necessary power infrastructure. From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed, along with new catenary supports and wires for the track. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Attleboro Bypass: A new single track Class 7 line would be constructed roughly following the National Grid right-of-way from the Northeast Corridor (MP 0.00) to the Attleboro Secondary (MP 2.62). New catenary supports, wires, and electric substations would be constructed along the length of the line. Part of Chartley Pond in Norton might be affected where the line would tie into the Attleboro Secondary.

Attleboro Secondary: Existing freight track would be upgraded to Class 7. The line would be single track for the entire length between the Attleboro Bypass and Weir Junction, with a passing siding in Norton (MP 4.23 to MP 7.63). New catenary supports, wires, and electric substations would be constructed along the length of the line.

New Bedford Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations. New catenary supports, wires, and electric substations would be constructed along the length of the line.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with a passing siding in Fall River (MP 9.56 to MP 11.11). New catenary supports, wires, and electric substations would be constructed along the length of the line.

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). No existing commuter rail stations would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Locomotive maintenance would be at existing Amtrak facilities through an agreement with the MBTA; coach maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a moderate volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. However, the MBTA does not currently operate electric trains, so there would be some knowledge gap. Existing layovers and maintenance facilities are designed for diesel engines, though it assumed a maintenance agreement could be reached with Amtrak, which has an appropriate facility, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches, with some training.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

The use of electric trains on the Northeast Corridor would be beneficial, because it would allow the MBTA and Amtrak to operate at less disparate speeds. This would decrease the need for a large but useless gap opening up between an Amtrak train and a following MBTA train, or a large but useless gap closing up between an MBTA train and a following Amtrak train. This would improve the utilization of existing capacity on the corridor.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. Property acquisition would not be needed.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Attleboro Bypass: The Attleboro Bypass would be constructing along an existing National Grid right-of-way. Modifications to the existing high voltage lines might be required. The right-of-way passes through several wetlands, which would require filling, and crosses Chartley Pond, part of which might be filled or spanned with a trestle. A moderate amount of property acquisition would be required. However, disruption to the existing transportation system would be minimal.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: The need to design and construct electrification infrastructure might represent a challenging or complicated aspect to the project, making it more difficult to complete the project in four years.

Operating Plan

The initial operating plan for Alternative 7 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be new service, not extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 11

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 11. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 11 consists of conventional diesel commuter rail along the Mansfield Corridor. This alternative includes the Northeast Corridor between South Station and Mansfield Junction, the former right-of-way between Mansfield Junction and Attleboro Junction, the Attleboro Secondary between Attleboro Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 11, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- Major modifications required in Mansfield Center to restore former right-of-way
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 70 and 69 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Conceptual Layout

Northeast Corridor: From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed. Catenary supports and wire would not be constructed for this track, but modifications to the existing supports may be required. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Mansfield Line: The former right-of-way through Mansfield, Norton, and Taunton would be restored. The line would be single track from Mansfield Junction (MP 0.00) to Attleboro Junction (MP 8.92), with a passing siding in Norton (MP 4.56 to MP 7.02).

The existing station at Mansfield would be reconstructed to allow restoration of the line. The Route 106 Underpass would be extended east, under the restored line, requiring major reconstruction of Route 106 and North Main Street. Property acquisitions would be required on all sides of the intersection. It is also assumed that property acquisitions would be required on both sides of the former right-of-way (Old Colony Road) between Route 106 and East Street. All grade crossings (intersections on Old Colony Road) would be closed, except Thomas Street, North Main Street, and East Street. The bike path currently occupying a portion of the right-of-way would be eliminated. A major grade separated structure would be required at I-495.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be single track for the entire length between Attleboro Junction and Weir Junction.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station in Mansfield would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing commuter services and on the city street network of downtown Mansfield. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

The restoration of the line through Mansfield would negatively impact the fabric of city streets in the community. Some grade crossings would be closed, and Old Colony Avenue would become a rail line with a frontage road. This would impact access to abutting properties.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. Property acquisition would not be needed.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Mansfield Line: The Mansfield Line would be constructed along an abandoned right-of-way between Taunton and Mansfield Center. Restoring this line would be difficult for several reasons. The right-of-way in downtown Mansfield has been converted into a city street, abutted by many buildings and driveways. Part of the right-of-way south of Mansfield Center has been converted to a bike path, and a regional sewer interceptor runs along the line. Major property acquisition would be required.

Extensive work would be required where the line meets the Northeast Corridor. After the line was abandoned, a grade separation was constructed where the Northeast Corridor crosses Route 106. This resulted in grades that are inadequate for both an at-grade crossing and a grade separation. To restore the line, Route 106 would be lowered, requiring demolition of many buildings. Again, major property acquisition would be necessary.

A new grade separated structure would be required at I-495. At the time I-495 was constructed, the line was already abandoned, and no provision for restoration of the line was made. The grade of the abandoned line and the grade of I-495 are therefore approximately equal. The grade of I-495 is constrained to the south of the line by an overhead bridge; the grade of the line is constrained by grade crossings in both directions. Constructing a new grade separation at this location would

require raising one facility and lowering the other, causing major disruption to I-495 and creating the potential for flooding at the low point on the lowered facility.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: Restoration of the line between the Northeast Corridor and I-495, including through downtown Mansfield, might represent a challenging or complicated aspect, making it more difficult to complete the project in four years.

Due to unacceptable construction impacts in downtown Mansfield, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 12

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 12. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 12 consists of bus rapid transit (BRT) along the Mansfield Corridor. This alternative includes the Northeast Corridor between South Station and Mansfield Junction, the former right-of-way between Mansfield Junction and Attleboro Junction, the Attleboro Secondary between Attleboro Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 12, the following assumptions were made:

- New 24-foot wide BRT roadway to be constructed adjacent to existing freight rail lines, in order to allow freight operations to continue
- New 24-foot wide BRT roadway to be constructed on existing abandoned railroad embankment without provision for restoration of rail line
- All undergrade bridges to be new structures, adjacent to existing structures if applicable; existing freight rail bridges would not be modified
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Attleboro Station and South Station to accommodate Boston-bound riders
- The busway may terminate just outside urban centers like New Bedford and Fall River, allowing buses to travel on local streets and obviating the need for tremendously expensive busway structures in city centers
- Maximum speed of 55 mph on BRT lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Initial operating plan headways of 5 minutes on the trunk and 10 minutes on the branches in both directions during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 97 and 94 minutes, respectively. One transfer would be required at Mansfield Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. BRT would not be subject to delays from traffic congestion except in areas where it would operate on city streets. The impact of these sections on travel time and reliability was assumed to be negligible.

Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the BRT line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive buses have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the BRT line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Conceptual Layout

Northeast Corridor: No improvements would be required.

Mansfield Line: The former right-of-way through Mansfield, Norton, and Taunton would be restored and converted into a new two-lane busway. The existing station at Mansfield would be modified to allow bus pick-up and drop-off on Mansfield Avenue. The Route 106 Underpass would not be modified; the busway would end at the intersection of Route 106 and Main Street. It is assumed that property acquisitions would be required on both sides of the former right-of-way (Old Colony Road) between Route 106 and East Street in order to accommodate the busway. All city street intersections on Old Colony Road would be closed, except Thomas Street, North Main Street, and East Street. The bike path currently occupying a portion of the right-of-way would be eliminated. A major grade separated structure would be required at I-495.

Attleboro Secondary: A new two-lane busway would be constructed adjacent to the existing freight track along the right-of-way. The busway would be on the east side of the existing track so that no grade crossing would be necessary where the busway diverges onto the Mansfield Line. Existing tracks would not be modified. Property acquisitions might be needed in downtown Taunton as well, in locations where the right-of-way is not wide enough to accommodate both the existing freight tracks and the busway.

New Bedford Secondary: A new two-lane busway would be constructed adjacent to the existing freight track along the right-of-way. The busway would be on the east side of the existing track so that no grade crossing would be necessary where the busway connects to the section along the Attleboro Secondary. Existing tracks would not be modified.

Fall River Secondary: A new two-lane busway would be constructed adjacent to the existing freight track along the right-of-way. The busway would be on the east side of the existing track to minimize impacts to the Assonet River in Freetown, where the river borders the west side of the right-of-way. Existing tracks would not be modified. A grade crossing of the busway at the New Bedford branch would be required at Myricks Junction, because the trunk line would be on the east side of those tracks.

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station in Mansfield would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the busway. Overnight layover facilities would be constructed at undetermined locations in Mansfield, Fall River, and New Bedford.

Typical Section

Typical sections include the following:

- Single-track and double-track rail with busway sections in fill or cut with slopes
- Single-track and double-track rail with busway sections in fill or cut with retaining walls

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would not be compatible with existing infrastructure. It would be a new rubber-tired mode along existing rail transportation corridors. Despite the fact that there is a large volume of existing institutional knowledge about the construction, operation, and maintenance of bus routes in the MBTA, this service would be isolated from other MBTA bus operations. Therefore, it is unlikely that equipment or crews could be moved between this service and other bus routes.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing commuter services and on the city street networks of downtown Mansfield and downtown Taunton. Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

The restoration of the line as a busway through Mansfield would negatively impact the fabric of city streets in the community. Some intersections would be closed, and Old Colony Avenue would become a busway with a frontage road. This would impact access to abutting properties. Impacts would also occur in Taunton, where existing grade crossings that currently only see a few trains a day would see a bus with signal priority in each direction every five minutes. This would reduce the capacity of these streets, increasing the potential for traffic congestion in the city.

Construction Impacts

Mansfield Line: The Mansfield Line would be constructed along an abandoned right-of-way between Taunton and Mansfield Center. Restoring this line as a busway would be difficult for several reasons. The right-of-way in downtown Mansfield has been converted into a city street, abutted by many buildings and driveways. Part of the right-of-way south of Mansfield Center has been converted to a bike path, and a regional sewer interceptor runs along the line. Major property acquisition would be required.

A new grade separated structure would be required at I-495. At the time I-495 was constructed, the line was already abandoned, and no provision for restoration of the line was made. The grade of the abandoned line and the grade of I-495 are therefore approximately equal. The grade of I-495 is constrained to the south of the line by an overhead bridge; the grade of the former rail line is constrained by grade crossings in both directions. Constructing a new grade separation at this location would require raising one facility and lowering the other, causing major disruption to I-495 and creating the potential for flooding at the low point on the lowered facility.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be large, because the busway would be adjacent to existing tracks, requiring a major widening of the embankment. A moderate level of property acquisition might be needed in downtown Taunton, in places where the right-of-way is not wide enough for tracks and the busway.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be large, because

the busway would be adjacent to existing tracks, requiring a major widening of the embankment. Property acquisition would probably not be needed.

Construction Time Frame: Restoration of the line between the Northeast Corridor and I-495, including through downtown Mansfield, might represent a challenging or complicated aspect, making it more difficult to complete the project in four years.

Due to unacceptable construction impacts in downtown Mansfield, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 13

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 13. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 13 consists of diesel multiple unit (DMU) commuter rail along the Mansfield Corridor. This alternative includes the Northeast Corridor between South Station and Mansfield Junction, the former right-of-way between Mansfield Junction and Attleboro Junction, the Attleboro Secondary between Attleboro Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 13, the following assumptions were made:

- Major modifications required in Mansfield Center to restore former right-of-way
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Mansfield Station and South Station to accommodate Boston-bound riders
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction)
    - 24 trips in each direction during the peak two hours
- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours
- All trains travel the entire way from New Bedford or Fall River to Mansfield, so only one transfer is required for travel between Boston and the South Coast

Travel Time

Travel times from New Bedford and Fall River to Boston would be 87 and 86 minutes, respectively. One transfer would be required at Mansfield Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive DMU trains have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the DMU line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Conceptual Layout

Northeast Corridor: No improvements would be required, except modifications to Mansfield Station to provide a cross-platform transfer. It is assumed that DMU platforms would be located on the Mansfield Line, as close to the Northeast Corridor as practicable, with a connecting walkway between the DMU platforms and the commuter rail platforms. This eliminates the need for DMU trains to enter the corridor.

Mansfield Line: The former right-of-way through Mansfield, Norton, and Taunton would be restored. The entire line would be double track for the entire length from Mansfield Center to Attleboro Junction (MP 0.00 to MP 8.92). The existing station at Mansfield would be reconstructed to allow restoration of the line and construction of a separate platform for DMU trains. The separate platform would be necessary due to the high frequency of service on the DMU line.

The Route 106 Underpass would be extended east, under the restored line, requiring major reconstruction of Route 106 and North Main Street. Property acquisitions would be required on all sides of the intersection. It also assumed that property acquisitions would be required on both sides of the former right-of-way (Old Colony Road) between Route 106 and East Street. All grade crossings (intersections on Old Colony Road) would be closed, except Thomas Street, North Main Street, and East Street. The bike path currently occupying a portion of the right-of-way would be eliminated. A major grade separated structure would be required at I-495.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Attleboro Junction and Weir Junction.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis south of Myricks Junction, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station at Mansfield would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the DMU lines. Overnight layover facilities would be constructed at undetermined locations in Mansfield, Fall River, and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing passenger services and on the city street network of downtown Mansfield. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the Attleboro Secondary and the New Bedford Secondary would also some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for longer trains and/or trains with more bi-level coaches.

The restoration of the line through Mansfield would negatively impact the fabric of city streets in the community. Some grade crossings would be closed, and Old Colony Avenue would become a rail line with a frontage road. This would impact access to abutting properties.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated because of existing services, but restricted to modifications to Mansfield Station.

Mansfield Line: The Mansfield Line would be constructed along an abandoned right-of-way between Taunton and Mansfield Center. Restoring this line would be difficult for several reasons. The right-of-way in downtown Mansfield has been converted into a city street, abutted by many buildings and driveways. Part of the right-of-way south of Mansfield Center has been converted to a bike path, and a regional sewer interceptor runs along the line. Providing a high frequency service, like DMU commuter rail, would be even more disruptive than conventional commuter rail because of the need to provide two tracks through this area. Major property acquisition would be required.

Extensive work would be required where the line meets the Northeast Corridor. After the line was abandoned, a grade separation was constructed where the Northeast Corridor crosses Route 106. This resulted in grades that are inadequate for both an at-grade crossing and a grade separation. To restore the line, Route 106 would be lowered, requiring demolition of many buildings. Again, major property acquisition would be necessary.

A new grade separated structure would be required at I-495. At the time I-495 was constructed, the line was already abandoned, and no provision for restoration of the line was made. The grade of the

abandoned line and the grade of I-495 are therefore approximately equal. The grade of I-495 is constrained to the south of the line by an overhead bridge; the grade of the line is constrained by grade crossings in both directions. Constructing a new grade separation at this location would require raising one facility and lowering the other, causing major disruption to I-495 and creating the potential for flooding at the low point on the lowered facility.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be considerably greater than for conventional commuter rail because of the need to provide two tracks throughout. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Construction Time Frame: Restoration of the line between the Northeast Corridor and I-495, including through downtown Mansfield, might represent a challenging or complicated aspect, making it more difficult to complete the project in four years.

Due to unacceptable construction impacts in downtown Mansfield, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 14

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 14. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 14 consists of diesel multiple unit commuter rail along the Mansfield Corridor. This alternative includes the Northeast Corridor between South Station and Mansfield Junction, the former right-of-way between Mansfield Junction and Attleboro Junction, the Attleboro Secondary between Attleboro Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, the Fall River Secondary between Myricks Junction and downtown Fall River, and the Dartmouth Secondary between downtown New Bedford and the east side of Fall River. This routing is shown on an attached graphic. This alternative is equivalent to Alternative 13, with the addition of the Fall River – New Bedford line.

Design Assumptions

For Alternative 14, the following assumptions were made:

- Major modifications required in Mansfield Center to restore former right-of-way
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Northeast Corridor between Mansfield Station and South Station to accommodate Boston-bound riders
- Due to topographic challenges, there would be two separate stations in Fall River, one on the west side of the city on the Fall River Secondary, and one on the east side of town on the Dartmouth Secondary
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction); design headway of 5 minutes on the Fall River – New Bedford line

  - 24 trips in each direction during the peak two hours

- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours; initial operating plan headway of 7.5 minutes on the Fall River – New Bedford line in both directions during the peak two hours
- All trains on the Fall River Secondary and New Bedford Secondary branches travel the entire way from New Bedford or Fall River to Mansfield, so only one transfer is required for travel between Boston and stations on these branches
- Trains on the Fall River – New Bedford Line travel only between Fall River and New Bedford; two transfers would be required to reach Boston from a station on this line, one in Mansfield and one in New Bedford

Travel Time

Travel times from New Bedford and Fall River to Boston would be 87 and 86 minutes, respectively. Travel time from New Bedford to Fall River would be 16 minutes. One transfer would be required at Mansfield Station, except for stations on the Fall River – New Bedford Line, from which two transfers would be required. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 12.5 minutes, based on the difference between the average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive DMU trains have transfer times of 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 12.5 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the DMU line at 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM. The transfer time in New Bedford between the two DMU lines was assumed to be 5 minutes.

Conceptual Layout

Northeast Corridor: No improvements would be required, except modifications to Mansfield Station to provide a cross-platform transfer. It is assumed that DMU platforms would be located on the Mansfield Line, as close to the Northeast Corridor as practicable, with a connecting walkway between the DMU platforms and the commuter rail platforms. This eliminates the need for DMU trains to enter the corridor.

Mansfield Line: The former right-of-way through Mansfield, Norton, and Taunton would be restored. The entire line would be double track for the entire length from Mansfield Center to Attleboro Junction (MP 0.00 to MP 8.92). The existing station at Mansfield would be reconstructed to allow restoration of the line and construction of a separate platform for DMU trains. The separate platform would be necessary due to the high frequency of service on the DMU line.

The Route 106 Underpass would be extended east, under the restored line, requiring major reconstruction of Route 106 and North Main Street. Property acquisitions would be required on all sides of the intersection. It also assumed that property acquisitions would be required on both sides of the former right-of-way (Old Colony Road) between Route 106 and East Street. All grade crossings (intersections on Old Colony Road) would be closed, except Thomas Street, North Main Street, and East Street. The bike path currently occupying a portion of the right-of-way would be eliminated. A major grade separated structure would be required at I-495.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Attleboro Junction and Weir Junction.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis south of Myricks Junction, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Dartmouth Secondary: Existing freight track would be upgraded to Class 5. The abandoned portion of the line between Westport and Fall River would be restored. The line would entirely double track between the New Bedford Secondary (MP 0.00) and Route 24 in Fall River (MP 11.48). The remainder of the line in Fall River (MP 11.48 to MP 12.45) would be single track, in order to minimize the impact to the Quequechan River and downtown Fall River.

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), Fall River (2, one on west side and one on east side), Dartmouth (1), and Westport (1). The existing commuter rail station at Mansfield would be reconstructed.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing passenger services and on the city street network of downtown Mansfield. The existing freight services on the Attleboro Secondary, New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the Attleboro Secondary, New Bedford Secondary, and Dartmouth Secondary would also some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for longer trains and/or trains with more bi-level coaches.

The restoration of the line through Mansfield would negatively impact the fabric of city streets in the community. Some grade crossings would be closed, and Old Colony Avenue would become a rail line with a frontage road. This would impact access to abutting properties.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated because of existing services, but restricted to modifications to Mansfield Station.

Mansfield Line: The Mansfield Line would be constructed along an abandoned right-of-way between Taunton and Mansfield Center. Restoring this line would be difficult for several reasons. The right-of-way in downtown Mansfield has been converted into a city street, abutted by many buildings and driveways. Part of the right-of-way south of Mansfield Center has been converted to a bike path, and a regional sewer interceptor runs along the line. Providing a high frequency service, like DMU commuter rail, would be even more disruptive than conventional commuter rail because of the need to provide two tracks through this area. Major property acquisition would be required.

Extensive work would be required where the line meets the Northeast Corridor. After the line was abandoned, a grade separation was constructed where the Northeast Corridor crosses Route 106. This resulted in grades that are inadequate for both an at-grade crossing and a grade separation. To restore the line, Route 106 would be lowered, requiring demolition of many buildings. Again, major property acquisition would be necessary.

A new grade separated structure would be required at I-495. At the time I-495 was constructed, the line was already abandoned, and no provision for restoration of the line was made. The grade of the abandoned line and the grade of I-495 are therefore approximately equal. The grade of I-495 is constrained to the south of the line by an overhead bridge; the grade of the line is constrained by grade crossings in both directions. Constructing a new grade separation at this location would require raising one facility and lowering the other, causing major disruption to I-495 and creating the potential for flooding at the low point on the lowered facility.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be considerably greater than for conventional commuter rail because of the need to provide two tracks throughout. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Dartmouth Secondary: Construction on the Dartmouth Secondary would be relatively simple. Mass Coastal Railroad runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources might be considerable, because of the need for two tracks, and the proximity of the route in Fall River to South Watuppa Pond and the Quequechan River. A moderate level of property acquisition would be needed to restore the right-of-way through Westport and Fall River.

Construction Time Frame: Restoration of the line between the Northeast Corridor and I-495, including through downtown Mansfield, might represent a challenging or complicated aspect, making it more difficult to complete the project in four years.

Due to unacceptable construction impacts in downtown Mansfield, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 15

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 15. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 15 consists of electric commuter rail along the Mansfield Corridor. This alternative includes the Northeast Corridor between South Station and Mansfield Junction, the former right-of-way between Mansfield Junction and Attleboro Junction, the Attleboro Secondary between Attleboro Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 15, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, third track required on Northeast Corridor between Readville and Canton Junction
- Major modifications required in Mansfield Center to restore former right-of-way
- All existing freight track replaced with Class 7 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 110 mph on new lines; travel times on Northeast Corridor north of Route 128 Station per Amtrak schedules for trains stopping at Route 128 Station and Back Bay Station, as of February 2008; travel times on Northeast Corridor south of Route 128 Station limited by maximum speed, track geometry, and station stops only
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 50 and 51 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Conceptual Layout

Northeast Corridor: Catenary wire would be strung along Track 3 between Tower 1 interlocking (MP 228.50) and Readville (MP 219.00). The overhead supports required are in place along this section; all that would be needed is the wire and any necessary power infrastructure. From Readville (MP 219.00) to Canton Junction (MP 214.33) a third track would be constructed, along with new catenary supports and wires for the track. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required. It is assumed that existing bridges can be widened and that no modifications to Route 128 Station are required, because when the station was constructed, provision was made for a third track.

Mansfield Line: The former right-of-way through Mansfield, Norton, and Taunton would be restored. The line would be single track from Mansfield Junction (MP 0.00) to Attleboro Junction (MP 8.92), with a passing siding in Norton (MP 4.14 to MP 7.45). New catenary supports, wires, and electric substations would be constructed along the length of the line.

The existing station at Mansfield would be reconstructed to allow restoration of the line. The Route 106 Underpass would be extended east, under the restored line, requiring major reconstruction of Route 106 and North Main Street. Property acquisitions would be required on all sides of the intersection. It also assumed that property acquisitions would be required on both sides of the former right-of-way (Old Colony Road) between Route 106 and East Street. All grade crossings (intersections on Old Colony Road) would be closed, except Thomas Street, North Main Street, and East Street. The bike path currently occupying a portion of the right-of-way would be eliminated. A major grade separated structure would be required at I-495.

Attleboro Secondary: Existing freight track would be upgraded to Class 7. The line would be single track for the entire length between Attleboro Junction and Weir Junction. New catenary supports, wires, and electric substations would be constructed along the length of the line.

New Bedford Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations. New catenary supports, wires, and electric substations would be constructed along the length of the line.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with a passing siding in Fall River (MP 9.56 to MP 11.11). New catenary supports, wires, and electric substations would be constructed along the length of the line.

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station in Mansfield would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Locomotive maintenance would be at existing Amtrak facilities through an agreement with the MBTA; coach maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a moderate volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. However, the MBTA does not currently operate electric trains, so there would be some knowledge gap. Existing layovers and maintenance facilities are designed for diesel engines, though it assumed a maintenance agreement could be reached with Amtrak, which has an appropriate facility, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches, with some training.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing commuter services and on the city street network of downtown Mansfield. The existing freight services on the Attleboro Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the future expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Canton Junction to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

The restoration of the line through Mansfield would negatively impact the fabric of city streets in the community. Some grade crossings would be closed, and Old Colony Avenue would become a rail line with a frontage road. This would impact access to abutting properties.

The use of electric trains on the Northeast Corridor would be beneficial, because it would allow the MBTA and Amtrak to operate at less disparate speeds. This would decrease the need for a large but useless gap opening up between an Amtrak train and a following MBTA train, or a large but useless gap closing up between an MBTA train and a following Amtrak train. This would improve the utilization of existing capacity on the corridor.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. Property acquisition would not be needed.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Mansfield Line: The Mansfield Line would be constructed along an abandoned right-of-way between Taunton and Mansfield Center. Restoring this line would be difficult for several reasons. The right-of-way in downtown Mansfield has been converted into a city street, abutted by many buildings and driveways. Part of the right-of-way south of Mansfield Center has been converted to a bike path, and a regional sewer interceptor runs along the line. Major property acquisition would be required.

Extensive work would be required where the line meets the Northeast Corridor. After the line was abandoned, a grade separation was constructed where the Northeast Corridor crosses Route 106. This resulted in grades that are inadequate for both an at-grade crossing and a grade separation. To restore the line, Route 106 would be lowered, requiring demolition of many buildings. Again, major property acquisition would be necessary.

A new grade separated structure would be required at I-495. At the time I-495 was constructed, the line was already abandoned, and no provision for restoration of the line was made. The grade of the abandoned line and the grade of I-495 are therefore approximately equal. The grade of I-495 is constrained to the south of the line by an overhead bridge; the grade of the line is constrained by grade crossings in both directions. Constructing a new grade separation at this location would require raising one facility and lowering the other, causing major disruption to I-495 and creating the potential for flooding at the low point on the lowered facility.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: Restoration of the line between the Northeast Corridor and I-495, including through downtown Mansfield, might represent a challenging or complicated aspect, making it more difficult to complete the project in four years.

Due to unacceptable construction impacts in downtown Mansfield, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 17

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 17. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 17 consists of conventional diesel commuter rail along the Middleborough Corridor. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 17, the following assumptions were made:

- Based on operating plan and preliminary operations analysis, double track of Old Colony Main Line required between South Station and Braintree Junction
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 82 and 81 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Old Colony Main Line: From South Station (MP 0.00) to Braintree Junction (MP 11.55), both single track sections would be eliminated. In Boston (MP 1.40 to MP 4.05), the existing cross section is two Red Line Ashmont Branch tracks, one Old Colony Main Line track, and two Red Line Braintree Branch tracks. This section would be reconstructed as three Red Line tracks and two Old Colony Main Line tracks. In Quincy and Braintree (MP 6.19 to MP 10.65), the existing cross section is one Old Colony Main Line track and two Red Line tracks. Between Holbrook Road and Adams Street, a second Old Colony Main Line track would be constructed on the west side of the right-of-way. Between Adams Street and Water Street, the Red Line would be placed in a tunnel, and three tracks provided on the service for the Old Colony Main Line. Between Water Street and Braintree Junction, a second Old Colony Main Line track would be constructed on the east side of the right-of-way. The work required and construction staging for this section are detailed in a memorandum titled "Preliminary Analysis of Old Colony Main Line Improvements".

This work would require reconstructing the existing commuter rail stations at JFK/UMass and Quincy Center. No work would be required at the station at Braintree.

Middleborough Line: Preliminary operations analysis shows that, in general, the sidings on the Middleborough Line are sufficient to support the desired headway. At the southern end of the line (MP 31.23 to MP 34.71), a second track would be constructed as part of a passing siding, the remainder of which would be along the Middleborough Secondary.

The existing station at Middleborough/Lakeville would be relocated, because it is located on the Buzzards Bay Secondary, south of the junction between the Middleborough Line, the Middleborough Secondary, and the Buzzards Bay Secondary. If the station were not relocated, a reverse move would be required.

Middleborough Secondary: Existing freight track would be upgraded to Class 5. The line would be mostly single track (MP 20.47 to MP 16.08), with the end near Middleborough Junction (MP 21.20 to MP 20.47) and the end near Cotley Junction (MP 16.08 to MP 13.30) having double track sections.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Cotley Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail stations at JFK/UMass, Quincy Center, and Middleborough/Lakeville would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls
- Triple-track sections in cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Middleborough Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Middleborough Line would not affect existing service to stations between Middleborough/Lakeville Station and South Station. The extension of the lines might require longer trains and/or trains with more bi-level coaches, which could present an operational problem at South Station, where Tracks 12 and 13 are not long enough to accommodate trains with more than six coaches.

Double-track on the Old Colony Main Line would be sufficient to provide service to New Bedford and Fall River via the Middleborough Line. Two tracks would not, however, provide enough capacity on the Old Colony Main Line to allow the addition of another branch to Wareham or Buzzards Bay in the future. The infrastructure needed to allow for future implementation of this service is described as part of Alternative 63. In addition, increasing the number of trains on the Middleborough Line might have a negative effect on reliability.

Construction Impacts

Old Colony Main Line: The construction of a second track on the Old Colony Main Line would be very complicated, causing disruption to Old Colony commuter rail service, Red Line rapid transit service, and local traffic in Quincy and Braintree. A high level of property acquisition would be required. The impacts of this segment are detailed in a memo titled "Preliminary Analysis of Old Colony Main Line Improvements".

Middleborough Secondary: Construction on the Middleborough Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to a few trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on existing embankments. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except

in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: The construction of a second track on the Old Colony Main Line through Quincy and Braintree is a challenging and complicated design and construction aspect to the project, requiring difficult construction and extensive staging. It is anticipated that the project could not be completed in four years.

Due to unacceptable construction impacts to the Old Colony Main Line and the Red Line, and the inability to reach completion within four years, this alternative was removed from further consideration. However, at the request of the Executive Office of Transportation, this alternative was carried through into the next phase of the project. The alternative was therefore further analyzed, as described below.

Operating Plan

The initial operating plan for Alternative 17 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. Some trains would be new service, while others would be extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

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Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 18

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 18. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 18 consists of conventional diesel commuter rail along the Middleborough Corridor with conversion of the Red Line Braintree Branch to commuter rail. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic. This alternative is equivalent to Alternative 17, with the exception of the work between Braintree Junction and South Station.

Assumptions

For Alternative 18, the following assumptions were made:

- Red Line Braintree Branch tracks between Braintree Station and Columbia Junction converted to commuter rail tracks
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 82 and 81 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Old Colony Main Line: From South Station (MP 0.00) to Braintree Junction (MP 11.55), the Old Colony Main Line would be upgraded to have three tracks. North of Columbia Junction, this would require widening, property acquisitions, and realignment of Red Line and freight tracks. Between Columbia Junction and Braintree Station, the Red Line Braintree Branch would be eliminated and replaced with two commuter rail tracks.

This work would require reconstructing the existing commuter rail stations at JFK/UMass, Quincy Center, and Braintree.

Middleborough Line: Preliminary operations analysis shows that, in general, the sidings on the Middleborough Line are sufficient to support the desired headway. At the southern end of the line (MP 31.23 to MP 34.71), a second track would be constructed as part of a passing siding, the remainder of which would be along the Middleborough Secondary.

The existing station at Middleborough/Lakeville would be relocated, because it is located on the Buzzards Bay Secondary, south of the junction between the Middleborough Line, the Middleborough Secondary, and the Buzzards Bay Secondary. If the station were not relocated, a reverse move would be required.

Middleborough Secondary: Existing freight track would be upgraded to Class 5. The line would be mostly single track (MP 20.47 to MP 16.08), with the end near Middleborough Junction (MP 21.20 to MP 20.47) and the end near Cotley Junction (MP 16.08 to MP 13.30) having double track sections.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Cotley Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail stations at JFK/UMass, Quincy Center, and Middleborough/Lakeville would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight, existing commuter, and existing rapid transit services. The existing freight services on the Middleborough Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Middleborough Line would not affect existing service to stations between Middleborough/Lakeville Station and South Station. The extension of the lines might require longer trains and/or trains with more bi-level coaches, which could present an operational problem at South Station, where Tracks 12 and 13 are not long enough to accommodate trains with more than six coaches.

Triple-track on the Old Colony Main Line would be sufficient to provide service to New Bedford and Fall River via the Middleborough Line and allow the addition of another branch to Wareham or Buzzards Bay in the future.

This alternative would replace an existing, high-frequency rapid transit service (Red Line Braintree Branch) with a low-frequency commuter rail service. This would be a very large reduction in the capacity of the transit system in Braintree and Quincy. Residents and commuters at Braintree and Quincy Center, who currently enjoy service throughout the day at a maximum headway of 15 minutes, would see service greatly reduced, especially during the off-peak periods. Residents and commuters at Quincy Adams, Wollaston, and North Quincy would see their service eliminated entirely.

Due to unacceptable reductions in the capacity and quality of the public transit system as a result of eliminating the Red Line Braintree Branch, this alternative was removed from further consideration.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Tier 1 Screening Process
Alternative 20

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 20. This memo corresponds to the Tier 1 Screening Process.

Alternative Description

Alternative 20 consists of bus rapid transit (BRT) along the Middleborough Corridor. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough/Lakeville Station, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Assumptions

For Alternative 20, the following assumptions were made:

- New 24-foot wide BRT roadway to be constructed adjacent to existing freight rail lines, in order to allow freight operations to continue
- All undergrade bridges to be new structures, adjacent to existing structures if applicable; existing freight rail bridges would not be modified
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Middleborough Line between Middleborough/Lakeville Station and South Station to accommodate Boston-bound riders
- The busway may terminate just outside urban centers like New Bedford and Fall River, allowing buses to travel on local streets and obviating the need for tremendously expensive busway structures in city centers
- Maximum speed of 55 mph on BRT lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Initial operating plan headways of 5 minutes on the trunk and 10 minutes on the branches in both directions during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 110 and 106 minutes, respectively. One transfer would be required at Middleborough/Lakeville Station. The reliability of

this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. BRT would not be subject to delays from traffic congestion except in areas where it would operate on city streets. The impact of these sections on travel time and reliability was assumed to be negligible.

Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Middleborough Line and 5 minute headways on the BRT line, service could be coordinated to arrive prior to each Middleborough Line train such that successive buses have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Middleborough Line could arrive on the BRT line at 7:25AM, 7:30AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Due to unacceptably long travel times, the need to transfer, and only medium reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 21

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 21. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 21 consists of diesel multiple unit (DMU) commuter rail along the Middleborough Corridor. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough/Lakeville Station, a new track bypass along I-495 in Middleborough, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Assumptions

For Alternative 21, the following assumptions were made:

- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Middleborough Line between Middleborough/Lakeville Station and South Station to accommodate Boston-bound riders
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction)
    - 24 trips in each direction during the peak two hours
- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours
- All trains travel the entire way from New Bedford or Fall River to Middleborough/Lakeville, so only one transfer is required for travel between Boston and the South Coast

Travel Time

Travel times from New Bedford and Fall River to Boston would be 101 and 99 minutes, respectively. One transfer would be required at Middleborough/Lakeville Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Middleborough Line and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Middleborough Line train such that successive DMU trains have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Middleborough Line could arrive on the DMU line at 7:25 AM, 7:30 AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Due to unacceptably long travel times, the need to transfer, and only medium reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 22

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 22. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 22 consists of diesel multiple unit (DMU) commuter rail along the Middleborough and Dartmouth Corridors. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough/Lakeville Station, a new track bypass along I-495 in Middleborough, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, the Fall River Secondary between Myricks Junction and downtown Fall River, and the Dartmouth Secondary between downtown New Bedford and the east side of Fall River. This routing is shown on an attached graphic. This alternative is equivalent to Alternative 22, with the addition of the Fall River – New Bedford line.

Assumptions

For Alternative 22, the following assumptions were made:

- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Middleborough Line between Middleborough/Lakeville Station and South Station to accommodate Boston-bound riders
- Due to topographic challenges, there would be two separate stations in Fall River, one on the west side of the city on the Fall River Secondary, and one on the east side of town on the Dartmouth Secondary
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction); design headway of 5 minutes on the Fall River – New Bedford line

  - 24 trips in each direction during the peak two hours

- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours; initial operating plan headway of 7.5 minutes on the Fall River – New Bedford line in both directions during the peak two hours
- All trains on the Fall River Secondary and New Bedford Secondary branches travel the entire way from New Bedford or Fall River to Middleborough/Lakeville, so only one transfer is required for travel between Boston and stations on these branches
- Trains on the Fall River – New Bedford Line travel only between Fall River and New Bedford; two transfers would be required to reach Boston from a station on this line, one in Middleborough/Lakeville and one in New Bedford

Travel Time

Travel times from New Bedford and Fall River to Boston would be 101 and 99 minutes, respectively. Travel time from New Bedford to Fall River would be 16 minutes. One transfer would be required at Middleborough/Lakeville Station, except for stations on the Fall River – New Bedford Line, from which two transfers would be required. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Middleborough Line and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Middleborough Line train such that successive DMU trains have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Middleborough Line could arrive on the DMU line at 7:25 AM, 7:30 AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM. The transfer time in New Bedford between the two DMU lines was assumed to be 5 minutes.

Due to unacceptably long travel times, the need to transfer, and only medium reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 30

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 30. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 30 consists of conventional diesel commuter rail along the Stoughton Corridor. This alternative includes the Northeast Corridor between South Station and Canton Junction, the Stoughton Line between Canton Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 30, the following assumptions were made:

- Trestle required through Hockomock Swamp
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 70 and 69 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated

for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Northeast Corridor: No improvements would be required.

Stoughton Line: A second track would be constructed from Canton Junction (MP 15.00) to Stoughton Station (MP 18.70). The line would continue as double track to a point just south of the Stoughton/Easton town line (MP 21.72). The remainder of the line south to Weir Junction would be single track, with a passing siding in Raynham (MP 28.72 to MP 32.13). It is assumed that north of Stoughton Station, existing bridges can be widened; south of Stoughton Station, new bridges are required.

Existing stations at Canton Center and Stoughton would be reconstructed with 800-foot full-length high-level platforms, replacing the existing low-level platforms with mini-highs. A frontage road would be constructed in part of Stoughton to eliminate grade crossings, and a new grade separation would be constructed at Route 138 in Raynham.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail stations in Canton Center and Stoughton would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls
- Single-track section on trestle

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart. Trestle was assumed to be required through the Hockomock Swamp.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail

coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the New Bedford Secondary and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Stoughton Line would not affect existing service to Canton Center or Stoughton. The addition of some new trains to the Northeast Corridor might present a restraint on the expansion of existing commuter and intercity services. However, since service could be implemented on this line by extending existing trains rather than adding new trains, these impacts would be smaller than the impacts of introducing an entirely new service. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

Construction Impacts

Stoughton Line: Construction hours on the Stoughton Line would be restricted north of Stoughton Station by existing commuter rail and freight service. South of Stoughton Station, construction would be simple, as it would entail only constructing tracks on an existing, abandoned railroad embankment. At the southern end of the line, in Taunton, there is infrequent freight service provided by Massachusetts Coastal Railroad that could interfere with construction occasionally. A low level of property acquisition would be required in Raynham, where parts of the right-of-way are under private ownership, and in the vicinity of Route 138, where a grade separation would be constructed.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Because there is an existing embankment through the swamp, it is anticipated that construction work could proceed along the embankment from both ends, without disturbing the wetlands except in areas of bridges and culverts.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 30 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be new service, not extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 31

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 31. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 31 consists of bus rapid transit (BRT) along the Stoughton Corridor. This alternative includes the Northeast Corridor between South Station and Canton Junction, the Stoughton Line between Canton Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 31, the following assumptions were made:

- Two-lane viaduct required through Hockomock Swamp
- New 24-foot wide BRT roadway to be constructed adjacent to existing freight rail lines, in order to continue to allow freight operations
- New 24-foot wide BRT roadway to be constructed on existing abandoned railroad embankment without provision for restoration of rail line
- All undergrade bridges to be new structures, adjacent to existing structures if applicable; existing freight rail bridges would not be modified
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Stoughton Line between Stoughton Station and South Station to accommodate Boston-bound riders
- The busway may terminate outside urban centers like New Bedford and Fall River, allowing buses to travel on local streets and obviating the need for tremendously expensive busway structures in city centers
- Maximum speed of 55 mph on BRT lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Initial operating plan headways of 5 minutes on the trunk and 10 minutes on the branches in both directions during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 101 and 98 minutes, respectively. One transfer would be required at Stoughton Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. BRT would not be subject to delays from traffic congestion except in areas where it would operate on city streets. The impact of these sections on travel time and reliability was assumed to be negligible.

Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Stoughton Line and 5 minute headways on the BRT line, service could be coordinated to arrive prior to each Stoughton Line train such that successive buses have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Stoughton Line could arrive on the BRT line at 7:25AM, 7:30AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Due to unacceptably long travel times, the need to transfer, and only medium reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Tier 1 Screening Process
Alternative 32

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 32. This memo corresponds to the Tier 1 Screening Process.

Alternative Description

Alternative 32 consists of diesel multiple unit (DMU) commuter rail along the Stoughton Corridor. This alternative includes the Northeast Corridor between South Station and Canton Junction, the Stoughton Line between Canton Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 32, the following assumptions were made:

- Trestle required through Hockomock Swamp
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Stoughton Line between Stoughton Station and South Station to accommodate Boston-bound riders
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction)
    - 24 trips in each direction during the peak two hours
- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours
- All trains travel the entire way from New Bedford or Fall River to Stoughton, so only one transfer is required for travel between Boston and the South Coast

Travel Time

Travel times from New Bedford and Fall River to Boston would be 90 and 88 minutes, respectively. One transfer would be required at Stoughton Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Stoughton Line and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Stoughton Line train such that successive DMU trains have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Stoughton Line could arrive on the DMU line at 7:25 AM, 7:30 AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Conceptual Layout

Northeast Corridor: No improvements are required.

Stoughton Line: The DMU line would be constructed as double-track for the entire length from Stoughton Station (MP 18.70) to Weir Junction (MP 35.40). It is assumed that south of Stoughton Station, new bridges are required.

A new DMU platform would be constructed south of Brock Street to service both DMU tracks. A covered walkway would connect the DMU platform to the existing station, a distance of approximately 1250 feet. The separate DMU track would be necessary due to the high frequency of service on the DMU line. A frontage road would be constructed in part of Stoughton to eliminate grade crossings, and a new grade separation would be constructed at Route 138 in Raynham.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station in Stoughton would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the DMU lines. Overnight layover facilities would be constructed at undetermined locations in Stoughton, Fall River, and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls
- Double-track section on trestle

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart. Trestle was assumed to be required through the Hockomock Swamp.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the New Bedford Secondary and Fall River Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the New Bedford Secondary would allow some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Stoughton Line would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Construction Impacts

Stoughton Line: Construction hours on the Stoughton Line would be at Stoughton Station by existing commuter rail and freight service. South of Stoughton Station, construction would be simple, as it would entail only constructing tracks on an existing, abandoned railroad embankment. At the southern end of the line, in Taunton, there is infrequent freight service provided by Massachusetts Coastal Railroad that could interfere with construction occasionally. A low level of property acquisition would be required in Raynham, where parts of the right-of-way are under private ownership, and in the vicinity of Route 138, where a grade separation would be constructed.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Because there is an existing embankment through the swamp, it is anticipated that construction work could proceed along the embankment from both ends, without disturbing the wetlands except in areas of bridges and culverts. The need for two tracks on the trestle would represent a significantly larger impact to the swamp than the single track required by conventional commuter rail or electric commuter rail.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 32 was assumed to be 15 minute peak headways on the branches, resulting in 7.5 minute headways on the trunk. This provides eight peak period trips to

each terminal. It was assumed that trains would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three single-deck coaches per train, is 4,416 passengers in the peak direction during the peak two hours.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 33

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 33. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 33 consists of diesel multiple unit commuter (DMU) rail along the Stoughton and Dartmouth Corridors. This alternative includes the Northeast Corridor between South Station and Canton Junction, the Stoughton Line between Canton Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, the Fall River Secondary between Myricks Junction and downtown Fall River, and the Dartmouth Secondary between downtown New Bedford and the east side of Fall River. This routing is shown on an attached graphic. This alternative is equivalent to Alternative 32, with the addition of the Fall River – New Bedford line.

Design Assumptions

For Alternative 33, the following assumptions were made:

- Trestle required through Hockomock Swamp
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- No additional trains provided on the Stoughton Line between Stoughton Station and South Station to accommodate Boston-bound riders
- Due to topographic challenges, there would be two separate stations in Fall River, one on the west side of the city on the Fall River Secondary, and one on the east side of town on the Dartmouth Secondary
- Maximum speed of 70 mph on new lines; travel times on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Design headways of 5 minutes on the trunk (north of Myricks Junction) and 10 minutes on the branches (south of Myricks Junction); design headway of 5 minutes on the Fall River – New Bedford line
    - 24 trips in each direction during the peak two hours

- Initial operating plan headways of 7.5 minutes on the trunk and 15 minutes on the branches in the peak direction during the peak two hours; initial operating plan headway of 7.5 minutes on the Fall River – New Bedford line in both directions during the peak two hours
- All trains on the Fall River Secondary and New Bedford Secondary branches travel the entire way from New Bedford or Fall River to Stoughton, so only one transfer is required for travel between Boston and stations on these branches
- Trains on the Fall River – New Bedford Line travel only between Fall River and New Bedford; two transfers would be required to reach Boston from a station on this line, one in Stoughton and one in New Bedford

Travel Time

Travel times from New Bedford and Fall River to Boston would be 90 and 88 minutes, respectively. Travel time from New Bedford to Fall River would be 16 minutes. One transfer would be required at Stoughton Station. The reliability of this alternative would be medium, because although commuter rail is not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 17.5 minutes, based on the difference between the average headways of the two services. Assuming 40 minute headways on the Stoughton Line and 5 minute headways on the DMU line, service could be coordinated to arrive prior to each Stoughton Line train such that successive DMU trains have transfer times of 35, 30, 25, 20, 15, 10, 5, and 0 minutes. The average of these values is 17.5 minutes. For example, passengers taking an 8:00AM train on the Stoughton Line could arrive on the DMU line at 7:25 AM, 7:30 AM, 7:35AM, 7:40AM, 7:45AM, 7:50AM, 7:55AM, or 8:00AM.

Conceptual Layout

Northeast Corridor: No improvements are required.

Stoughton Line: The DMU line would be constructed as double-track for the entire length from Stoughton Station (MP 18.70) to Weir Junction (MP 35.40). It is assumed that south of Stoughton Station, new bridges are required.

A new DMU platform would be constructed south of Brock Street to service both DMU tracks. A covered walkway would connect the DMU platform to the existing station, a distance of approximately 1250 feet. The separate DMU track would be necessary due to the high frequency of service on the DMU line. A frontage road would be constructed in part of Stoughton to eliminate grade crossings, and a new grade separation would be constructed at Route 138 in Raynham.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 8.12 to MP 11.11).

Dartmouth Secondary: Existing freight track would be upgraded to Class 5. The abandoned portion of the line between Westport and Fall River would be restored. The line would entirely double track between the New Bedford Secondary (MP 0.00) and Route 24 in Fall River (MP 11.48). The remainder of the line in Fall River (MP 11.48 to MP 12.45) would be single track, in order to minimize the impact to the Quequechan River and downtown Fall River.

Station Locations: New commuter rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), Fall River (2, one on west side and one on east side), Dartmouth (1), and Westport (1). The existing commuter rail stations in Canton Center and Stoughton would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the DMU lines. Overnight layover facilities would be constructed at undetermined locations in Stoughton, Fall River, and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls
- Double-track section on trestle

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart. Trestle was assumed to be required through the Hockomock Swamp.

Compatibility with Existing Infrastructure

This alternative would be mostly compatible with existing infrastructure. It would be a new mode on the MBTA's system, but the operation and maintenance of DMU trains would be similar to that of the diesel trains currently operating on the system. Therefore, there would be a considerable volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required and some equipment specific to DMU vehicles might be needed. Crews working on the existing commuter rail system would probably be qualified to work on the new lines, with only minor training. It would use existing transportation corridors.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the New Bedford Secondary, Fall River Secondary, and Dartmouth Secondary are small in scope, but DMU service would operate at relatively high frequency. The provision of a second track on the New Bedford Secondary and the Dartmouth Secondary would allow some operational flexibility for freight, but it would still be more difficult to schedule freight operations with DMU service than with conventional commuter rail.

Impacts to existing commuter rail trains on the Stoughton Line would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Construction Impacts

Stoughton Line: Construction hours on the Stoughton Line would be at Stoughton Station by existing commuter rail and freight service. South of Stoughton Station, construction would be simple, as it would entail only constructing tracks on an existing, abandoned railroad embankment. At the southern end of the line, in Taunton, there is infrequent freight service provided by Massachusetts Coastal Railroad that could interfere with construction occasionally. A low level of property acquisition would be required in Raynham, where parts of the right-of-way are under private ownership, and in the vicinity of Route 138, where a grade separation would be constructed.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Because there is an existing embankment through the swamp, it is anticipated that construction work could proceed

along the embankment from both ends, without disturbing the wetlands except in areas of bridges and culverts. The need for two tracks on the trestle would represent a significantly larger impact to the swamp than the single track required by conventional commuter rail or electric commuter rail.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. The impacts would be greater than for conventional commuter rail because of the need to provide additional siding areas. Property acquisition would not be needed.

Dartmouth Secondary: Construction on the Dartmouth Secondary would be relatively simple. Massachusetts Coastal Railroad runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources might be considerable, because of the need for two tracks, and the proximity of the route in Fall River to South Watuppa Pond and the Quequechan River. A moderate level of property acquisition would be needed to restore the right-of-way through Westport and Fall River.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 33 was assumed to be 15 minute peak headways on the Fall River Secondary and New Bedford Secondary branches, resulting in 7.5 minute headways on the trunk. Headways of 7.5 minutes were assumed on the Fall River – New Bedford line. This provides eight peak period trips between Stoughton and each terminal and 16 peak period trips on the Fall River – New Bedford Line. It was assumed that trains would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three single-deck coaches per train, is 4,416 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 34

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 34. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 34 consists of electric commuter rail along the Stoughton Corridor. This alternative includes the Northeast Corridor between South Station and Canton Junction, the Stoughton Line between Canton Junction and Weir Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 34, the following assumptions were made:

- All track south of Canton Junction reconstructed to Class 7
- Trestle required through Hockomock Swamp
- All existing freight track replaced with Class 7 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 110 mph on new lines; travel times on Northeast Corridor north of Route 128 Station per Amtrak schedules for trains stopping at Route 128 Station and Back Bay Station, as of February 2008; travel times on Northeast Corridor south of Route 128 Station limited by maximum speed, track geometry, and station stops only
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 51 and 52 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Conceptual Layout

Northeast Corridor: No track improvements would be required. Catenary wire would be strung along Track 3 between Tower 1 interlocking (MP 228.50) and Readville (MP 219.00). The overhead supports required are in place along this section; all that would be needed is the wire and any necessary power infrastructure.

Stoughton Line: Existing commuter rail track would be upgraded to Class 7. The line would be double track from Canton Junction (MP 15.00) to just south of the Stoughton/Easton town line (MP 21.72). The remainder of the line south to Weir Junction would be single track, with a passing siding in Raynham (MP 28.72 to MP 32.13). It is assumed that north of Stoughton Station, existing bridges can be widened; south of Stoughton Station, new bridges are required. New catenary supports, wires, and electric substations would be constructed along the length of the line.

Existing stations at Canton Center and Stoughton would be reconstructed with 800-foot full-length high-level platforms, replacing the existing low-level platforms with mini-highs. A frontage road would be constructed in part of Stoughton to eliminate grade crossings, and a new grade separation would be constructed at Route 138 in Raynham.

New Bedford Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for the entire length between Weir Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations. New catenary supports, wires, and electric substations would be constructed along the length of the line.

Fall River Secondary: Existing freight track would be upgraded to Class 7. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with a passing siding in Fall River (MP 9.56 to MP 11.11). New catenary supports, wires, and electric substations would be constructed along the length of the line.

Station Locations: New commuter rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail stations in Canton Center and Stoughton would be reconstructed.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls
- Single-track section on trestle

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart. Trestle was assumed to be required through the Hockomock Swamp.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a moderate volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. However, the MBTA does not currently operate electric trains, so there would be some

knowledge gap. Existing layovers and maintenance facilities are designed for diesel engines, though it assumed a maintenance agreement could be reached with Amtrak, which has an appropriate facility, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches, with some training.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the New Bedford Secondary and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Stoughton Line would not affect existing service to Canton Center or Stoughton. The addition of some new trains to the Northeast Corridor might present a restraint on the expansion of existing commuter and intercity services. However, since service could be implemented on this line by extending existing trains rather than adding new trains, these impacts would be smaller than the impacts of introducing an entirely new service. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

The use of electric trains on the Northeast Corridor would be beneficial, because it would allow the MBTA and Amtrak to operate at less disparate speeds. This would decrease the need for a large but useless gap opening up between an Amtrak train and a following MBTA train, or a large but useless gap closing up between an MBTA train and a following Amtrak train. This would improve the utilization of existing capacity on the corridor.

Construction Impacts

Stoughton Line: Construction hours on the Stoughton Line would be restricted north of Stoughton Station by existing commuter rail and freight service. South of Stoughton Station, construction would be simple, as it would entail only constructing tracks on an existing, abandoned railroad embankment. At the southern end of the line, in Taunton, there is infrequent freight service provided by Massachusetts Coastal Railroad that could interfere with construction occasionally. A low level of property acquisition would be required in Raynham, where parts of the right-of-way are under private ownership, and in the vicinity of Route 138, where a grade separation would be constructed.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Because there is an existing embankment through the swamp, it is anticipated that construction work could proceed along the embankment from both ends, without disturbing the wetlands except in areas of bridges and culverts.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: The need to design and construct electrification infrastructure might represent a challenging or complicated aspect to the project, making it more difficult to complete the project in four years.

Operating Plan

The initial operating plan for Alternative 34 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be new service, not extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 37

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 37. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 37 consists of monorail service from Fall River/New Bedford to Boston along the Route 24/140 and I-93 corridors. This alternative includes the construction of a monorail with two branches. One branch would start in New Bedford and follow the Route 140 corridor north to Taunton, where it would merge with the other branch, beginning in Fall River and following the Route 24 corridor. From Taunton, the monorail line would follow Route 24 north to Route 128. It would then turn east, following Route 128 to the Braintree Split. It would then roughly follow the I-93 corridor north to Boston, terminating in the vicinity of South Station. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 37, the following assumptions were made:

- The monorail infrastructure will be mostly self contained, and will require little to no reconstruction of existing highway or rail infrastructure
- Monorail will be of the "straddle" type
- Preference will be to construct the monorail guideway at grade where possible along the Route 24 and 128 corridors
- Elevated guideway will be required where crossing wetland areas, intersecting highways, and traversing areas of dense development
- Maximum speed of 50 mph on monorail lines
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 73 and 65 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because monorail trains are not subject to delays from traffic congestion.

Conceptual Layout

Route 140: Monorail guideway would be located in the existing grass median along Route 140 from New Bedford to Taunton and the intersection of Routes 140 and 24. Guideway would be at-grade except at overpasses and interchanges, where it would be elevated above the intersecting road. This would require approach sections of considerable length.

Route 24: Monorail guideway would be located along the northbound shoulder of Route 24. No widening of Route 24 would take place, and the monorail guideway would be constructed at-grade except in the vicinity of interchanges, overpasses, and wetlands. At overpasses and interchanges, the guideway would be elevated above the intersecting road. This would require approach sections of considerable length. At wetlands, the guideway would be on a low viaduct, to minimize impacts to the resource.

Route 128: Monorail guideway would be constructed along the existing grass median. Since most intersecting roads cross Route 128 below grade, it is assumed that nearly all of the monorail guideway could be constructed at grade.

Braintree to Boston: Beginning at a point just west of the Braintree Split (Route 3/128/93 Interchange), the monorail guideway would become elevated and cross over Route 128 NB/I-93 SB. It would then follow the southbound shoulder of I-93 north to approximately Robertson Street in West Quincy. Between Robertson Street and Squantum Street, the guideway would cross the southbound lanes of I-93 and follow an existing concrete median. North of Squantum Street, the monorail guideway would cross the northbound lanes and then follow the northbound shoulder, crossing the Neponset River. At Interchange 14, the guideway would turn northeast, and follow Morrissey Boulevard north to the JFK/UMass MBTA station. It would then follow the MBTA rail corridor north to where the rail corridor abuts the east side of the I-93 corridor, and follow the northbound shoulder and Frontage Road until reaching Widett Circle in South Boston. The guideway would then turn east, roughly following Widett Circle, and cross over the MBTA/Amtrak train yards before turning north, crossing Dorchester Avenue and terminating along the Fort Point Channel across from South Station. This entire section would be elevated.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility, to be located somewhere along the line. Overnight layover facilities would be constructed at undetermined locations in Boston, Fall River, and New Bedford.

Station Locations: New monorail stations would be constructed in Boston (1), Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1).

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Guideway at-grade in median
- Elevated guideway in median
- Guideway at-grade in shoulder
- Elevated guideway in shoulder
- Elevated guideway in shoulder at bridge

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would be incompatible with existing infrastructure. It would be the only monorail in operation in the northeastern United States. There would be no institutional knowledge about the construction, operation, and maintenance of this alternative. New layovers and maintenance facilities would be needed throughout the system. Crews working on the public transit system would be not qualified to work on the new service. All infrastructure, vehicles, and equipment would be custom-ordered, driving up the expense.

This alternative would require a new guideway within existing transportation corridors. Monorail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Because the monorail does not directly interchange with any other modes of transportation (road or rail), the impacts to the existing transportation network would be minimal. However, the monorail would use part of the existing right-of-way on Route 24, limiting future expansion of that roadway. The Route 24 corridor has heavy development abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Construction Impacts

Route 140: Construction impacts on this portion are assumed to be minimal. The existing median is wide enough to accommodate the construction of the guideway without disrupting traffic along the highway. Traffic management would be required at bridges and interchanges where the guideway crosses above an existing overpass. No property acquisition would be required.

Route 24: Construction impacts along Route 24 would likely be confined to interchanges and bridges, as well as wetland crossings. Because the monorail would be located in the shoulder of the highway, it would cross many interchange ramps and cross above the existing bridges and intersecting roads. This would likely require traffic management as well as temporary closure or relocation of ramps at interchanges. No property acquisition would be required.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Through any wetland area, the guideway would be elevated on piers. Depending on the existing side slopes along the roadway, it is likely that these piers can be placed in areas of existing fill, minimizing impact to the wetland area.

Route 128: Because Route 128 has an existing grass median, construction impacts would likely be minimal. However, the need for construction access the median would still result in some traffic management impacts to the roadway, especially during off-peak travel hours. No property acquisition would be required.

Braintree to Boston: Construction impacts along this portion are extremely large. Portions of the corridor contain heavy residential development, which would limit night-time construction. In addition, I-93 travels through a very narrow right-of-way, making impacts to the normal operation of the road likely during construction. Constructing portions of the guideway that would travel in the median of I-93 would also impact the operation of the HOV zipper lane. Around the Neponset River crossing, the guideway must to be constructed through wetland areas. North of the JFK/UMass MBTA station, available right-of-way is very narrow or not available at all. Significant property impacts would be required in order to bring the guideway to South Station.

Construction Time Frame: The need to design and construct a monorail system of this length, which would be by far the longest in the world, represents a challenging and complicated aspect to the project. It is anticipated that the project could not be completed in four years.

Due to unacceptable impacts on the Braintree to Boston section and the inability to reach completion within four years, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 38

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 38. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 38 consists of monorail service from Fall River/New Bedford to Quincy Adams Station along the Route 24/140 and Route 128 corridors. This alternative includes the construction of a monorail with two branches. One branch would start in New Bedford and follow the Route 140 corridor north to Taunton, where it would merge with the other branch, beginning in Fall River and following the Route 24 corridor. From Taunton, the monorail line would follow Route 24 north to Route 128. It would then turn east, following Route 128 to the Braintree Split. At the Braintree Split, it would cross over existing roads and rails and terminate at Quincy Adams Station on the Red Line, where passengers would transfer to the rapid transit system to reach Boston. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 38, the following assumptions were made:

- The monorail infrastructure will be mostly self contained, and will require little to no reconstruction of existing highway or rail infrastructure
- Monorail will be of the "straddle" type
- Preference will be to construct the monorail guideway at grade where possible along the Route 24 and 128 corridors
- Elevated guideway will be required where crossing wetland areas, intersecting highways, and traversing areas of dense development
- Maximum speed of 50 mph on monorail lines; travel times on existing lines per MBTA schedules as of February 2008
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 92 and 84 minutes, respectively. One transfer would be required at Quincy Adams Station. The reliability of this alternative would be medium, because although heavy rail and monorail are not subject to delays from traffic

congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 4.5 minutes, half of the peak period headway on the Red Line as of February 2008.

Conceptual Layout

Route 140: Monorail guideway would be located in the existing grass median along Route 140 from New Bedford to Taunton and the intersection of Routes 140 and 24. Guideway would be at-grade except at overpasses and interchanges, where it would be elevated above the intersecting road. This would require approach sections of considerable length.

Route 24: Monorail guideway would be located along the northbound shoulder of Route 24. No widening of Route 24 would take place, and the monorail guideway would be constructed at-grade except in the vicinity of interchanges, overpasses, and wetlands. At overpasses and interchanges, the guideway would be elevated above the intersecting road. This would require approach sections of considerable length. At wetlands, the guideway would be on a low viaduct, to minimize impacts to the resource.

Route 128: Monorail guideway would be constructed along the existing grass median. Since most intersecting roads cross Route 128 below grade, it is assumed that nearly all of the monorail guideway could be constructed at grade.

Braintree Split to Quincy Adams Station: Beginning at a point west of the Braintree Split (Route 3/128/93 Interchange), the monorail guideway would become elevated and cross over the Braintree Split ramps. It would remain elevated as it crossed the complicated Exits 18-19 ramps on Route 3, traversing to the north side of Route 3. It would cross over the existing rail tracks and terminate at a station located above the existing commuter rail and Red Line tracks, abutting Quincy Adams Station. This entire section would be elevated.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility, to be located somewhere along the line. Overnight layover facilities would be constructed at undetermined locations in Quincy or Braintree, Fall River, and New Bedford.

Station Locations: New monorail stations would be constructed in Quincy (1), Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1).

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Guideway at-grade in median
- Elevated guideway in median
- Guideway at-grade in shoulder
- Elevated guideway in shoulder
- Elevated guideway in shoulder at bridge

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would be incompatible with existing infrastructure. It would be the only monorail in operation in the northeastern United States. There would be no institutional knowledge about the construction, operation, and maintenance of this alternative. New layovers and maintenance facilities would be needed throughout the system. Crews working on the public transit system

would be not qualified to work on the new service. All infrastructure, vehicles, and equipment would be custom-ordered, driving up the expense.

This alternative would require a new guideway within existing transportation corridors. Monorail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Because the monorail does not directly interchange with any other modes of transportation (road or rail), the impacts to the existing transportation network would be minimal. However, the monorail would use part of the existing right-of-way on Route 24, limiting future expansion of that roadway. The Route 24 corridor has heavy development abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Impacts to the existing transportation system would also include effects on existing rapid transit services. The volume of passengers transferring to the Red Line would be large, likely leading to chronic overcrowding north of Quincy Adams Station. This would also cause a decline in reliability and deterioration of quality of service.

Construction Impacts

Route 140: Construction impacts on this portion are assumed to be minimal. The existing median is wide enough to accommodate the construction of the guideway without disrupting traffic along the highway. Traffic management would be required at bridges and interchanges where the guideway crosses above an existing overpass. No property acquisition would be required.

Route 24: Construction impacts along Route 24 would likely be confined to interchanges and bridges, as well as wetland crossings. Because the monorail would be located in the shoulder of the highway, it would cross many interchange ramps and cross above the existing bridges and intersecting roads. This would likely require traffic management as well as temporary closure or relocation of ramps at interchanges. No property acquisition would be required.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Through any wetland area, the guideway would be elevated on piers. Depending on the existing side slopes along the roadway, it is likely that these piers can be placed in areas of existing fill, minimizing impact to the wetland area.

Route 128: Because Route 128 has an existing grass median, construction impacts would likely be minimal. However, the need for construction access the median would still result in some traffic management impacts to the roadway, especially during off-peak travel hours. No property acquisition would be required.

Braintree Split to Quincy Adams Station: Construction impacts along this portion would be significant. The need to erect an elevated monorail above the many crisscrossing ramps, rail lines, and rapid transit lines would require temporary closure of roadways and rail lines for safety during overnight hours. The volumes on these roadways are large at all times of the day, and closures would cause significant delays to the traveling public.

Construction Time Frame: The need to design and construct a monorail system of this length, which would be by far the longest in the world, represents a challenging and complicated aspect to the project. It is anticipated that the project could not be completed in four years.

Due to unacceptable impacts on the Braintree Split to Quincy Adams Section, unacceptable impacts to the Red Line, and the inability to reach completion within four years, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 39

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 39. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 39 consists of monorail service from Fall River/New Bedford to Route 128 Station along the Route 24/140 and Route 128 corridors. This alternative includes the construction of a monorail with two branches. One branch would start in New Bedford and follow the Route 140 corridor north to Taunton, where it would merge with the other branch, beginning in Fall River and following the Route 24 corridor. From Taunton, the monorail line would follow Route 24 north to Route 128. It would then turn west, following Route 128 towards I-95 in Canton and Westwood. After the I-95 interchange, it would cross over existing roads and rails and terminate at Route 128 Station on the Northeast Corridor, where passengers would transfer to the commuter rail system to reach Boston. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 39, the following assumptions were made:

- The monorail infrastructure will be mostly self contained, and will require little to no reconstruction of existing highway or rail infrastructure
- Monorail will be of the "straddle" type
- Preference will be to construct the monorail guideway at grade where possible along the Route 24 and 128 corridors
- Elevated guideway will be required where crossing wetland areas, intersecting highways, and traversing areas of dense development
- No additional trains provided on the Northeast Corridor between Route 128 Station and South Station to accommodate Boston-bound riders
- Maximum speed of 50 mph on monorail lines; travel times on existing lines per MBTA schedules as of February 2008
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 86 and 78 minutes, respectively. One transfer would be required at Route 128 Station. The reliability of this alternative would be medium, because although commuter rail and monorail are not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 5 minutes, because arrivals of monorail trains at Route 128 Station could be coordinated with arrivals of commuter rail trains.

Conceptual Layout

Route 140: Monorail guideway would be located in the existing grass median along Route 140 from New Bedford to Taunton and the intersection of Routes 140 and 24. Guideway would be at-grade except at overpasses and interchanges, where it would be elevated above the intersecting road. This would require approach sections of considerable length.

Route 24: Monorail guideway would be located along the northbound shoulder of Route 24. No widening of Route 24 would take place, and the monorail guideway would be constructed at-grade except in the vicinity of interchanges, overpasses, and wetlands. At overpasses and interchanges, the guideway would be elevated above the intersecting road. This would require approach sections of considerable length. At wetlands, the guideway would be on a low viaduct, to minimize impacts to the resource.

Route 128: Monorail guideway would be constructed along the existing median. Since most intersecting roads cross Route 128 above grade, it is assumed that nearly all of the monorail guideway would be constructed on a viaduct. Bridges on this section are closely spaced, and it would not be practical to descend to an at-grade section before rising again for the next bridge.

Route 128 Station: At a point north of the I-95 Interchange, the monorail would cross over the southbound roadway of Route 128. It would cross over the existing rail tracks and terminate at a station located above the existing commuter rail tracks, abutting Route 128 Station.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility, to be located somewhere along the line. Overnight layover facilities would be constructed at undetermined locations in Westwood, Fall River, and New Bedford.

Station Locations: New monorail stations would be constructed in Westwood (1), Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1).

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Guideway at-grade in median
- Elevated guideway in median
- Guideway at-grade in shoulder
- Elevated guideway in shoulder
- Elevated guideway in shoulder at bridge

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would be incompatible with existing infrastructure. It would be the only monorail in operation in the northeastern United States. There would be no institutional knowledge about the construction, operation, and maintenance of this alternative. New layovers and maintenance facilities would be needed throughout the system. Crews working on the public transit system would be not qualified to work on the new service. All infrastructure, vehicles, and equipment would be custom-ordered, driving up the expense.

This alternative would require a new guideway within existing transportation corridors. Monorail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Because the monorail does not directly interchange with any other modes of transportation (road or rail), the impacts to the existing transportation network would be minimal. However, the monorail would use part of the existing right-of-way on Route 24, limiting future expansion of that roadway. The Route 24 corridor has heavy development abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Impacts to the existing transportation system would also include effects on existing commuter services. Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Construction Impacts

Route 140: Construction impacts on this portion are assumed to be minimal. The existing median is wide enough to accommodate the construction of the guideway without disrupting traffic along the highway. Traffic management would be required at bridges and interchanges where the guideway crosses above an existing overpass. No property acquisition would be required.

Route 24: Construction impacts along Route 24 would likely be confined to interchanges and bridges, as well as wetland crossings. Because the monorail would be located in the shoulder of the highway, it would cross many interchange ramps and cross above the existing bridges and intersecting roads. This would likely require traffic management as well as temporary closure or relocation of ramps at interchanges. No property acquisition would be required.

Construction within the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), would require additional caution, so as not to negatively affect the resource. Through any wetland area, the guideway would be elevated on piers. Depending on the existing side slopes along the roadway, it is likely that these piers can be placed in areas of existing fill, minimizing impact to the wetland area.

Route 128: Because Route 128 has an existing grass median, construction impacts would likely be minimal. However, the need for construction access the median and the need to erect an elevated structure in between the northbound and southbound roadways would result in considerable traffic management impacts to the roadway, especially during off-peak travel hours. No property acquisition would be required.

Route 128 Station: Construction impacts along this portion would be significant. The need to erect an elevated monorail above the highway and rail lines would require temporary closure of roadways and rail lines for safety during overnight hours. The volumes on these roadways are large at all times of the day, and closures would cause significant delays to the traveling public.

Construction Time Frame: The need to design and construct a monorail system of this length, which would be by far the longest in the world, represents a challenging and complicated aspect to the project. It is anticipated that the project could not be completed in four years.

Due to unacceptable impacts near Route 128 Section and the inability to reach completion within four years, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 40

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 40. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 40 consists of conventional diesel commuter rail along the Route 24 Corridor. This alternative includes the Northeast Corridor between South Station and Route 128 Station, new track along the Route 128 and Route 24 Corridors between Route 128 Station and Taunton, the New Bedford Secondary between Taunton and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 40, the following assumptions were made:

- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- On Route 128 and Route 24, tracks to be constructed adjacent to roadway in order to avoid need to reconstruct entire length of roadway
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 60 and 59 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Conceptual Layout

General: Commuter Rail design criteria limits vertical grades to 1.5%. The grades along the highways of this conceptual route vary up to approximately 4%. In areas where grades differ the commuter rail can be elevated using concrete columns, trench, lowered embankment, or a raised embankment. Construction in the median will require a new closed drainage system on both sides of the median to catch rainwater from the highway and tracks. Construction on one side of the highway will require a single store drain system. Storm water treatment systems will be required to meet current storm water discharge standards. For construction in the median a jersey style concrete barrier is included on both sides of the median to protect errant vehicles from getting onto the tracks. Track construction on one side of the highway will require a single row of barriers.

Northeast Corridor: From Readville (MP 219.00) to Route 128 Station (MP 217.48) a third track would be constructed. Catenary supports and wire would not be constructed for this track, but modifications to the existing supports may be required. It is assumed that existing bridges can be widened. No modifications to existing Route 128 Stationhouse would be required. The existing east platform would be widened with a new track placed on the east side of the widened platform.

Route 128: A new single-track Class 5 section would be constructed within the median from the east side of I-95 to Route 24. In this area, the median is preferred due to ACEC areas on the southern side of Route 128. On the north side the land adjacent to Route 128 is developed and constructing track on the north side would require the track to crossover the northbound lanes of Route 128 twice. The existing lanes would be shifted out to widen the median for the tracks. East of I-95 the proposed tracks cross under the southbound lanes of Route 128 and diverge from Route 128. After crossing I-95 the tracks curve to the north and becoming parallel to the Northeast Corridor tracks at the Route 128 Station. The proposed tracks would be elevated to cross I-95 and the ACEC areas to the east of the Route 128 station. Interchanges and bridges would be reconstructed.

Route 24: A new single track with sidings Class 5 line would be constructed along west side for the majority of the right-of-way. Just south of Interchange 20 the track goes from the west side of Route 24 under the southbound lanes to the median to avoid ACEC areas southwest of the Route 24 and Route 128 interchange. The track along Route 24 would connect to the northern leg of the Cotley junction. On the west side of Route 24 before this leg of the junction goes under Route 24, a turnout would direct the tracks along the west side of Route 24. The existing roadway would not be modified where the tracks are located on the west side. Interchanges would not be reconstructed other than new bridges in on/off ramps and the intersecting roadway. The profile of the tracks would go under or over the on/off ramps depending on existing interchange configuration. At the I-495 interchange the track was shifted from the West side of Route 24 to the median to utilized the wide median at the interchange. Running the Tracks around this interchange would have required multiple curves to avoid ramps, rest areas and right-of-way impacts.

Passing Sidings: Three passing sidings approximately 10,000 feet long would be located within the 29 mile stretch from the Cotley Junction to the Route 128 Station. The siding are located adjacent to the Route 128/Route 24 interchange; between the Route 140/Route 24 intersection and the Taunton River; and between Interchange 16 (Route 106) and Interchange 17 (Route 123).

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Route 24 in Taunton and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). No existing commuter rail stations would be reconstructed, but a platform would be added for the new track at Route 128 Station.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

However, this alternative would require a new guideway within existing transportation corridors. Heavy rail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing freight and existing commuter services. The existing freight services on the New Bedford Secondary and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of an entirely new service to the Northeast Corridor would present a significant restraint on the expansion of existing commuter and intercity services. This would be alleviated by the construction of the third track from Route 128 Station to Readville, where preliminary operations analysis shows there is not enough capacity for the trains that would be added by this alternative. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

Constructing a transit facility along Route 24 would limit future expansion of the highway by consuming a significant portion of the right-of-way. The Route 24 corridor has heavy development

abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated for several reasons. The section requiring a third track passes through extensive wetlands associated with the Neponset River. Much of this area is part of the Fowl Meadow and Ponkapoag Bog Area of Critical Environmental Concern (ACEC). It is likely that constructing a third track would require filling of wetlands in this area. A low level of property acquisition would be needed at the connection point to the new branch.

The Northeast Corridor is one of the busiest rail lines in Massachusetts. Construction along this route would need to be scheduled to minimize disruption to existing services. For example, night work might be required for modifications to the electrification system. Work during operating hours would be restricted, lengthening the construction schedule.

Route 128: Construction along the Route 128 right-of-way would impact traffic because of the need to reconstruct interchanges and bridges. Work hours at these locations would likely be restricted so as not to cause traffic congestion during peak hours. Even with retaining walls, environmental impacts could be considerable. Property acquisition might be required at interchanges.

Route 24: Construction along the Route 24 right-of-way would impact traffic because of the need to reconstruct roadway, interchanges and bridges. Work hours at these locations would likely be restricted so as not to cause traffic congestion during peak hours. Even with retaining walls, environmental impacts could be considerable. Impacts to Route 24 would be worse for commuter rail than for light rail, heavy rail, or monorail, because commuter rail requires flatter grades and therefore additional earthworks and structures. Property acquisition might be required at interchanges.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisitions would not be needed.

Construction Time Frame: The need for large amounts of earthworks, new structures, and interchange reconstruction would represent a challenging and complicated aspect to the project, making it more difficult to complete the project in four years.

Due to major impacts resulting from earthworks, new structures, and interchange reconstruction, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 41

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 41. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 41 consists of light rail or heavy rail along the Route 24 and Route 128 Corridors. This alternative includes the Northeast Corridor between South Station and Route 128 Station, Route 128 between Route 128 Station and Route 24, Route 24 between Route 128 and Fall River, and Route 140 between Route 24 and New Bedford. The distance from the Route 128 Station to Fall River and New Bedford is approximately 43 and 50 miles respectively. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 41, the following assumptions were made:

- All lines double track for entire length
- On Route 128 and Route 24, tracks to be constructed in the median in order to avoid multiple bridge construction at interchanges along the roadway
- On Route 140, tracks to be constructed in median, which is wide enough to accommodate the new facility
- Interchanges impacted by the track are reconstructed to current freeway standards
- No additional trains provided on the Northeast Corridor between Route 128 Station and South Station to accommodate Boston-bound riders
- Maximum speed of 50 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Initial operating plan headways of 10 minutes on the trunk and 20 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 94 and 86 minutes, respectively. One transfer would be required at Route 128 Station. The reliability of this alternative would be medium, because although light rail, heavy rail, and commuter rail are not subject to delays from traffic congestion, the need to transfer to reach Boston would introduce additional variability into travel time. Transfer time was assumed to be 10 minutes, based on the difference between the

average headways of the two services. Assuming 30 minute headways on the Northeast Corridor and 10 minute headways on the light rail or heavy line, service could be coordinated to arrive prior to each Northeast Corridor train such that successive light rail or heavy rail trains have transfer times of 20, 10, and 0 minutes. The average of these values is 10 minutes. For example, passengers taking an 8:00AM train on the Northeast Corridor could arrive on the transit line at 7:40AM, 7:50AM, or 8:00AM. Since this is a high frequency service running every 10 minutes, riders will tend to gravitate to the transit trips that get them there just before the commuter rail. This could result in overcrowded trains that arrive just before a connecting train and low density trains for transit trains arriving well before a connection at the Route 128 Station.

Conceptual Layout

General: It is assumed the transit vehicles can negotiate the existing grades on the highways approximately no greater than 4%. Power would be supplied to the transit vehicles through an overhead catenary wire. A third rail system requires closer spacing between substations and would be more costly than an overhead catenary system. Construction in the median will require a new closed drainage system on both sides of the median to catch rainwater from the highway and tracks. A storm water treatment system will be required to meet current storm water discharge standards. A jersey style concrete barrier is included on both sides of the median to protect errant vehicles from getting onto the tracks. Platforms would typically be located in the median with an overhead station. Parking areas for stations would be located away from the stations and require shuttles or long walking distances.

Northeast Corridor: No improvements would be required, except modifications to the Route 128 Station to provide transfer.

Route 128: A new two-track section would be constructed within the median from the east side of I-95 to Route 24. In this area, the median is preferred due to ACEC areas on the southern side of Route 128. On the north side the land adjacent to Route 128 is developed and constructing track on the north side would require the track to crossover the northbound lanes of Route 128 twice. The existing lanes would be shifted out to widen the median for the tracks. East of I-95 the proposed tracks cross the southbound lanes of Route 128 and run along the southern side of the highway right-of-way. The proposed tracks would be elevated to cross the southbound lanes of Route 128 and ACEC areas to the east of the Route 128 station. The transit station would occupy a portion of the existing parking garage and some parking would need to be replicated in another location. Interchanges and bridges would be reconstructed.

Route 24: A new two-track section would be constructed within the median. The southbound lanes of Route 24 would need to be shifted to create the room in the median for the tracks. Interchanges and bridges would be reconstructed.

Route 140: A new two-track section would be constructed in the median, which is wide enough to accommodate the new facility. This would avoid reconstruction of interchanges and significant environmental impacts. The existing roadway would not be modified, but most bridges would need to be reconstructed. South of the Ashley Boulevard interchange in New Bedford, the median narrows, and minor widening of the roadway might be necessary.

New Bedford/Fall River Branch Junction: Where the two branches come together a complex set of elevated tracks is required so tracks going to New Bedford can cross northbound tracks and highway lanes.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility, to be located somewhere along the line. Overnight layover facilities would be constructed at undetermined locations in Route 128 Station, Fall River, and New Bedford.

Station Locations: New light rail or heavy rail stations would be constructed in Route 128 Station (1), Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Route 24), and Fall River (1). The existing commuter rail station at Route 128 Station would be modified for transfers.

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Double-track section in fill or cut with slopes, adjacent to four-, six-, or eight-lane highways
- Double-track section in the median of four-lane highway

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be similar to the MBTA's existing rapid transit system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for rapid transit vehicles, but it is assumed new facilities would be needed at the southern end of the system. Crews working on the existing rapid transit system would be qualified to work on the new service.

However, this alternative would require a new guideway within existing transportation corridors. Heavy rail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing commuter services. Impacts to existing commuter rail trains on the Northeast Corridor would be significant, as many of these trains are already operating at or near capacity. The addition of a large number of new passengers would likely result in overcrowding, and the need for additional trains, longer trains, and/or trains with more bi-level coaches.

Constructing a transit facility along Route 24 would limit future expansion of the highway by consuming a significant portion of the right-of-way. The Route 24 corridor has heavy development abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Construction Impacts

Route 128: Construction along the Route 128 right-of-way would impact traffic because of the need to reconstruct interchanges and bridges. Work hours at these locations would likely be restricted so as not to cause traffic congestion during peak hours. Even with retaining walls, environmental impacts could be considerable. Property acquisition might be required at interchanges.

Route 24: Construction along the Route 24 right-of-way would impact traffic because of the need to reconstruct interchanges and bridges. Work hours at these locations would likely be restricted so as not to cause traffic congestion during peak hours. Even with retaining walls, environmental impacts could be considerable. Property acquisition might be required at interchanges.

Route 140: Construction along the Route 140 right-of-way would impact traffic because of the need to reconstruct bridges. Work hours would probably not be restricted in most areas, however, due to lighter traffic volumes and the wide median available for staging. Environmental impacts would be minimal on this section, because work would disturb areas in the median rather than areas adjacent to the roadway. Property acquisition would probably not be required.

Construction Time Frame: The need to design and construct electrification infrastructure might represent a challenging or complicated aspect to the project, making it more difficult to complete the project in four years.

Operating Plan

The initial operating plan for Alternative 41 was assumed to be 20 minute peak headways on the branches, resulting in 10 minute headways on the trunk. This provides six peak period trips to each terminal. It was assumed that trains would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Due to highly unfavorable cost effectiveness, this alternative was removed from further consideration.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 42

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 42. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 42 consists of light rail or heavy rail along the Route 24, Route 128, and Red Line Corridors. This alternative includes the Red Line between South Station and Quincy Adams Station near the Braintree Split, Route 128 between the Braintree Split and Route 24, Route 24 between Route 128 and Fall River, and Route 140 between Route 24 and New Bedford. The distance from the existing Quincy-Adams Station to Fall River and New Bedford is approximately 42 and 49 miles, respectively. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 42, the following assumptions were made:

- All lines double track for entire length
- On Route 128 and Route 24, tracks to be constructed in the median in order to avoid multiple bridge construction at interchanges along the roadway
- On Route 140, tracks to be constructed in median, which is wide enough to accommodate the new facility
- Interchanges reconstructed to current freeway standards
- Red Line Braintree Branch abandoned between Quincy Adams Station and Braintree Station, so the new facility becomes an extension of the Braintree Branch rather than a new branch on the Red Line
- Maximum speed of 50 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Initial operating plan headways of 10 minutes on the trunk and 20 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 89 and 81 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because heavy rail is not subject to delays from traffic congestion.

Conceptual Layout

General: It is assumed the transit vehicles can negotiate the existing grades on the highways approximately no greater than 4%. Power would be supplied to the transit vehicles through an overhead catenary wire. A third rail system requires closer spacing between substations and would be more costly than an overhead catenary system. The existing Red Line trackage uses a third rail, so dual mode transit cars similar to those currently used on the Blue Line would be required. Construction in the median will require a new closed drainage system on both sides of the median to catch rainwater from the highway and tracks. A storm water treatment system will be required to meet current storm water discharge standards. A jersey style concrete barrier is included on both sides of the median to protect errant vehicles from getting onto the tracks. Platforms would typically be located in the median with an overhead station. Parking areas for stations would be located away from the stations and require shuttles or long walking distances.

Braintree Branch: The Braintree Branch would be abandoned south of Quincy Adams Station, eliminating the present terminal station in Braintree. Passengers currently using this station could be accommodated either by a shuttle from Braintree to Quincy Adams or by the Old Colony commuter rail lines. Just south of Quincy Adams Station, a new two-track line would be constructed to connect the line towards the Braintree Split.

Route 128: A new two-track section would be constructed along the right-of-way between the Braintree Split and Route 24 in the median. Elevated track would be used immediately west of the Quincy Adams Station to go over existing tracks and roadways, including ramps and highway lanes associated with the Braintree Split. West of the Braintree Split, the median would be widened for track construction. Interchanges and bridges would be reconstructed.

Route 24: A new two-track section would be constructed within the median. The southbound lanes of Route 24 would need to be shifted to create the room in the median for the tracks. Interchanges and bridges would be reconstructed.

Route 140: A new two-track section would be constructed in the median, which is wide enough to accommodate the new facility. This would avoid reconstruction of interchanges and significant environmental impacts. The existing roadway would not be modified, but most bridges would need to be reconstructed. South of the Ashley Boulevard interchange in New Bedford, the median narrows, and minor widening of the roadway might be necessary.

New Bedford/Fall River Branch Junction: Where the two branches come together a complex set of elevated tracks is required so tracks going to New Bedford can cross northbound tracks and highway lanes.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion would be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

Station Locations: New heavy rail stations would be constructed in Raynham (1), Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Route 24), and Fall River (1). The existing Red Line station at Quincy Adams would not be modified.

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Double-track section in fill or cut with slopes, adjacent to four-, six-, or eight-lane highways
- Double-track section in the median of four-lane highway

These sections are shown in attached graphics.

Compatibility with Existing Infrastructure

This alternative would be partially compatible with existing infrastructure. It would be an extension of the MBTA's existing rapid transit system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for rapid transit vehicles, but it is assumed new facilities would be needed at the southern end of the system. Crews working on the existing rapid transit system would be qualified to work on the new service.

However, this alternative would require a new guideway within existing transportation corridors. Heavy rail tracks must be physically separated from highways and roadways, so an entirely new facility must be constructed within the existing right-of-way. This is not an effective use of existing infrastructure.

Transportation System Impacts

Impacts to the existing transportation system would include effects on existing rapid transit services. The extension of a rapid transit line to Fall River and New Bedford would require the line to fulfill both a rapid transit and a commuter function in urban areas, likely leading to chronic overcrowding north of Quincy Adams Station. This would also cause a decline in reliability and deterioration of quality of service. This alternative would also eliminate a rapid transit station in Braintree, requiring the thousands of commuters who use the garage there to find another way to commute.

Constructing a transit facility along Route 24 would limit future expansion of the highway by consuming a significant portion of the right-of-way. The Route 24 corridor has heavy development abutting the highway north of I-495, so any expansion that could not be completed within the existing right-of-way would have significant impacts to private structures.

Due to unacceptable impacts to the reliability and quality of service on the Red Line and the loss of Braintree Station, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 43

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 43. This memo corresponds to Phase 1 Screening Process.

Alternative Description

Alternative 43 consists of bus rapid transit (BRT) on the Route 24 and Route 128 Corridors. It includes a zipper bus lane on Route 24 from Interchange 14 (I-495) in Raynham to Interchange 21 (Route 128) in Randolph, a reversible direction bus lane on Route 128/I-93 from Interchange 4 (Route 24) to Interchange 13 (University Avenue) in Westwood, and the Northeast Corridor from Route 128 Station to South Station. Passengers would transfer between bus and commuter rail at Route 128 Station.

Design Assumptions

For Alternative 43, the following assumptions were made:

- Buses run express from New Bedford, Fall River, and Taunton to Boston
- No widening of Route 140 or Route 24 would be necessary south of Interchange 14
- No modifications to Route 24 between I-495 and just south of Route 128, other than installation of concrete zipper barriers
- Most existing interchanges along Route 128 will not be reconfigured
- Existing undergrade and overhead bridges on Route 128 will be reconstructed only if necessary
- 10 minute travel time savings for using the zipper lane and reversible bus lane on Route 24 and Route 128
- No additional trains provided on the Northeast Corridor between Route 128 Station and South Station to accommodate Boston-bound riders
- Travel time on existing connecting commuter rail lines per MBTA schedules as of February 2008
- Initial operating plan of 15 minute headways on each service in the peak direction during the peak period

Travel Time

Travel times from New Bedford and Fall River to Boston would be 67 minutes. One transfer would be required at Route 128 Station. The reliability of this alternative would be low, because buses in mixed traffic are subject to delays from traffic congestion. Despite the proposed improvements,

buses would still be in mixed traffic south of the proposed zipper lane on Route 24. The transfer introduces additional unreliability into this alternative. Travel time was assumed to be equal to auto travel time, less 10 minutes for the time saved by taking the Route 24 zipper lane and Route 128 reverse-flow lane. Transfer time was assumed to be 5 minutes, because arrivals could be coordinated with commuter rail arrivals.

Conceptual Layout

Route 24 from Interchange 14 (I-495) to Interchange 20 (Route 139): Along this section of highway, a concrete zipper barrier would be installed on both sides of the median. During AM hours, the barrier on the southbound roadway would be moved out, converting the left travel lane on the southbound side into a northbound bus lane. During PM hours, the opposite would occur, with the left travel lane on the northbound roadway becoming a southbound bus lane. Property acquisition would not be needed.

Route 24/128 Interchange: At a point north of Interchange 20 (Route 139), Route 24 would transition from a six-lane section to a seven-lane section, consisting of six conventional travel lanes and a center reverse-flow bus lane. The reverse-flow lane would utilize an existing grass median and follow the southbound alignment of Route 24. At Interchange 21, the ramp connecting Route 24 northbound to Route 128 northbound would be widened to accommodate the reverse-flow lane, carrying it to the median of Route 128. During AM hours, the reverse flow lane would serve as a northbound bus lane; during PM hours, as a southbound bus lane. Property acquisition would not be needed.

Route 128 from Interchange 4 (Route 24) to Interchange 13 (University Avenue): Beginning at the merge of the Route 24 ramps onto Route 128, a reverse-flow bus lane would be constructed in the median, following the alignment of Route 128. No access to Interchanges 3, 2, or 1 would be provided from the bus lane. These interchanges would not be reconfigured; however it is assumed that most bridges at these interchanges would need to be rebuilt. During AM hours, the reverse flow lane would serve as a northbound bus lane; during PM hours, as a southbound bus lane. Property acquisition would not be needed.

Route 128 Station: Just north of the Route 128/I-95 interchange, the reverse-flow lane would widen to two lanes and rise up, passing over the southbound lanes of Route 128 on a new viaduct. The viaduct would connect directly to the roof of the Route 128 garage. Buses would pick up and drop off at the platform stairway and elevator on the garage roof, and then descend the ramp back to Route 128. At the end of the ramp, vehicles traveling in the off-peak direction would exit the bus lane and enter mixed traffic. Minor property acquisition might be required.

Northeast Corridor: No improvements are required.

Station Locations: Park-and-ride facilities and/or bus shelters would be located in New Bedford (1), Fall River (1), and Taunton (1). It is possible that existing bus terminals in these cities would continue to be used. The selection of station sites is beyond the scope of this analysis.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the bus lines. Overnight layover facilities would be constructed at undetermined locations in Taunton, Fall River, and New Bedford.

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Six-lane mainline section on Route 24 with three lanes in each direction and zipper barriers on both side of the median

- Seven-lane mainline section on Route 24 with three lanes in each direction and a reverse-flow bus lane in the median
- Three-lane section on the Route 24 northbound to Route 128 northbound
- Seven-lane mainline section on Route 128 with three lanes in each direction and a reverse-flow bus lane in the median

These sections are shown in attached graphics. The locations of zipper lanes, reverse-flow lanes, and existing HOV zipper lanes are shown on the route graphic.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new express bus service operated or contracted out by the MBTA, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. A new maintenance facility and layover facilities would be required to accommodate the vehicles needed to run this service.

Transportation System Impacts

Impacts to the existing transportation system would include the increase in traffic from running additional buses. This could marginally increase congestion on highways. The capacity of the off-peak direction roadway on Route 24 would be significantly decreased by the zipper bus lane. The off-peak direction would be reduced from three lanes to two lanes; this would result in a capacity reduction of more than one-third, due to the capacity loss that occurs from having a hard obstruction (the zipper barrier) abutting the edge of the travel way.

Construction Impacts

Route 24: Route 24 is major commuting route between Fall River, New Bedford, and Boston. Thus, construction hours would be limited based on the need to maintain the flow of traffic. Lane closures would be restricted to off-peak hours. However, because work on Route 24 is limited in scope, impacts to existing traffic would be minimal.

Route 128: Route 128 is also a major commuting route. Since it is a beltway around Boston, both the northbound and southbound directions experience significant congestion during both the morning and afternoon peak periods. This would further limit construction hours and the ability to close lanes during large portions of the day. Construction impacts would be more significant because of the need to construct the new facility in the median.

The most significant disruptions to existing system users would occur at the Route 128/Route 24 interchange and the Route 128 connection, where new bridges over and under mainline facilities are needed. These locations would require extensive staging.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan was assumed to be a trip from each city every 15 minutes during the peak period. It was assumed that buses would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three bus platoons, is 2,700 passengers in the peak direction during the peak two hours.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 44

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 44. This memo corresponds to Phase 1 Screening Process.

Alternative Description

Alternative 44 consists of bus rapid transit (BRT) along the Route 24, Route 128, and Southeast Expressway Corridors. It includes a zipper bus lane on Route 24 from Interchange 14 (I-495) in Raynham to Interchange 21 (Route 128) in Randolph, a reversible direction bus lane on Route 128/I-93 from Interchange 4 (Route 24) to Interchange 7 (Route 3/I-93) in Braintree, and the existing HOV zipper lane along the Southeast Expressway (I-93).

Design Assumptions

For Alternative 44, the following assumptions were made:

- Buses run express from New Bedford, Fall River, and Taunton to Boston
- No widening of Route 140 or Route 24 would be necessary south of Interchange 14
- No modifications to Route 24 between I-495 and just south of Route 128, other than installation of concrete zipper barriers
- Most existing interchanges along Route 128 will not be reconfigured
- Existing undergrade and overhead bridges on Route 128 will be reconstructed only if necessary
- South Station Bus Terminal expanded separately, as part of South Station Overbuild Project
- 10 minute travel time savings for using the existing Southeast Expressway HOV lane
- 10 minute travel time savings for using the zipper lane and reversible bus lane on Route 24 and Route 128
- Initial operating plan of 15 minute headways on each service in the peak direction during the peak period

Travel Time

Travel times from New Bedford and Fall River to Boston would be 70 minutes. No transfer would be required. The reliability of this alternative would be low, because buses in mixed traffic are subject to delays from traffic congestion. Despite the proposed improvements, buses would still be in mixed traffic north of the existing terminus of the HOV zipper lane on the Southeast Expressway. Travel time was assumed to be equal to auto travel time, less 10 minutes for the time saved by taking

the Southeast Expressway HOV lane and 10 minutes for the time saved by taking the Route 24 zipper lane and Route 128 reverse-flow lane.

Conceptual Layout

Route 24 from Interchange 14 (I-495) to Interchange 20 (Route 139): Along this section of highway, a concrete zipper barrier would be installed on both sides of the median. During AM hours, the barrier on the southbound roadway would be moved out, converting the left travel lane on the southbound side into a northbound bus lane. During PM hours, the opposite would occur, with the left travel lane on the northbound roadway becoming a southbound bus lane. Property acquisition would not be needed.

Route 24/128 Interchange: At a point north of Interchange 20 (Route 139), Route 24 would transition from a six-lane section to a seven-lane section, consisting of six conventional travel lanes and a center reverse-flow bus lane. The reverse-flow lane would utilize an existing grass median and follow the southbound alignment of Route 24. At Interchange 21, the ramp connecting to Route 24 southbound from Route 128 northbound would be widened to accommodate the reverse-flow lane, carrying it to the median of Route 128. During AM hours, the reverse flow lane would serve as a northbound bus lane; during PM hours, as a southbound bus lane. Property acquisition would not be needed.

Route 128 from Interchange 4 (Route 24) to Interchange 7 (Route 3): Beginning at the merge of the Route 24 ramps onto Route 128, a reverse-flow bus lane would be constructed in the existing grass median, following the alignment of Route 128. From a point just south of Interchange 6 (Route 37), the reverse-flow lane would follow the alignment of Route 128 southbound. No access to Interchanges 5 or 6 would be provided from the bus lane. These interchanges would not be reconfigured; however it is assumed that most bridges at these interchanges would need to be rebuilt. During AM hours, the reverse flow lane would serve as a northbound bus lane; during PM hours, as a southbound bus lane. Property acquisition would not be needed.

Route 128/3/93 Interchange (Braintree Split): At Interchange 7 (Route 3 and I-93/Southeast Expressway), the ramp connecting Route 128 southbound to the Southeast Expressway northbound would be widened to accommodate the reverse-flow bus lane. The reverse-flow lane would terminate just south of the existing HOV zipper lane entrance/exit. Buses would enter/exit the reversible bus lane from/to the existing HOV zipper lane. Property acquisition would not be needed.

Southeast Expressway (I-93): No improvements would be made. Buses would use the existing HOV zipper lane between the Braintree Split and Columbia Road, and then travel in mixed traffic to the Massachusetts Avenue Connector overpass, where they would enter the existing HOV lane to South Station.

Station Locations: Park-and-ride facilities and/or bus shelters would be located in New Bedford (1), Fall River (1), and Taunton (1). It is possible that existing bus terminals in these cities would continue to be used. The selection of station sites is beyond the scope of this analysis.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the bus lines. Overnight layover facilities would be constructed at undetermined locations in Taunton, Fall River, and New Bedford.

The conceptual layout is shown in an attached graphic.

Typical Section

Typical sections include the following:

- Six-lane mainline section on Route 24 with three lanes in each direction and zipper barriers on both side of the median

- Seven-lane mainline section on Route 24 with three lanes in each direction and a reverse-flow bus lane in the median
- Three-lane section on the Route 128 northbound to Route 24 southbound ramp
- Nine-lane mainline section on Route 128 with four lanes in each direction and a reverse-flow bus lane in the median
- Three-lane section on the Route 128 southbound to Southeast Expressway northbound ramp

These sections are shown in attached graphics. The locations of zipper lanes, reverse-flow lanes, and existing HOV zipper lanes are shown on the route graphic.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new express bus service operated or contracted out by the MBTA, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. A new maintenance facility and layover facilities would be required to accommodate the vehicles needed to run this service.

Transportation System Impacts

Impacts to the existing transportation system would include the increase in traffic from running additional buses. This could marginally increase congestion on highways and in the Southeast Expressway HOV lane, and cause problems at the South Station Bus Terminal, depending on the future capacity of that facility and the number of vehicles to be served. The capacity available for carpools in the Southeast Expressway HOV lane would be reduced by the increase in bus traffic.

The capacity of the off-peak direction roadway on Route 24 would be significantly decreased by the zipper bus lane. The off-peak direction would be reduced from three lanes to two lanes; this would result in a capacity reduction of more than one-third, due to the capacity loss that occurs from having a hard obstruction (the zipper barrier) abutting the edge of the travel way.

Construction Impacts

Route 24: Route 24 is major commuting route between Fall River, New Bedford, and Boston. Thus, construction hours would be limited based on the need to maintain the flow of traffic. Lane closures would be restricted to off-peak hours. However, because work on Route 24 is limited in scope, impacts to existing traffic would be minimal.

Route 128: Route 128 is also a major commuting route. Since it is a beltway around Boston, both the northbound and southbound directions experience significant congestion during both the morning and afternoon peak periods. This would further limit construction hours and the ability to close lanes during large portions of the day. Construction impacts would be more significant because of the need to construct the new facility in the median.

The most significant disruptions to existing system users would occur at the Route 128/Route 24 interchange and the Braintree Split, where new bridges over and under mainline facilities are needed. These locations would require extensive staging.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan was assumed to be a trip from each city every 15 minutes during the peak period. It was assumed that buses would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three bus platoons, is 2,700 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 45

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 45. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 45 consists of enhanced public or private bus service from New Bedford, Fall River, and Taunton to Boston. This alternative includes bus routes via Route 24, Route 140, Route 128, and the Southeast Expressway. Enhanced park-and-ride facilities and/or bus shelters would be provided. This routing is shown on an attached graphic.

Design Assumptions

For Alternative 45, the following assumptions were made:

- Buses run express from New Bedford, Fall River, and Taunton/Raynham to Boston
- No highway infrastructure improvements
- South Station Bus Terminal expanded separately, as part of South Station Overbuild Project
- 10 minute travel time savings for using the existing Southeast Expressway HOV lane
- Initial operating plan of 15 minute headways on each service in the peak direction during the peak period

Travel Time

Travel times from New Bedford and Fall River to Boston would be 80 minutes. No transfer would be required. The reliability of this alternative would be low, because buses in mixed traffic are subject to delays from traffic congestion. Travel time was assumed to be equal to auto travel time, less 10 minutes for the time saved by taking the Southeast Expressway HOV lane.

Conceptual Layout

Station Locations: Park-and-ride facilities and/or bus shelters would be located in New Bedford (1), Fall River (1), and Taunton (1). It is possible that existing bus terminals in these cities would continue to be used. The selection of station sites is beyond the scope of this analysis.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are not included in this alternative, because no additional trains would be added to the existing MBTA commuter rail system.

Maintenance and Layover: Maintenance would be at a new facility located somewhere along the bus lines. Overnight layover facilities would be constructed at undetermined locations in Taunton, Fall River, and New Bedford.

The conceptual layout is shown in an attached graphic.

Typical Section

Since no highway improvements are required for this alternative, there are no typical sections.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new express bus service contracted out by the MBTA, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. A new maintenance facility and layover facilities would be required to accommodate the vehicles needed to run this service.

Transportation System Impacts

Impacts to the existing transportation system would be limited to the increase in traffic from running additional buses. This could marginally increase congestion on highways and in the Southeast Expressway HOV lane, and cause problems at the South Station Bus Terminal, depending on the future capacity of that facility and the number of vehicles to be served. The capacity available for carpools in the Southeast Expressway HOV lane would be reduced by the increase in bus traffic.

Construction Impacts

Construction impacts would be limited to impacts from any new stations.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan was assumed to be a trip from each city every 15 minutes during the peak period. It was assumed that buses would not layover at the terminals during the peak period, but start new trips in the opposing direction, resulting in off-peak direction service of approximately the same quality as peak direction service.

Capacity

The capacity of the initial operating plan, assuming three bus platoons, is 2,700 passengers in the peak direction during the peak two hours.

Transportation
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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 56

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 56. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 56 consists of conventional diesel commuter rail to South Station via old railroad rights-of-way between Providence, Fall River, and New Bedford. This alternative includes the Northeast Corridor between South Station and Providence Station, the Providence Warren & Bristol Railroad right-of-way between Providence Station and Bristol, the Fall River Warren & Providence Railroad right-of-way between Bristol and the west side of Fall River, a new right-of-way to connect the east and west sides of Fall River, the Dartmouth Secondary between the west side of Fall River and New Bedford, and the New Bedford Secondary between the Dartmouth Secondary and downtown New Bedford.

Design Assumptions

For Alternative 56, the following assumptions were made:

- Tunnel from Providence Station to East Providence Junction could be restored
- East Bay bike path, following the Providence Warren & Bristol right-of-way, to be eliminated
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Average speed on Providence to Fall River segment 35 mph
    - Most of line is abandoned; track charts were not available, but track geometry is clearly very poor due to multiple sharp curves
    - New right-of-way in Fall River would suffer from sharp curves and challenging grades
- Design headways of 15 minutes on the trunk (north/west of Fall River) and 30 minutes on the branches (south/east of Fall River)
    - Eight trips in each direction during the peak two hours

  - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours
  - Six total trains
  - Three trains to/from New Bedford
  - Three trains short turn in Fall River

Travel Time

Travel times from New Bedford and Fall River to Boston would be 111 and 95 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion.

Due to unacceptably long travel times, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 57

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 57. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 57 consists of enhanced public or private bus service on Interstate 195, connecting Wareham, New Bedford, Fall River, and Providence. Park-and-ride facilities and/or bus shelters would be provided. This routing is shown on an attached graphic.

Due to lack of service to Boston, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 58

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 58. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 58 consists of conventional diesel commuter rail along the Wareham Corridor. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, and the Buzzards Bay Secondary between Middleborough Junction and the Cape Cod Canal in Buzzards Bay. This routing is shown on an attached graphic.

Due to lack of service to New Bedford and Fall River, this alternative was removed from further consideration. Commuter rail service to Fall River, New Bedford, and Wareham was considered under Alternative 63.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 61

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 61. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 61 consists of feeder bus service to Middleborough/Lakeville Station. This alternative includes feeder bus routes from New Bedford, Fall River, and Taunton to Middleborough/Lakeville Station, which is the closet commuter rail station to all three cities. Park-and-ride facilities and/or bus shelters would be provided. This routing is shown on an attached graphic.

Assumptions

For Alternative 61, the following assumptions were made:

- New Bedford service via Route 140 and Route 79; Fall River service via Route 24, Route 44, and I-495; Taunton service via Route 44 and I-495
- Routes assumed to serve the center of each community
- Buses would operate in mixed traffic
- Speed assumed to be 45-65 mph, depending on the roadway
- Bus departures from each city would be coordinated with commuter rail departures (one trip from each city for each train)

Travel Time

Travel times from New Bedford and Fall River to Boston would be 94 and 90 minutes, respectively. One transfer would be required at Middleborough/Lakeville Station. The reliability of this alternative would be low, because buses in mixed traffic are subject to delays from traffic congestion, and because of the need to transfer to reach Boston. Transfer time was assumed to be 5 minutes because arrivals would be coordinated.

Due to unacceptably long travel times, the need to transfer, and low reliability, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 62

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 62. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 62 consists of conventional diesel commuter rail along the Attleboro and Middleborough Corridors. This alternative includes the Northeast Corridor between South Station and a point near the Attleboro/Mansfield town line, a new track bypass (Attleboro Bypass) along the National Grid right-of-way in Attleboro and Norton, the Attleboro Secondary between a point near the Attleboro/Norton town line and Weir Junction, the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Weir Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

The purpose of Alternative 62 is to divide New Bedford and Fall River trains between the Northeast Corridor and the Old Colony Main Line/Middleborough Line, obviating the need for improvements to either corridor. It was assumed that some trains from each terminus would follow each route.

Design Assumptions

For Alternative 62, the following assumptions were made:

- Based on operations analysis, no improvements needed to Northeast Corridor or Old Colony Main Line; trains from New Bedford and Fall River are split between the two facilities
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours

  - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours
  - Two trains on each branch to/from Boston via Middleborough Route
  - One train on each branch to/from Boston via Attleboro Route

Travel Time

Travel times from New Bedford and Fall River to Boston would be 74 and 73 minutes, respectively, via the Attleboro route, and 82 and 81 minutes, respectively, via the Middleborough route. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Northeast Corridor: No improvements are required.

Attleboro Bypass: A new single track Class 5 line would be constructed roughly following the National Grid right-of-way from the Northeast Corridor near the Attleboro/Mansfield/Norton town line (MP 0.00) to the Attleboro Secondary near the Attleboro/Norton town line (MP 2.62). Part of Chartley Pond in Norton might be affected where the line would tie into the Attleboro Secondary.

Attleboro Secondary: Existing freight track would be upgraded to Class 5. The line would be single track for the entire length between the Attleboro Bypass and Weir Junction (MP 0.00 to MP 9.40).

Old Colony Main Line: No improvements are required.

Middleborough Line: At the southern end of the line (MP 31.23 to MP 34.71), a second track would be constructed as part of a passing siding, the remainder of which would be along the Middleborough Secondary.

The existing station at Middleborough/Lakeville would be relocated, because it is located on the Buzzards Bay Secondary, south of the junction between the Middleborough Line, the Middleborough Secondary, and the Buzzards Bay Secondary. If the station were not relocated, a reverse move would be required.

Middleborough Secondary: Existing freight track would be upgraded to Class 5. The line would be mostly single track (MP 20.47 to MP 16.08), with the end near Middleborough Junction (MP 21.20 to MP 20.47) and the end near Cotley Junction (MP 16.08 to MP 13.30) having double track sections.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Cotley Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1).

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors, with the exception of the Attleboro Bypass. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Attleboro Secondary, Middleborough Secondary, New Bedford Secondary, and Dartmouth Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

The addition of some new trains to the Northeast Corridor might present a restraint on the expansion of existing commuter and intercity services. However, since some trains would be routed along the Middleborough Line, the impacts would not be as significant as alternatives in which all trains use the Northeast Corridor. The increase in train traffic might have a negative effect on the reliability of service on the Northeast Corridor.

Extension of the Middleborough Line to serve would not affect existing service to stations between Middleborough/Lakeville Station and South Station. The extension of the lines might require longer trains and/or trains with more bi-level coaches, which could present an operational problem at South Station, where Tracks 12 and 13 are not long enough to accommodate trains with more than six coaches.

This alternative would preclude future extension of service to Wareham and Buzzards Bay without significant improvements to the Old Colony Main Line, because all the capacity on the line would be used by the Fall River, New Bedford, Kingston, and Greenbush Lines.

Construction Impacts

Northeast Corridor: Construction on the Northeast Corridor would be complicated but limited to the interlocking where the Attleboro Bypass would connect to the corridor.

Attleboro Bypass: The Attleboro Bypass would be constructing along an existing National Grid right-of-way. Modifications to the existing high voltage lines might be required. The right-of-way passes through several wetlands, which would require filling, and crosses Chartley Pond, part of which might be filled or spanned with a trestle. A moderate amount of property acquisition would be required. However, disruption to the existing transportation system would be minimal.

Attleboro Secondary: Construction on the Attleboro Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to two trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on the existing embankment. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Middleborough Secondary: Construction on the Middleborough Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to a few trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan

The initial operating plan for Alternative 62 was assumed to be 40 minute peak headways on the branches, resulting in 20 minute headways on the trunk. This provides three peak period trips to each terminal, meeting the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. It was assumed that four trains would use the Middleborough Route and two trains would use the Attleboro Route. Some trains would be new service, while others would be extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 8,640 passengers in the peak direction during the peak two hours.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 63

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 63. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 63 consists of conventional diesel commuter rail along the Middleborough and Wareham Corridors. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, the Fall River Secondary between Myricks Junction and downtown Fall River, and the Buzzards Bay Secondary between Middleborough Junction and the Cape Cod Canal in Buzzards Bay. This routing is shown on an attached graphic. This alternative is equivalent to the combination of Alternatives 17 and 58.

Assumptions

For Alternative 63, the following assumptions were made:

- Based on operating plan, triple-track of Old Colony Main Line required between South Station and Braintree Junction
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction
- Initial operating plan headways of 20 minutes on the trunk and 40 minutes on the branches in the peak direction during the peak two hours

Travel Time

Travel times from New Bedford and Fall River to Boston would be 82 and 81 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Old Colony Main Line: From South Station (MP 0.00) to Braintree Junction (MP 11.55), the Old Colony Line would be upgraded to a three-track cross section. Between South Station and Columbia Junction, this would require widening, adjustments to Red Line and freight tracks, and property acquisitions. In Boston, (MP 1.40 to MP 4.05), the existing cross section is two Red Line Ashmont Branch tracks, one Old Colony Main Line track, and two Red Line Braintree Branch tracks. This section would be reconstructed as two Red Line tracks and three Old Colony Main Line tracks. The remainder of the Red Line Braintree Branch, from Morrissey Boulevard to Braintree Station, would be put into a new tunnel. This would allow three Old Colony Main Line tracks on the surface. The work required and construction staging for this section are detailed in a memorandum titled "Preliminary Analysis of Old Colony Main Line Improvements".

This work would require reconstructing the existing commuter rail stations at JFK/UMass, Quincy Center, and Braintree.

Middleborough Line: The entire Middleborough Line would be upgraded to a two-track cross section. In most cases, the existing right-of-way and bridges are wide enough to accommodate another track. The existing station at Middleborough/Lakeville would not be relocated, and would be served by only trains on the Buzzards Bay Line. Existing stations on single-track segments would be reconstructed to accommodate the second track.

Middleborough Secondary: Existing freight track would be upgraded to Class 5. The line would be mostly single track (MP 20.47 to MP 16.08), with the end near Middleborough Junction (MP 21.20 to MP 20.47) and the end near Cotley Junction (MP 16.08 to MP 13.30) having double track sections.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Cotley Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Buzzards Bay Secondary: Existing freight track would be upgraded to Class 5. The line would be single-track for the entire length between Middleborough Junction and Buzzards Bay, with passing sidings in Middleborough/Rochester/Wareham (MP 7.81 to MP 10.00) and Wareham (MP 19.33 to MP 20.08). Station sidings would be located at Middleborough/Lakeville Station (MP 0.91) and Wareham Station (MP 14.54).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail stations at JFK/UMass, Quincy Center, Braintree, Holbrook/Randolph, Campello, and Bridgewater would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River, New Bedford, and Wareham/Buzzards Bay.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track, double-track, and triple-track sections in fill or cut with slopes
- Single-track, double-track, and triple-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single-, double-, and triple-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be a new branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Middleborough Secondary, New Bedford Secondary, Fall River Secondary, and Buzzards Bay Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Middleborough Line would not affect existing service to stations between Middleborough/Lakeville Station and South Station. The extension of the lines might require longer trains and/or trains with more bi-level coaches, which could present an operational problem at South Station, where Tracks 12 and 13 are not long enough to accommodate trains with more than six coaches.

Triple-track on the Old Colony Main Line would be sufficient to provide service to New Bedford, Fall River, and Wareham via the Middleborough Line. This configuration would improve reliability on the Old Colony Main Line and Middleborough Line. Three tracks would not, however, be necessary to provide service only to New Bedford and Fall River. The infrastructure needed to for that service only is described as part of Alternative 17.

Construction Impacts

Old Colony Main Line: The construction of second and third tracks on the Old Colony Main Line would be very complicated, causing disruption to Old Colony commuter rail service, Red Line rapid transit service, and local traffic in Quincy and Braintree. A high level of property acquisition would be required. The impacts of this segment are detailed in a memo titled "Preliminary Analysis of Old Colony Main Line Improvements".

Middleborough Line: Construction on the Middleborough Line would be complicated due to the need to work around existing passenger and freight service, of which passenger service is by far the largest. Existing stations would need to be reconstructed. Work during operating hours would be restricted, lengthening the construction schedule.

In most places, the existing embankment and structures are wide enough to permit a second track without significant work. This would simplify construction. Property acquisitions would be minor.

Middleborough Secondary: Construction on the Middleborough Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to a few trains a day. Impacts to

environmental resources would be minimal, except in siding areas, because tracks would be located on existing embankments. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Buzzards Bay Secondary: Construction on the Buzzards Bay Secondary would be relatively simple. Mass Coastal Railroad runs regular freight service on the line, including hauling trash from Cape Cod to an incinerator in Rochester. Work might be restricted so as not to disrupt this service. Impact to environmental resources would be minimal, except for siding areas, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: The construction of the second and third tracks on the Old Colony Main Line through Boston, Quincy, and Braintree is a challenging and complicated design and construction aspect to the project, requiring difficult construction and extensive staging. It is anticipated that the project could not be completed in four years.

Due to unacceptable construction impacts to the Old Colony Main Line and the Red Line, and the inability to reach completion within four years, this alternative was removed from further consideration.

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Memorandum

To: file

Date: March 20, 2008

Project No.: 10111.00

From: South Coast Rail team

Re: South Coast Rail – Phase 1 Screening Process
Alternative 64

The purpose of this memorandum is to document the assumptions, travel time, conceptual layout, typical section, transportation system impacts, construction impacts, operating plan, and capacity for South Coast Rail Phase 1 Alternative 64. This memo corresponds to the Phase 1 Screening Process.

Alternative Description

Alternative 64 consists of conventional diesel commuter rail along the Middleborough Corridor. This alternative includes the Old Colony Main Line between South Station and Braintree Junction, the Middleborough Line between Braintree Junction and Middleborough Junction, the Middleborough Secondary between Middleborough Junction and Cotley Junction, the New Bedford Secondary between Cotley Junction and downtown New Bedford, and the Fall River Secondary between Myricks Junction and downtown Fall River. This routing is shown on an attached graphic.

For Alternative 64, no improvements would be made to the Old Colony Main Line, and service would be restricted to Middleborough Line trains extended to New Bedford/Fall River, plus any additional capacity on the line. This alternative is not capable of meeting the same level of service as the other commuter rail alternatives analyzed in Phase 1. It was included at the request of the Interagency Coordinating Group.

Design Assumptions

For Alternative 64, the following assumptions were made:

- No improvements to Old Colony Main Line
- All existing freight track replaced with Class 5 track
- All existing undergrade bridges to be reconstructed, except existing commuter rail bridges and recently reconstructed bridges in New Bedford and Fall River, which may be widened
- Overhead bridges to be reconstructed only if existing width is too narrow
- Maximum speed of 79 mph on new lines; travel times on existing lines per MBTA schedules as of February 2008
- Design headways of 15 minutes on the trunk (north of Myricks Junction) and 30 minutes on the branches (south of Myricks Junction)
    - Eight trips in each direction during the peak two hours
    - Greater number of trips could be provided in the peak direction by reducing the number of trips in the off-peak direction

- Initial operating plan of two peak period trains to/from New Bedford and one peak period train to/from Fall River

Travel Time

Travel times from New Bedford and Fall River to Boston would be 82 and 81 minutes, respectively. No transfer would be required. The reliability of this alternative would be high, because commuter rail is not subject to delays from traffic congestion. It should be noted that the travel times calculated for this study may be less than those calculated for previous studies because of having fewer station stops and allowing operation at the maximum speed except where restricted by geometry.

Conceptual Layout

Old Colony Main Line: No improvements would be made to the Old Colony Main Line.

Middleborough Line: Preliminary operations analysis shows that, in general, the sidings on the Middleborough Line are sufficient to support the desired headway. At the southern end of the line (MP 31.23 to MP 34.71), a second track would be constructed as part of a passing siding, the remainder of which would be along the Middleborough Secondary.

The existing station at Middleborough/Lakeville would be relocated, because it is located on the Buzzards Bay Secondary, south of the junction between the Middleborough Line, the Middleborough Secondary, and the Buzzards Bay Secondary. If the station were not relocated, a reverse move would be required.

Middleborough Secondary: Existing freight track would be upgraded to Class 5. The line would be mostly single track (MP 20.47 to MP 16.08), with the end near Middleborough Junction (MP 21.20 to MP 20.47) and the end near Cotley Junction (MP 16.08 to MP 13.30) having double track sections.

New Bedford Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for the entire length between Cotley Junction and downtown New Bedford. This is not required by the operations analysis, but is desirable for allowing flexibility between commuter and freight operations.

Fall River Secondary: Existing freight track would be upgraded to Class 5. The line would be double track for a short distance south of Cotley Junction (MP 0.00 to MP 0.94). The remainder of the line would be single track, with passing sidings in Freetown (MP 2.20 to MP 4.34) and Fall River (MP 9.56 to MP 11.11).

Station Locations: New commuter rail stations would be constructed in Taunton (1), New Bedford (2, one downtown and one near northern city line), Freetown (1, on Fall River Secondary), and Fall River (1). The existing commuter rail station at Middleborough/Lakeville would be reconstructed.

South Station Improvements and In-Town Midday Layover: The proposed South Station improvements and a new in-town midday layover facility are included in this alternative.

Maintenance and Layover: Maintenance would be at existing MBTA facilities, though expansion might be required to accommodate additional vehicles. Overnight layover facilities would be constructed at undetermined locations in Fall River and New Bedford.

The conceptual layout is shown in an attached track chart.

Typical Section

Typical sections include the following:

- Single-track and double-track sections in fill or cut with slopes
- Single-track and double-track sections in fill or cut with retaining walls

These sections are shown in attached graphics. The locations of single- and double-track sections are shown on the route graphic and track chart.

Compatibility with Existing Infrastructure

This alternative would be fully compatible with existing infrastructure. It would be an extension of a branch on the MBTA's existing commuter rail system, and would use existing transportation corridors. Therefore, there would be a large volume of existing institutional knowledge about the construction, operation, and maintenance of this alternative. Existing layovers and maintenance facilities are designed for diesel engines and commuter rail coaches, though expansion might be required. Crews working on the existing commuter rail system would be qualified to work on the new branches.

Transportation System Impacts

Impacts to the existing transportation system would be limited to effects on existing freight and existing commuter services. The existing freight services on the Middleborough Secondary, New Bedford Secondary, and Fall River Secondary are small in scope, so it is unlikely that they could not be accommodated during the middle of the day or overnight. The provision of a second track on the New Bedford Secondary would also give some operational flexibility for freight. Still, the introduction of commuter rail onto these lines would restrict the windows for freight operation.

Extension of the Middleborough Line would not affect existing service to stations between Middleborough/Lakeville Station and South Station. The extension of the lines might require longer trains and/or trains with more bi-level coaches, which could present an operational problem at South Station, where Tracks 12 and 13 are not long enough to accommodate trains with more than six coaches.

This alternative would preclude the extension of commuter rail service to Wareham or Buzzards Bay in the future without infrastructure improvements on the Old Colony Main Line.

Construction Impacts

Middleborough Secondary: Construction on the Middleborough Secondary would be relatively simple. CSX runs regular freight service on the line, but this amounts only to a few trains a day. Impacts to environmental resources would be minimal, except in siding areas, because tracks would be located on existing embankments. Property acquisition would not be needed.

New Bedford Secondary and Fall River Secondary: Construction on the New Bedford Secondary and Fall River Secondary would be relatively simple. CSX runs regular freight service on the lines, but this amounts only to a few trains a week. Impacts to environmental resources would be minimal, except in siding areas on the Fall River Secondary, because tracks would be located on existing embankments. Property acquisition would not be needed.

Construction Time Frame: There are no challenging or complicated design or construction aspects to the project, so it is anticipated that the project could be completed in four years.

Operating Plan and Ridership

The initial operating plan for Alternative 64 was assumed to be two peak period trains to/from New Bedford and one peak period train to/from Fall River. This does not meet the minimum service acceptable under the MBTA Service Delivery Policy. It was assumed there would be one trip in the off-peak direction during the peak period. All trains would be extension of existing trains.

Capacity

The capacity of the initial operating plan, assuming eight double-deck coaches per train, is 4,320 passengers in the peak direction during the peak two hours. This is less than other commuter rail alternatives due to the inability to provide the same level of service.

Appendix B
Step 3: Detailed Screening Tables

- Screening Criterion 3.1 – Wetlands
- Screening Criterion 3.6 – Smart Growth Consistency

SOUTH COAST RAIL
Step 3 - Screening Criterion, 3.1 Wetlands

#	Alternative		3.1-1 Amount of Wetland fill		3.1-2 Fill in an ACEC		3.1-3 Number of Vernal Pools w/in 25 feet (CVP/PVP)		3.1-4 Length of wetland (Indirect)	Overall Ranking
1	Commuter rail to South Station via Attleboro Bypass	UF	7.82 acres	UF	0.46 acres	N	2 (7)	UF	6,300 feet	UF
3	Commuter rail to South Station via Attleboro Bypass, with Dartmouth	UF	9.74 acres	UF	0.46 acres	N	2 (6)	HUF	15,800 feet	HUF
5	DMUs to Attleboro Station	UF	5.32 acres; includes 0.67 acres salt marsh	F	0	N	2 (8)	F	0	F
6	DMUs to Attleboro Station with Dartmouth	HUF	10.89 acres; includes 0.67 acres salt marsh	F	0	N	3 (11)	UF	9,500 feet	HUF
7	Electrified commuter rail via Attleboro bypass	UF	8.46 acres; includes 0.51 acres salt marsh	UF	0.46 acres	N	2 (10)	UF	6,300 feet	UF
30	Commuter Rail, Stoughton	UF	6.74 acres	UF	0.76 acres	UF	9 (17)	UF	6,400 feet	UF
32	DMUs to Stoughton Station	UF	8.95 acres, including 0.67 acres salt marsh	HUF	1.41 acres	UF	9 (17)	UF	6.400 feet	HUF
33	DMUs to Stoughton Station with Dartmouth	HUF	14.52 acres, including 0.67 acres salt marsh	HUF	1.41 acres	UF	10 (20)	HUF	15,900 feet	HUF
34	Electrified commuter rail via Stoughton	UF	7.25 acres	UF	0.83 acres	UF	9 (17)	UF	6,400 feet	UF
43	BRT on Rt 24 to Rt 128 Station	F	0.31	UF	0.25 acres	F	0	F	0	F
44	BRT on Rt 24 to South Station	F	0.1	F	0	F	0	F	0	F
45	Enhanced Bus	F	0	F	0	F	0	F	0	F
62	Commuter rail via Attleboro (bypass) and Middleborough	UF	3.42 acres	F	0	N	2 (11)	UF	6,300 feet	UF
64	Middleborough	F	3.61 acres	F	0	N	0 (4)	F	0	F

KEY		F	0-0.5 ac	F	0	F	O	F	0	
HF	Highly Favorable	uf	3-10 ac	UF	0-1 AC	N	< 5 CVP	UF	1-10,000 FT	
F	Favorable	huf	more than 10	HUF	> 1 AC	UF	> 5 CVP	HUF	> 10,000 FT	
N	Neutral									
UF	Unfavorable									
HUF	Highly Unfavorable									

SOUTH COAST RAIL
Step 3 - Screening Criterion, 3.6 Smart Growth Consistency

#	Alternative		3.6-1 Serves Historic Population centers		3.6-2 Brownfields Redevelopment		3.6-2 Preserves land etc		3.6-3 Preserves Historic Resources		3.6-4 Stations in developed areas	Overall Ranking
1	Commuter rail to South Station via Attleboro Bypass	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
3	Commuter rail to South Station via Attleboro Bypass, with Dartmouth	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
5	DMUs to Attleboro Station	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	HF
6	DMUs to Attleboro Station with Dartmouth	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	HF
7	Electrified commuter rail via Attleboro bypass	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
30	Commuter Rail, Stoughton	HF	serves 4 historic population centers - New Bedford, Fall River, Taunton, Easton	F	Potential redevelopment in 5 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
32	DMUs to Stoughton Station	HF	serves 4 historic population centers - New Bedford, Fall River, Taunton, Easton	F	Potential redevelopment in 5 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
33	DMUs to Stoughton Station with Dartmouth	HF	serves 4 historic population centers - New Bedford, Fall River, Taunton, Easton	F	Potential redevelopment in 5 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
34	Electrified commuter rail via Stoughton	HF	serves 4 historic population centers - New Bedford, Fall River, Taunton, Easton	F	Potential redevelopment in 5 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
43	BRT on Rt 24 to Rt 128 Station	N	serves 2 historic population centers - New Bedford, Fall River	F	Potential redevelopment in 4 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	UF	Fall River and New Bedford stations could be located in developed areas. All other stations in undeveloped areas near highways	UF

SOUTH COAST RAIL
Step 3 - Screening Criterion, 3.6 Smart Growth Consistency

#	Alternative		3.6-1 Serves Historic Population centers		3.6-2 Brownfields Redevelopment		3.6-2 Preserves land etc		3.6-3 Preserves Historic Resources		3.6-4 Stations in developed areas	Overall Ranking
44	BRT on Rt 24 to South Station	N	serves 2 historic population centers - New Bedford, Fall River	F	Potential redevelopment in 4 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	UF	Fall River and New Bedford stations could be located in developed areas. All other stations in undeveloped areas near highways	UF
45	Enhanced Bus	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	F	Potential redevelopment in 5 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	UF	Fall River, New Bedford and Taunton stations could be located in developed areas. All other stations in undeveloped areas near highways	UF
62	Commuter rail via Attleboro (bypass) and Middleborough	F	serves 3 historic population centers - New Bedford, Fall River, Taunton	HF	Potential redevelopment in 6 clusters of 21 E sites	N	Minor loss of wildlife habitat -no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
64	Commuter Rail via Middleborough, no Infrastructure imprvements	N	serves 2 historic population centers - New Bedford, Fall River	F	Potential redevelopment in 4 clusters of 21 E sites	HF	No loss of wildlife habitat, no loss of farmland, no impact to drinking water supplies. Smart Growth strategies could be implemented to protect farmland from sprawl	HF	No impact to historic or archaeological resources	F	All stations could be located in developed area. Potential for highway stations to serve larger populations.	F
			Assumes that Attleboro Center, Middleborough Center, Stoughton Center are already served		Assumes that brownfields clusters in Attleboro, Middleborough and Stoughton are already served							
		HF	serves 4 cemters	HF	serves 6	HF	preserves land use in all categories	HF	NO IMPACT	F	all stations could be in developed areas - potential for highway stations to serve larger population	
		F	serves 3	F	serves 4-5	N	preserves land use in all categories with minor loss wildlife habitat			UF	Stations could serve developed areas in New Bedford and Fall River, all other stations in undeveloped areas near highways	
		N	serves 2	N	serves less than 4	UF	does not meet criterion					
		UF	serves less than 2	UF								
KEY												
HF	Highly Favorable											
F	Favorable											
N	Neutral											
UF	Unfavorable											
HUF	Highly Unfavorable											

Appendix C
Interagency Coordinating Group Minutes

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #12

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: April 1, 2008, 9:00 AM to 11:45 PM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Protection Act Unit
Samir Bukheri	US Environmental Protection Agency
Joe Cosgrove	Massachusetts Bay Transportation Authority
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Betsy Higgins	US Environmental Protection Agency
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	MA Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Scott Peterson	Central Transportation Planning Staff
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning Economic Development District
Liz Sorenson	MA Department of Conservation and Recreation ACEC Program
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmerman	US Environmental Protection Agency
Phil Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Packet of letters from individuals and organizations on "draft findings." Senders include: Audubon/ Taunton River Watershed Association; Public Employees for Environmental Responsibility; Heather Graf; George Spatcher; Lou Gitto; Gerald McDonald; Mark Sweeney.

PURPOSE/SUBJECT:
Continue discussion of the alternatives to be carried into Phase 2; discuss Interagency Group future activities and meetings.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to

evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The twelfth meeting was intended to continue the discussion of the alternatives to be advanced to Phase 2.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list).

Approval of 3.04.08 and 3.21.08 Meeting Minutes

At the March 21 meeting, group members suggested edits to the meeting minutes. Mr. Lehan had to leave the meeting before its conclusion and he submitted the following comments on the Phase 1 Screening Criteria draft document:

- In footnote 1, it is more precise to state: "…; the Massachusetts Department of Fish and Game, including its Division of Fisheries and Wildlife and the Natural Heritage and Endangered Species Program;. . . "

- Last sentence in the new language on p.2: use "The" instead of "These"…

- The new language in 2.3 on page 5: it states that the conceptual cost estimate will be refined based on an approximate cost for "mitigating wetland losses." Is this category of mitigation (for wetland losses) the only one at the Phase 1 stage in the screening process that EOT will have enough information on to refine the project alternative cost estimate…(e.g., but not for loss of priority habitat and/or open space)?

- The new language under the Phase 1 screening process description on p.10: I missed the discussion on this point because I had to leave for another meeting. My only question is whether the term "fail-safe" is the best way of characterizing this last aspect of the review. I think of it more as saying: The Group will conduct a final review at the end of Step 3 to determine whether the any modification to the Group's evaluation and rating of alternatives through Steps 1 and 2 is warranted.

With the addition of these comments and the notes listed in the March 21 meeting minutes, the Interagency Group accepted the March 4 meeting notes.

Ms. Egan noted that the members may not have had sufficient time to review the draft notes from the March 21 meeting. She asked for comments. Rosemary Monahan said she was not at the meeting so her name should be removed from the Attendance list. The members agreed they would like more time to review the notes. Ms. Egan asked for comments by close of business on April 7.

Alan Anacheka-Nasemann, Army Corps of Engineers, said that he was going to participate in a tour of the Assonet Cedar Swamp and Pine Swamp to be conducted by Mass Audubon. It will take place on Wednesday, April 16 at 11 AM. While there are some issues about access to the CSX right-of-way in the area, the tour will go forward and all are invited.

Mr. Anacheka-Nasemann noted that the Army Corps and the U.S. Environmental Protection Agency recently proposed a new joint rule under the Clean Water Act (CWA) on compensatory mitigation that could be found in 33 CFR 332. He encouraged members to review the rule and said that it will apply to the project, along with the existing, applicable rules. Where there is any difference, more stringent rules will apply.

Ms. Egan noted that she distributed print and electronic copies of letters she received commenting on the list of alternatives for Phase 2. Several are very thoughtful letters and some ask for additional information. There is a feeling that the public does not have access to the same information that has been made available to the Interagency Group. There are also commenters who would like to participate in the group meetings. Rich Lehan, MA Department of Fish and Game, said that PEER's letter comments on the concept of the proposed "Stoughton trestle" and notes that building an access road to the site would increase the impacts of the trestle. Ms. Egan said that she has said that EOT will not build a public access road through the Hockomock Swamp to service the trestle. Rosemary Monahan, EPA, said she was intrigued by Lou Gitto's comment letter suggesting a combination of alternatives with phasing. Liz Sorenson, Department of Conservation and Recreation, said she hopes it is very clear that Phase 1 is a coarse filter or people will continue to pose the same questions and fail to understand how the collapsing of alternatives was conducted. People may not understand that environmental impacts cannot be detailed at this level of examination.

Ms. Egan said that the presentation was clear on this point, even including a slide with the phrase "10,000 feet" to illustrate the viewpoint. This did cause some frustration in the meetings and it shows in the correspondence. Tim Timmerman, EPA, said that this situation could put some pressure on the MEPA process and he is concerned that the group not ignore or fail to include an alternative that could be the Least Environmentally Damaging Practicable Alternative (LEDPA). Sometimes a blended alternative or combination of alternatives arises later in the process and requires a strong look. He does not want to obviate this possibility. Mr. Anacheka-Nasemann said that the Highway Methodology is designed to be sensitive enough not to eliminate the LEDPA and it has informed this process.

Ms. Egan said that while she hopes not to be taken by surprise by a brand new option, she thinks that is unlikely. She said that EOT expects to be flexible. She encouraged the members to complete their review of the *Phase 1 Alternatives Analysis Technical Report*. After a brief discussion, the members agreed to submit comments to EOT on the technical report by close of business on April 11, 2008. Ms. Egan wants to complete editing the draft document and make it available to the public on line this month. While EOT and VHB are the document's authors, she appreciates comments and suggestions from the committee members on the material and presentation. Mr. Anacheka-Nasemann said he recommends spelling out as many terms as possible, versus using acronyms. Mr. Timmerman asked Ms. Egan to continue to forward comment letters. Ms. Egan noted letters forwarded by Heather Graf; by representatives of the Taunton River Watershed; by the Conservation Agent from Norton. Mr. Anacheka-Nasemann noted a comment from Kyla Bennett, PEER, in an email (distributed to members) on the fact that the project documents, website, etc., use the word "rail" to describe the project while the Basic Project Purpose describes the need to meet demand for "public transportation." He said that the Corps has responded to the project proponent by drafting a Basic Project Purpose that is broader than rail and includes examining a variety of alternatives. Betsy Higgins, EPA, agreed that the project purpose is properly articulated and it is not unusual for a proponent to choose or use a title that does not exactly describe the project purpose but is instead shorthand. She said that the real issue is if the project purpose is defined appropriately and

she feels that has been done in this case. Matt Schweisberg and Tim Timmerman, EPA, agreed that it is typical for permit agencies to define the Basic Project Purpose and project titles can be different.

Ms. Sorenson noted a comment letter from Norton's Board of Selectmen in opposition to the Attleboro route and asked if there are other, similar kinds of letters. Ms. Egan said that Norton, Attleboro, Taunton and Mansfield officials have been vocal about their opposition to the Attleboro route, along with their representatives and senators. She noted that Kyla Bennett, PEER, is opposing a 40R housing project in Easton and referred to comments that Ms. Egan made at a Lakeville meeting about that town's 40R investment. Investment is proposed for the area around the existing Lakeville train station. She said Lakeville does not want the station to be moved, which would interfere with the development, and she acknowledged this interest but made no promise. Ms. Bennett has taken the position that if Easton adopts a 40R project, then the train will follow.

Circling Back

Ms. Egan suggested that the group continue its review of the alternatives for advancement to Phase 2. She reviewed the list that the members were discussing as part of the circling back process, Step 4, after the March 21 presentation. The EOT/VHB team recommended four alternatives and the group was discussing the following list of alternatives, with no decisions made yet:

- No Build or TSM alternative
- Attleboro Electric (alternative #7)
- Stoughton Diesel (#30)
- Full Middleborough (#17 – added by EOT to serve potential casino)
- Attleboro/Middleborough Hybrid (#62)
- Bus Rapid Transit (#44)

A discussion about many aspects of the various alternatives took place. John Felix, Mass DEP, asked about the full Middleborough option, which had been eliminated and was included again by EOT. If that option was eliminated for cost, then returned, how could other alternatives be eliminated for cost? Ms. Egan said that the issue was cost plus time. Both the tunnel under Quincy (required to break the bottleneck for the full Middleborough option) and the monorail up Route 24 were both high in cost and have a longer construction period. The monorail is even higher in cost (by a rough estimate, a billion dollars more).

The issue of bus capacity was questioned. Could the bus option be more positive if platoons of buses, express buses or other strategies increased capacity? Mr. Timmerman asked if the catchment areas were wider than the 3 mile diameter used by CTPS to calculate ridership? Scott Peterson, CTPS, said that his team looked at the Old Colony Line as a model and used actual statistics for the catchment area. This information shows that 90% of the passengers drive about 3 miles to their station stops. Trains do have much more capacity (8,000 riders in a peak period versus 2700 for bus). Making more stops would affect bus travel time. Some strategies can be tested in a sensitivity analysis.

Mr. Timmerman said that the EPA members were pretty close to agreeing on a final list with some additions to the alternatives put forward by EOT at the last meeting. The No Build option should be called out explicitly so it is understood by the public. In addition, EPA proposes to include alternative #64, Middleborough simple, which would use the same infrastructure as alternative #17 south of Braintree. EPA feels this should be a standalone option. Mr. Timmerman also listed alternative #1,

Commuter Rail to South Station via the Attleboro bypass, which is a diesel option. This option could be the LEDPA and EPA would like to see it remain. Adding these to the list above would carry eight alternatives into Phase 2.

Mr. Anacheka-Nasemann asked how the quantity of work would differ to study two versions, for example, of the Attleboro route, one electric and one diesel. Mike McArdle, VHB, said that the two options would have different operating plans, so the team would have to build and run computer models for each. There are differences between the impacts as well on such parameters as noise, vibration and potential for contamination. He used a pad to draw one element of the Attleboro route showing a crossover to show the difficulty of handling southbound trains on the Northeast Corridor, in particular. He reminded the group that electric trains have better acceleration and deceleration rates. Amtrak's Acela can reach 150 mph in this track segment so it would catch up with diesel trains very quickly and the crossovers would be required to move the slower trains out of the way. Ms. Egan said that a third track would be required north of Canton as well. (Ms. Monahan asked that the team check the travel times for some of the alternatives since some differ between documents. Ms. Egan said that in some cases, the team had learned more and had better data, but the team will check that data.) The team plans to meet with the MBTA and Amtrak to discuss future plans for the corridor, and with freight operators, too, but it seems likely that all have plans to use more of the existing capacity. Ms. Egan noted that the MBTA would have to come to an agreement with Amtrak and that there is opposition to the Attleboro corridor in additional to the technical challenges. These issues can be overcome, but they are aspects of the options. She described realistic drawbacks to other options: Middleborough simple would preclude extending the rail to Wareham, a project of great interest; the full Middleborough option would require a triple track to allow full service to Fall River and New Bedford and Wareham (the Red Line would be put in the tunnel and two surface lines would remain for the Commuter Rail). Mr. Schweisberg asked why these concerns are relevant to the current choice. Ms. Egan said they are realities the project will have to face, which she is providing as background information as the group considers the alternatives. Mr. Timmerman pointed out the system benefits of the full Middleborough option. Ms. Egan said that community meetings have not yet been held in the Braintree and Quincy area, nor around Canton Junction, for the Attleboro line. Mr. Timmerman noted that there are Environmental Justice issues in the Quincy, Boston and Braintree area that will have to be part of the discussion.

Lealdon Langley, Mass DEP, asked about hybrid vehicles and whether an operations plan could be run to allow for diesel and/or hybrid fuels. Ms. Egan said that there are different operations concerns for alternative #62, for example, so considering another method of operation would mean treating it as another alternative. Mr. Langley also commented on the need to consider unequal levels of service and ways to address them. Mr. McArdle said that it would be possible to electrify part of the route and run diesel trains from Middleborough north.

There was a discussion about the pros and cons of modes and the work required to provide sufficient detail to assess the different alternatives. Mr. Grafe raised the issue of the impact of mode on climate change and air quality. Ms.Egan said there is an estimated premium of $300 million to construct the electric mode and some time and speed advantages. John Felix asked if EOT could submit 10-11 alternatives in the ENF and use the MEPA process to narrow the alternatives. Deerin Babb-Brott, MEPA, said he would have to consider the idea. Ms. Egan observed that public review of the alternatives will be more difficult with 10 or 11 options.

Steve Smith, SRPEDD, said that EOT will get a lot of resistance from the South Coast communities with 10 or more alternatives under consideration. Alternative #64, for example, offers such a poor level of

service that people will think it is not worth building. He pointed out that Environmental Justice is a huge issue for Fall River and New Bedford in particular. These communities will not accept a lower level of service than what the MBTA offers to other communities.

Mr. Timmerman noted that the Middleborough service performs better than the bus option and perhaps the capacity issue could be addressed. Mr. Smith agreed but said the more robust alternatives that provide full service to the South Coast are much more attractive to those communities.

Mr. Schweisberg said that the list of 10 is reasonable from a regulatory point of view. Based on what the group has learned to date, these are logical alternatives. He said that perception-based issues don't play into regulatory analysis. If EOT moves forward with the much shorter list of alternatives, EPA's comments on the permit application will reflect this opinion. EPA requires a reasonable amount of information to eliminate alternatives from detailed analysis. This translates in to a limited amount of analysis on key factors without engaging in a full-blown analysis.

The group discussed some filing options. Mr. Babb-Brott said that EOT could file the ENF with the full list (10 or so), identifying the constraints on some of the alternatives and asking that the review be limited to a subset of the options. Mr. McArdle said the team could begin work on two parallel tracks: undertaking the environmental work for each corridor while preparing the models and running the operating plans as a way of narrowing the options. Both are considerable undertakings but the operating plans results could reduce the potential alternatives before the environmental work is complete. Ms. Egan expressed concern about meeting the project schedule. Whatever approach is worked out, she does not want to get off track. Mr. Timmerman suggested presenting a smaller number of alternatives with variations (such as Stoughton Diesel and Electric), and doing a less than full-blown analysis. There is a general concern about keeping the state and federal processes on a parallel track.

Alan Anacheka-Nasemann recounted his experience with a landfill in Buffalo that included 20-25 sites and hydrogeological investigations. He does not see how the group can eliminate any of the principal alternatives under consideration at this time for this project. Betsy Higgins said she did not think EPA was proposing an unreasonable number of alternatives and it would be risky to proceed with too few options.

Mr. McArdle put a list of alternatives on a sheet for discussion:

- No build/TSM
- Attleboro: diesel and electric
- Stoughton: diesel and electric
- Full Middleborough
- Simple Middleborough
- Middleborough/Attleboro Hybrid (diesel/electric)
- Bus Rapid Transit

The members discussed some of the difficulties in trying to get more data without putting all of the options in the process or including all of them but not doing a complete investigation. Mr. Langley noted that it is not unusual for MEPA to meet with proponents to discuss this kind of difficulty. Mr. McArdle said he would like to meet with Mr. Babb-Brott to discuss possible ways to proceed. Mr. McArdle said that over the next six months the team will develop ridership and travel time data and have infrastructure and cost information in hand. This information can be shared with the Interagency Group.

Mr. Weinberg observed that it would resemble an expanded Phase 1 in more depth. It is not unusual for alternatives to rise from a DEIR filing. Getting comments may help with the review process.

Mr. Lehan said it's his view that EOT has consulted with the Interagency Group but it makes the final call on the alternatives. He suggested it is not realistic to expect agency concurrence on all of the issues at this point. The proponent makes judgments and EOT needs to make its own transportation determinations. If concurrence is not possible among the agencies, perhaps the goal is to reflect opinions about pros and cons through the discussion.

Ms. Egan said she would like to achieve consensus since the group has operated in that spirit to date. She is willing to go along with the Interagency Group's recommendations, gathering comments. That is acceptable. She can't guarantee that the Administration will concur with the list, but she will do her best to explain and advance. Ms. Higgins said that she respects that decision, but it is not technically required of Ms. Egan. Mr. Anacheka-Nasemann said this kind of concurrence is a goal of the Highway Methodology.

Ms. Egan said that rather than take some kind of formal action or ask the agencies to sign a letter, she would like to let the minutes reflect the alternatives that the Interagency Group members think are worthy of investigation pending new information or analysis. Mr. Felix asked about public reactions to the likely list. Ms. Egan said that besides opposition to some routes, there are proponents of monorail and/or rail on Route 24 who are likely to be vocal about not using the highway route one of those ways. She said that project materials, including the Executive Summary for the document, will clarify the reasons (high cost; rebuilding 20 interchanges; Route 24 would have to be widened through the Hockomock Swamp; construction duration; it would be the longest installation of monorail in the world, and, as such, unproven). Ms. Higgins said that the federal process will require an explanation for dropping alternatives, which is useful to reviewers.

Ms. Sorenson asked about the effects of future potential projects, such as widening Route 24 or breaking the bottleneck. How does the planning take them into account? Ms. Egan said one of the underlying assumptions is to include only projects that are approved or in long-term planning documents. Joe Cosgrove, MBTA, said that this project is hitting a lot of key issues facing the MBTA, such as the need to expand South Station's capacity and the bottleneck and layovers. The Boston constraints are a cost for all of the alternatives.

Mr. Weinberg said he felt the group has gone in the right direction and has not eliminated the LEDPA. Mr. Babb-Brott said that the alternatives may be representative, but they are not necessarily all equal. The process has generated a robust set of options to meet the project purpose. Mr. Lehan said he appreciates the goal of trying to achieve consensus and not ask each agency to produce a letter on the alternatives at this time. He looks forward to continuing the discussion and learning more about the impacts, such as how the ratings translate into real impacts. Ms. Higgins said that the alternatives present a range of pros and cons and require further analysis. From what the group has learned in Phase 1, some will have substantially more environmental impacts and EPA needs to learn more about the balance of practicability versus environmental impacts.

Mr. Anacheka-Nasemann – with assistance from Mr. Felix – proposed a consensus statement for the group to consider related to the list of alternatives:

Based on the information presented in frequent meetings, the Interagency Group has applied the Highway Methodology to a range of alternatives and developed a consensus position on a list of seven alternatives with mode variations that will be carried forward for further study.

The list is as follows:

- No build/TSM
- Attleboro: diesel and electric
- Stoughton: diesel and electric
- Full Middleborough
- Simple Middleborough
- Middleborough/Attleboro Hybrid (diesel/electric)
- Bus Rapid Transit

Mr. Anacheka-Nasemann said that given the limits of the Phase 1 criteria, he does not believe the list could be any shorter. Absent more detailed modeling, he would not feel comfortable cutting any further. Ms. Egan asked if that was the consensus feeling among the agencies. Mr. Weinberg said he would like to talk with Mr. Babb-Brott about a tier system or other review options within the MEPA process. The members said they would review the minutes and statement and get comments to Ms. Egan on the document by close of business on April 11.

Next Steps

Ms. Egan said that EOT is in the process of discussing how to roll out the alternatives information and there are details of the federal review to be worked out. She reminded the group that Goody Clancy is prepared to make a presentation on the Corridor Plan.

The following meetings and issues were discussed:

- Tours: the team will be setting up corridor tours this summer and the public will be invited. In the interim, Mr. Anacheka-Nasemann said that he will participate in one of two of the tours already set up and listen to public concerns, but he anticipates organizing tours just for agency representatives in the future. The currently scheduled tours will take place on 4/16 and 4/23 and invitations will be sent to the agency representatives.
- Commuter Rail Task Force: Mr. Smith said he would include the Interagency Group members in invitations to the next meetings. At the next meeting, on April 9 from 4-6PM, the group will potential South Coast Rail impacts and ways to mitigate them. This will be a discussion preliminary to a summer activity: establishing regional mitigation principles.
- Interagency Group meetings: After discussion, the group agreed to set up a meeting late in May and to hear from Goody Clancy on the Corridor Plan. In June, the Interagency Group may meet with the Commuter Rail Task Force.

Ms. Egan thanked the members of the Interagency Group for their patience, participation and ideas over the last 12 meetings.

Review of the Minutes

Interagency Group members typically provide comments on the minutes at a subsequent meeting. Because this is the last meeting of Phase 1, comments/corrections from the reviewers are provided here:

- Tim Timmerman, US EPA: on page 4 of 9 (second to last paragraph): Scott Peterson indicated that a 3-mile radius was used for estimating ridership and suggested that beyond such a radius the ridership communities associated with any given station begin to overlap with other stations. A discussion about this point ensued and it was agreed that it would make sense to confirm/better understand this baseline assumption as the alternatives are analyzed further (the sensitivity analysis part of the notes).

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- Group members to review and provide comments on the March meeting minutes by April 7 and on the Phase 1 Alternatives Analysis Technical Report by April 11.
- Schedule Corridor Plan presentation by Goody Clancy.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #11

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: March 21, 2008 - 9: AM to 11:45 PM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Samir Bukheri	US Environmental Protection Agency
Joe Cosgrove	Massachusetts Bay Transportation Authority
John Felix	Massachusetts Department of Environmental Protection
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	MA Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Scott Peterson	Central Transportation Planning Staff
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning Economic Development District
Liz Sorenson	MA Department of Conservation and Recreation ACEC Program
Mike Stroman	Massachusetts Department of Environmental Protection
Phil Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Draft Phase I Alternatives Analysis Technical Report; "Circling Back" Recommendations; Agenda

PURPOSE/SUBJECT:
Learn about the comments and reactions from four Civic Engagement meetings; circle back and review outcomes from previous decision points to discuss draft recommendations for Phase 2 alternatives; discussing Interagency Group action on the recommendations

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The eleventh meeting was intended as a discussion-only meeting to further cull the alternatives down to a shorter list.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list). She noted that with April approaching, the group would be asked to review the Phase 1 Alternative Analysis Technical Report and help finalize the list of alternatives that EOT will carry into Phase 2. There were a number of issues to discuss first.

Ms. Egan said she was asked to note that several members of the Commuter Rail Task Force dissented from the letter that the Interagency Group received at a previous meeting. The letter encouraged the group to move with some speed to assure service delivery to the South Coast communities. The letter was not vetted by the group members before it was sent and some felt it was not appropriate.

Ms. Egan said that she had extended the deadline for submitting comments on the alternatives to March 26 after the end of the civic engagement set of meetings. Based on conversations with various organizational representatives, she anticipates getting letters from Mass Audubon, PEER and the Taunton River Watershed Association, which she will share with the group.

She reminded the group of its early April meeting and the need to gather any comments on the alternatives that will progress into Phase 2 at that time.

Approval of 3.04.08 Meeting Minutes

Ms. Egan asked for comments on the minutes of the March 4 meeting. The following corrections and additions were listed:

- At the top of page 7, the date for comments to be submitted on the proposed casino project should be April 9, not April 29.
- On page 11, at the end of the first full paragraph, Alan Anacheka-Nasemann said that the text should be corrected to read: "in 2002, the Stoughton alternative was considered the sole feasible alternative by EOEA." He asked that a new sentence follow, to read: The Corps never took a position on this issue.
- Rich Lehan, MA Department of Fish and Game, said he had some comments to make on the minutes and would prefer to submit them in writing before the next meeting. The March 4 meeting was a long one, and there are some refinements he would like to suggest. Since Tim Timmerman, US Environmental Protection Agency, was also not present, the group agreed to reconsider the minutes at the next meeting. Mr. Lehan said he would circulate his proposed edits.
- Liz Sorenson, DCR, clarified that there are two ACECs and one proposed ACEC.
- Matt Schweisberg, EPA, asked that the notes on page 4 be revised to indicate that wetland mitigation should be completed concurrent with the project's construction, and that post-construction monitoring would extend for 5 years.
- By email, Tim Timmerman asked for the following revision on the fifth page, second paragraph, second to last sentence: "Mr. Timmermann asked if the option of taking the train to South Station and then taking the train to metro markets was compared to driving between the same two markets including any required travel through the Boston area."

Civic Engagement Meetings Highlights

Ms. Egan said she wanted to share her impressions of the key issues that were raised in the recent civic engagement meetings in Attleboro, Freetown and Lakeville and at the Commuter Task Force Meeting in Taunton. She highlighted the following issues, concerns and reactions:

- Several people suggested that funding for the South Coast Rail could just be given to municipalities facing a shortfall versus improving regional transportation.
- A number of people expressed frustration with revisiting the project alternatives and the fresh look at the options.
- In places where there is opposition to alternatives, the objections expressed by some are often not specific but are voiced just as a statement of opposition; i.e., you should not go through Taunton.
- Some people felt there was not enough notice of the meetings. Ms. Egan said that several people said they had signed in at a meeting and did not get an email. She said that part of the confusion may be the placement of a table in Norton by a citizen activist at which people signed in first but then did not sign in at the official EOT table.
- Several speakers said that people or human issues are more important than the environment, while others said that the environment is more important than people and/or their transportation needs.
- The number of grade crossings in a community and safety were mentioned frequently.
- The MBTA's assessments of communities were a common subject for discussion and questions.
- People spoke in favor of electrification as opposed to use of diesel fuel as a better option and also referred to the fast and very modern rail systems in Europe and Japan.
- The Attleboro corridor drew frequent objections due to the number of grade crossings in Taunton.
- Residents and elected officials said that the project will bring no community benefits to Norton, Attleboro and Mansfield.
- Speakers addressed the need to protect Chartley Pond and mentioned the Assonet Cedar Swamp, Pine Swamp and Hockomock Swamp as areas of concern.
- A representative of PEER suggested that the environmental review should include more than just Zone 1 areas.
- Environmental comments included the need to assess the value of wetlands in making comparisons and not count on acres to acres evaluations.
- There are supporters for breaking the Braintree bottleneck since they feel it will have to be done at some point and there are concerns that the alternatives should not preclude an extension to Wareham, which is not part of this project but could be a future project.
- Lakeville is concerned about the 40R district at the site of its rail station and hopes that the station will not have to be moved.
- The failure of the monorail option to advance was a source of disappointment. Many people felt that it was modern, visible and would encourage ridership by moving quickly up Route 24 in view of drivers stuck in highway traffic. Some were not persuaded by the drawbacks, and Ms. Egan said that they did not understand the potential wetland impacts and because monorail did not make it through Step 3, they did not learn that it has the highest estimated cost.
- Ms. Egan said there were a lot of rail supporters in Freetown and Lakeville.

Steve Smith listed a few issues of concern from the Task Force discussion, including:

- The need to look at wetlands carefully and to compare them in an apples-to-apples format.

- There is a great deal of support for electric rail options with an acknowledgment that the up front cost is high but a feeling that it is a better alternative and also lends itself to updating by new technologies in the future.
- There is support for breaking the bottleneck between Braintree and Boston as well as concern that whatever alternative is chosen should not conflict with service to Wareham.

Mr. Smith added that he gets questions about the Interagency group and its role. Some feel that the meetings should be open to the public. People print and review the minutes and are following the issues. Mr. Smith suggested that at some point, representatives of the Interagency group should meet with the Task Force. Mr. Felix asked what the general reactions are to the agency group. Ms. Egan said that there is a feeling that the agencies have power over the route choice. Some people seem to think that the Stoughton route is "a done deal," while others believe that Attleboro and Middleboro are not feasible nor can they provide the service that is needed. Others acknowledge the operations problems associated with Attleboro and Middleborough, the former related to Amtrak and the Northeast Corridor and the latter with breaking the bottleneck.

Ms. Egan said that for the next few months, once the alternatives are announced for the Phase 2 investigation, the focus of civic engagement will shift for the next few months to the Corridor Plan. It is important to get all 31 communities involved in these planning discussions. While there will be public meeting style events connected with the Army Corps and MEPA filings, it is more likely that EOT-led civic engagement over the next few months will focus on the smart growth and planning, particularly since there will be a lot of work going on to develop the alternatives and not a lot of information to share initially.

The members received a copy of the meeting presentation and comments summary via email. Steve Smith, SRPEDD, said that the project faces well-organized opposition in some areas with the dialogue in those communities likely to focus on negatives.

Ms. Egan said that this summer, EOT will be organizing tours of the corridors. There are a couple of tours proposed for the next couple of weeks (timing is important for vernal pools) and the group members discussed their availability. Lisa Standley, VHB, said she can set up a tour of Pine Swamp but the group could not walk the Assonet without a flagman. Ms. Egan said she is working with CSX to arrange access for the VHB team to begin environmental field work. Mr. Smith offered his office as a staging area for the swamp tours since it is centrally located and nearby.

Presentation and Discussion of Alternatives Recommendations

Ms. Egan said that Mike McArdle, VHB, would walk the group through the team's recommendations for the alternatives to advance into Phase 2. This is the "circling back" discussion that the group decided would permit a final look at the options to reduce the number, if possible, from 10, and to ensure that the group did not eliminate an option that could be the LEDPA, or the least environmentally damaging practicable alternative. Ms. Egan reminded the group that at the last meeting, a set of 9 alternatives remained at the end of the Step 3 analysis and the Secretary of Transportation asked to have a Middleborough alternative taken to the civic engagement meetings as well. Ms. Egan said that the information on the alternatives is updated in the draft narrative report and Chapter 9 walks through the Step 4, or "circling back" analysis. Based on discussions from the previous meetings and the input from the civic engagement meetings, the team has prepared a set of recommendations that includes at least one alternative from each corridor and most, but not all, of the modes. She reiterated that she is not expecting

decisions from agencies today, and encouraged the agencies to consider the draft written narrative and today's discussion before the group reconvenes on April 1 to hopefully recommend a final short list. She asked Mike McArdle, VHB's Project Manager, to present EOT's draft recommendations.

Mr. McArdle suggested the group follow along using the chart handout or looking at Chapter 9 of the report. He began with the Attleboro corridor. Of the three alternatives remaining there, the team was recommending advancing #7, Attleboro Electric. This option will have environmental impacts similar to #1, Attleboro diesel; it would operate over the same route as #1 but would provide faster service and attract higher ridership; electric infrastructure is already available on the Northeast Corridor; and electric trains have fewer impacts with regard to noise, vibration and potential for contamination. This option would have fewer impacts on the Acela, which travels at high speed in this area (150 miles per hour versus 79 mph for diesel).

EOT Recommendations for Discussion, STEP 4 "Circling Back"

ATTLEBORO OPTIONS
Alternative #1, Attleboro diesel: *eliminate* – marginal for 2 transportation criteria and neutral for 3 environmental criteria
Alternative #5, Attleboro DMU: *eliminate* – acceptable on environmental criteria, weaker on transportation (mobility and purpose)
Alternative #7, Attleboro electric: *carry forward*, similar to #1, but provides better quality of service, although not as compatible with existing diesel system

STOUGHTON OPTIONS
Alternative #30, diesel: *carry forward*, performs best on transportation criteria of the 10 alternatives, but worst on environmental criteria
Alternative #34, electric: *eliminate* - similar to #30 but has slightly poorer performance on transportation criteria and has a slightly greater wetland impact

MIDDLEBORO OPTIONS
Alternative #17, Middleborough diesel: *carry forward*
Alternative #62, Attleboro/Middleborough hybrid: *eliminate* - similar service and infrastructure are in #7 and #17, so dismiss this as a standalone
Alternative #64, Simple Middleborough diesel: *eliminate* – similar to #17 but provides lower level of service

HIGHWAY OPTIONS
Alternatives #44, BRT with Route 24 zipper lane: *carry forward*
45, Enhanced Bus: *eliminate* – eliminate as stand-alone since this will be incorporated in the "no build" or Transportation Service Management alternative

Mr. McArdle said that the Diesel Multiple Unit alternative to Attleboro Station would provide slower service; would require a transfer to existing commuter rail at Attleboro Station (further overcrowding service on commuter trains that are already at capacity); would result in lower ridership; and would have

more infrastructure requirements than other Attleboro options and thus would have a greater impact on the environment. Based on these results, the team was recommending that #7 advance.

Matt Schweisberg, EPA, asked Mr. McArdle how he could eliminate Alternatives 1 and 5 and keep 7? Mr. McArdle reviewed the rationale, which is laid out in more detail on pages 9-2 to 9-4 of the report. Mr. Schweisberg said he is concerned about eliminating practicable alternatives at this point, for instance, keeping in electric service and eliminating diesel. Mr. McArdle said that since most of the impacts on the environment, for example, are similar between #1 and #7, VHB could go back and change the mode if it is appropriate at some point to assess the diesel (as long as the Attleboro corridor remains in Phase 2). Ms. Standley added that public comments were more positive on electric service based on fewer impacts (noise, vibration, pollution). Mr. McArdle provided some information on electric service using the Northeast Corridor. The MBTA would be likely to develop an agreement with Amtrak to maintain its equipment and provide facilities for the electric diesels, etc.

The members had a discussion about how the process of narrowing options for environmental review typically works. Ms. Standley said that typically, the project proponent would file an Environmental Notification Form (ENF) with two or three options that would go through an environmental review. Lealdon Langley said that in a typical process, if more alternatives were considered at a later date, supplemental reports would be required. Mr. Anacheka-Nasemann asked about submitting four corridors for Phase 2, but Mr. Langley and others agreed that differences between modes are huge and they will have significantly different impacts. Mr. Felix said that theoretically, the options under discussion are the best ranked and range across corridors. Based on data alone, it might be possible to delete a mode and/or corridor. Ms. Egan said the group has discussed maintaining a diversity of corridors, as has the public. Mr. Schweisberg suggested that the data should point directly to certain alternatives and to rank the options otherwise is to depart from data driven decision making. Ms. Egan said that the recommendations are data based, that the group agreed to circle back and review the alternatives and the public is clearly interested in a diversity of corridors. Mr. Langley said that to eliminate diesel or prefer electric is to weigh Step 2 more heavily than the environmental factors. Ms. Egan said that those factors are neutral at Step 3, so the team chose the best of the options. Ms. Standley said that the essence of the process is not to reject an alternative that could be the LEDPA and seeks agency consensus on what alternatives are eliminated. Mr. Anacheka-Nasemann said it is natural that there is more tension at this step. Ms. Egan asked the group to let Mr. McArdle complete the full presentation.

Mr. McArdle said he was necessarily limited in what he could say about each alternative in a meeting, so he encouraged the committee members to review the narrative and look at the data, such as the ridership data. Phil Weinberg asked if there is a rule of thumb for greenhouse gas removal. Mr. McArdle said he did not have one, but direct burning of fuel is generally more efficient than conversion, but that issue can't be considered in isolation (e.g., without considering issues such as wetland impacts). Ms. Egan said that the Central Transportation Planning Staff will be modeling emissions for the alternatives, so that data will become available in Phase 2.

Mr. McArdle wrapped up the Attleboro discussion by saying that the DMU options would require a transfer and incur longer trip time and other penalties. Mr. Smith said he believes that the choice to retain Alternative #7, Attleboro corridor electric service to South Station, is a data driven decision.

[Liz Sorenson, DCR, said she missed the meeting where the Mansfield issues were discussed. She asked for a recap, and Mr. McArdle provided one for her. See Chapter 7 for information on the elimination of the Mansfield options.]

Turning to the Middleborough alternatives, Mr. McArdle said that the team is recommending that #17, Middleborough diesel, advance to Phase 2. This option represents the toughest case for the Middleborough corridor from the environmental point of view, so examining it makes sense because other, simpler options on this route with fewer impacts could be considered based on analysis of the full option, including breaking the bottleneck. Ms. Egan noted that Simple Middleborough (#64) fails to meet demand and has low ridership; it has no proponents among residents on the South Coast. Mr. Schweisberg said that it appears to him that the other options are not being dismissed but are not being analyzed in great detail in Phase 2. He would like to see combinations of options, such as bus and rail, and he will have a problem if EOT does not look at variations to the same degree. Ms. Egan said that it is fair to say that the Simple Middleborough is not being dismissed since it can be revisited based on the analysis of the full option. Mr. McArdle reminded the group that the TSM or modified No Build Alternative will be investigated in Phase 2. It includes a feeder bus system and will be analyzed at the same level as the other options. Ed Reiner, EPA, asked why electric service is not an option for Middleborough. Mr. McArdle said that cost is a key factor since it would require building more than 60 miles of electrified track. Mr. Schweisberg said that the analysis was not carried forward for 17 and 64. Ms. Egan said that the draft narrative should be revised to show the data for all the steps for 17 and 64. She added that the final document will have an Executive Summary that will summarize the reasons for carrying options forward and she encouraged the group members to read the document and familiarize themselves with the information. She understands that the team needs to fully back up and explain its recommendations and the final document will include that information. Ms. Egan said that the team could carry the Middleborough hybrid (#62) since it is the same as the Attleboro diesel option, with the exception of building the third track at Canton Junction on the north end of the Northeast Corridor. The environmental issues would be known based on the Attleboro corridor investigation from #7, so it only requires looking at noise, vibration and operations. That would mean carrying forward #62, which would also encompass #17 from the Middleborough corridor. Ms. Sorenson noted that 62 actually becomes three pieces that can be looked at in segments.

Mr. McArdle turned to the Stoughton corridor. The recommendation is to carry forward #30, commuter rail to South Station via Stoughton using diesel service. This option uses the same route as #34, which is electric service. They have similar impacts in terms of track infrastructure, and electric service (#34) offers faster travel speeds. Electric service would, however, have a greater impact through the Hockomock Swamp, an Area of Critical Environmental Concern (ACEC), and it may not be feasible to construct. Mr. Schweisberg said that the Stoughton route is a hard sell from an environmental point of view and questioned whether EOT really wanted to continue to investigate the Stoughton corridor in Phase 2. Mr. McArdle said the route performs well from a transportation viewpoint.

Mr. McArdle said that the recommendation for the highway corridor is to carry the BRT via a Route 24 zipper lane to Route 128 and route 93 and the HOV lane. Mr. Reiner asked if the dedicated lane would be an HOV plus BRT lane on Route 24 or a bus only lane. Ms. Egan said that is a much larger conversation with several other state agencies. On the Southeast Expressway, the HOV lane is a Central Artery commitment. Mr. Langley said that the project is still in need of a project purpose under the variance criteria and a zipper lane would provide that kind of purpose. Ms. Egan said that the team will also explore options to make the BRT service more attractive by marketing or enhancing the image of the service. She noted that #45 is part of the TSM alternative, so it is not really being eliminated. Mr.

Schweisberg said that is important to include that kind of statement in the narrative report. Ms. Egan agreed and said the Executive Summary will be like a fact sheet in that sense, focusing and presenting the information in a very accessible manner.

Ms. Egan then recapped her understanding of the group's initial feedback on EOT's recommendations. In addition to those alternatives proposed by EOT, Alternative #62 should be carried forward. It is acceptable to carry the enhanced bus alternative forward as part of the TSM alternative. She asked agencies to continue to consider the different alternatives and prepare to conclude the group's "circling back" recommendations on April 1.

Next Steps

Ms. Egan said she would like to get the sense of the group on how well this process has gone and what form the agency responses will take. EOT undertook a new kind of process, casting a wide net in terms of looking at alternatives and trying to be as transparent as possible. She is interested in the members' reactions and she hopes that the work has been thorough enough that EOT will not face surprises in the environmental review process. She asked what kind of action the agency members are willing to take in terms of signoff or review at this point.

Mr. Schweisberg said that having heard the entire presentation, he understands that not everything is being dismissed and that some standards have been applied to this narrowing process. He anticipates at least giving EOT some indication that EPA agrees or does not agree with the decisions.

There was a discussion about the process of agreement or approval. Mr. Anacheka-Nasemann said the Corps will prepare a Basic Project Purpose letter for agreement. It will describe the scope of alternatives, the process and the recommendations. It will be vetted with the federal agencies and he would appreciate feedback from the state agencies as well.

The parties agreed that they would try to have their comments ready by April 1 but the final responses may be delayed on the part of the federal agencies. Mr. Anacheka-Nasemann said that this has been a good process with a well-represented range of options that has been reviewed by the members of the Interagency Group and the public.

The group discussed the scoping process for MEPA and NEPA. The ENF filing will include a public review component.

Addressing the issue of the process for this project, the members agreed that whatever the outcome, it has been collaborative and data driven and is likely to save time in the MEPA process and it has included a very wide range of options. There is a distinction between the collaborative and endorsement processes, but the work produced data and information that will shorten the environmental process in all likelihood. The alternatives could have just been listed in the ENF and NOI, but Mr. Felix said that looking at them through this group was a huge time saver. Ms. Sorenson said that the recommendations have been informed by this consultative process. Mr. Langley said it has been a rational and data driven process. Mr. Anacheka-Nasemann said it will probably save considerable time by informing the Corps' decision making. The state agency representatives said that they will consult with MEPA and among themselves on the appropriate form of a response.

The group members said it might not be possible to have a letter ready and signed by April 1 given their review processes. Ms. Egan said that she would appreciate getting comments on the document and the recommendations and the team will update the document before it is posted on the website sometime in April.

Ms. Egan said that after the next meeting, she will be scheduling Goody Clancy to make a presentation on the Corridor Plan work and there will be tours this summer of the corridors.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- Group members to review and provide comments on the Phase 1 Alternatives Analysis Technical Report by April 1
- EOT to forward comments received from the public on the short list of 10 alternatives
- Schedule Corridor Plan presentation by Goody Clancy.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #10

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: March 4, 2008 - 9:10 AM to 12:10 PM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Joe Cosgrove	Massachusetts Bay Transportation Authority
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Greg Guimond	Southeastern Regional Planning and Economic Development District
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	MA Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Scott Peterson	Central Transportation Planning Staff
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Liz Sorenson	MA Department of Conservation and Recreation ACEC Program
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmermann	US Environmental Protection Agency
Phil Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Kate Barrett, Regina Villa Associates (RVA)

HANDOUTS:
Matrix of 9 alternatives for Phase 1, Step 3. PowerPoint slides summarizing Step 3 alternatives.

PURPOSE/SUBJECT:
Continue review of the results of the Step 3 analysis with members of the committee. Circle back and review outcomes from previous decision points to ensure continued consensus.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The tenth meeting focused on the Step 3 analysis. The list was narrowed to nine alternatives, which will be presented to the public during the March Civic

Engagement meetings. In the next agency meeting, the group will consider public comments received during the Civic Engagement meetings and continue discussions to further narrow the list for the in-depth environmental review. Part of this process will include looking back at earlier steps and recommendations in light of all of the data collected and discussed to-date – circling back.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list). She noted that this meeting would be the last until after the Civic Engagement meetings. She said she would like the group to revisit practicability. She pointed out that while some members want to include mitigation costs now, it is not possible to do so at this level of detail. Mitigation costs will be integrated during Phase 2 of the project when more detailed analyses are completed. Ms. Egan noted that the matrix does not currently include the Middleborough alternative with no infrastructure improvements, which was suggested by Tim Timmerman. Final documents will include it. She said she would like the group to complete discussion of Step 3 analyses and come to agreement on alternatives to advance to the next phase of the project. In addition, she hoped to circle back to previous discussions to ensure members were comfortable with decisions. Ms. Egan said her PowerPoint handout includes salient points on each alternative and this would be reviewed and discussed later in the meeting.

Approval of 2.21.08 Meeting Minutes

The minutes were formally approved.

Approval of 2.28.08 Meeting Minutes

The following comments were made:

Rich Lehan, MA Department of Fish and Game, noted that on page 7, the discussion about Criteria 3.3 omitted a paragraph that was originally included. In particular, the paragraph section should make clear that in general the Natural Heritage and Endangered Species Program (NHESP) does not consider indirect impacts; however, in the case of this project, program staff will consider impacts. Also on page 7, Mr. Lehan said that the section on measures for Criteria 3.3 should reflect that EOT will consult with NHESP staff and the program will provide further detail and qualitative input. Ms. Egan noted that the project team is currently consulting with NHESP staff.

Alan Anacheka-Nasemann, US Army Corps of Engineers, said that on page 5, second full paragraph, the third sentence should reflect that the Corps can only authorize the LEDPA (not the "most practicable alternative").

Greg Guimond, Southeastern Regional Planning and Economic Development District, noted that on page 3, second full paragraph, third sentence from the bottom, the destinations for the 35.5% increase in trips from the study area are Boston and Cambridge. He also asked about the origination point of the 3-bus platoons discussed on page 4, second full paragraph. Mr. McArdle said the buses would be from Fall River and New Bedford. Rosemary Monahan, US Environmental Protection Agency, suggested including Taunton as another origination point.

Tim Timmerman, US Environmental Protection Agency, noted that the discussion about wetlands on page 7 should note that there is currently no first-hand knowledge of the sites, so the discussion is qualitative in nature at this point.

Lealdon Langley, MA Department of Fish and Game, asked if there is more than one ACEC? If so, references should specify which ACEC. Liz Sorenson, Department of Conservation and Recreation ACEC Program, said there are three ACECs in the project area – Fowl Meadow, Ponkapoag Bog and Hockomock Swamp. Mr. Timmerman noted that the Attleboro alternative goes through a proposed ACEC.

Ms. Sorenson noted that Hockomock Swamp is misspelled and should not include an "a."

There were no further comments on the minutes, which were approved with revisions noted above.

Practicability Discussion

The group discussed wetlands mitigation. Ms. Egan noted again that specific wetlands mitigation would be integrated into the analyses later. VHB has preliminary results used for this phase, based on direct wetlands impacts. Lisa Standley, VHB, said the cost used is $500,000 to purchase and construct an acre of wetland. The current regulatory replacement standard is a 2:1 ratio, so the cost would be $1 million for each acre. She said that VHB used a worst-case scenario, which would be $10-$15 million for wetlands mitigation for the project. This is 1/10% of relative construction costs, so it would not change the rankings of any alternative for this criteria.

Mr. Anacheka-Nasemann said that the Corps does not assume a 2:1 ratio. Ms. Standley said she used a rough average from the Corps website as a starting point and considered DEP variance criteria. She thinks it is a reasonable baseline to work from. Mr. Anacheka-Nasemann said he can't comment on the information without the actual acreage and type of wetland. Mitigation will depend on the quality of the resource and rarity. For instance, if it is forested, mitigation will cost more. Mike McArdle, VHB, pointed out that even if the ratio were 3:1 or 4:1 the relative cost impact wouldn't change the rankings. Mr. Anacheka-Nasemann said he would like EOT and VHB to be certain of the estimates and that the project budget is sufficient to carry through with mitigation commitments. Ratios should be clarified in Phase 2 and mitigation projects should be the first to be built, not the last. Ms. Standley said that more detail will be provided in Phase 2.

John Felix, MA Department of Environmental Protection, asked if land purchases might affect the project timeline and extend the anticipated four year schedule? He said a variety of matters related to land acquisition can delay projects, such as court challenges. Mr. McArdle said the MBTA uses a 12 month rule for land acquisition. Joe Cosgrove, Massachusetts Bay Transportation Authority, said if relocations are necessary as part of acquisitions an additional 12 months is added to the timeline. Mr. Felix noted that once the MEPA/NEPA process is completed, there will still be a 2-year design period. He urged EOT to start with the ROW acquisition process, which could be time consuming, and to start immediately.

Ms. Egan said that Goody Clancy plans to update the Interagency group in April. The firm has been working with communities on priority preservation mapping and this will help with community endorsements for acquisitions. The Goody Clancy work will take 18 months. Smart Growth is an important focus of its work. EOT and Goody Clancy have a meeting scheduled on March 3 in Rochester to discuss that community's needs and plans. She added that it's important to relate mitigation to Smart Growth as transfer of development rights and other mitigation issues are discussed. She hopes to have a good regional understanding by Summer 2009.

Mr. Felix asked if hydrological connections are taken into account when considering mitigation? He suggested that sites contiguous to altered sites be considered for mitigation purposes due to the hydrological connection. Ms. Standley said the team is considering this matter to the extent practicable. Consolidation and banking are also being considered, which are allowed under the variance process. Ms. Egan noted that the Southeastern Massachusetts Commuter Rail Task Force will be developing regional mitigation principles. Mr. Guimond said the Task Force will want to be involved in wetlands mitigation decisions. Ms. Egan said this issue would be discussed further during the summer.

Ed Reiner, US Environmental Protection Agency, suggested the team look at lessons learned related to wetlands from the Old Colony Greenbush Line project. He noted that wetlands mitigation is not completed yet; however, the line is already operating. Greenbush is a good lesson and it might be good to require mitigation projects to be completed first. Ms. Egan suggested a working session on wetlands be scheduled for the group to discuss mitigation issues. Mr. Timmerman noted that permits dictate timeframe for mitigation projects and generally say they should be completed within 5 years of project completion. He said perhaps mitigation could be included in the physical infrastructure context. Mr. Reiner suggested regulators consider tightening mitigation requirements.

Mr. Felix asked if land subject to flooding was included on resource maps? DEP takes this issue seriously and it would likely require mitigation for this type of resource. Ms. Egan suggested the group revisit mitigation issues in a couple of months. Mr. McArdle said the most important point for the purposes of this discussion is that even with a higher wetlands replacement ratio, there would be no relative change to the rankings of alternatives.

Ms. Egan moved to a discussion of the Middleborough alternatives. She said the team recommended eliminating the corridor. The alternatives have significant constructability limitations, including the probable need for a tunnel in Quincy, and she pointed out the rankings on the Step 3 matrix. The team had analyzed several permutations of corridor alternatives and there were no noteworthy changes to overall relative rankings. Ms. Egan pointed out that Alternative #62 includes a Middleborough component. She asked the group members if they were comfortable with eliminating the corridor based on the capital cost and other constraints noted in the matrix rankings? Rick Carey, VHB, added that based on Criteria 2.4 and 2.5 rankings, Middleborough Alternative #64 (without infrastructure improvement) and #17 (full build) are not recommended to advance. Ms. Egan reviewed Alternatives #17 and #68 results from Step 2. She noted that Alternative #17, using the Middleborough Secondary, would cost a lot to build and includes a tunnel in Quincy Center. She said its overall cost-effectiveness ranking, at 38%, is in the lower bracket. The ridership ranking of 59% is mid-range and cost-effectiveness is 48%. The alternative's capacity is 8,640. She said Alternative #68 would utilize the existing corridor with no infrastructure improvements. From Middleborough Station south, the alternative would use the Middleborough Secondary to Fall River and New Bedford. The alternative's cost ranking is 63%, ridership is 41% and cost-effectiveness is 52%.

Scott Peterson, CTPS, discussed ridership. He said he used Journey to Work data from the 2000 Census to prepare the spreadsheet estimate. In discussing transfer penalties, he pointed out that if people must transfer in/out of vehicles more than two times, it is considered onerous. Mr. Peterson discussed transfers further, noting that connections and transfers within Boston were taken into account for the analysis of trips from the South Coast to Cambridge and Back Bay job centers in the Metro-Boston area. Ease of connections to the Orange Line, Green Line and Red Line for trip continuation to these centers was factored in. The higher the number of connections necessary to get to a destination, the more the route is considered to restrict service to desirable job markets. The recognized standard for transfer penalties is if

2 transfers are necessary to reach a destination, a person is less likely to use the alternative, so it is penalized in a ranking. Middleborough alternatives do not stop at Back Bay, so they do not serve that job center. Stoughton and Attleboro stop at both Back Bay and South Station, so they serve a broader market. Stopping at Back Bay is an advantage. All alternatives would stop at South Station and allow passenger to connect to Cambridge via Red Line. Additionally, without double tracks on the Old Colony line, train headways are longer, which is less desirable. He said Back Bay currently accounts for 45% of work trips to Boston. In addition, South Station also serves the Seaport market. Ms. Egan noted that additional workforce reductions might affect ridership.

Mr. Timmerman asked why ridership was not considered to South Station as the final destination? Liz Sorenson asked why the Red Line connection to Kendall and Cambridge was factored in? Mr. Peterson said the Boston market is considered to extend to East Cambridge, so the Central Square Red Line is included in the market. Transfers to the Green Line and Orange Line for destination points west are factored into the analyses. Ms. Monahan said she was surprised by how low Alternative #62 ranked for ridership and a travel time of 82 minutes. She asked why it was not an average of the Middleborough and Attleboro trips? Mr. Peterson said that CTPS looked at travel times from each terminus, and that the number was the longer trip, and the VHB rankings reflect this. Mr. Timmerman asked if the option of taking the train to South Station, then driving to metropolitan markets was evaluated against a transit trip with several transfers? Mr. Peterson said car travel within the Boston area was not calculated into the analyses, only public transit.

Mr. Timmerman asked for clarification on the modeling. Mr. Peterson said that train frequency and transfers to subways were included in the Middleborough analysis, so the New Bedford/Fall River trip was continued via Red Line to East Cambridge and access points to other markets via the Green and Orange lines. The more transfers necessary to get to a job market, the less favorable the ranking. A stop at Back Bay is favorable because it opens up more markets via the Orange Line and Green Line. In terms of comparing driving to Boston, auto trips were considered to terminate at South Station rather than extending to various parking locations throughout the City. He said based on the calculations using Journey to Work data, driving a car from South Station to other points within the metropolitan area or transferring to subway lines was considered a wash. Mr. Timmerman asked about the desirability of shifting between modes. Mr. Peterson said transfers take between 5-10 minutes. The combined in/out of vehicle time for a trip that transfers from South Station to Downtown Crossing via Red Line and then to the Green Line is comparable to any automobile trip. Ms. Sorenson asked why all trips were not terminated at South Station rather than continuing on to other market destination points to avoid complicating the comparisons? Mr. Peterson responded that many work trips are bound for the Back Bay job center. He also pointed out that access to the Orange Line opens up the Assembly Square market. The trade-offs in terms of trip time depend on the market. In-vehicle time is not weighted as heavily as out-of-vehicle time. Lealdon Langley, Massachusetts Department of Environmental Protection, reminded the team that trip times may need to be adjusted due to the MBTA readjusting schedules for certain existing commuter rail lines. He also noted that times may change due to the addition of tracks at South Station. Ms. Egan responded that the US Post Office move is factored in as part of this project and will be done within the project timeframe.

Ms. Egan returned the discussion to the Middleborough alternatives. She said there were four alternatives considered entering into Step 3: commuter rail to South Station via Middleborough, commuter rail to South Station with a Red Line taking, and the new alternative suggested by Mr. Timmerman (Alternative 64) that uses existing infrastructure and Alternative #62 that uses both Attleboro and Middleborough to reach South Station. The team recommends advancing Alternative #62 to Step 3.

She asked the group members if they were willing to preliminarily eliminate the other Middleborough alternatives? All decisions would be revisited during the Circle Back phase. The main issues for the alternatives proposed for elimination are the need for a tunnel, an 8-year construction period, high cost and the impact of taking the Red Line. Alternative #62 provides two times the capacity of extending the Middleborough line (#64). She said environmental issues associated with the Attleboro corridor argue for a Middleborough route, but the ones using only Middleborough aren't cost-effective. Mr. Carey noted that a number of iterations of Middleborough have been evaluated. The team would like to begin Phase 2 with a diversity of alternatives but not a large number.

Ms. Sorenson asked if a tunnel is the only option for the Quincy area? Ms. Egan said that New Bedford Mayor Lang is asking for creative ways to make a Middleborough option work. There are several options for the route through Quincy Center: (1) take the Red Line, (2) build next to the Red Line, (3) build above the Red Line, or (4) sink the Red Line in a tunnel. A tunnel is not practicable. Bridge flyovers and takings are also complex. The train cannot handle grades that would result from a tunnel or flyovers; however, the Red Line could handle them better. Also, Quincy has granite deposits in the area. Ms. Sorenson asked about an option to end the commuter rail at Quincy Adams? Ms. Egan said the Red Line, which is already heavily utilized, would be overloaded and the transfer would make it less desirable. Ridership could be increased over time, but the Braintree bottleneck will have to be broken eventually. The project is subject to a 20-year planning cycle and there are political realities for each alternative.

Mr. Timmerman said he would like to advance #62; it's an interesting approach. He is surprised at the numbers for #17; particularly with regard to cost, more than schedule. He understands the constructability and practicability issues. He wondered if casino mitigation might somehow come into play. Ms. Egan noted that the casino site is about a half mile from the right-of-way. Mr. Timmerman noted the cost of Alternative #64 (Middleborough without improvements) was really highlighting the cost of the line south of Middleborough.

Ms. Egan said the group still has decision points in the Step 3 process. EOT will present preliminary recommendations on alternatives to advance to Phase 2 to the legislature this week and the public next week. She said she will outline the pros and cons for all alternatives and emphasize that the alternatives presented are preliminary. She said the group could then make its final recommendation after the public input. She noted that it will be important to be firm about the drawbacks of the monorail and Middleborough alternatives when going out to the public. There are serious constraints. Mr. Guimond noted that the Town of Middleborough views the casino as a "done deal" and that the tribe has agreed to do work on Route 44. He suggested any requests to do more might be considered excessive. SRPEDD had asked the Tribe to upgrade I-495, but was told that was not acceptable. Mr. Timmerman said that whatever the mechanism, it would not have to be specific to the casino.

Mr. Anacheka-Nasemann said he attended a meeting about the casino. The Bureau of Indian Affairs (BIA) will prepare an EIS on the project. The government may put the land in Federal trust, which gives the tribe autonomy, including on wetlands issues. The Corps is cooperating on the project and during scoping the Middleborough alternatives may come up. Ms. Egan said there have been discussions about a station and a connection via shuttle to the casino, but there is no tie between the two projects now. Mr. Timmerman said he has questions about the ridership projections. Ridership could include regional movement such as workers from New Bedford traveling to Middleborough for the casino. Mr. Anacheka-Nasemann said he will keep abreast of the casino project and he is Corps' lead on it. The scoping session is planned soon. Mr. Timmerman said the session was planned by the BIA for the end of the month: the Federal Register Notice of Intent was recently issued. Mr. Anacheka-Nasemann said the

meetings are planned for March 23 and 24 and comments are due by April 29. Mr. Guimond noted that the spur to Wareham would open up the casino to the Cape market. He said that workers might not be able to depend on commuter rail to get to the casino because shifts may not coincide with train schedules. SRPEDD has suggested an express bus or diesel multiple units run to Middleborough from New Bedford/Fall River, which would provide flexibility for riders in either direction without eliminating a link to the Cape. Mr. Anacheka-Nasemann said higher ridership is likely and the group should keep it in mind.

Ms. Egan asked the group if it could agree to eliminate the Quincy tunnel and Red Line taking alternatives and advance Alternative #62? She also asked if members wanted to advance the extension of the existing Middleborough line or subsume it into #62? She asked for members' thoughts on these questions. Ms. Sorenson asked if a problem arose with #62 during Phase 2, could the group go back to the existing Middleborough alternative? Ms. Egan said that it was fair to say that it could be revisited. Ms. Sorenson clarified that after Step 3 only four routes would advance with nine alternatives. Ms. Egan pointed out that the four routes are very different and provide the needed diversity. She added that she intends to ask the group to circle back to revisit earlier decisions to make sure members are comfortable with the range of alternatives. This will be the final step before advancing to Phase 2, after the list is further narrowed to an appropriate number of alternatives. Using the matrix showing the results of Steps 1, 2 and 3 and the nine remaining alternatives, Ms. Egan asked if the group could agree to eliminate alternatives? Matt Schweisberg, US Environmental Protection Agency, said he was not comfortable eliminating #64 right now. Ms. Egan said she would like to flesh things out and have something to present to the public. Mr. Anacheka-Nasemann said it's important the public not have the perception that alternatives were eliminated prematurely. Ms. Egan said she would like to have a preliminary recommendation to advance Alternative #62 and #64.

Phase 1, Step 3 – Continuation of Alternatives Analysis Discussion

Ms. Standley reported that nine alternatives had advanced to Step 3 and VHB prepared a short list of issues and a new version of the matrix. Evaluation criteria were reviewed at the February 28 meeting and the group recommended eliminating four alternatives - #3, #32, #33 and #43. Ms. Standley said that VHB had requested additional input from Mr. Lehan and Jon Regosin from NHESP. She reported that Mr. Regosin had performed a complex analysis and developed a ranking for Criterion 3.3. He looked at new and abandoned rights-of-way and focused on impacts. Areas he looked at included the Attleboro Bypass, Stoughton station to Cotley Junction and the Dartmouth Secondary. He based the analysis on the length of impacted area, the number of habitats and species present in close proximity to the right-of-way and added this to the ranking for the total area of priority habitat. He weighted Criterion 3.3 with scores of 1 to 11. For Stoughton, he considered commuter rail, electrified commuter rail and diesel multiple units (DMUs). DMUs would require two tracks through endangered species habitat. The other alternatives would be on a trestle. Mr. Timmerman asked if a road would be associated with the trestle and would construction be in the right-of-way? Ms. Standley said that there would be no service road and construction would be in the right-of-way. Ms. Sorenson asked why DMUs would not use a trestle? Ms. Standley said DMUs must be double tracked due to high headways, and that a trestle would not be practicable. She said additional piers would be necessary for a trestle. Mr. Anacheka-Nasemann asked if the length of wetland included indirect impacts and if secondary impacts such as clearing were considered? He pointed out that the Hockomock Swamp has a large overhanging canopy in areas and other habitats. Ms. Standley said the calculations were for the length of new and abandoned rights-of-way crossing wetlands. Edge calculations and other impacts such as clearing were not included at this level, but would be factored in on a case-by-case basis in Phase 2 where more detail is available. Ms.

Egan pointed out that the Attleboro line is already cleared. Phase 2 will look at conditions on the ground in more detail.

Mr. Felix asked if EOT and VHB agree with the NHESP analysis? Mr. Lehan noted that NHESP used favorable to highly unfavorable rankings. The two Stoughton alternatives that would require a trestle were considered highly unfavorable; however, NHESP is comfortable with carrying the alternatives to Phase 2 for a more detailed analysis. There was discussion about NHESP's analysis. Mr. Lehan said a narrative to accompany the analysis is a challenge in describing the nuanced analysis. The scores were very close. The narrative should be refined. Ms. Egan asked why NHESP was amenable to including alternatives with unfavorable rankings? Mr. Lehan said that there is a distinction between DMUs and other alternatives. The question is how to more precisely articulate the information. Ms. Standley noted that there wasn't enough time to discuss the matter further in this meeting. Ms. Egan pointed out that the analysis would be part of the MEPA/NEPA document.

Ms. Sorenson noted the group had received a more detailed memo describing the Step 2 analysis. Would members like to receive one for Step 3? Ms. Standley said one had not been prepared for today, but it would be distributed soon. She added that the Criterion 3.1 ranking definitions would be spelled out in the memo. There were several different metrics used, which made it difficult to present in the matrix. Mr. Felix suggested using asterisks for highly unfavorable rankings with an explanation. Mr. Lehan said there is a gradation between unfavorable and highly unfavorable. He noted the qualitative differences between the trestle alternatives needs explanation. Ms. Standley pointed out that the matrix captures the intent of the analysis. DMUs are highly unfavorable, commuter rail is less unfavorable and the others are neutral or favorable. Mr. Schweisberg suggested a brief explanation be included in a methods section. Ms. Standley said VHB would update Step 3 documents with the new information and distribute them in a day or two. She pointed out that wetlands types and cover types were not included in the analysis at this level. There are differences, such as a less favorable ranking is usually assigned to salt march impacts. Ms. Sorenson asked how minor wetlands loss was defined? Ms. Standley said there is a spread of values and the information is presented as a relative comparison to the other alternatives. The purpose is to propose alternatives to dismiss without doing so too early.

Ms. Monahan asked why DMUs on Attleboro did so well in Criterion 3.6 (consistency with smart growth), but buses were ranked unfavorably. Ms. Egan said the DMUs have more frequent headways. Ms. Standley noted that Attleboro did well under all categories, serving three population centers and providing access to six 21E sites for better opportunities for development. The DMU alternative also avoided the need for the bypass, so loss of land was limited. Ms. Egan added that downtowns are served for this alternative where buses are neutral or unfavorable in serving population centers. She added that Fall River, New Bedford and Taunton would be served with a highway alternative, but there would be little help for brownfields and historic center development, except around the terminal stations.
Ms. Egan said that highway alternatives #43, #44 and #45 advanced to Step 3. Ms. Standley said that #43 (Bus Rapid Transit to Route 128) was recommended for elimination due to impacts to the Blue Hills Reservation. In addition, the alternative would drop people at the existing Route 128 commuter rail station, which already suffers from congestion and lack of seating capacity.

Ms. Egan reviewed the other alternatives in the matrix, using a PowerPoint handout. She pointed out that buses in general did not perform well on smart growth and capacity criteria, which is part of the project purpose. She has also heard that the region does not want buses. Ms. Monahan said that in the next phase, she hopes the team will look at ways to optimize the bus alternatives; for instance, considering other origination points in addition to Fall River, New Bedford and Taunton as a way to

improve performance and regional mobility. Mr. Timmerman noted that without appropriate land use policies there was no guarantee that development would follow smart growth principles. Results of an alternative based on smart growth can depend on how attractive it is made.

Ms. Egan said in general commuter rail alternatives assumed 6 peak period trains with 8 cars. For comparison, commuter rail trains have headways of 40 minutes. DMUs have headways of 7.5 minutes. Both Attleboro and Stoughton alternatives would serve downtown Taunton. Mr. Reiner asked about the assumption that commuter trains would be 20 minutes apart when the separation is 30 minutes on the Lowell line and also how they could meet the schedule given capacity issues? Ms. Egan said assumptions were made on the basis of MBTA service delivery policy. It is a baseline for comparison purposes not indicative of actual service times. She said that three trains would originate from Fall River and three from New Bedford. On the separate New Bedford and Fall River spurs, the headway would be 40 minutes. When the trains from each spur are running on the same track the headways would be 20 minute intervals. Mr. Anacheka-Nasemann asked if the team had taken a good look at Whittenton Junction and the Pine Swamp and asked if Stoughton numbers might change? Ms. Standley said that detailed analysis would be performed in Phase 2. Mr. Anacheka-Nasemann said the alternatives must be fully vetted in the next phase. Mr. McArdle reiterated that the rankings are comparative at this stage – the 10,000 foot level. Rankings from this phase will not be carried forward. Once alternatives reach Phase 2, they will be looked at with a fresh eye.

The group discussed the analyses "bell curve" method for assigning rankings. Mr. Felix asked about the difference between rankings of 8, 9 and 10 for Criterion 3.3. Ms. Egan said she is uncomfortable with the scale from a public transparency perspective and asked if it could be changed? Ms. Standley said VHB used NHESP's rankings for the criterion. Mr. Lehan said that NHESP staff had made a good faith effort to sort out alternatives using trestles versus those that don't to a level that would be helpful. Rankings are closely grouped. Reiterating distinctions would be useful. Mr. McArdle added that the scores are relative to each other. The group will have opportunities to comment in the next phase as alternatives are defined and analyzed in more detail. Mr. Felix asked if NHESP staff had based analyses on opinions or run the analyses first? He said that public transparency around this issue is important. Ms. Standley clarified that NHESP has done an objective quantitative analysis. Ms. Egan suggested keeping the scale but including an explanation. Ms. Standley added that the range is reasonable and does not result in eliminating any alternatives prematurely. She will explain the analyses and distribution in the Step 3 memo. Mr. Anacheka-Nasemann noted that the Pine Swamp is a mapped priority habitat and requested that the use of the Whittenton route as a bypass be built into the analysis.

Jerome Grafe, Massachusetts Department of Environmental Protection, asked VHB about the Route 128 route map. He was interested in impacts of the Stoughton corridor to Fowl Meadow ACEC and the bus alternatives' impacts on the Blue Hills Reservation and Ponkapoag Bog ACEC. Would the criteria for this project be the same as those used by MHD for the Add-a-Lane project? Ms. Standley said the dedicated bus lane would be entirely within the Blue Hills Reservation. She pointed out that the Add-a-Lane project ends at the Route 128/I-93/I-95 interchange. Ms. Sorenson asked if the Add-a-Lane could use the median in that area and the bus use an outer lane. Mr. Carey said the northbound side could work, but the southbound side would need an outside lane, which impacts the Blue Hills. Mr. Langley noted that in meetings with MHD, he learned that the Add-a-Lane project stormwater structures are beyond the outside highway lanes.

Mr. Grafe said he could agree to drop Alternative #43 but would like #44 and #45 to continue into Phase 2. He has concerns about zipper lane impacts and air quality benefits. In addition, general

purpose and HOV traffic tie-ins are difficult. Regarding smart growth, Criterion 3.6, he suggested a feeder bus system that ties into the HOV bus system and the I-93 to Route 24 corridor. Smart growth and ridership could be improved if a wider commuter-shed could be accommodated, providing more benefits.

Mr. Schweisberg asked if indirect impacts had been evaluated on the Northeast Corridor? Does the length indicated include edges? Ms. Standley said new and abandoned rail beds were evaluated for indirect impacts, not existing active lines. Wetlands crossings were analyzed, not edges.

Ms. Sorenson asked if open space impacts were the only reason for eliminating #43? She said that the breakdown lane is used currently for rush hour travel. She's interested in the ridership comparison. Mr. McArdle said that the alternative ends at Route 128 and I-95. #43 has a ridership ranking of 29%. #44 has a ridership ranking of 49%. The ridership for #43 is penalized for the transfer required to the commuter train at Route 128. He added that by the time the trains get to Route 128, there are usually no seats available so quality of service suffers and it becomes an unattractive alternative for commuters. Mr. Guimond noted that the bus alternatives are neutral or unfavorable on criteria 2.2 and 2.5 for providing sufficient capacity to meet demand (2.5) and compatibility with existing and planned future regional transportation systems (2.2). Mr. Timmerman suggested that the Blue Hills open space impact should be weighed relative to the quality of the resource. He added that acquisition of a better quality parcel might offset the loss of the land near the highway. The issue shouldn't be the tipping point. Ms. Egan noted that #43 is the worst performing bus alternative in terms of open space impacts, but the team would like to eliminate it because it performs poorly on a number of criteria, not just open space. If all previous criteria (from Step 2, etc.) are added up, #43 falls out when compared to the other bus alternatives. Ms. Egan noted that the group had agreed to the evaluation criteria before the analyses began. When looked at as a stand-alone or relative to other alternatives, #43 ranks highly unfavorable and drops out.

Mr. Grafe asked if increasing capacity on the Northeast Corridor is possible? Are there constraints at Back Bay or South Station? Mr. McArdle said the constraints are in the section from Route 128 to Canton Junction. An additional one to two trains are possible without adding rail infrastructure. Ms. Sorenson noted that the MBTA had looked at adding a third track as part of the Westwood Station project. Amtrak had considered adding a track; however, it elected not to go forward due to cost and environmental issues. A project to add a third rail is not currently on the books.

Mr. Schweisberg felt that some alternatives and criteria are being viewed at the 10,000-foot level, while others are evaluated in more detail, for instance the NHESP and wetlands issues. He said that while this is not necessarily bad, it could create issues around transparency. He said the group should develop a logic for dismissing or keeping alternatives that distinguishes the differences between the broad brush and detailed evaluations. Ms. Standley clarified that the same criteria were used to evaluate all alternatives.

Ms. Egan said the EIR can't have 10 alternatives, so the list must be narrowed. She would like to have a diversity of corridors and modes of transportation represented in the alternatives that are advanced to the MEPA/NEPA phase. The group discussed the pros and cons of the alternatives presented in the PowerPoint handout. Mr. McArdle asked the group to circle back and agree to eliminate #43. Even if the alternative's ranking on Criteria 3.4 were changed from highly unfavorable to unfavorable, it would still not perform well enough to be advanced to the next phase. Mr. Langely suggested that including an overall ranking might help when single criteria rankings are ambiguous. Ms. Egan said the group did not agree earlier on values for criteria. It's not simply a case of quantifying and averaging. This is the

reason she would like to circle back before the group makes its final recommendations. The group agreed to keep #43 in and change its criteria 3.3 and 3.4 rankings from highly unfavorable to unfavorable.

Ms. Egan suggested the group eliminate DMU alternatives (#32 and #33) due to the need for double tracking and associated wetlands impacts. She pointed out that #34 (electrified commuter rail) would have greater wetlands impacts due to catenary footings and longer sidings, which are necessary for the electric option. Mr. Felix objected to carrying the remaining two Stoughton alternatives due to impacts. Regarding alternatives #30 and #34, Mr. Timmerman asked if it was possible to look at them as if they were one alternative, with two ways to accomplish it (commuter rail or electrified commuter rail)? Mr. McArdle said there are operational differences for the two types of commuter rail; trip time, noise and other factors vary. Even though they are on the same corridor, they must be looked at as two different alternatives. He cautioned that the group should be careful about eliminating an alternative that might end up to be the only practicable one from a transportation perspective, but rather to keep some options open. For that reason, he recommended keeping #30 and #34. Mr. Anacheka-Nasemann noted that in 2002, the Stoughton alternative was the sole feasible alternative. The process ensures alternatives are open and moving forward. He is comfortable with most of VHB's conclusions.

Ms. Standley asked if the group could eliminate #3 (Commuter Rail via Dartmouth Secondary, New Bedford Secondary and Attleboro Bypass) based on the extensive environmental impacts? Members agreed to eliminate this alternative. Mr. Felix said the bell curve seems to work for high value ACECs, wetlands and endangered species criteria. He said that bordering vegetated wetlands impacts should also be evaluated. DEP considers these to have important value. Mr. Langley noted that #30 and #34 were less unfavorable for wetlands and endangered species than #32 and #33. Acreage of wetlands loss was also less for those alternatives.

Ms. Egan reported that the Southeastern Massachusetts Commuter Rail Task Force sent a letter to her supporting moving the process forward quickly and ensuring high quality service. Improved performance and air quality and reduced wetlands loss are important. Alternatives must be evaluated with more detail with an eye toward a diversity of corridors and modes. She said it's uncertain at this point if Stoughton would be the only LEDPA or if it's the most environmentally damaging alternative.

Ms. Egan noted that the group has now increased the number of alternatives from 9 to 11 that will advance to Phase 2, including #43 and the extension of the existing Middleborough line (Alternative 64). The number must be reduced, so she would like to circle back. She asked if the group could eliminate #43 based on lower quality of service and higher impacts than the other bus alternatives? Mr. Timmerman noted the difference between #45 and #44 is that #45 is not under state control, but is operated by private carriers. He also pointed out that Bus Rapid Transit would be controlled by the state and would operate more like commuter rail, which makes it more attractive. Mr. Schweisberg said he needs to review and consider previous materials before he will be comfortable with circling back. After further discussion, the group agreed to drop #43 and #6 (DMUs via Dartmouth Secondary). Mr. Guimond noted that the transfer requirement for DMUs decreases the value of those alternatives. From a regional perspective, they should be eliminated.

Mr. McArdle reviewed the team's recommendations:
Alternative #1, eliminate – marginal for 2 transportation criteria and neutral for 3 environmental criteria
Alternative #5, carry – acceptable on environmental criteria, weaker on transportation (mobility and purpose)
Alternative #6, eliminate – unfavorable environmental performance

Alternative #7, eliminate – neutral for transportation and environmental criteria
Alternative #30, carry – performed well on transportation criteria, environmental criteria poor
Alternative #34, carry – environmental impacts same as #30, but air quality improvement
Alternatives #44 and #45, carry
Alternative #62, carry

Mr. Reiner did not agree to dropping Alternatives 1 or 7 at this stage. Ms. Egan agreed that they would be presented to at the Civic Engagement meetings next week as alternatives that were not dismissed in Step 3.

The group did not agree to narrow the alternatives list further despite the team's recommendations. Ms. Egan thanked the members for their time, noting that they would meet again at the end of March to narrow the list further before the MEPA/NEPA phase. She invited members to attend the public meetings next week. She said the team would document public input, which the group could consider at the next meeting in order to make recommendations for the decision about the Phase 2 alternatives list in April.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- Civic Engagement Meetings scheduled for March 10 (Attleboro), March 11 (Lakeville), March 12 (Freetown).

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #9

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: February 28, 2008 - 9:00 to 11:45 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Samir Bukhari	US Environmental Protection Agency
Joe Cosgrove	Massachusetts Bay Transportation Authority
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Greg Guimond	Southeastern Regional Planning and Economic Development District
Bruce Kaplan	Central Transportation Planning Staff
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Scott Peterson	Central Transportation Planning Staff
Edward Reiner	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation ACEC Program
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmermann	US Environmental Protection Agency

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Cover Memo: Alternatives Analysis – Step 2 (Updated from last week); Matrix: Alternatives Analysis – Step 2 (Updated from last week); Cover Memo: Alternatives Analysis – Step 3; Matrix: Alternatives Analysis – Step 3; Middleborough alternative data; DVD of Middleborough alternative infrastructure constraints; Packet of environment-related public comments; Description of each alternative

PURPOSE/SUBJECT:
Complete review of the results of the second part of the preliminary Step 2 Alternatives Analysis process and begin the Step 3 analysis with members of the committee. Provide follow-up information from previous discussions.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay

Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The ninth meeting focused on a review of the results of the last elements of the Step 2 analysis of alternatives, Criteria 2.4 and 2.5, and the beginning of the Step 3 analysis. In the next meeting, the group will complete the analysis for Step 3 and look back at earlier steps and recommendations in light of all of the data collected and discussed to date.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list). She dealt with a couple of business items. One handout is a spreadsheet and copies of comment letters the team has received on the project related to environmental issues. (Members are welcome to request copies of other letters in the list.) The team hopes to finish the Step 2 discussion today (Criteria 2.4 and 2.5), then begin the Step 3 review. Next week, the group would finish Step 3 and revisit the alternatives in light of all the information collected, presented and discussed. At the end of next week's meeting, Ms. Egan hopes there will be a set of alternatives to bring to the Civic Engagement meetings the week of March 10. After the public comments have been reviewed by the Interagency Group, there will be a final review of the process and alternatives.

Ms. Egan asked the participants to introduce themselves (see the attendance).

Approval of 2.21.08 Meeting Minutes

Ms. Egan asked for comments on the draft minutes of the February 21 Interagency Group meeting. Lealdon Langley asked a clarifying question about the monorails in Canada. Mike McArdle, VHB, said they are really people movers and are rubber-tired. They are not true monorails.

Alan Anacheka-Nasemann said that the minutes appropriately reflect his comments on the need to review the Phase 1 narrative report on the alternatives screening process before the Army Corps can give its approval to the conclusions. Ms. Egan said the Interagency Group will receive the narrative before being asked to approve the draft recommendations. She reminded them that there is a lot of information available, but at this point, the data are best guesses without detailed information and the process will begin again in Phase 2.

There were no other comments on the minutes. Because Tim Timmerman was not at the meeting yet, formal approval was delayed until he arrived. (NOTE: the meeting ran late and the minutes approval was not revisited.)

Presentation on Step 2, Screening Criteria 2.4 and 2.5

Rick Carey, VHB, presented the data in the Step 2 matrix for Criteria 2.4 and 2.5. Mr. Carey reminded the group that Step 2.4 deals with capital cost, including estimated cost (in billions); cost score; ridership score; cost effectiveness score; and ranking. These are the most analytical elements of the analysis and he walked through the calculations.

Column 1, the estimated capital cost, ranges from a low of $90 million to a high of $2.4 billion. The team converted the cost into a score, ranging from a minimum of 0 for an alternative that would attract no riders to a theoretical maximum of 100. The higher the score, the better the rank.

Ridership estimates prepared by the Central Transportation Planning Staff (CTPS) from a simplified version of the regional model were also converted into a score. Again, there is a range of highest to lowest, with the lowest being alternative #5, the DMU Commuter Rail to Attleboro. The highest score is #34, electrified Commuter Rail to South Station via Stoughton.

The members discussed the issue of how the rankings might change with more detailed investigation, in particular related to travel time. The electrified options rank much higher but all of the aspects of travel time are not included at this level of investigation. Scott Peterson, CTPS, said that the travel time may decrease on the electrified options when there is more data, but he does not think the relative rankings will change. Transfers cause some alternatives to rank lower, and as long as they are present, they bring a time penalty. Mr. McArdle said that electric options are always better than diesel ones since the electric engines accelerate and decelerate more quickly. Mr. Peterson added that the ridership estimates only include 2000 Census Journey to Work data and not other trips, so the data in Phase 2 will provide a better feel for this topic. But on technical issues, he does not expect much change in the ranking. There were other clarifying questions about the assumptions. The team members said the capital cost estimate includes a trestle on the Stoughton commuter rail alternatives through the Hockomock Swamp, vehicle purchases, grade crossings, linear feet of track values, and more. There is a spreadsheet behind each of the capital cost numbers. The Step 2.4 estimate does not include wetland mitigation costs, since these are dependent on Step 3. The EOT team agreed to revisit Step 2.4 after Step 3 and incorporate mitigation costs. Mr. McArdle reported that EMUs – or Electric Mobile Units – exist only as plans and have not been built. (They might have advantages over DMUs, but they don't exist yet in reality.) Referring to the population data, Greg Guimond, SRPEDD, said there has been a 35.5% increase in trips from the study area so there is a good chance that the 2000 Census data underestimates the demand. Mr. Peterson said he grew the population forecast by 20% to allow for this kind of factor.

Returning to the matrix and analysis, Mr. Carey described the cost effectiveness score as an average of the cost and ridership scores. The rankings are described in the Step 2 Memo. The team found that the spread of scores fell into a typical bell curve with a few options at each end, high and low, and most falling in the middle of the curve. Alternative #45 has the highest score and #41 the lowest. The cost of #41 and the low ranking gave it Unfavorable status, so it fails to meet the criteria. It is the only alternative to fail Step 2.4.

Ed Reiner, U.S. Environmental Protection Agency, asked about the assumptions for the bus service options. Mr. McArdle said that the team presumed a standard operating scenario, which includes three buses each, 15 mins apart from New Bedford, Fall River and Taunton during peak travel time. More buses would be difficult to load at the stations and would also tie up the highway system. Steve Smith, SRPEDD, asked about bus lanes and the route to Boston. Mr. McArdle said that the buses would travel in general traffic on Routes 140 and 24 up to Interstate 495; travel in a zipper lane in the off peak direction up to Route 128 (Taunton to Randolph); and would use a dedicated bus lane to connect to the expressway zipper lane to reach Boston. Buses would share the HOV lane to Boston. Mr. Smith said that although Mass Highway Department has completed a study of converting Route 24 into an interstate highway (at a cost of $122 million), there are no plans to implement the study (it is not in the regional transportation plan). (Ms. Egan reminded everyone that the assumptions are based only on proposals or plans already in the regional transportation plan.) The members discussed the idea of changing or tweaking some of the assumptions; for example, giving the expressway zipper lane only to buses. The team said that this can be done, especially in Phase 2, if there are promising ideas or permutations. Ms. Egan said there is a tension in this process and when the group circles around the alternatives next week the members can

look at some of these underlying assumptions, which they are finding very helpful. Mr. McArdle pointed out that only one option is falling out in this criterion due to its very high cost.

There was a discussion of bus capacity and options. Liz Sorenson, DCR ACEC, asked about feeder bus service and learned that it is being carried forward as the No Action alternative. Mr. Carey said the next criterion would include a discussion of vehicle capacity.

Criterion 2.5 asks if an alternative provides sufficient capacity to meet demand. The first column lists the capacity of the mode. Commuter Rail carries the largest number of passengers: 8640 (8-car consists – or trains of double stacked trains with 40-minute headways, running 6 trips during peak hours). DMUs have the next largest capacity, at 4416 (3-car consists, 15-minute headways during peak times). Buses could carry 2700 in coaches, based on 3-bus platoons and 15-minute headways. On mode capacity, then, Commuter Rail ranks highest, DMU is in the middle or neutral position, and buses meet less than 50% of demand.

Demand was measured in terms of the number of daily work-related trips between South Coast communities and Boston. For this analysis, the latent demand for transit (the 2000 Journey to Work data) were compared to the maximum capacity of each alternative. The ability of each alternative to meet possible future ridership potential was calculated as the percent of capacity. Mr. Carey suggested that the demand figures are conservative since they are based on 2000 figures.

There was a brief discussion about the use of only three of the graphic symbols for the ratings versus all five. The team could use all 5 in a column even if none of the alternatives were rated at the extremes.

Mr. Reiner asked why the bus capacity number is low. Mr. McArdle said the number is based on typical bus operations. At a time certain, say 7 AM, riders board three buses, then there is another set of three buses 15 minutes later. For operational reasons, there can only be so many buses loading at one time. The BRT would have no stops north of Taunton. The enhanced bus would stop at park-and-rides. In the next phase, the team can work with CTPS to pose a number of questions, such as will ridership warrant capacity? For both buses and commuter rail. Mr. Peterson added that he can run the model both constrained and unconstrained. This could include articulated buses or double decker buses and other options.

Ms. Egan asked if it was possible to gather concurrence on the Step 2 recommendations before going on to Step 3. Only one option, #43, is recommended not to pass based on Steps 2.4 and 2.5.

Mr. Timmerman asked about the data he was interested in with regard to the Middleborough Alternatives as presented in the FEIR. Mr. McArdle said it was contained in the meeting packet. He reviewed the chart and said the information was based on detailed modeling from the last environmental review. Mr. Timmerman suggested that the option compares favorably to bus and it was his memory that during the last review, some of these options were constrained by the MBTA's Service Policy. Mr. McArdle said that the constraint is an infrastructure one in this case. The Middleborough options would only permit five trips a day, three of them during peak periods, in essence two of them from one city and one from another during rush hour. Mr. Timmerman and Ms. Egan asked if this option could be compared against the others in Step 3. Mr. McArdle said it could but it is hardly fair. There is a big difference in potential ridership capture. Mr. Anacheka-Nasemann said he would like to see how the Middleborough alternatives would place in Steps 2.4 and 2.5. Mr. McArdle said it can be done, but he does not think these alternatives will meet demand. Alternative #62 retains the Middleborough route and

service on this route (without infrastructure improvements) would be comparable to what was presented in the FEIR. The other leg – through Attleboro – performs twice as well since it is not constrained.

Mr. Timmerman said he is concerned that EOT convey to the public at the civic engagement meetings that the Interagency Group members are still reviewing the alternatives and are not 100% confident of making a decision yet. Ms. Egan said she would not mislead the communities and will clearly present the Step 2 data as draft; in any case, EOT is seeking public input and would not finalize the material before the meetings and the completion of the report. Mr. Felix said he is more concerned about items dropping out. Mr. Anacheka-Nasemann said he is not concerned about the process, but would like to see Middleborough data for criteria 2.4 and 2.5. Mr. Timmerman said that EPA feels that there are often proposals that the proponent doesn't want to look at that may provide the basis for a solution in the context of the NEPA process. This requires teasing out the differences between alternatives, understanding the assumptions and being open to possibilities. He confirmed that he does not expect to revisit the mile-long tunnel as an alternative to double tracking between Braintree and Boston, but he does think that further understanding the possibilities for the Middleborough route has value. Ms. Egan said VHB would attempt to do a quick analysis, although she is not sure what can be accomplished by next week. Mr. Timmerman responded that there is some tension in this process and EPA has to make informed decisions and that will be part of the MEPA/NEPA process. Ms. Egan said she is hoping not to face surprises in Phase 2, which is one of the reasons that EOT has undertaken an extensive Phase 1 process.

Mr. Smith said part of the tension is that an environmental group appears to be making operational decisions. The perception in the communities is that is the role for transportation experts. Mr. Anacheka-Nasemann said the LEDPA chooses the most practicable alternative with the least environmental imapcts. Mr. Smith said there is a strong perception that the Middleborough route does not meet the region's transportation objectives. Ms. Sorenson asked about a possible route connecting Brockton to Stoughton; Mr. McArdle responded with information that there is no longer a right-of-way, there is a hill in the way, and there are other issues. Mr. Langley turned to the idea of eliminating Mansfield alternatives due to the nature of the impacts on the built environment. He expressed concern that this kind of elimination could result in the choice of an option that would have more of an impact on the natural environment. This is a difficult tradeoff. Mr. Anacheka-Nasemann said that Mansfield would fall out of the mix on the practicability scale. Ms. Egan said she is sympathetic to Mr. Langley's position and this kind of project requires balancing different values and coming to a conclusion. Mr. Timmerman said he is asking about Middleborough because it is possible that the best solution from EPA's point of view is one that meets less than 100% of the goals, perhaps 80 or 90%, and has less impact on the environment.

Mr. Smith said that the Mansfield option is more than disruptive: it would be impossible to mitigate. Mr. Felix said that DEP has no hard and fast rule on variances, depending to some extent on past decisions, but DEP has issued wetland variances for airport safety projects and understands the need to preserve the safety area at the Mansfield Airport. Ms. Egan asked VHB if a capital cost estimate could be prepared for Mansfield. Mr. McArdle said he could not do so in a reasonable time frame. He would have to calculate how to replace the main street, reconfigure the entire downtown, etc., and it was a complex task.

Ms. Egan said that the group will revisit some of these issues after the completion of Step 3 and VHB will estimate figures for Step 2.4 and 2.5 for the Middleborough options. She summarized the results of the Step 2 analysis: elimination of #37, 38 and 39 (monorail); #40, 41, 42 and 63 (variations of Commuter Rail, Light Rail and Heavy Rail); # 2 (reverse move at Attleboro); the group will come back to #17 and 18 (Middleborough options). She asked if there were any objections to this plan and there were none. Mr.

Anacheka-Nasemann said he reserved the right to review the narrative report before giving agency approval.

Presentation, Phase 1, Step 3

Lisa Standley, VHB, said she would make a presentation on the assumptions used in the Step 3 process before reviewing the matrix and results with the members. She used a PowerPoint presentation and a series of color maps to highlight the presentation. The objective of this step is to dismiss alternatives that are likely to result in substantially higher environmental impacts than other practicable alternatives.

To explore the assumptions, Ms. Standley led the members through maps for a series of critical project segments: Northeast Corridor, Attleboro Bypass, Stoughton Right-of-Way, Dartmouth Secondary, Fall River and New Bedford lines (which were not covered due to lack of time; they were thoroughly examined during the previous environmental review), and Route 24/128. She explained their links to the alternatives, the differences between modes and the findings. (Ms. Standley highlighted locations of vernal pools, Zone 1s, Priority Habitats of Rare Species, protected and recreational open space and other important features, along with the ROWs and other data for each map/area.)

Northeast Corridor – Canton Junction to Readville: Alternatives 1, 3, 7
This area includes the Fowl Meadow and Ponkapoag Bog; vernal pools; and a public water supply well. Triple tracking would be required through this segment due to impacts on the North East Corridor. (Ms. Sorenson asked if Amtrak was already planning to install the third track. Mr. McArdle thought that was not the case and he would check that information.) The existing track is in the ACEC. She noted that the team is working with GIS maps and they do not provide all of the data the team needs to estimate impacts as they would like to do at this time. The GIS maps tend to underestimate the extent of wetlands. VHB previously delineated and flagged some of these wetlands before, however, and that information is at a much higher level and was used in this analysis.

Attleboro Bypass: Alternatives 1, 3, 7, 62
The bypass is the new track that would be needed to avoid the reverse move at the Attleboro Station. It would be new track laid in a power line right-of-way. Chartley Pond is north of the Attleboro Secondary and could be avoided; there is open space, conservation land and rare species habitat in the area. Vernal pools are not close to the proposed ROW.

Stoughton Line – Stoughton Station to Cotley Junction: Alternatives #30, 32, 33, and 34
This corridor passes through the Hockamock Swamp and Pine Swamp in Raynham. It is within the Hockamock ACEC, and within Raynham conservation land in Pine Swamp. There are rare species and open space and conservation land. Mr. Anacheka-Nasemann asked about the potential use of an old freight line in this area. Mr. McArdle said that is the abandoned Whittendon Junction branch. The group discussed this line and recommended that it be considered as an option to avoid impacts to Pine Swamp. Ms. Standley indicated where the trestle was planned for this ROW to cross over the Hockamock Swamp. The Easton Town Well lies 400 feet to the east of the ROW, which touches the edge of the Zone 1. Mr. Smith said that Pine Swamp is between the Taunton and Raynham municipal landfills.

Dartmouth Secondary: Alternatives 5, 6 and 32
Ms. Standley said that this is the route from New Bedford to Fall River. It is near the New Bedford Airport and passes both north of and below Route 195. There are wetlands and rare species area

crossings and the Westport Land Trust owns part of the former ROW west of I-195. This is a single track in degraded condition and is currently used only by freight traffic.

Highway – Route 128 Station to Braintree: Alternatives 43, 44 and 45
This segment includes Route 24 to Route 128 to Braintree. It would add a bus lane to the east to the HOV lane on the expressway and to the west, it would add a bus lane to the 128 Station in Westwood. The Blue Hills Reservation lies to the north of Route 128 and the Fowl Meadow and Ponkapoag Bog is west of 24 and both north and south of 128. The issues are related to 128 and adding a lane. Mass Highway looked at the possibility and did not advance the project due to environmental impacts.

Ms. Standley turned to the differences in impacts between modes. Commuter Rail could be one or two tracks; DMU would have to run on 2 tracks; and electric catenary would require longer sidings and overhead catenary towers and footings (probably every 100 feet). She said that it is difficult to calculate the impacts at the high level of comparisons being undertaken in this phase. South of Stoughton, detailed information is available for Fall River, Stoughton and New Bedford (up to 30% engineering design). The ability to understand impacts will improve in Phase 2.

Ms. Standley reviewed the evaluation criteria for Step 3 and the data that the team was and was not able to measure:

3.1 – Approximate level of wetland loss in acres, including wetlands within an ACEC, indirect wetlands impacts based on length of new or abandoned ROW and number of vernal pools in close proximity.
3.2 – The number of new stream or river crossings.
3.3 – Number of acres of mapped Priority Habitat with the ROW/Impact footprint.
3.4 – Number of acres of protected public open space directly impacted, including parks recreation areas and wildlife refuges.
3.5 – The number of acres of protected public water supply lands (mapped Zone 1 and Zone A) within the alternative footprint for new and abandoned ROW sections.
3.6 – Consistent with Smart Growth strategies.

Ms. Standley reviewed the evaluation rating options and how they were applied to each criterion. She said that as with the Step 2 ratings, the bell curve described how most of the alternatives were dispersed. She discussed how the GIS data were used to estimate impacts to the key resources identified in Step 3, and said that Criterion 3.3 would be refined based on input from the Natural Heritage Program staff. She clarified that indirect impacts to wetlands were estimated based on the length of track construction on new, abandoned, or poor-condition tracks through wetlands.

Based on the team's analysis and application of the criteria, Alternatives 3, 32, 33 and 43 should be dismissed at this level. This action would leave 9 remaining options: 1, Commuter Rail via Attleboro Bypass; 5, DMUs to Attleboro Station; 6, Combination of DMU Commuter Rail from Fall River and New Bedford to Attleboro Station, with the southern cities connection on the Dartmouth Secondary; 7, electrified Commuter Rail via Attleboro Bypass; 30, Commuter Rail via Stoughton; 34, Electrified Commuter Rail via Stoughton; 44, Bus Rapid Transit to South Station; 45, Enhanced Bus; and 62, Commuter Rail via Attleboro Bypass and Middleborough. The team recommends that Alternatives 3, 21, 33 and 43 should be dismissed.

Ms. Egan thanked the members for staying longer to complete the Step 3 overview. She said the group will take up from here next week, responding to questions and reviewing the data in the steps. She asked the members to be prepared to stay an extra half hour for the next meeting to accomplish the goals.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- Civic Engagement Meetings scheduled for March 10 (Attleboro), March 11 (Lakeville), March 12 (Freetown).
- Reschedule late March meeting.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #8

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: February 21, 2008 - 9:00 to 11:30 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Joe Cosgrove	Massachusetts Bay Transportation Authority
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Greg Guimond	Southeastern Regional Planning and Economic Development District
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Scott Peterson	Central Transportation Planning Staff
Edward Reiner	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning and Economic Development District
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmermann	US Environmental Protection Agency

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Meeting Agenda; Phase 1 Screening Criteria; Alternative Screening Process, Phase 1 – Step 2; Alternatives Analysis Chart for Step 2

PURPOSE/SUBJECT:
Review of the results of the preliminary Step 2 Alternatives Analysis process with members of the committee, along with a slight change in the evaluation criteria.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The eighth meeting focused on a review of the results of the Step 2 analysis of alternatives. The next two meetings will complete the analysis for Steps 2 and address Step 3.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list). She dealt with a couple of business items. With regard to a request for copies of the public comments, Ms. Egan said that the team was preparing them and they were not yet complete. Tim Timmerman, EPA, asked if they would be organized by topic or theme. Nancy Farrell, RVA, said they would be accompanied by a spreadsheet with organizing information.

Ms. Egan asked Steve Smith, Southeastern Regional Planning and Economic Development District (SRPEDD), for a brief update on plans for the next Commuter Rail Task Force Meeting. Mr. Smith said it was likely that the next meeting on March 12 would switch focus from challenges and/or mitigation for the project to the civic engagement presentation on the Alternatives Analysis process. The group would return to the issue of perceived negatives in April. Mr. Smith reported on the rough list of benefits that the group had developed last week, and Ms. Egan asked if the Interagency group could get a letter or summary of those benefits. Mr. Smith said he could get that information to the group. The key issues from the meeting focused on level and quality of service, open space transformation and preservation.

Ms. Egan said that Goody Clancy, the Corridor Plan consultant, would be making a presentation to the Interagency Group, but she thought it might be best to wait until April, after the alternatives analysis process has been completed and the Draft Literature Review that is part of the Corridor Plan project has been completed. There was general agreement with this suggestion, so the group reviewed the schedule of upcoming meetings. Ms. Egan reminded the members of the civic engagement meetings scheduled for March 10, 11 and 12 and the group confirmed its upcoming meeting schedule.

Ms. Egan reminded the members that the plan for sharing the alternatives analysis information includes posting the Interagency minutes, the step charts and the summary memos on the criteria and how they are applied. After some discussion, the group agreed that it would be sensible to wait to post the Step 2 review until all of the elements of that step have been concluded.

Ms. Egan asked for comments on the minutes of the February 14, 2008 meeting. The following comments and changes were submitted:

- Lealdon Langley noted (page 3, 2nd full paragraph) that he was referring to mitigation ratios related to the variance process, and the word "ratios" should be included for accuracy.
- John Felix and Tim Timmerman noted that the meeting had included comments from the agencies that there is no correct number of options to be carried forward from their perspectives. They want the right number but they don't have an opinion on what that number should be.
- On page 6, the first sentence under "Other Options" should include the word "eliminated."
- On page 7, second full paragraph, the text should read (last sentence) that the group requested to see comments on the project.
- Mr. Timmerman said he did not see a reference to his comments on the fact that in the future, the presence of amenities such as Internet service and other intangibles might make passengers more willing to accept slightly longer travel times than the current assumptions (i.e., 90 minutes); he noted, and others agreed, that the auto travel times are likely to lengthen, not get shorter, and that factor should also be kept in mind. In light of this fact, the group suggested that the wording on page 5, last sentence of the paragraph below the chart, should be edited to read: "Trip times will most likely be lengthened in subsequent stages of the analysis as more information becomes available."

The minutes of the meeting were accepted as amended.

Rosemary Monahan, U.S. EPA, said that it would be helpful to have a written description of each of the options. Mike McArdle, VHB Project Manager, said that would be possible; the team has the descriptions and will provide them to the group members.

Review of Evaluation Criteria Changes

Ms. Egan said she wanted to check with the group members on a change in the order of the Step 2 analysis elements. The team switched items 2.3 and 2.4 since ridership numbers are important and were not yet available in the first segment of the Step 2 review. Ms. Egan said that the team feels that it is not possible at this scale of the review to include information on operating costs, as originally indicated in 2.4. While capital costs will be estimated, the data that would result from estimating operating costs would not be helpful at this time. Mr. Timmerman said that reminded him of a concern about the adjective "reasonable" as applied to the cost estimates and a concern that the concept should be discussed. Ms. Egan said the team has set up a scale to make relative comparisons of cost at this time. Mr. Felix said he had a similar concern related to other descriptions in the chart, such as the comment that the Mansfield options would be "highly disruptive" to the downtown. Ms. Egan said that such comments will be described using photos and other data in the presentation, both at this meeting and at the Civic Engagement meetings. The Alternatives Analysis Report will contain a significant amount of detail undertaken for the alternatives.

The group members said that the changes to the Evaluation Criteria were acceptable.

Presentation of Phase 1 – Alternatives Analysis – Step 2

Ms. Egan opened the Alternatives Analysis segment of the meeting. She said that Step 1 reduced the number of alternatives from 37 to 28 by evaluating them against the Project Purpose. The first segment of Step 2, presented today, could reduce the alternatives from 28 to 14; this step will be completed with the ridership data in hand. Mike McArdle, VHB, used a map of the corridors, a series of enlarged photos and drawings on a white board to illustrate the Step 2 review process completed to date. He focused on presenting information about the alternatives that were ranked Highly Unfavorable in Step 2.1, 2.2 or 2.3.

Alternatives through Attleboro

Alternative #2: The first set of alternatives uses the Attleboro Secondary to reach the North East Corridor. Mr. McArdle said that Alternative Number 2, Commuter Rail to South Station via Attleboro Station with a reverse move, was Highly Unfavorable for Criterion 2.1, so it fails this level of analysis. Mr. McArdle described the difficulty associated with this alternative: the Acela bypasses the Attleboro station and local and regional trains are routed to side tracks to allow this passage. Trains using the Attleboro secondary would pull into the station and have to wait until the ends are switched so that the controls are from the northbound side, going toward Boston. This takes about 10-12 minutes. During peak periods, between 3 and 4 trains per hour would be serving the region, occupying the station space between 36 and 48 minutes and blocking the other trains, preventing them from getting out of the way of Amtrak as well. Alternative #2 does not pass Step 2.1 and is recommended for elimination.

Mansfield Former Right-of-Way

Alternatives #11, 12, 13, 14, and 15: Mr. McArdle said that these options initially appeared to be attractive due to travel time. There is an old railroad right-of-way that the Commonwealth sold to the town of Mansfield back in the 1960s that extends up to the North East Corridor. The right-of-way (ROW) has changed dramatically since that time. It cuts through downtown Mansfield, and it is now a city street (Old Colony Road). The downtown street circulation was changed to one way from Route 106 to Court St. and uses the ROW as an integral part of the circulation pattern. Part of the ROW is owned by the Mansfield Airport and is within the Obstruction Free Area. There is a sewer line below the ROW, and a 4.1-mile bike path is on a portion of the former rail line. Buildings and other obstructions are also on the former ROW. There are significant grade problems at Route 106, just south of the Mansfield Station. To cross beneath the ROW, the route would have to go beneath a Route 106 underpass that has a flooding problem. The ROW was interrupted by Route 495, and it would require a new grade-separated crossing. To minimize impacts to Downtown Mansfield, the project would have to construct a one-mile long tunnel and there would still be other challenges. Mr. McArdle said that *all* of the Mansfield alternatives have Highly Unfavorable or Unfavorable ratings for 2.1, 2.2 and 2.3 and should not advance.

The committee members had a discussion about the point at which impacts can or cannot be mitigated and how to compare infrastructure impacts to natural ones, such as wetland impacts, or developed impacts to undeveloped ones. The team members suggested that these details will be reported in the narrative, but in general, the Highly Unfavorable or Unfavorable ratings in these categories present challenges that are likely to be insurmountable, such as rebuilding most of downtown Mansfield, holding up trains from the west or southwest for most of the peak hours or other constraints that cannot be overcome. Ms. Monahan and Mr. Langley, for example, said they would like to work all the way through Step 2 before dismissing these alternatives. Mr. Anacheka-Nasemann said the team and group members have to stay open to creative solutions that might overcome the obstructions (he gave an example that would eliminate service to Stoughton and Canton to free up capacity on the Northeast Corridor which he said should not advance but was a way of thinking about new possibilities). His point was that reducing service in one area compensate for lost capacity. Ms. Egan reminded the members that after Step 3, the group can look back and review its decisions in the light of new or broader information. In addition, the steps will be subject to public review at the March Civic Engagement meetings. Mr. Anacheka-Nasemann said that the Army Corps of Engineers will need to review the final report before signing off formally on the alternatives. Mr. Felix said he was comfortable with the analysis to date, but he looks forward to seeing verification of the data in the meeting notes and report.

Returning to the topic of the Mansfield options, Steve Smith, Southeastern Regional Planning and Economic Development District, said that these alternatives would disrupt every mode of transportation in the community and that impact was really sufficient to knock out these options. Greg Guimond, also from the Southeastern Regional Planning and Economic Development District, said that the SRPEDD staff walked the ROW from Mansfield to Route 495 and saw no way that the rail could be restored to that route.

Middleborough

Alternatives #17 and 18: Mr. McArdle said that the Middleborough route would include trains from Fall River and New Bedford traveling via the Middleborough Secondary to the Old Colony Line at Middleborough, then to Boston. These options are rated Highly Unfavorable because of the need to provide double tracks – which do not currently exist – from the juncture of the Old Colony lines (Plymouth, Greenbush and Middleborough) north through Braintree and Quincy. There are double tracks over the Neponset River, then a track would have to be added from the Savin Hill Red Line Station to South Station. Mr. McArdle used a series of aerial images to show the highly developed areas the tracks currently pass through. Mr. Timmerman asked if the MBTA was already planning to double the tracks either in connection with construction at South Station or to improve service. Joe Cosgrove, MBTA Planning, said that the MBTA has no plan at this time to do the double track, and it is not in the long-range plan. Mr. McArdle said that the improvements planned for South Station to lengthen platforms and add 4 – 6 tracks (when the U.S. Postal service annex moves to South Boston) will allow service improvements to Greenbush, for example, because the commuter rail platforms will be longer and will accommodate longer trains. (Now the passengers have to walk a long way to South Station since there are not enough long platforms to accommodate the trains.) Mr. Anacheka-Nasemann asked if freight use results in cutting back passenger service and said he would like to know in general how freight use affects the alternatives. Ms. Egan said that there is a statewide freight plan underway that she will share with the group when it is complete. Mr. McArdle said that it has been possible to negotiate with track owners to create windows for their movements and the MBTA's needs. Mr. Anacheka-Nasemann said that at some point in this process, he will need to know what the worst case scenario would be in terms of number of freight trains which will also use the tracks. He has heard nightmare stories about negotiations with some companies. Ms. Egan said that this issue will be dealt with in depth in Phase 2.

Mr. McArdle returned to his presentation on double tracking. He indicated a cross-section location of the route near Archbishop Williams High School next to Route 3. There are homes and businesses all along the alignment as well as a car dealership. The route passes by a Stop and Shop with a parking garage; an historic cemetery; Quincy City Hall and Quincy Center; the Adams Academy; a multi-level parking garage; Adams National Park; and Burgin Parkway. There is little to no room along these sites to add a track. The only way to add a track would be to separate the Red Line and Commuter Rail tracks, placing the Red Line in a tunnel. Elevating the Commuter Rail would have similar costs, timeframes and impacts. A tunnel through the area would run about a mile and would take an estimated 8 years to construct and would face the significant challenge of finding ways to keep the Red Line and Commuter Rail running through the area. The construction would have significant impacts on the regional transportation system to make connections. Mr. McArdle said that in the event the rail line were to continue to Wareham, expanding the service would require triple tracking since the Middleborough line is already at capacity now. Mr. McArdle said that similar projects in other areas have been reviewed. The Silver Line tunnel for BRT took 8 years to complete and it does not include the facilities needed to run rail, like tracks, signalization, etc.. Lengthening the trains would not work for extending the line to Wareham because the platforms are not long enough so all the doors can't open, and the trains would not meet accessibility requirement.

The group members expressed disappointment that Middleborough alternatives are not going to meet the criteria. Mr. Reiner said that this was the case during the last phase of the project as well. Mr. Timmerman said he would be interested in finding out what kind of service could "fit" the current constraints, using existing infrastructure and Mr. McArdle said that he could estimate that and provide

the Level of Service (LOS) information for Middleborough for consideration at the next meeting. Mr. McArdle said that VHB has a video of the rail segments that would have to be double tracked and he will send it to the members so they can understand the difficulties and it can also be made available at the upcoming civic engagement meetings.

Highway System

Monorail Alternatives #37, 38 and 39: Mr. McArdle said that these options had a number of Highly Unfavorable and Unfavorable ratings. They include: the construction time frame for 60 miles of structure; the need to design an entire new system, order vehicles, hire and train staff and crew; building a control center in Boston and a maintenance and storage facility. Mr. McArdle said the construction estimate is 9 years. Given that this would be the longest operating monorail in the world, there would likely be a fairly long start-up for the service, which has never been operated at this length and in this kind of climate. Mr. McArdle was asked to compare the construction cost to laying rail track. He said that rail costs about $400 per foot and he believes the monorail would be double that cost, but he will get the details for the group. He provided other information in response to questions about this technology. Monorail runs at an estimated 50 mph, versus commuter rail, which has the capacity to reach 79 mph. The longest monorail he is aware of is in Canada. It is an automated people mover, using rubber tired vehicles and traveling about 30 miles. Mr. McArdle said the team would provide additional data on the cost for the group and the public.

Commuter Rail to South Station via 24 and 128, #40: This alternative would require reconstructing 20 interchanges along Route 24 and it would inhibit any future enhancements to Route 24. It would also require constructing a third track along the North East Corridor. The impacts to Route 24 give this alternative a Highly Unfavorable and it has two other Unfavorable ratings, so it does not pass to the next part of Step 2.

Light Rail/Heavy Rail to Route 128 Station via Route 140, 24 and 128, #41: This alternative would also limit Route 24 improvements; could impact North East Corridor operations; and would require siting a new maintenance and storage facility.

Light and Heavy Rail to South Station via Route 140, 24, 128 and Red Line, #42: This alternative would heavily impact the Red Line and bypass the Braintree Station. It would also limit Route 24 future improvements. It is Highly Unfavorable.

Other

Commuter Rail to South Station via Middleborough; extend line to Wareham, #63: This alternative would have a major impact on the Red Line and Old Colony Main Line service since it would require triple tracking (see #17 and 18 above).

Ms. Egan noted that service to Wareham is not in the TIP and there are no studies of the proposal at this point in time. The members asked about #62, which is retained. This option is a hybrid that includes trains running up from Fall River and New Bedford, proceeding north on existing rail lines (Old Colony and Middleborough).

Mr. Felix asked about Route 79 and using it for a bus route. Mr. McArdle said it is a narrow road that might be shorter in length but would actually take longer than the Middleborough secondary, which would be a dedicated right of way for the bus service.

Summary

Ms. Egan said the team will walk through the next elements in the Step 2 process at the next meeting and will distribute the matrix in advance. All of the ridership numbers will not be available, but final decisions on Step 2 will await the groups' review of all of this data.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- Packets of comments letters will be prepared for the interagency group members.
- The matrix for the rest of the Step 2 analysis and draft minutes of this meeting will be distributed before the next meeting.
- Civic Engagement Meetings scheduled for March 10 (Attleboro), March 11 (Lakeville), March 12 (Freetown).

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #7

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: February 14, 2008 - 9:00 to 11:30 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Samir Bukhari	US Environmental Protection Agency
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning and Economic Development District
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmermann	US Environmental Protection Agency
Phil Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Meeting Agenda; Alternatives Analysis Chart for Step 1; Tier 1 Alternatives Chart, Travel Times for Modes and Corridors

PURPOSE/SUBJECT:
Review of the results of the Step 1 Alternatives Analysis process with members of the committee, along with a brief discussion of a revision to the smart growth evaluation criteria and a summary report on the civic engagement meetings.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The seventh meeting focused on a review of the results of

the Step 1 analysis of alternatives. The next two meetings (Feb. 21 and 28) will cover the analysis for Steps 2 and 3.

PRESENTATION:
Kristina Egan, EOT Project Manager, asked the attendees to introduce themselves (see the Attendance list). The agenda called for approval of the minutes of the January 10, 2008 meeting. Ms. Egan asked for comments on the minutes and receiving none, asked for approval. The minutes of the meeting were accepted as submitted.

Ms. Egan reminded the committee members that it is her intention to post the Interagency Meeting minutes on the project website, www.southcoastrail.com. She asked if anyone felt that the posting would restrict the agency representatives in their ability to speak freely about the project. There was no objection from the participants, and Ms. Egan said she will continue to ask for review and approval of the minutes at each meeting prior to posting them.

Evaluation Criteria – Smart Growth Revisions

Ms. Egan said that she was proposing one change to the evaluation criteria in the area of smart growth. The suggestion is to include redevelopment potential in this category by looking at larger brownfields or greyfields sites, e.g.., 21E sites of one acre or more, or clusters of these sites. This addition would be made on page 10, and would say "has the potential to promote brownfields or greyfields development." The committee members discussed how much of this information is currently available. Rosemary Monahan said that she can check on the federal level for a list of sites that have been assessed or remediated. Phil Weinberg said he would bring up the issue with Katherine Finneran on the state level. Ms. Monahan said she would further investigate the federal data available.

Discussion of Step 1 Analysis

Tim Timmerman, EPA, asked if there is a list or description of the metrics being applied in the alternatives analysis. He asked about travel time, for instance, and how much of a factor it is in ruling an alternative in or out. Mike McArdle, VHB, said that in Step 1, the metrics are at a grand scale, but he and Ms. Egan agreed that the team could put together a memo or chart with brief explanations that would also help the public with its review of the information. Mr. McArdle noted that the team does not have ridership numbers in hand from the Central Transportation Planning Staff (CTPS) yet; they are due at the end of next week. The ridership data will provide information on the effect of travel time on choice. Mr. McArdle suggested that the committee members let the process work and see how the numbers drive it. If it means re-visiting earlier steps, that will not be a problem.

Ms. Egan noted that the Commuter Rail Task Force members have commented that how rail connects to the local bus system is also important. Right now, there is low bus ridership. She said there are models around the country – such as Boulder's Hop, Skip, Jump transit service – that use varieties of service, locally chosen, and market them creatively to overcome the bus "stigma." Mr. Timmerman said that because there isn't a good bus transit model in the current system, people may not appreciate its potential and may disregard it. Mr. McArdle said that he would like to include a feeder bus service as a Baseline for the project. That would allow EOT to use CTPS to model the service. The committee members had a discussion about the description. Mr. McArdle said the feeder service would not be part of a No Action alternative because it is not "reasonably forseeable" but would be part of a Baseline Alternative typically required for FTA funding that describes a set of lower cost improvements. He calls it a Transportation

System Management (TSM) alternative, which could be incorporated into any of the Build Alternatives. Mr. Timmerman and others agreed that this would be a good idea. The group agreed that the environmental analysis would look at the No-Action Alternative, a TSM Alternative, and a range of Build Alternatives.

John Felix, MassDEP, posed a couple of questions about the final criteria. He asked if ACECs are part of the criteria? Lisa Standley said that they are not included because they include both natural and developed areas and the designation is too broad. After some discussion including Lealdon Langley, Ms. Standley said the team would quantify the amount of wetland loss within an ACEC Mr. Felix asked about the inclusion of vernal pools. Ms. Standley said that both certified and potential pools are included. Mr. Felix asked about Zone 1's, which are important to the DEP reviewers. Ms. Standley said that issue will be looked at in detail in Phase 2, but to her knowledge, none of the routes goes through a Zone 1, although some of the routes are nearby. After some discussion, the members agreed to add a new category in Step 3 adding "within a Zone 1 or Zone A" for the (1) new or (2) abandoned rights of way and (3) highway routes.

There was a discussion about adding mitigation costs to the cost estimates in Step 2. Ms. Egan noted that the cost estimate in Step 2 could be refined after Step 3 to include mitigation costs. Ms. Standley reminded the members that the analysis is too macro at this level and proceeds from cost in Step 2 to environmental issues and wetlands in Step 3 – mitigation costs cannot be determined until after impacts have been identified. The process allows revisiting the alternatives based on this kind of consideration. Alan Anacheka-Nasemann said that the ratios are quite broad and can be adjusted based on a number of criteria. Mr. Langley echoed that thinking for the variance process. He would prefer not to see mitigation carved in stone at this point in time. Mr. McArdle said the Corps' ratios could serve as a framework and a way to compare the alternatives against each other. Ms. Standley said they could turn the ratios into approximate capital costs, and would start with a 2:1 mitigation:loss ratio since this is DEP's usual standard for a Variance. Mr. Anacheka-Nasemann reminded the committee members that the Corps does not factor mitigation into the LEDPA so adding mitigation up front does not affect the choice of the LEDPA.

Presentation of the Range of Alternatives

Mike McArdle, VHB, used a PowerPoint presentation to illustrate the Step 1 review process. He reviewed the main routes, through Attleboro (including Mansfield, which some recommend should be in a separate corridor), Middleborough and Stoughton and using the regional highways (Routes 24/140/79/128). Mr. McArdle reviewed the Phase 1, three-step evaluation process and project purpose. He listed the Step 1 evaluation criteria: does the alternative meet the project purpose by improving regional mobility (giving an option extra credit for providing intra-regional connectivity and improving quality of service). Ms. Egan pointed out that the Step 1 analysis does not eliminate any of the routes or any of the modes.

Mr. McArdle reviewed the graphic scheme for the five-scale evaluation rating options: highly favorable (filled in black circle); favorable (half-filled black circle); neutral (open circle); unfavorable (single slash in an open circle); and highly unfavorable (X in an open circle). Mr. McArdle described how the rating was applied for Criterion 1.1 and 1.2:

Criterion 1.1 - Does the alternative improve regional mobility?

HIGHLY FAVORABLE =
Connects New Bedford/Fall River to Boston and provides mobility within the region
FAVORABLE =
Connects New Bedford/Fall River to Boston
HIGHLY UNFAVORABLE =
Does not provide service between New Bedford/Fall River and Boston

Criterion 1-2 - Does the alternative improve the quality of service? (trip time expressed in minutes)

TRIP TIME:
HIGHLY FAVORABLE = ≤64
FAVORABLE = 65 – 90
NEUTRAL = 91 – 98
UNFAVORABLE = 99 – 105
HIGHLY UNFAVORABLE = > 106

* Existing drive time (auto) = 90 minutes from New Bedford

Mr. McArdle said that the automobile travel time of 90 minutes was tested over a two-week period. A staff member drove from New Bedford to Boston during peak travel times in several kinds of weather and the 90-minute trip was the result; it was also confirmed with CTPS. The other travel time ranges were confirmed using industry standards on Level of Service from the Transportation Research Board. Mr. McArdle said that industry research on customer preferences shows that people are willing to use transit that is slightly longer if they are offered a quality ride. Otherwise, demand decreases as length of trip increases. Rosemary Monahan, EPA, noted that increasingly heavier highway congestion over the coming years could lengthen the auto trip and Tim Timmerman noted that it is likely that new transit amenities (connections to wireless service, etc.) could improve the perception of the quality of service. The group agreed that the existing conditions should be used to evaluate alternatives rather than speculative future conditions.

Mr. McArdle displayed the mode trip time assumptions underlying 1.2:

Trip Time - Methodology	Assumption
Dwell Time	1 minute
Transfer Time	5-17 minutes depending on frequency of service
Maximum Operating Speed	
• Monorail, Light Rail, Heavy Rail	50 mph
• Bus	55 mph
• Diesel Multiple Unit Commuter Rail	70 mph
• Conventional Commuter Rail	79 mph
• Electric Commuter Rail	110 mph
Existing Services	Travel time per existing MBTA schedule
Hits All Stops; No Express	
Auto Drive Time	90 minutes from New Bedford
Existing HOV Lane	10 minute savings

Mr. McArdle said that the speeds are industry standards and are used only to compare options to each other. As in other sections of the analysis, in Phase 2, VHB will be analyzing detailed factors such as speed restrictions and track geometry, which will impact travel time. At this level of analysis, this information is not available and the industry mode speeds are used. Trip times will be adjusted in subsequent stages of the analysis as more information becomes available.

Mr. McArdle said that a route with no transfers rates as favorable, while one transfer rates an Unfavorable. Reliability is rated as high (favorable), medium (neutral) or low (unfavorable).

Mr. McArdle summarized the ratings that eliminate an option: an alternative does not make it to Step 2 if it receives one "highly unfavorable" or two "unfavorables" or one "highly unfavorable" and one "unfavorable." Mr. McArdle listed the options by corridor that EOT recommends be eliminated:

Attleboro and Mansfield Routes:

- Alternative 4, Bus Rapid Transit to Attleboro Station: Trip time (16 mins longer than drive time) and a transfer gave this alternative an unfavorable and highly unfavorable rating;
- All of the Mansfield options pass through this step since they perform well on trip time and reliability.

Middleborough:

- Alternative 20, Bus Rapid Transit to Middleborough/Lakeville Station: trip time of 110 minutes and a transfer eliminate this alternative;[1]
- Alternatives 21 and #22, Diesel Multiple Units, CR to Middleborough/Lakeville and to Middleborough/Lakeville Station with New Bedford to Fall River connection via Dartmouth Secondary: eliminate due to trip time and transfers.

Stoughton:

- Alternative 31, Bus Rapid Transit to Stoughton Station: dropped due to travel time and transfer.

Highway System:

- None of these options were eliminated.

Other Options:

- Alternative 56, Commuter Rail to South Station via Providence: trip time of 111 minutes, 21 mins longer than auto time;
- Alternatives 57, Enhanced bus on I195, and #58, CR to Wareham via Middleborough: eliminated since they do not provide service to Boston or to Fall River/New Bedford;
- Alternative 61, Feeder bus network to Middleborough/Lakeville Station: this alternative will be carried as the TSM Alternative. Steve Smith, SRPEDD, said he has data on vehicle trips between New Bedford and Fall River but he warned that Route 79 is equivalent to a back road; Mr. Timmerman said that there are ways to enhance bus service and he likes this option, which leverages existing infrastructure, and would like to see it stay in the mix; Ms. Egan said that more robust service options could be developed; and Mr. McArdle said it would take some time, but ridership information could be collected.

Ms. Monahan asked about the potential for a bus alternative to use the shoulder of Route 24. Mr. McArdle said that Route 24 was not built according to national highway standards. Using the shoulder would require major intersection improvements. Since safety is already a concern on Route 24, using the breakdown lane for travel would not be recommended. A dedicated bus lane in each direction presents other issues since it takes away capacity and other vehicles can jump into and out of the lane if it is not grade separated. VHB is currently looking into a "zipper lane" solution that would not reduce capacity.

Mr. McArdle summarized the results of the Step 1 analysis:

- All *Routes* are represented and will continue to the Step 2 Analysis
- All *Modes* are represented and will continue to the Step 2 Analysis
- Two alternatives incompatible with *Regional Mobility* are recommended to be dropped
- Seven alternatives incompatible with *Quality of Service* are recommended to be dropped.

Over the next two Interagency meetings, the team will present the results of the Step 2 and Step 3 analyses. Unfortunately, the ridership data will not be available until the week after next, so on February 21, the group will only be able to work through three of the five Step 2 criteria. The following week, the last two Step 2 criteria and the Step 3 criteria will be presented. At that point, there will be a

[1] The Middleborough options are 8 miles longer than the Attleboro and Stoughton corridor routes. Mr. Timmerman asked if EOT could look at BRT service in a corridor that goes up to a transfer point, such as Middleborough, via Route 79. Mr. McArdle said that VHB can taka a look at the possibility.

draft list of alternatives to bring to the March Civic Engagement meetings (week of March 10) for public review.

Summary

Ms. Egan asked the committee members if they had any objections to the Step 1 results. Several members commented on the advantages of having the material in advance of the meeting, which allowed them to review the ratings and prepare questions. They indicated that a memo or description of the background details and metrics would assist them in future steps and would help community members looking at the same data. There was a discussion among the members about providing the information to the public for review in advance of the March meetings. The recommendation was to post the results of the analysis of each step with a background memo and Interagency Committee meeting minutes so that the public can follow along with the process in advance of the meetings during the week of March 10. All materials posted to the website will be marked Draft, as no decisions will be made until after completing Step 3. Materials posted from this meeting will include:

- Cover memo and methodology
- Step 1 matrix
- Meeting notes

Steve Smith gave a brief summary of a Commuter Rail Task Force Meeting (2/13). Task Force members focused on the potential benefits of the South Coast Rail project and shared ideas for how to maximize them. More than 22 benefits were considered and Mr. Smith said more are likely to be included. He plans to share the information with the interagency group when it is ready. In addition, the Task Force talked about its role in representing regional interests for the project as opposed to individual community interests. Ms. Egan said that the Task Force may work on a set of principles for regional mitigation. Mr. Smith suggested that the Task Force members would benefit from a presentation on permitting related to the project, and Mr. Anacheka-Nasemann, Army Corps of Engineers, and Mr. Lealdon Langley, MassDep, said they would explore the idea with their agencies. Mr. Langley asked to see comments from environmental organizations, and Ms. Egan said packets would be prepared for the interagency group members.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- The meeting minutes, a memo with background information and a summary of the Step 1 analysis will be posted on the project website. This will be done for each of the Steps in the Phase 1 process.
- Previous Interagency Coordinating Committee meeting minutes will be posted on the website.
- Packets of comments letters will be prepared for the interagency group members.
- DEP and the Army Corps of Engineers will explore making a presentation on permitting to the Commuter Rail Task Force at a future meeting
- Civic Engagement Meetings scheduled for March 10 (Attleboro), March 11 (Lakeville), March 12 (Freetown).

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #6

LOCATION OF MEETING: EOT, Ten Park Plaza

DATE/TIME OF MEETING: January 10, 2007 - 9:00 to 11:15 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Bob Boeri	Massachusetts Office of Coastal Zone Management
Samir Bukhari	US Environmental Protection Agency
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Lealdon Langley	Massachusetts Department of Environmental Protection
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Mike Stroman	Massachusetts Department of Environmental Protection
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Tim Timmermann	US Environmental Protection Agency
John Patten	Massachusetts Historical Commission

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Joe Cosgrove, MBTA
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Revised Evaluation Criteria (12/27/08)

PURPOSE/SUBJECT:
Continued discussion of the revised Evaluation Criteria with the members of the Interagency Coordinating Group for the South Coast Rail Project. VHB produced a revised version of the evaluation document for final review by the committee members.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The fifth meeting was scheduled to focus on finishing the

draft Evaluation Criteria for the project based on written comments submitted by several of the agencies in late December.

PRESENTATION:
Kristina Egan, EOT Project Manager, thanked the agency representatives who provided comments on the Evaluation Criteria and said the main agenda items for the meeting were to complete the review and discussion of the draft document and to learn more about the alternatives. Ms. Egan asked the attendees to introduce themselves (see the Attendance list).

Ms. Egan noted that she had distributed drafts of the Interagency Coordinating Group meeting minutes for review. From this meeting forward, she will ask the members to review and approve the minutes at each subsequent meeting. In the meantime, she asked if there were any comments on the minutes from meetings 1 through 5, which were circulated before this meeting.

Tim Timmerman, EPA, said that he would submit some comments on his remarks.[1] Lealdon Langley, MassDEP, noted that at meeting #5, he had referred to the GIS layer for potential vernal pools and the minutes described adding a layer with this information. Mr. Langley noted that the information is already available in the GIS data.

Discussion of Final Draft Evaluation Criteria

The following suggestions were made with regard to finalizing the draft Screening Criteria document:

- Page 1, footnote: there are three tribes in question, including the Wampanoag of Gay Head, the Mashpee Wampanoag and the Narragansett in Rhode Island, so the language should refer to Tribal Historic Preservation Officers, not a single officer.
- Page 10: The draft uses the phrase "fail safe" to describe the Interagency Coordinating Groups review at the end of step 3. The group agreed that another word should be used, perhaps a "final review."
- Page 2: delete the phrase "a limited number of" in the first paragraph at the top of the page and correct a grammatical error in the second paragraph.
- Page 7: In the text at the top of the page introducing the elements of Step 3, change the phrase "actual delineated" wetland boundaries to reflect the fact that this is a preliminary phase or work. Lisa Standley, VHB, offered a replacement phrase: based on field investigations and preliminary engineering designs, which was accepted.
- Alan Anacheka-Nasemann asked about the work the Central Transportation Planning Staff will be doing (referenced on page 6) and suggested that CTPS be sure to elucidate the modeling assumptions and how they were verified. Ms. Egan said she plans to invite CTPS to present to the group in February.
- Matt Schweisberg asked about a change from the previous draft in the demand and ridership section. The previous version used the year 2002 to calculate trips per day, while this version uses 2000. Ms. Standley said that the team is looking for effective ways to measure demand. The previous draft employed the ridership figure from the Stoughton alternative. This version used the 2000 census Journey to Work data. All of these data will be updated.
- Page 7: Liz Sorensen suggested using an "e.g." in 3.1 where types of wetlands are listed in parentheses to avoid giving the impression that these are the only varieties that will be calculated.

[1] Please see the edits Mr. Timmerman submitted at the end of this summary.

- Mr. Schweisberg expressed concern about Section 2.3, Reasonable Capital and Operating Cost. He said that there might be an inherent conflict with the Clean Water Act based on the dependence on economic aspects of the evaluation, which could skew the alternatives toward growth options that might have a greater impact on aquatic resources. He suggested that it is important to be mindful of this potential conflict.

Ms. Egan thanked the members for their input. She noted that the document will remain a draft until reviewed at the community meetings, where additional input will be collected. She plans to share the input with the group. The group agreed that a February meeting will be needed to hear what the public contributed to the discussion. She thanked the agency representatives for coming to consensus on the draft screening criteria with these modifications.

Presentation of the Range of Alternatives

Mike McArdle, VHB, distributed A Master List of Alternatives and Alternatives Advancing to Phase 1 Alternatives Screening Process to the group. Mr. McArdle said that the public developed 60 alternatives in meetings, through email submissions and discussions. Many of the alternatives were similar, and the team was able to reduce the number to about 35 options. The matrix groups the options by route (through Attleboro, Middleborough, Stoughton; using the highway system; and other options). Mr. McArdle made several points about the alternatives:

- The MBTA's Service Delivery Policy provides the basis for the design of the alternatives to bring alternatives to similar footing to make comparisons between options. . This prompted an extended discussion about the Service Policy. Ed Reiner said that EPA feels that this policy is confining and will eliminate certain reasonable alternatives. Mr. Anacheka-Nasemann agreed, saying that the Army Corps of Engineers feels that the policy might eliminate less environmentally damaging options from the list. There were other comments about the policy and its potential to conflict with the LEDPA Mr. McArdle clarified that using the policy in this stage simply helps EOT to make assumptions about the level of service the alternatives would provide and permits EOT to make "apples to apples" types of comparisons. Ms. Standley said that using trip time is a way to compare across alternatives (as opposed to arrival times or South Station capacity); it is simply a broad kind of tool. Joe Cosgrove said that the operating plan lets the planner assess how much service can be provided. Alternatives have to fit within the existing system. There was a discussion about using the American Public Transportation Association's policy, but Mr. McArdle said it is too subjective. The group agreed to go forward using examples and will work with CTPS to understand what the effect of the Service Delivery Policy will be on the alternatives. They agreed that it was appropriate to use the MBTA Service Delivery Policy as a criterion for designing the alternatives, but not for evaluating them.
- Mr. McArdle reviewed the routes and service options. He clarified that all of the commuter rail options would require additional tracks at South Station and a mid-day layover in Boston.
- Mr. Timmerman suggested adding a bus only option for public and private carriers on the existing highway system. There was a discussion about using part of Route 24 – the breakdown lane – as a bus only route. Mr. McArdle said that it could be done off-peak but he would have to talk with Mass Highway Department about safety issues.
- Mr. McArdle highlighted elements of some of the alternatives, such as the need to add a track between Braintree and South Station to make that segment work; Diesel Multiple Units issues and benefits; diesel versus electric trains; and other issues.

- Mr. Timmerman suggested an alternative of using feeder buses to existing commuter rail points with commuter rail service enhancements.
- Mr. Langley said he was interested in more information on bus service to the Middleborough Commuter Rail service using Route 79. He asked about potential conflicts with freight trains. Mr. Egan said that state is developing an overall freight plan, which is not yet complete. There was a discussion about the condition of some tracks; the status of negotiations with CSX to acquire rights of way and/or operating agreements. Mr. McArdle noted that Federal Railroad Administration regulations do not allow running light rail or commuter rail on lines with freight given the safety issues involved.
- The team was asked to post or distribute the series of route maps and one-page descriptions of the alternatives to the group.

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- The criteria document will be updated and circulated to the group members for final review.
- The criteria will be presented to the communities in civic engagement meetings during the week of January 14, 2008.
- The Interagency Coordinating Group will need February meetings (to consider input gathered at the civic engagement meetings and review the preliminary ranking of alternatives through Steps 1 and 2).

Comments on Meeting Minutes Summaries, Meetings 1-5

T. Timmermann (EPA)
Suggested Edits to South Coast Rail Interagency Coordinating Group Meeting Notes
January 10, 2008

<u>October 23, 2007 Meeting Notes</u>

Page 4 (third paragraph up from the bottom, third sentence): please change the sentence to more accurately reflect my comments by editing the sentence to remove "…which are not always smart about development" so the sentence reads, "He is excited about the parallel, ongoing work with the corridor communities, given that there is development that is not consistent with the principles of smart growth and EPA would support future "smart growth" promoted by the project."

Page 5 (fourth paragraph from the bottom, last sentence): I recommend deletion of the last sentence (it reads, "In summary, the speakers agreed that their hearts are saying *go for it* (in terms of smart growth), while their minds are not so sure.") as it seems to offer an opinion about how the meeting attendees feel and I think we should just report the comments that are offered in the context of the meeting.

<u>January 3, 2008 Meeting Notes</u>

Page 3 (under discussion of criteria 2.5): please delete "or a similar concept" as it is my recollection that the group agreed to changing "ridership" to "capacity" but not "a similar concept."

Page 3 (bottom of page 3 and before section on follow-up actions and upcoming meetings): Please insert a note in the minutes to reflect that Betsy Higgins noted that EPA remains concerned that the SCR process continues to advance without further discussion/resolution of the NEPA EA/EIS issue that has been highlighted in previous meetings. In response, Kristina [Egan] indicated that she is working to set up a follow-up meeting to discuss those issues.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #5

LOCATION OF MEETING: EPA, One Congress Street, Boston

DATE/TIME OF MEETING: January 3, 2008 - 9:00 to 11:15 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Policy Act Office
Bob Boeri	Massachusetts Office of Coastal Zone Management
Samir Bukhari	US Environmental Protection Agency
Carl Deloi	US Environmental Protection Agency
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Betsy Higgins	US Environmental Protection Agency
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Mike Stroman	Massachusetts Department of Environmental Protection
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Tim Timmermann	US Environmental Protection Agency

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Proposed Evaluation Criteria, Revised (12/27/08)

PURPOSE/SUBJECT:
Continued discussion of the revised Evaluation Criteria with the members of the Interagency Coordinating Group for the South Coast Rail Project. Members submitted comments on the draft criteria to EOT, which revised them in conjunction with VHB and distributed them for review in advance of the meeting.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay

Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The fifth meeting was scheduled to focus on finishing the draft Evaluation Criteria for the project based on written comments submitted by several of the agencies in late December.

PRESENTATION:
Kristina Egan, EOT Project Manager, thanked the agency representatives who provided comments on the Evaluation Criteria and said the only agenda item for the meeting was to complete the review and discussion of the document. Ms. Egan asked the attendees to introduce themselves (see the Attendance list). She reminded everyone that the criteria are organized as a sequential, three-step, tiered screening process.

Janice Martin, VHB, led the discussion based on the changes from the last version of the document. Matt Schweisberg, EPA, asked for a clarification of the phrase "aquatic or natural environment." Ms. Egan said that the aquatic environment is contained in the natural environment, but the team chose to include both terms to refer to impacts on the environment in addition to wetlands and other 404 issues.

Alan Anacheka-Nasemann noted that in the introductory text on page 1, the author of the regulation at 40 CFR 230.10(a) is actually EPA, not the Army Corps of Engineers.

Turning to item 1.1 in Tier 1, Ms. Martin said that the team changed the wording to "Improve" regional mobility (1) to respond to concerns about what meeting demand means and (2) to include the concept of intra-regional mobility, which is a criteria that was proposed during the public meetings. The language should read "between Fall River/New Bedford and Boston."

Item 1.2: There was a discussion about the use of the term "improve" for quality of service. Several people agreed that there are times when travel by auto is quicker than by transit, but they choose to take transit for a number of reasons (convenience, etc.). The term "competitive" on the basis of travel time, etc., was considered. There was agreement that the goal is to encourage more transit use. Mike McArdle said that quality of service includes timeliness, convenience, comfort, reliability and safety and he reminded everyone that at this point, the analysis will be qualitative. The group agreed to consider alternative language that will add quality of service factors as a measure of improvement.

Item 1.3 – Deleted from Step 1 and moved to Step 3.

Step 2

Criteria 2.1 and 2.5 – the term "justify investment" was deleted; there was a discussion of the use of "improve" with an understanding that it will be a ranking (there could be some adverse impacts in the rest of the system, but it offers a regional benefit).
2.1 – Addition of long-term, per the last meeting; rephrase to include the logistics of the system.
2.2 – operational failure is a deal breaker (an alternative has to work with the system).
2.3 – In response to questions about including the cost of site remediation (21E), the consultants said they will not have full information so there will only be an estimated cost used. John Felix pointed out that the cost of wetland replication could be high, in addition to 21E costs. The team said it will not look at wetlands impacts until Step 3, and it could not estimate costs of mitigation until after impacts were

identified. A. Anacheka-Nasemann noted that, in the Corps/EPA "sequencing" process, mitigation is only considered after avoidance and minimization, and cautioned about advancing mitigation too soon. After discussion, the team and EOT agreed it would be possible to revisit Capital and Operating costs in Step 3 after looking at some of the environmental issues (for which there are costs, or using approximate costs). Mr. Schweisberg said he was not comfortable dismissing closely ranked options, and that EPA would probably not agree to dismiss alternatives with low levels of environmental impacts if these alternatives were even marginally practicable; Ms. Egan said the process is an iterative one and there will be judgment calls. Deerin Babb-Brott agreed and said it is necessary to go through the process and do a fail safe for issues of concern, allowing options to be put back on the table. There was a discussion about adding a Step 4 or agreeing to a thorough review of the alternatives based on real costs and other factors. Mr. Babb-Brott noted that one of the group's purposes is to do that kind of work. Ms. Egan and Lisa Standley said that the results of Step 3 could change some of the Step 2 ratings and alter a preliminary dismissal.
2.4 – This criterion was changed to be more specific and to recognize the goal of getting an operational system by 2016. After discussion, the group agreed to use a goal of a four-year construction period rather than a specific date.
2.5 – The group agreed to consider changing "ridership" to capacity or a similar concept and to define the terms. The group agreed that ridership would be estimated for the year 2030.

Step 3 – Rosemary Monahan suggested adding "consistency with smart growth" to the title of this criterion. The team noted that ridership is a proxy for air quality since the data for emissions will not be available until later in the design phase. At this point, there will only be a spreadsheet analysis with relative rankings. She described some of the parallel project work underway and noted that the project is inventing this modeling to some extent as it goes along; it has never been done before.

There was a discussion of the wording (since the aquatic environment is a subset of the natural environment); the team agreed to define terms and add a paragraph explaining the law and regulations being referred to.

Lisa Standley noted that in Step 3, the easiest way to assess the elements is to estimate the loss of resource. She said the team was urged to consider indirect impacts to the environment but it is very difficult to assess such factors at this level of information. But understanding the goal, the team will try to qualitatively assess these impacts based on the length of each alternative that crosses a wetland on a new or existing alignment, places fill along a wetland or is on the edge of a wetland. Further analysis of these impacts will have to take place in Phase 2 of the Highway Methodology and MEPA/NEPA process; there is too little information available at this stage. The group discussed the information available from GIS mapping, such as vernal pools and adding a layer to identify potential vernal pools. This will be added. In addition, any information available about wetland community types in GIS maps will be included.

3.2 – Add the number of existing stream crossings (as well as new) and specify if there is available information on widening the corridors that would impact the stream. Later design and environmental analysis stages will look at the potential to improve stream crossings for fish and wildlife passage as mitigation measures.

3.3 – Suggestion to add to the last paragraph – unless such information becomes available after consulting with the Natural Heritage and Endangered Species Program.

3.4 – Add Section 4F resources and an explanation of the Federal protection goals. (Note – Article 97 is an amendment to the state Constitution). At M. Stroman's suggestion, the group agreed to also use local mapping as a source to capture newly designated public lands that are not included in the Mass GIS database.

3.5 – Be more specific (don't use "some ways"); edit second sentence to say "The Commonwealth supports. . ." Protection of water supply – can be assessed in Phase 2 or add to third bullet here. There was a discussion about the impact of parking facilities; how to add environmental concerns to the smart growth assessment. There were observations about making any of the alternatives compatible with smart growth, but Ms. Monahan pointed out that the FTA uses smart growth as a New Starts criterion. Ms. Egan said that Goody Clancy, which is undertaking the parallel Corridor Plan, could do a presentation for the group. She noted that many elements of this criterion depend on station and layover facility sitings, which have not been determined at this stage. The group agreed that the first element would be easiest to assess at this stage.

The group agreed with the proposed ranking system (assigning ratings ranging from "highly favorable" to "highly unfavorable" to each alternative).

FOLLOW-UP ACTIONS AND UPCOMING MEETINGS:

- The criteria document will be revised based on this discussion and recirculated for final review.
- Kristina Egan will send an email confirming the next meeting, which will include a review of the alternatives, the beginning of the Step 1 analysis and the final acceptance of the criteria.
- The criteria will be presented to the communities in civic engagement meetings during the week of January 14, 2008.
- The Interagency Coordinating Group will need a February meeting (to consider input gathered at the civic engagement meetings and review the preliminary ranking of alternatives through Steps 1 and 2).
- The March meeting will focus on the results of the analysis.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #4

LOCATION OF MEETING: Ten Park Plaza, Boston

DATE/TIME OF MEETING: December 19, 2007 - 9:00 to 11 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Policy Act Office
Bob Boeri	Massachusetts Office of Coastal Zone Management
John Felix	Massachusetts Department of Environmental Protection
Lealdon Langley	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Alicia McDevitt	Massachusetts Executive Office of Energy and Environmental Affairs
Mary Beth Mello	Federal Transit Administration
Judith Molloy	Federal Transit Administration
Rosemary Monahan	US Environmental Protection Agency
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Mike Stroman	Massachusetts Department of Environmental Protection
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Tim Timmermann	US Environmental Protection Agency
Maria Tur	US Fish and Wildlife Service

For South Coast Rail:
Kristina Egan, Executive Office of Transportation
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates (RVA)

HANDOUTS:
Proposed Evaluation Criteria
Synopsis of Public Input from November/December 2007 Meetings

PURPOSE/SUBJECT:
Continued discussion of the proposed Evaluation Criteria with the members of the Interagency Coordinating Group for the South Coast Rail Project; an update on the Evaluation Criteria suggested by the public, legislators and others at the November/December civic engagement meetings and submitted to EOT.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the

cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The fourth meeting was scheduled to focus on the Evaluation Criteria for the project since the group was not able to conclude this discussion in Meeting #3. The group received a summary of the public input received on the Evaluation Criteria in civic engagement meetings in November and December 2007.

PRESENTATION:
Kristina Egan, EOT Project Manager, noted that minutes of the November 27 Interagency meeting were emailed to the participants. Ms. Egan asked the attendees to introduce themselves (see the Attendance list).

The purpose of the meeting was to focus on the draft Evaluation Criteria (second meeting on this topic). In addition to the first discussion of the committee on this topic, civic engagement meetings in late November and December resulted in suggestions from the public, which Ms. Egan distributed to the members.

The meeting resulted in a revised set of draft Screening Criteria, which was dated 12/27/07 and distributed to the parties by Ms. Egan. Brief summary notes on the discussion are included below, and comments from the agencies that were submitted to Ms. Egan are also appended to these notes.

After extensive discussion, the consensus was that smart growth could be a useful criterion but should not be a screening factor at Step 1. T. Timmermann noted that smart growth is not part of the Section 404 Project Purpose and could not be considered in evaluating alternatives with regard to purpose and need. Others suggested that smart growth strategies could fit any option. There was agreement on including smart growth, probably in Step 3, and Rosemary Monahan and others said they would send Ms. Egan some thoughts on defining this criterion. Mary Beth Mello, Federal Transit Administration, noted that land use is one of the ranking criteria used for New Starts funding. L. Sorensen would like to see more specific definitions of "smart growth strategies".

The parties agreed to reorganize the list of alternatives by route rather than mode.

In the discussion of Step 2, there was concern about the term "does not adversely affect," which could eliminate options that improve the general system while creating some disadvantage (either short or long term). There was a discussion of the potential for some negative effect in another part of the transit system as a result of this kind of expansion. Tim Timmerman said he would not like the criterion to require an overall system improvement. He also noted that EPA would not be willing to dismiss an alternative because it had a minor adverse impact on the system, if the alternative provided a substantial benefit.

There was a discussion about the term "sufficient ridership" (2.5) and agreement to change the wording to the concept of more fully meeting demand for public transit as stated in the project purpose. The group discussed the use of ridership in Step 1 and Step 2, and agreed that Step 1 is a coarse filter and that ridership could not be quantified until Step 2.

Ms. Egan noted that the changes should include demand and public interest in better connections throughout the region; smart growth (1.3) will move to Step 3.

The team noted that Criterion 2.3 will be an order of magnitude set of costs since detailed costs are not possible to estimate at this time. J. Felix suggested that costs of hazardous materials clean-up be included in Step 2. The team will check the 21E database (Massachusetts Contaminated Sites), for example, but will not be able to cost such items as hazardous waste removal in detail at this stage of design. L. Langley suggested that the criterion should be clear that costs of land acquisition for wetland mitigation are not included.

With regard to Criterion 2.4, the goal is to give a lower ranking to alternatives that might include severe or costly construction challenges given the goal of getting the project completed by 2016. Ms. Egan said that timeliness is important to many residents and this is a comparative ranking, not a way to eliminate options. This criterion will be re-worded to emphasize its relationship to practicability. M. Schweisberg noted that EPA will make its own determination on "practicability" during the Section 404 review.

FOLLOW-UP ACTIONS:

- The agencies will send comments on the screening criteria to Ms. Egan by close of business on 12/21/07.
- Kristina Egan will send an email for scheduling a follow-up meeting to complete the screening criteria discussion after the next draft is circulated to committee members.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #3

LOCATION OF MEETING: Ten Park Plaza, Boston

DATE/TIME OF MEETING: November 27, 2007 - 9:30 to 11 AM

Attendance:	**Agency:**
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Policy Act Office
Bob Boeri	Massachusetts Office of Coastal Zone Management
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Richard Lehan	Department of Fish and Game
Alicia McDevitt	Massachusetts Executive Office of Energy and Environmental Affairs
Rosemary Monahan	US Environmental Protection Agency
Edward Reiner	US Environmental Protection Agency
Matt Schweisberg	US Environmental Protection Agency
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Mike Stroman	Massachusetts Department of Environmental Protection
Tim Timmermann	US Environmental Protection Agency
Maria Tur	US Fish and Wildlife Service
Philip Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Wendy Stern, Executive Office of Transportation
Kristina Egan, Executive Office of Transportation
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Mike McArdle, VHB
Lisa Standley, VHB
Nancy Farrell, Regina Villa Associates

HANDOUTS:
Slides – South Coast Rail: Project Update
Basic Project Purpose – Revised Draft for Review
Draft Screening Criteria
Maps: Light Rail Corridors; Highway Corridors; Rail Corridors
Definitions: Bus and Rail Transportation

PURPOSE/SUBJECT:
Detailed discussion of the Revised Project Purpose Statements with the members of the Interagency Coordinating Group for the South Coast Rail Project; project update; presentation of Evaluation Criteria and Preliminary Alternatives.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The third meeting included a project status update, a detailed discussion of a revised, draft Project Purpose and a presentation on preliminary alternatives and evaluation criteria.

PRESENTATION:
Kristina Egan, EOT Project Manager, noted that minutes of the October 27 Interagency meeting were emailed to the participants. Ms. Egan asked the attendees to introduce themselves (see the Attendance list).

Project Update

Kristina Egan distributed a set of printed slides entitled "South Coast Rail: Project Update for Interagency Coordinating Group." Ms. Egan outlined the history of the current phase of the project in brief, beginning with the launch in April 2007 of "A Plan for Action" by Governor Deval Patrick. In May, EOT began bi-monthly legislative briefings and in July, released the Strategic Environmental Permitting Plan and committed $17.2 million to the planning phase. In September, the land-use implementation program began, along with the kick-off of the environmental review. Ms. Egan said the civic engagement with south coast communities begin in October and EOT selected a Corridor Plan consultant in November.

The civic engagement process aims to find better ways to build and provide mitigation for the project, reduce or avoid lawsuits and generate enthusiasm for on-the-ground changes in communities. This process has been informed by past experience and seeks to be open, inclusive and transparent. It should also help EOT develop positive, long-term relationships in the region.

The preliminary environmental review process will take place over the next six months with VHB as the project consultant. In addition to work with the twelve agencies on the coordinating group, this process will help tap local creativity about how to build the rail; find faster ways to permit and build the project and develop ideas to improve the environment; and permit the state to measure carbon performance and test the concept of a wetlands mitigation bank. The key challenges are how to take a fresh look and resolve the question of the federal approach (i.e., Environmental Assessment vs. Environmental Impact Statement).

Ms. Egan reviewed the alternatives analysis/screening timetable and the Civic Engagement Calendar. Three rounds of meetings will take place: December 2007 (what new alternatives should EOT consider and how should they be evaluated?); January 2008 (what does the public think of the list of alternatives and evaluation criteria?); and in March 2008 (what does the community think of the draft findings?). The meetings will move around in the project area communities.

The Corridor Plan presents an opportunity to test a new approach for tying transportation, economic development and land use together. The Southeastern Regional Planning and Economic Development District (SRPEDD) is undertaking a 24-month effort to identify priority preservation and development

sites, while another consultant will begin an 18-month planning process to evaluate transit-oriented development potential. These projects could be a national model for financing and for creating quality places in the fastest growing region of MA. Ms. Egan explained the work that SRPEDD will be undertaking, including mapping and identifying key places in the communities to develop or to protect. She suggested that mapping could be useful for future mitigation and for the launching of the Transfer of Development Rights bank. Ms. Egan reviewed the major project milestones:

March 2008	Initial screening of alternatives complete
April 2008	Alternatives Analysis (Phase 1) complete – alternatives identified to move into detailed environmental review. The Final Economic Development and Land Use Corridor Plan are complete.
October 2009	Priority Development and Preservation Areas are designated
January 2010	Financing Plan released
April 2010	Alignment, stations and layover sites selected and permitting begins

Tim Timmerman, EPA, asked if the Alternative Analysis is a formalized scoping process and how it relates to the MEPA/NEPA process. Lisa Standley, VHB, said that the process is a wide-ranging, pre-MEPA/NEPA process to move from a very broad to a more limited range of options for a new ENF process.

Alan Anacheka-Nasemann, Army Corps, asked about the scope of SRPEDD's work. Ms. Egan said SRPEDD is working with 27 cities and towns and the results of its work will be shared with the agencies. Mr. Anacheka-Nasemann said that the Wetlands Mitigation Bank is currently on hold. He sees the South Coast Rail as the kind of project that could spur it to life. He suggested that the project could establish a unique Wetlands Mitigation Bank, which could become a form of mitigation, if the classic form of the bank has not yet been established by that time. Wendy Stern, EOT, suggested that South Coast Rail is a very suitable project for the bank. Mr. Anacheka-Nasemann asked a question about the alternatives screening and whether it is intended to choose the Least Environmentally Damaging and Practicable Alternative (LEDPA) before there is a public notice filing. Ms. Standley said that is not the goal. The current range of alternatives includes about 35 options, an impractical number to advance into the formal environmental, public review process. After application of a broad set of screening criteria, EOT plans to advance 4-6 alternatives into the formal process.

There was a discussion about the Basic Project Purpose and the ability of the public to review and comment on it. Mr. Anacheka-Nasemann said the BPP is defined by Section 404 and differs from the NEPA Purpose and Need statement. The Corps uses it to determine if the project is justified.

Rosemary Monahan, EPA, asked if the Corridor Plan will include financial feasibility data. Ms. Egan said it will identify and attempt to quantify revenue streams from new development, but it will not constitute the overall financing plan.

Section 404 Basic Project Purpose

Alan Anacheka-Nasemann, ACOE, said that he and Ms. Egan reviewed the comments and discussion on the draft Basic Project Purpose from the last meeting. He reminded the committee members that he plans to submit a formal letter to EOT on the project purpose and hoped that the wording can be finalized. Ms. Egan said that she worked with Mr. Anacheka-Nasemann to boil the language down to the essential

elements that capture the project. Changes were made based on what the state can and can't control; what it can support; what it can help make happen; and what the reasoning is for the project.

There was a robust discussion about the language, options and intent of several proposed elements and phrases in the purpose. Phil Weinberg, MassDEP, suggested that the wording was limiting in that it implied one-way travel. Liz Sorenson, DCR, was concerned about the distinction between smart growth and conservation. A couple of speakers were concerned that the statement did not focus on environmental impacts, but Mr. Anacheka-Nasemann said the process is intended to result in the least environmentally damaging alternative, so as the ultimate goal, environmental protection, does not need to be explicit. The roles of inter-regional mobility and smart growth were also discussed, as was the need to be clear about the corridor. Matt Schweisberg expressed concern about the possibility that encouraging development along the corridor could wind up having negative environmental consequences; Ms. Egan said that such development would not meet the goals of smart growth. Steve Smith, SRPEDD, said that the process should direct growth in a smart way that decreases threats to the environment. Ms. Egan said this is a more holistic approach to development. The group discussed project funding which Ms. Stern said could not realistically be paid for through regional development.

With some wording suggestions and edits, the group agreed to the following wording:

Section 404 Basic Project Purpose:

To more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts.

Combined NEPA and MEPA Project Purpose:

To more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts, to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities.

Mr. Anacheka-Nasemann reminded the federal agency representatives that he will need their formal concurrence so that he can send a letter to EOT.

Evaluation Criteria

Mike McArdle, Janice Martin and Lisa Standley of VHB presented the draft screening criteria for committee consideration (see the handouts for a copy). Mr. McArdle explained that the team would be applying this analysis and criteria to each of the alternatives brought forward from the interagency coordination group, the civic engagement meetings and others for the project. The first step in the process is to ask three questions of each alternative: (1) does the option have the potential to meet the Basic Project Purpose; (2) would it be practicable to construct and operate; and (3) would the option have substantial environmental impacts that would make it impracticable to construct. Mr. McArdle began to discuss the sub-questions that would be applied to each category to assess the alternative from a broad screening point of view.

A discussion ensued, raising a number of questions about the screening tools. Mr. Schweisberg pointed out that the term "practicable" has a legal meaning in the Clean Water Act and he questioned its use in this context and expressed concern that the screening might be too fine. The group discussed the concept

of applying a Fatal Flaw Analysis as an option, but there is concern that the variance process might allow an option that currently appears to have a fatal flaw. Lisa Standley said that the intent of this level of screening is to look at the alternatives on USGS maps and answer some fundamental questions about them. Factors that are not practicable would be dropped. The team has struggled somewhat with the environmental screening (the third factor) since there may not be sufficient information at this level of design to make that determination. There was a proposal to change the word "substantial" to "significant", but Mr. Schweisberg said the term also has a specific meaning in the Clean Water Act and he would not recommend its use. Mr. Timmerman asked EOT to avoid the temptation to narrow the options by using too fine a filter. Mr. McArdle said the screening is intended to be framed broadly. The team is looking at the options from a 10,000 foot distance and weighing which are practicable or have more environmental impacts. Mr. Weinberg said that using "not practicable" in the third criteria doesn't get to relative importance. Perhaps the team should not weigh but should quantify. Mr. Timmerman suggested that the preferred alternatives from the earlier study should be carried forward. There were also suggestions to use just the Purpose and Need versus the proposed criteria or to make the screening process coarser rather than finer.

After some additional comments, the committee members agreed that a meeting should be scheduled in December to continue the discussion on criteria to be applied to the alternatives. Ms. Egan said she would consider the discussion with Mr. Anacheka-Nasemann and the team and would circulate a new version of the criteria before the meeting.

Preliminary Alternatives

Mr. McArdle outlined the alternatives proposed to date (which are listed on a handout to committee members). He said that the options are organized by mode and family - e.g., bus, rail, heavy rail, light rail, monorail – and route (highway, existing or historic rail, new rail, etc.). Almost all of the rail options use historic rail rights-of-way in some form, including the Route 79 historic right of way and the northeast Amtrak corridor, among others. The alternatives include:

- Use of the rail corridor via a number of rights of way to the Route 128 area, then branching off to the east to Quincy and the Red Line or traveling along the Expressway to Boston or rail of some kind to the northeast corridor to Boston
- Combinations of Light Rail (between Fall River and New Bedford and/or to Middleborough or - South Station) and Commuter Rail -
- DMU Commuter Rail
- Bus Rapid Transit (BRT) with or without rail, some using the 140 corridor to Route 24
- A bus lane on Route 24 or an HOV lane on Route 24

Mr. McArdle said the handout shows the permutations of the modes. A second handout provides information on the modes. EOT plans to present the chart and wide set of alternatives in the upcoming civic engagement meetings and welcomes suggestions from the committee members as well.

FOLLOW-UP ACTIONS:

- The federal agencies will contact Alan Anacheka-Nasemann with formal approval of the Draft - Project Purpose. -
- The team will circulate a revised set of criteria to committee members before the next meeting.

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group - Meeting #2

LOCATION OF MEETING: Ten Park Plaza, Boston

DATE/TIME OF MEETING: October 23, 2006 - 9:30 to 11 AM

Attendance:	**Agency:**
Karen Adams	US Army Corps of Engineers
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Policy Act Office
Chris Boelke	National Oceanic and Atmospheric Administration, NMFS
Bob Boeri	Massachusetts Office of Coastal Zone Management
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Betsy Higgins	US Environmental Protection Agency
Richard Lehan	Department of Fish and Game
Alicia McDevitt	Massachusetts Executive Office of Energy and Environmental Affairs
Joe Orfant	Massachusetts Department of Conservation and Recreation
Edward Reiner	US Environmental Protection Agency
Jon Regosin	Natural Heritage and Endangered Species Program
Matt Schweisberg	US Environmental Protection Agency
Mike Stroman	Massachusetts Department of Environmental Protection
Steve Smith	Southeastern Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Tim Timmermann	US Environmental Protection Agency
Philip Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Wendy Stern, Executive Office of Transportation
Kristina Egan, Executive Office of Transportation
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Rick Carey, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates

HANDOUTS:
Slides – South Coast Rail: Needs and Goals
Basic Project Purpose – Draft for Review
EOT Definitions Sheet: Bus and Rail Transportation
Maps: Existing Conditions; Existing Conditions, Bus Routes; Existing Conditions, Previous Commuter Rail Alternatives

PURPOSE/SUBJECT:

Detailed discussion of the Project Purpose with the members of the Interagency Coordinating Group for the South Coast Rail Project.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay Transportation Authority (MBTA) launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. The second meeting included a project status update and a detailed discussion of a draft Project Purpose.

PRESENTATION:
Kristina Egan, EOT Project Manager, noted that minutes of the first Interagency meeting were emailed to the participants. Since the meeting, EOT has signed a contract with VHB for the Alternatives Analysis and work has begun. The civic engagement aspect of the project began with a presentation and discussion at the South Coast Commuter Rail Task Force in Fall River on October 17. About 65 people participated in the meeting, which was filmed for cable television and included representatives of the regional press. The team collected ideas for alternatives from the Task Force members and audience and the ideas will be shared with the Interagency Coordinating Group at the November meeting. Ms. Egan noted that a number of Task Force and Public Meetings have already been set up for the next six months. She added that EOT is close to making a final selection of a consultant to undertake the corridor plan and that effort should kick off in November.

The attendees introduced themselves (see the Attendance list).

Kristina Egan distributed a set of printed slides entitled "South Coast Rail: Need and Goals." She described information that will be included in the preface to a larger document on project Purpose and Need. The South Coast area suffers from a lack of transportation services. Cities are up to 25 miles from current transit stations and existing rail is at capacity. The highways in the region are congested. The area also suffers from severe non-attainment for ozone. Southeastern MA is the fastest growing region in the state, which is increasing pressure on the existing transportation network. But this growth – from an economic or demographic point of view – is distributed unevenly. Ms. Egan noted that most of the growth is in exurban areas, with cities achieving rates of only 1-2% between 2000 and 2020, resulting in a continuing hollowing of the cities.

EOT has transportation-specific goals for the project. Improved transit accessibility and mobility are prime goals. There should be more mode choices, and the project should result in cost-effective travel options. Connectivity is another theme. The project aims to reduce congestion and improve highway safety. It also aims to provide a more equitable distribution of transportation services for low-income people and people of color, as well as between regions in the state.

The project goals include reducing air pollution and addressing climate change. EOT wants to take cars off the roads in the region and reduce the total number of vehicle miles traveled. Rail is part of the climate change solution and the corridor plan will help quantify how to link the Gateway Cities in a way that does not increase the number of vehicles on the roads. Alan Anacheka-Nasemann asked how EOT proposes to measure climate change impacts. Ms. Egan said that EOT has a contract with the Central

Transportation Planning Staff (CTPS), which will study air quality benefits and estimate greenhouse gas reductions for each alternative. She said that another goal is to stimulate sustainable development in the region to provide better access to jobs and educational opportunities for South Coast residents, bring new vitality to gateway cities and attract new economic growth to the entire region. In addition, the project will open the more affordable southeastern MA housing market to Greater Boston residents.

The project will also help to shape secondary growth impacts. These are intended to be elements of an achievable vision, a realistic and forward looking plan that first addresses land use change. The plan is also action-oriented, seeking to generate strategies, tools and implementation for near-term and long-term smart growth. The Corridor Plan is one part of this strategy, as is the support to the Southeastern Regional Planning and Economic Development District (SRPEDD) to work with communities in the region to generate local strategies and tools to support these efforts. A result of SRPEDD's work will be to identify priority preservation and development parcels in the communities.

Mr. Anacheka-Nasemann asked if smart growth in the region depends on the success of the rail project, or will it happen without the project? Ms. Egan said she sees the project as a catalyst for smart growth. An infusion of public funds and transportation investment will advance smart growth. Steve Smith, SRPEDD, said the rail project will be a magnet for investment. The region needs a stimulus and the urban areas need to be revitalized. Liz Sorenson asked if the work on preservation parcels is being coordinated at the state level since there is a great deal of working going on. Ms. Egan said she is working with Dave Cash of the Massachusetts Executive Office of Energy and Environmental Affairs and she used an example brought up in a Westport meeting about Agricultural Preservation Restriction funds. She is working with MassGIS and SRPEDD's projects are intended to achieve buy in from the local community preservation panels to shape future plans. She and SRPEDD will follow-up with Liz Sorenson to ensure that the Department of Conservation and Recreation's work is being incorporated into the corridor plan.

John Felix, Massachusetts Department of Environmental Protection (MassDEP), asked if Ms. Egan has looked at the issue of contamination. Janice Martin, VHB, said that there was work to identify contaminated sites in the previous environmental review. A number of the potential station sites are brownfields. Mr. Felix observed from his experience with Greenbush that chemicals were sprayed along the lengths of the rail right of ways to control growth.

Philip Weinberg, MassDEP, said that economic development does not translate into public purpose for wetlands variance applications. Elements of smart growth and sustainable growth can translate into broader public purpose for wetlands variances, so it will be important to stress that they are significant elements of the project.

Deerin Babb-Brott, Massachusetts Environmental Policy Act Office, suggested that EOT review the Secretary's Certificate for the New Bedford Airport Expansion Project for background and language. Mr. Felix said that the Certificate for the Route 93 off ramp to Anderson Center might be similarly useful.

Tim Timmermann, US Environmental Protection Agency (EPA), commended Ms. Egan for the meetings listed in her slides for the civic engagement process. He thinks it is great that EOT is asking people for their ideas on alternatives to consider. He said this kind of work is typical of the Environmental Notification Form process and his only concern is that EOT not give the impression to the public of funneling the options before the environmental review takes place. It's also possible that people will not

participate in the environmental process if they think they have already given input and don't have to take part in the environmental review.

Ms. Egan said that the public process is intended to parallel the work of the Interagency Coordinating Group, with alternatives development, criteria development and application happening within similar time frames. The team will bring the results of the public dialogue and review to the agencies members for review and discussion. Mr. Babb-Brott said that the results of the six-month process will be incorporated as part of the ENF. The process will include evaluating the sufficiency of the process and determining if a limited list of alternatives needs more work.

Wendy Stern asked about the evaluation process: should EOT ask members of the public how to evaluate the options or present a set of criteria that will be applied to the project. Ms. Egan said that while she expects to present a set of criteria, she also wants the public to weigh in on the criteria as part of the process. Public input will be welcome on the decision matrix, but the final criteria will be determined by the Interagency Group.

Basic Project Purpose

Alan Anacheka-Nasemann, Army Corps, reviewed the draft version of the Basic Project Purpose:

> To provide public transportation between Boston and greater Fall River and New Bedford, Massachusetts, increase transit accessibility and ridership, reduce air pollution, and catalyze smart growth in the affected communities.

This draft purpose is a jumping off point for discussion and review. Mr. Anacheka-Nasemann said that the purpose should be confined to the facts without evaluative language. It should help define the scope of the review and the alternatives. He and Ms. Egan are looking for comments and suggestions and hope to achieve consensus on a final version over the next two weeks. Then it will be memorialized in a letter to the project proponents.

Ms. Egan said that she and Mr. Anacheka-Nasemann worked on the language and gave examples of why they chose one set of words versus another in the draft statement, such as public transportation versus surface transportation; greater Fall River and New Bedford versus the South Coast region. They tried to avoid qualitative adjectives, such as safe and cost-effective and they considered that including the goal to reduce air pollution also captured climate change factors. They chose smart growth versus other options since it includes natural resource preservation.

Ms. Sorenson noted that the purpose does not include mode choice or regional conductivity, including how people will travel within the region. She was also interested in ensuring that sustainability is considered and that smart growth does not result in more pollution. Ms. Egan said EOT does not want to get people off the highways and on trains just to see the regional roadways fill up again.

Karen Adams, Army Corps, suggested replacing "affected communities" with the word "corridor."

Mr. Anacheka-Nasemann said he and Ms. Egan used the verb "catalyze" intentionally. He feel that the use of this term reflects the goal of smart growth, to make a reaction happen more quickly (as the term is used in chemistry).

John Felix said that in seeking a wetlands variance, EOT should be aware that reduction of regional traffic congestion and public safety are weighed in the analysis.

Mr. Babb-Brott posed a question to EPA representatives: would the inclusion of goals or evaluative terms in the purpose bring on a full-scale analysis of growth impacts, requiring a Cumulative Impact Assessment? Mr. Timmerman said his initial reaction at the start of the meeting was that it would require a broader assessment, but the use of smart growth and the concept of catalyzing growth is appealing. He is excited about the parallel, ongoing work with the corridor communities, which are not always smart about development and he would like to see as much of the growth be in the "smart" category as possible. Economic development is a specific category requiring an analysis of specific and cumulative effects, but he believes that EPA will not get in the way of the positive goals and benefits that EOT has for the project.

Mr. Timmerman added that there is language that is not needed in the purpose in the purest sense, such as transit accessibility and ridership, which are redundant with "public transportation". He said that air quality is important, but Ms. Sorenson said that she thinks it is tricky to include air quality since it will have to be looked at for each alternative. Ms. Egan asked if the wording were changed to add "in order to" before the goals in the latter half of the statement. Mr. Timmerman said that consequences are filters, so they should be out of any statement in its purest form. Reacting to Ms. Sorenson's statement, he said that smart growth is friendly to air quality.

Steve Smith, SRPEDD, asked what the flip side would be of not including specifics? Smart growth is one of the goals of the project so it seems like it should be included. Mr. Anacheka-Nasemann said it may be necessary to define the term. There may be a general understanding of what the term means, but being specific may be necessary. People may have different ideas about what it means. If the concept is not in the statement, the project may be limited to transportation and ancillary effects will not be required to be evaluated, but this may not be the project goal. Mr. Weinberg said he likes the smart growth aspect of the project but raised the concern that adding a lot of qualifiers could mean that the team and agencies wind up analyzing nuances to death.

Richard Lehan, Department of Fish and Game, reminded everyone that to secure a wetlands variance, the project has to make a showing of overriding public purpose. Mr. Timmerman added that the Basic Project Purpose is a term of art for the Clean Water Act and it will be important to capture the range of alternatives in the project as it goes forward. Mr. Weinberg said that the project needs to stand on its own without economic development. It might be better to talk more about issues such as greenhouse gases. EOT might have to quantify the environmental consequences of smart growth.

Mr. Anacheka-Nasemann added that the final alternative has to meet the Basic Purpose and Need and the team has to keep that in mind.

Ms. Stern suggested that the focus should be on the "musts" for the project versus what EOT would like to achieve.

Mr. Smith asked if transportation needs alone will satisfy the standards to be met for wetlands variance? John Felix said that any application has to pass the "straight face test." The proponent has to quantify the elements of the Basic Project Purpose and define the intent of concepts such as smart growth. One definition of that term is to build where there is already development, such as in a place like Weymouth,

versus in an undeveloped area. Mr. Anacheka-Nasemann said this relates to his earlier statement that smart growth needs to be defined clearly.

There was a discussion about growth in the region and the need for local regulations and by-laws to encourage smart growth. There was recognition that only tangible benefits (such as funding) and perhaps the kind of planning that EOT is undertaking can effect the right kind of land use change in municipalities. There was also recognition of the fact that new transit will bring riders, workers and commuters from Boston to the region. Mr. Smith said he would like to see a quid pro quo such as only placing stations in communities that make the appropriate zoning changes as a form of enticement to cooperate. Mr. Anacheka-Nasemann suggested that the link between ridership demand and economic development has to be made. Mr. Lehan said that air quality data needs to be argued in the permit and the issue of reduction versus improvement is an important nuance in these circumstances. The alternatives analysis should also be thorough. Mr. Weinberg said that a more conservative approach would be to say that the project will facilitate or complement smart growth. In considering being more proactive, EOT needs to keep in mind the regulatory review impacts. In summary, the speakers agreed that their hearts are saying *go for it* (in terms of smart growth), while their minds are not so sure.

Ms. Egan said that she will email another draft to the participants and invited input from the group's members in advance. There was a brief discussion of options: independent and dependent clauses versus different punctuation. Ms. Sorenson suggested that the language should reflect how an observer would evaluate an alternative to achieve smart growth, perhaps using the language: to provide smart growth and a conservation plan to catalyze sustainable development. Mr. Anacheka-Nasemann observed that the broadest language might best suit the variance review process; the narrower would fit the alternatives screening and the most selective the MEPA and NEPA reviews.

Mr. Timmerman noted that U.S. Fish and Wildlife was missing from the meeting. He said that he would provide thoughts on the language by a suggested deadline of November 2, if at all possible.

Ms. Egan said the next meeting, on November 27, will include draft evaluation criteria for review and discussion; a report on the public's suggestions of alternatives; and the revised purpose and need.

FOLLOW-UP ACTIONS:

- Each agency will provide comments to Kristina Egan or Alan Anacheka-Nasemann on the Draft - Project Purpose by November 2, if possible. -

SUMMARY NOTES OF MEETING
SOUTH COAST RAIL
Interagency Coordinating Group

LOCATION OF MEETING: Ten Park Plaza, Boston

DATE/TIME OF MEETING: September 25, 2007 9:30 AM

Attendance:	**Agency:**
Karen Adams	US Army Corps of Engineers
Alan Anacheka-Nasemann	US Army Corps of Engineers
Deerin Babb-Brott	Massachusetts Environmental Policy Act Office
Chris Boelke	National Marine Fisheries Service
Bob Boeri	Massachusetts Office of Coastal Zone Management
Nancy Durfee	Southeaster Regional Planning and Economic Development District
John Felix	Massachusetts Department of Environmental Protection
Jerome Grafe	Massachusetts Department of Environmental Protection
Greg Guimond	Southeaster Regional Planning and Economic Development District
Betsy Higgins	US Environmental Protection Agency
Ken Kimmell	MA Executive Office of Energy and Environmental Affairs
Richard Lehan	Department of Fish and Game
Rosemary Monahan	US Environmental Protection Agency
Edward Reiner	US Environmental Protection Agency
Jon Regosin	Natural Heritage and Endangered Species Program
Matt Schweisberg	US Environmental Protection Agency
Mike Stroman	Massachusetts Department of Environmental Protection
Steve Smith	Southeaster Regional Planning and Economic Development District
Liz Sorenson	Department of Conservation and Recreation, Areas of Critical Environmental Concern
Tim Timmermann	US Environmental Protection Agency
Maria Tur	US Fish and Wildlife
Philip Weinberg	Massachusetts Department of Environmental Protection

For South Coast Rail:
Wendy Stern, Executive Office of Transportation
Kristina Egan, Executive Office of Transportation
Mike McArdle, Vanasse, Hangen, Brustlin, Inc. (VHB)
Janice Martin, Vanasse, Hangen, Brustlin, Inc. (VHB)
Lisa Standley, Vanasse, Hangen, Brustlin, Inc. (VHB)
Nancy Farrell, Regina Villa Associates

PURPOSE/SUBJECT:
Kickoff meeting for the Interagency Coordinating Group for the South Coast Rail Project.

BACKGROUND:
The South Coast Rail Project, led by the Massachusetts Executive Office of Transportation (EOT), is intended to improve transportation between downtown Boston and the South Coast, particularly the cities of Taunton, Fall River and New Bedford. To further this effort, EOT and the Massachusetts Bay

Transportation Authority (MBTA) have launched a comprehensive and transparent planning process to evaluate transportation alternatives for the South Coast region. This process includes meetings of the Interagency Coordinating Group, which bring together representatives of the federal and state agencies with jurisdiction over aspects of the project. By meeting with regulatory agency representatives on a regular basis through the Alternatives Analysis phase EOT hopes to streamline the review process to advance the project.

PRESENTATION:
The meeting began with welcoming remarks by Undersecretary of Transportation Wendy Stern, who noted the importance of the project and the advantages of discussing the pros and cons of elements of the project in an open and cooperative forum. She added that the Patrick Administration has committed to a fresh review of the alternatives.

The attendees introduced themselves (see the Attendance list).

EOT's South Coast Rail Manager, Kristina Egan, provided a short history of and context for the project. The intent of the project is to provide excellent transit access between Greater Boston and the South Coast region, which is within 50 miles of Boston but currently has limited transit service. EOT plans to link transit with land use change and to develop a new model for financing infrastructure with this project. The South Coast Rail project would be the third largest infrastructure effort in Massachusetts in recent history after the Central Artery and Deer Island wastewater treatment plant construction. The project will also open an affordable housing market to Greater Boston residents, improve air quality and address climate change by taking vehicles off the road and changing travel habits. Finally, the project will be a catalyst for smart growth in the region, preserving the assets of the old mill towns while providing new economic opportunities.

Ms. Egan said that a Final Environmental Impact Report (FEIR) was filed in 2002 and a Secretary's Certificate issued on the project. The former FEIR endorsed the so-called Stoughton alignment. This new phase will take a fair and fresh look at all of the alternatives. Ms. Egan said she has met with some stakeholders in the region, conducted an environmental listening session and worked with the Southeastern Massachusetts Commuter Rail Task Force and the Southeastern Regional Planning and Economic Development District (SRPEDD). She noted that EOT is seeking a consultant team to develop an economic development and land use corridor plan for the 28 municipalities in the region. This will also be a model for how the state can attract and manage growth. In addition, EOT has contracted with SRPEDD for technical assistance with outreach and civic engagement. Ms. Egan said that wide-ranging civic engagement is planned and the team will ask the public questions and bring the responses and opinions back to the Interagency Coordinating Group.

POWERPOINT:
Alan Anacheka-Nasemann, U.S. Army Corps of Engineers, outlined The Highway Methodology, which the Corps and the project will be using to integrate the project with the requirements of the Corps' permit regulations. The presentation outlined the standards the Corps must use to avoid impacts to aquatic resources; minimize impacts; and mitigate unavoidable impacts. The result must be the Least Environmentally Damaging Practicable Alternative (LEDPA). The Corps uses a step approach to reach this determination, employing: pre-application, application, public notice, evaluation and monitoring. The presentation also tracked the steps in the NEPA and MEPA processes; included information on the wetlands in the study area; and defined minimization and mitigation, should those steps be reached. Mr. Anacheka-Nasemann said that the Corps encourages joint review at all levels; looks forward to a

concurrent 404/NEPA/MEPA process; and believes that the Highway Methodology provides means for narrowing the range of options fairly quickly toward selection of the LEDPA. (A copy of the meeting presentation is available on the website, www.southcoastrail.com.)

Deerin Babb-Brott, Massachusetts Environmental Policy Act Unit (MEPA), explained the MEPA process in brief and noted that the analysis of impacts, particularly of secondary and cumulative impacts, will be very important for this project.

QUESTIONS AND COMMENTS:

- The purpose and need for the project should be defined broadly according to the Corps. (The - Corps and EOT will present a draft for discussion at the next meeting.) -
- There is great interest in how the state anticipates using planned growth along the corridor to finance the project and questions about the potential effect of casinos in southeastern MA on both the project and the corridor study.
- There were questions about all of the potential options to be examined, including a bus option; - Ms. Egan said all practicable ones are on the table. -
- There were concerns that the corridor planning study will lag behind this project and perhaps - hold up the rail planning. Ms. Egan outlined the schedule and said this was not a concern; - parallel work will be taking place. -
- Karen Adams noted that the Corps will prepare an internal Environmental Assessment but does not anticipate that an EIS will be needed at this time. There was some discussion of this plan and concerns that not planning to do an EIS might leave the project vulnerable at a later date. Ms. Adams said it was premature to begin with an EIS. EPA said it would raise concerns directly with the Corps.
- Ms. Egan distributed a draft schedule and asked the group to commit to meeting monthly. At these meeting, EOT and the Corps will be seeking agreement on key issues before moving forward. There was a discussion of this possibility and a request to submit documents for review two weeks before each meeting. VHB and EOT said they would try to meet that goal, but 10 days is a more reasonable plan. The parties agreed to try to concur or achieve concurrence on issues on a timely basis, as requested by EOT, but EPA and other agencies noted that this will not always be possible. The size of the group could affect the progress of discussions. Ms. Egan requested each agency to designate a lead person to channel reviews and comments.
- The Central Transportation Planning Staff (CTPS) will be doing a spreadsheet model of up to 20 - alternatives to evaluate ridership potential for different alternatives. After the screening of the - initial alternatives, CTPS will conduct in-depth modeling on ridership, air quality and - greenhouse gases for the practicable alternatives that emerge out of the initial screening. -
- The project will be likely to require a variance under the Wetlands Protection Act. The project purpose needs to tie into the alternatives analysis and demonstrate that the project is needed to meet a public transportation purpose. Economic development is seen as a benefit of the project, to meet community revitalization goals, but this is related to financing and impact assessment rather than purpose. Ms. Egan clarified that the analysis will compare a "smart growth" scenario to a baseline "business as usual" scenario.
- In response to a question about the potential impact of casinos on the project, Ms. Egan noted - that this will be included in the analysis if and when a location is proposed. -
- Steve Smith explained in some detail the membership and role of the Commuter Rail Task Force that is staffed by SRPEDD, noting that the task force was recently expanded to add new communities. The task force has focused on identifying potential rail stations and developing transit-oriented development recommendations.

- The alternatives analysis will consider capacity limitations at South Station. The USPS relocation proposal will undergo a separate environmental review process.

FOLLOW-UP ACTIONS:

- Each agency to designate a point person for the Interagency Coordinating Group.
- The calendar of meetings was established. (Please see separate save-the-date emails.)
- The EOT / Corps team will send materials out between two weeks and ten days in advance, - wherever possible. -
- EOT will post the Army Corps' Highway Methodology presentation on www.southcoastrail.com
- EOT will share dates for Commuter Rail Task Force meetings and civic engagement meetings - with the Interagency Coordinating Group. -

Appendix D
Civic Engagement Meeting Notes

SOUTH COAST RAIL

Summary Notes - March 2008 Civic Engagement Meetings

At the third round of civic engagement meetings for Phase 1 of the project, we asked the question: What do you think of the draft findings? Regional meetings were held in Attleboro on March 10; in Lakeville on March 11; and in Freetown on March 12. The Attleboro meeting format included a presentation, breakouts by corridor and a general question/answer and comment session. The Lakeville and Freetown meetings format included an open house, presentation and question/answer and comment session. This packet includes a summary of the presentation made at all of the meetings and a list of the questions and comments of the participants.

THE PRESENTATION

1. Project Background

The Executive Office of Transportation South Coast Rail Project Manager, Kristina Egan, thanked participants for taking the time to attend the meeting and offer their comments. She said that no route would be selected at the meeting. EOT's extensive civic engagement process is designed to engage people early in Phase 1 so the project team and Interagency Coordinating Group can consider the public's input when deciding which alternatives to recommend for in-depth environmental review in Phase 2. She said the narrowed list of alternatives recommended by the Interagency group is available on the project website at www.southcoastrail.com and in the meeting handout. [It can also be requested in print from EOT.] The presentation included a summary of a short-list of 10 alternatives. Public comment will be taken back to the Interagency Coordinating Group for consideration before narrowing the list of alternatives that will advance to the in-depth environmental review in Phase 2.

Ms. Egan said that the South Coast is the fastest growing region of the state. Fall River, New Bedford and Taunton are within 50 miles of Boston, which is the economic engine of New England, but these cities are underserved by public transit. There are several reasons the project is necessary. Roads and highways are at capacity and the situation is likely to worsen. Commuter rail is also reaching capacity. Riders complain of lack of seating and poor quality service, particularly on the Attleboro line. This project will improve transit service between Boston and Fall River, New Bedford and Taunton, as well as within the South Coast region.

As growth continues on the South Coast, pressure will increase on the transit and roadway systems. Oil is at more than $100 per barrel and climate change is a very real threat. The project

will provide real benefits to the regional economy and the transit system. Ms. Egan said that in the past, planners chose station locations based on where the cheapest land was available for parking garages. Using the principles of smart growth, the project will provide long-term enhancements such as improved quality of life, protection of water and other natural resources and preservation of historic and priority preservation sites, resulting in vibrant communities for people.

Ms. Egan said the South Coast Rail project will be a green project. Renewable energy will be incorporated into the design, potentially including features like solar arrays and wind turbines at stations. Smart growth is a key component of the project and will protect resources. Regional planning funding is incorporated into the project design. Ms. Egan said EOT has designed an open and transparent process and she encouraged people to contact her directly. The decision process is a balancing act and hearing from the public about which factors are most important will help with the decision-making process.

2. The 10 Alternatives

Ms. Egan referred to the PowerPoint file for the following discussion. (The presentation is posted on www.southcoastrail.com.) The alternatives evaluation process for Phase 1 has looked at alternatives from a 10,000-foot level, a broad brush review of a range of potential ways to meet transportation needs. The Phase 1 review does not provide all the answers, but the alternatives must be feasible. The next phase of the project will be an "on the ground" review that is more detailed. This environmental review will take 2 years to complete.

Beginning in November, Ms. Egan said, EOT reached out to the public to hear ideas and comments. An Interagency Coordinating Group is reviewing public input from three rounds of civic engagement meetings, which were held in November/December and January. The Interagency group includes representatives from 11 federal and state regulatory agencies such as the U.S. Army Corps of Engineers, the US Environmental Protection Agency and the Massachusetts Department of Environmental Protection.

The first round of civic engagement meetings resulted in 65 alternatives that the public asked the project team to evaluate, Ms. Egan said. The team combined similar concepts and came back to the public with 38 proposed alternatives for review and asked the question "What do you think of the alternatives and the proposed evaluation criteria?" This third series of meetings is presenting a short-list of 10 alternatives and asking the public "What do you think of the draft alternatives and what are the most important criteria to you?" After the final series of engagement meetings for this phase, the Interagency group will further narrow the list to a smaller number for in-depth review.

Ms. Egan said the Phase 1 evaluations looked at each alternative and asked the following questions in a three step sequence:

Step 1: Does the alternative meet the project purpose – getting people back and forth from Boston, improving regional mobility and supporting smart growth?

Step 2: Is the alternative practicable or buildable – from cost, ridership, construction and timeframe perspectives?

Step 3: What are the relative environmental impacts of each alternative? The environmental impacts considered are primarily related to wetlands issues. Wetlands are subject to the most extensive regulations. Phase 2 will result in the identification of the Least Environmentally Damaging Practicable Alternative (LEDPA). The Army Corps can only permit the LEDPA.

Ms. Egan noted that a fourth step will be circling back to make sure the Interagency group is comfortable with earlier decisions, based on public input during this final phase of engagements, before making final recommendations for Phase 2 alternatives. She pointed out that there is no right answer. The decision-making process is a balancing act and no process will produce a silver bullet result. There are pros and cons for all the alternatives. For instance, the fastest alternative might be the most damaging or a route might impact direct abutters' home values, yet increase the value of other homes in the area.

The 10 alternatives are organized around four main corridors, Ms. Egan said. The corridors use the existing Attleboro, Stoughton and Middleborough lines and the highway system (Routes 140 and 24) as backbones. Ms. Egan outlined the list of 10 alternatives and listed some key pros and cons for each one.

Attleboro Alternatives

- ***Commuter Rail to South Station via Attleboro Bypass***
- ***Electrified Commuter Rail to South Station via Attleboro Bypass***
- ***Diesel Multiple Unit Commuter Rail to Attleboro Station***

The commuter rail alternatives would add six peak hour trains – three from New Bedford and three from Fall River - through Attleboro to South Station. The commuter trains would have eight cars and would use an old freight rail between Attleboro and New Bedford/Fall River that would cross the proposed 3 Mile River Area of Critical Environmental Concern (ACEC), up to the Northeast Corridor line. (Options that could go through Mansfield have been eliminated because the town center would have to be rebuilt to accommodate the rail.) The commuter rail alternatives would use a new rail bypass. This bypass would travel along an existing National Grid power line right-of-way. These alternatives would require adding a third track from Readville to Canton Junction to handle the increased capacity necessary for the additional trains on Amtrak's Northeast Corridor. The third track would run through Canton, Westwood, Dedham and the Readville section of Boston and it would run through the Fowl Meadow ACEC. Ms. Egan said that electrified commuter rail provides a faster trip. The trains accelerate and decelerate more quickly. The electrified commuter rail trip time is estimated at a broad brush level to be 55 minutes; it requires construction of a catenary system (overhead power lines). The commuter rail trip time is 74 minutes. Both alternatives deliver a good level of service to customers. These alternatives require approximately 15 grade crossings in Taunton, 11 of which are fairly close together.

The third alternative discussed in the Attleboro corridor was running three-car self propelled trains called diesel multiple units (DMUs) from New Bedford and Fall River along the existing freight line and stop at Attleboro Station where passengers would have to transfer to commuter rail. The advantage of the DMU option is that no third track is necessary on the northern section of the corridor because passengers would feed into the exiting commuter rail system and the bypass would not be necessary. A disadvantage is the transfer. Whenever a transfer is involved

in a mode of transit it is less attractive to riders who are prefer a one-seat ride. Ms. Egan said the Norton Conservation Commission had notified her of the potential impact on Chartley Pond, a state-protected resource, and the Massachusetts Audubon Society had told her about other wetlands concerns in the southern portion of the Attleboro alternative. She added that Taunton Mayor Crowley had expressed concern about the grade crossing in his community. She noted that there are new technologies that could be used to reduce the impacts on communities of grade crossings, such as decreasing the time necessary for the gates to be down.

Middleborough Alternatives

- **Commuter Rail to South Station via the Middleborough Line without Old Colony Main Line Improvements**
- **Commuter Rail to South Station via the Middleborough Line**
- **Commuter Rail to South Station via Attleboro/Middleborough**

These alternatives use existing freight lines in the southern section, carrying trains from Fall River and New Bedford north to Cotley Junction in Taunton, where they would travel east to the Old Colony line to travel north again. The segment of the Old Colony Line from Braintree north to South Station is a bottleneck because it is a single track, which already carries the Old Colony Main Line, Greenbush, Plymouth and Middleborough lines. Transportation experts have determined that no more then three trains can be added to the line without "breaking the bottleneck." This would require adding a second track from Braintree to South Station.

The first Middleborough alternative would add three peak hour trains from the New Bedford/Fall River area (2 from one city and 1 from the other). It could only serve half the number of riders as alternatives using six peak trains because this option does not include a second track in the bottleneck area.

The second alternative would add six peak trains, but it would require double tracking in several areas, including through Quincy. The corridor through Quincy would impact a portion of a historic cemetery, a public roadway (the Burgin Parkway) and incur a high cost. The Interagency group recommended eliminating this alternative, but the team has been asked by the Secretary of Transportation and other Secretaries to retain it for more detailed study. It would have the benefit of increasing the reliability of service of all the Old Colony commuter rail lines.

The third Middleborough alternative is a hybrid that would send half the trains through the Middleborough corridor (without opening the bottleneck) and half through Attleboro. The advantage is that adding tracks in the Fowl Meadow ACEC and in Quincy would not be necessary, because the number of additional trains traveling those corridors can be managed with existing capacity. The alternative is cheaper, as a result. This alternative has disadvantages, including taking up the limited spare capacity on the Northeast Corridor and Old Colony lines and foreclosing the option of extending commuter rail to Wareham without infrastructure improvement to the Old Colony Main Line.

Stoughton Alternatives

- ***Commuter Rail to South Station via Stoughton***
- ***Electrified Commuter Rail to South Station via Stoughton***

Ms. Egan said that the Stoughton alternatives would come north from New Bedford and Fall River to use an existing right-of-way of an old rail line just north of Route 44 that no longer has tracks on the rail bed to reach the existing Stoughton Line. The challenge for these alternatives is that the former rail line runs through the Hockomock Swamp ACEC which is home to state-listed and rare species and vernal pools, as well as the Pine Swamp conservation area in Raynham. The electrified commuter rail would have slightly greater wetlands impacts because the catenary power lines would have to be constructed through the Hockomock Swamp. This alternative would provide good service, with the straightest shot to Boston, good cost effectiveness and little impact on the rest of the transportation infrastructure.

Highway Alternatives

- ***Express Bus in Dedicated Lane to South Station via Route 24, Route 128 and the SE Expressway HOV Lane***
- ***Enhanced Bus Service on Existing Private Carrier Routes***

The bus rapid transit (BRT) alternative would travel in existing traffic from Fall River and New Bedford. Where Route 24 increases to three lanes in each direction, a dedicated zipper lane would be constructed for the BRT. The zipper lane would use the off-peak lane for the BRT, so peak travel lane capacity would not be impacted. At Route 128, a new, dedicated lane would be constructed on the outside of the existing highway from Route 24 to the Southeast Expressway. Once the BRT reached the area of I-93 in Braintree, it would join the existing High Occupancy Vehicle (HOV) zipper lane. Trip time for this alternative is good at 70 minutes and the cost is lower than other alternatives. There would be some impacts to the Hockomock Swamp along Route 24 and to the Blue Hills Reservation, a state park protected under State Constitution Article 97. This alternative is not likely to meet demand since it can handle only one-quarter of the riders who can ride commuter rail. It does not encourage smart growth.

The second bus alternative would be to utilize existing private carriers and expand service along existing routes. A disadvantage is the long trip time and, in general, buses are not viewed as favorably by potential transit customers. Bus service would not be likely to meet demand or to encourage smart growth. There are BRT vehicles currently in use that provide a look and experience similar to light rail.

Other Route 24 alternatives not carried forward (commuter rail and monorail)

Ms. Egan reviewed other highway corridor alternatives that the public had suggested, but that were not advanced to this stage.

Rail up the highway system – The width of the Route 24 median varies. To accommodate rail, another lane would have to be built and 20 interchanges would have to be rebuilt on Route 24 because commuter trains cannot travel on tracks on severe grades that would be required to "fly over" the existing interchanges.

Elevated Monorail – While this alternative is visible to drivers on Route 24, it would be the longest monorail ever built, so it is unproven. The infrastructure would be entirely new and would have to be specially designed and built at great cost. The MBTA currently swaps engineers and train cars between lines, as necessary. With a monorail system this would not be possible. A monorail

would also take eight years to construct. A four year construction period is what EOT is planning for.

3. Closing

Ms. Egan said that the decision on which alternatives advance to Phase 2 depends on point of view: "where you stand depends on where you sit." It is not an easy decision. Opinions differ depending on where people live. She has heard the most negative comments from people from Easton, Stoughton, Norton and Attleboro. Fall River and New Bedford have been waiting a long time for service, so they are eager for the project to be built. Up to this point, there has been limited regional dialogue. She said it is important for residents of different communities to talk to each other and hear each other's concerns and interests. The alternatives have trade-offs and there are issues with all of the options. Stoughton is a good transportation alternative, but there are environmental impacts. Bus alternatives are cheaper and have fewer impacts, but they would transport fewer riders. Supporting and advancing smart growth means choosing locations near historic village centers where there are more grade crossings. The Patrick Administration is committed to South Coast Rail. The Southeast has been left out of transit planning until now, and it is a high priority to make the connection. Ms. Egan said the team wants to hear what people think about the process and alternatives, what are their most important criteria, and what's the best way to weigh criteria. The overarching question is "What do you think of the proposed findings?"

Ms. Egan thanked participants again for taking time out of their busy schedules to attend the meeting and share their thoughts. EOT will continue its extensive outreach program and the public will have other opportunities to comment on alternatives during the Phase 2 in-depth environmental review process. Ms. Egan said that new information would be posted in April and she asked participants to stay in touch using the website (www.southcoastrail.com) or email.

Attleboro Meeting – March 10, 2008

Thacher Elementary School

General Questions and Comments

Responses to questions and comments, where appropriate, follow bulleted groupings.
Names are provided where given by speakers.
Flipchart notes from the general session discussion are also included.

- Frank Cook, Attleboro City Council President and Ward Councilor, said the City Council passed a resolution on January 22 supporting the Stoughton alternative. Stoughton was the alternative chosen last time, yet the state is spending $17 million on planning for this project when local services are level funded and suffering. He said it is a travesty.
- Representative Elizabeth Poirier said she is vehemently against the Attleboro alternatives. She is disappointed in the process. People have questions, but the state has provided few answers. She receives complaints that the train into Boston is late and the quality of service is poor. The state should concentrate on fixing what it has, rather than extending service. The MBTA has a high debt load and fares are increasing, yet quality of service suffers. She said the funding for the project must be bonded and a vote of the legislature is necessary.
- Mayor Charles Crowley, Taunton, said the City Council voted unanimously to oppose the Attleboro alternatives and support the Stoughton alternatives. He is concerned that the 15 grade crossings in his community will affect the ability of emergency responders to reach destinations. There are fewer grade crossings in Stoughton and the route is more direct and economical. He added that in terms of environmental impacts, engines are better now than when the line was last in service. The City will do whatever it can to stop the Attleboro alternatives.
- Representative John Lepper noted that the Stoughton route results in less loss of wetlands and other environmental impacts and capacity is higher. He said human impact is important and the 15 grade crossings in Taunton should be weighed against impacts to the Hockomock Swamp.
- Representative Jay Barrows endorsed the Stoughton alternatives. He encouraged EOT to look more closely at the highway corridor. He is concerned that trains will be longer than the platforms at South Station.
- Bob Kimball, Norton Selectman, thanked EOT for the opportunity to participate. He said Norton is against the Attleboro alternatives. He said that EOT presented 10 alternatives tonight, but an 11th alternative is about jobs and the economy. Communities could use the money being spent on the project. Rather than transporting jobs out of the region, people should be kept local.
- George Dentino, Mansfield Selectman, said that Mansfield is against the Attleboro alternatives. He noted that only one Attleboro alternative has been dropped and three remain. Norton, Attleboro, Taunton and Raynham suffer impacts, but don't see any benefit from the Attleboro alternatives.
- Walter Thibadeau, Attleboro City Councilor, noted that there is limited service capacity on the existing Attleboro line and passengers are demanding more cars to

meet need. He said Attleboro has two stations and minimum ridership in terms of City residents, yet it is the largest ridership South Station, with 17,000 passengers.

- Brian Kirby, Attleboro City Councilor, said he is disappointed that the alternative is being revisited and the cost to do so is $17.2 million. Construction costs will be $1.6-2 billion. He noted the MBTA is currently operating in the red and wonders where the money will come from. He recognizes that Fall River and New Bedford need service, but the work could be phased. He joins with Taunton, Norton and Mansfield against the Attleboro alternatives.
- Jack Lank, Attleboro Chamber of Commerce, said he joins with the others against the Attleboro alternatives. He sees no economic benefit, only disruption and wonders who is paying for the project?
- Joe Dent (sp?), Attleboro resident, lives near the tracks. For 10 years he thought nothing would happen and now the idea is being revisited. How many people will the project move? What are the ridership numbers?
- Susanna Girard, resident, said she understands the need for the process, but she's frustrated with the lack of answers. Her concerns include safety, wetlands, the Route 123 route and National Grid easement. She lives near the right-of-way, which is supposed to be only for electric transmission not trains. She's concerned about property value impacts and the proximity to her home.
- George Thatcher, Attleboro resident, said it would be better if the community received the $1 billion for redevelopment of manufacturing and fishing industries. He said people want to stay closer to home and do not want to commute. He's not convinced about ridership numbers.
- Lou Gitto, Stoughton resident, suggested the highway alternatives be looked at as short-term solutions, while longer term issues are resolved, such as the Braintree bottleneck. He said the highway alternatives are lower cost and could be eliminated once the long-term improvements are made. If the Braintree bottleneck is broken, the Wareham extension would be possible.
- Mary Ann Kinney, Mansfield, said that Fall River and New Bedford are entitled to service, but Taunton should not be sacrificed for the Attleboro alternatives. She is not in favor of any Attleboro alternatives. She favors Stoughton alternative 30 from a cost-benefit perspective. The trip time is 74 minutes and 6.7 acres of wetlands are impacted. She thinks this alternative has the best "bang for the buck." It's compatible with the system and is a straight shot into Boston. It also provides another rail corridor for redundancy. She also noted that shippers may want to use the rail system for freight and tankers to Boston from Fall River and New Bedford harbors. She thinks Stoughton remains the best alternative.

Ms. Egan noted that the overarching concern expressed by many people is related to spending so much money on the project. She understands the concern. The project is one piece of an overall approach to increasing economic development in New Bedford and Fall River, an the Administration is seeking a holistic approach by promoting other housing, education, and jobs initiatives under other agencies. The project is a high priority for the Administration, which believes the South Coast deserves better transportation options and that connecting the cities must be done for the future. The Administration and Legislature will decide the best way to fund the project. The money

used for the project can only be used for transportation projects, so it is not available for other assistance.

Ms. Egan addressed the ridership and economic justification questions. She said modeling is being done now. She noted that people from Fall River and New Bedford do commute to Boston. The existing journey-to-work demand is about 8-9,000 people, in addition to other regional trips. She said the project is looking at cost effectiveness and attractiveness of alternatives. The most reasonable option can be debated and the civic engagement process will help flesh this out.

Ms. Egan said she understands the frustration with the lack of answers. She said this level of analysis – 10,000 feet – is not designed to answer all the questions. She noted that historically the public process has not happened until there is a specific plan. The process for this project is designed to get public input early to impact the overall big picture development of the project.

Additional comments and questions

- Representative Lepper read an excerpt from the 1995 DEIR that stated that the Attleboro alternative was not practicable and asked why the state is back again?

Ms. Egan said the alternatives evaluation must be revisited. The project cannot go forward without it. She pointed out that before the 2002 study, Attleboro was the preferred alternative. EOT wants a transparent process that provides the data so people can see why certain decisions are made. The South Coast Rail project has been studied for many years. In 2002, a state-level environmental review recommended one particular route. However, the lead federal agency regulating the project, the U.S. Army Corps of Engineers, was not part of that review process. In order to obtain a Clean Water Act permit under federal law, we need to go through the Corps' methodology which requires looking at the alternatives again. The 2002 data is out-of-date now, so we are consolidating this federal review with an updated state review. Mr. McArdle added that since the previous studies, the Northeast Corridor has seen an increase in demand for service both from Amtrak and the MBTA. The corridor is congested. He said the ridership analyses in Phase 1 are spreadsheet analyses. The next phase will use computer simulations and include Amtrak and MBTA service on the Northeast Corridor to test assumptions about demand 20-30 years out. The corridor can handle three additional trains without improvements near Canton Junction. Six trains are really necessary to meet demand and would require infrastructure improvements. He noted that the Central Transportation Planning Staff model extends the southeast region for ridership projections. The team will come back to the public with results of the more detailed analyses.

- A participant said he appreciates that this phase is a 10,000 foot review. He noted that Stoughton has a reasonable trip time of 52 minutes. He asked what the cost

would be over the next 20-30 years? He would like to see computations of cost taking into account trip distance, ridership numbers and environmental impacts.

- Ken Zanoni, Norton, noted that he had signed in at previous meetings, but did not receive a notice about this series of meetings. He said that the Attleboro route makes no sense. Stoughton makes the most sense. He said concerns go beyond the environment. There are people concerns, for instance, the impacts of grade crossings to people in Taunton. He thinks people concerns should outweigh other concerns.
- Bob Mulkern, Norton, said he also was not notified.

Ms. Egan reported that in addition to emailing the meeting notice and having it posted on the website since last fall, EOT flyered locally at public places and sent out a press release to all local and regional media including the *Attleboro Sun*. She does not know why the information wasn't printed by the *Sun*. She told the participants she would double check the database to ensure their emails are included.

- Heather Graf asked when the team would narrow the list to 4-6 alternatives? She said the lengthy process is frustrating.
- A gentleman from Norton noted that companies, such as State Street where he works, are encouraging employees to telecommute. He also said he is concerned about the congestion on the Attleboro line and the ability to respond to emergencies on trains and elsewhere. The more trains on the line the more likely there will be delays that could affect the entire corridor.
- A participant noted that he was at the Easton meeting. He said the public was promised information on current assessments to towns by the MBTA. He would like to know the current assessment for Attleboro. He noted that assessments will increase with new service.

Ms. Egan said she understands the frustration people feel in terms of the length of the evaluation process. She said the Interagency group will review public input from these meetings at the group's meeting next week. An announcement about the recommended list for Phase 2 will be made in April. She said the team is looking at the ripple down effects of emergencies on various corridors and the effects on reliability. She noted that the project is not looking just at Boston companies, but is also considering businesses throughout the corridors. The corridor plan that is taking place concurrent with the alternatives evaluation is looking at community plans, residential growth and other factors. As part of the project, ridership will be further investigated, such as who rides the trains and why. Ms. Egan said she will speak with the MBTA regarding community assessment information.

- Repesentative Lepper said the Legislature approved the MBTA assessments, which will include Taunton and other communities that might not have direct service but are in the area surrounding a station. He noted that Attleboro was not assessed until 2000 for service it was receiving prior to that year.

General session flipchart notes

- There was a prediction that the Attleboro route would cut emergency response time by 50% in the city of Taunton.
- There are no economic benefits from the project for Attleboro.
- Will the project serve enough people to be cost effective?
- Several speakers were frustrated by the lack of specific data or answers to questions on safety, wetlands, utility easements, property values and other questions in this early phase of work.
- EOT should measure the cost on a 25-year basis.
- The project should not sacrifice Taunton for Fall River/New Bedford Rail Service.
- People concerns should outweigh environmental concerns.
- The project should study what major Boston companies are planning for the future in terms of employment and investment.

Corridor breakout questions and comments

Attleboro Corridor:

- Is EOT sure that there is sufficient ridership from Fall River and New Bedford to justify the investment in an expensive system?
- Why is the Attleboro bypass needed and how would it work?
- The Attleboro corridor is not a practical option since the North East Corridor is already overcrowded with regional and Amtrak trains. Amtrak has already considered and rejected the idea of adding a track along the northern section due to the wetlands impacts and the presence of an ACEC.
- Several speakers addressed the issue of grade crossings, particularly in Taunton, and the impact peak hours trains could have on local streets and public safety.
- Several speakers noted that homes are very close to the tracks in some sections of Taunton.
- Older tracks are built with wooden ties and are quieter than the new, concrete versions. A resident asked if the project will take noise into account when designing the new rail. He feels that the wooden ties and stones are quieter than the other options.
- Although the project will have regional benefits, impacts will fall heavily on some individual communities.
- A few speakers asked why EOT is reconsidering the routes when it found that the Stoughton route was the best alternative the last time.
- Funding for the project is a concern in several ways: the cost of the review; how to pay for the project; what assessments will be on communities in the region.
- EOT and its consultants need to look carefully at Chartley Pond and surrounding wetlands. Vernal pools are also a concern in the region.
- Can tracks run beneath the high tension wires?
- The process has to consider human impacts as well as environmental ones.
- What will the process be for public meetings during the environmental work?
- Who makes the final decision on the route? How does the public have real impact?

- Is EOT taking the potential impact of a casino into consideration?

Stoughton Corridor

- What are the impacts on wetlands in the Fowl Meadow and Ponkapoag Bog area?
- Railbed through Hockomock Swamp is floating on logs.
- What are the impacts on public water supply/school children?
- Mystic Valley Amphipods: rare species in Hockomock Swamp.
- There are tribal burial grounds in Hockomock Swamp.
- Difference between Dean Street station and the Downtown Taunton station sites and lines.
- Underpass exists under 495.
- Mayor Crowley explains concerns and preferences of the City of Taunton.
- Whittenton Junction has a large number of grade crossings as the Attleboro Line through downtown (Mayor Crowley).
- There are many economic impacts to the City of Taunton if the Attleboro route is used. What about impact to people?
- Make sure there is enough parking, sidewalks and bike trails.
- Explain the VHB hybrid alternative. What are benefits and concerns?
- What about stopping trains at Braintree and taking the Red Line.
- Taunton has already created two TOD districts to help spur growth.
- Trains every 20 minutes through downtown Taunton.
- 94 percent of fire runs are medical and all but one fire station are on the east side of the city.
- What are advantages of electric?

Middleborough Corridor

- Split—Fall River always one way and New Bedford always the other. Cross transfer platform.
- Consider a new approach: For the short term, consider using Bus Rapid Transit on Route 24. It will have a low cost and will be more desirable despite lower capacity. In the long term (10-15 years) find a way to break the Braintree bottleneck. Once that is broken, there won't be need for the bus service.
- Consider acquisitions and other options to break bottleneck now.
- Consider future extension to Wareham with elimination of bottleneck and higher capacity.
- Really want to eliminate this corridor?
- Right of Way—limited capacity.
- Capacity issues even without Middleborough.
- Quincy Station entrance.
- Trip times accurate even with Amtrak plans of increasing service two to three times?
- Triple tracks all the way—similar to New Haven.
- Different levels of service conflicts, regional and local.
- Stage plan: 5 to 10 year
- Max Speed: Electric Commuter Rail: 110 mph. Commuter Rail: 79 mph.
- Shuttle south with transfer at Taunton?

- Why not use 79 for right of way. Capture lower Raynham.
- Wells in Easton draw in reverse due to porous subsurface.
- Retaining wall and drain: capture runoff from train.
- Piles needed support in existing gravel rail bed over peat
- Water supply is most important criteria.

Highway Corridor

- Might have least property takings.
- As long as travel times works, it's a good alternative.
- How directional is traffic on Route 24?
- Impact of zipper lane on opposing traffic?
- Operating costs of zipper lane?
- Dedicated Bus Lane—no cars allowed. Attractive, timely bus option.
- Incremental development of zipper lane. Start it further north first.
- Disagrees with statement that bus rapid transit doesn't encourage smart growth. "T" in TOD = Transit.
- This option allows incremental additions to transportation alternative to cars and incremental smart growth development.
- Can accomplish smart growth objectives with Bus Rapid Transit with the right policies.
- Need adequate parking.
- Use this option without adding capacity to highway as temporary fix (10-15 years) while working on Braintree bottleneck and then no need for bus service.

Lakeville Meeting – March 11, 2008

Lakeville Library

Questions and Comments

Responses to questions and comments, where appropriate, follow bulleted groupings.
Names are provided where given by speakers.
Flipchart notes from general session discussion are also included.

- Derek Makey, Lakeville Selectman, said Lakeville had approved a 40R development near the existing station. He's concerned about the potential impacts of the project if the station is relocated. He noted the project has received subsidies from the state and wants to be sure the funding is guaranteed.
- John Crowley, Lakeville, said he lives near Berkley and Route 140. He likes the route through Berkley and the first stop being Bridgewater. He said that a Wareham connection could come later. He wants the Lakeville station to stay in its current location. He asked if ridership would be lost if the train goes to Middleborough? He said the line through Taunton could go down Route 140 or the Stoughton/Mansfield alternative could be chosen.
- Jim Barry, Lakeville, said he thinks fare income will vary and that it will not cover operating costs. He would like to see a table listing assessment/contributions versus impacts to communities.
- Joe Peneski, Lakeville, noted that freight trains currently use the old line in Middleborough. He said the area is populated and he thinks once people are aware of the project there will be a big response. He's also concerned about work in the Assonet Swamp, which is over the aquifer for the area's drinking water wells, and the disruption it may cause to community water supply.
- Joanna Donohue, Lakeville, said she lives on Taunton Street about 50-75 feet from the tracks. She asked if the line would be rebuilt, how many cars would run on it and how grade crossings would be managed?
- A participant asked about the possibility of a tunnel in Taunton, similar to Greenbush through Hingham, given the City's concerns about grade crossings?
- Selectman Makey reported that the Selectmen met last night. If Middleborough is chosen, would it preclude a Wareham extension?
- Representative Canessa asked if people understand why the project is needed and that the Corps must be involved due to the environmental impacts. He asked about the Corps' role?

Ms. Egan said during the 2002 environmental review when the Stoughton alternative was chosen as the preferred alternative, the state didn't think it needed Corps review because no federal money would be used for the project. The state subsequently determined that Corps review is necessary under the National Environmental Policy Act because it has jurisdiction under the Clean Water Act, so the alternatives selection and evaluation must be redone. The project uses the Corps' methodology for review and decision regarding the Least Environmentally Damaging Practicable Alternative. EOT must consider and screen all alternatives. Redoing the process gives the state a chance to do the evaluation differently and factor in performance on energy and smart growth.

Regarding Lakeville's 40R project, Ms. Egan noted that she previously worked for the Massachusetts Smart Growth Alliance, so she understands the community's concerns. She said she doesn't want to move the station, but using the existing alignment means the train would have to back up into the station losing 10 minutes of trip time. She said the Middleborough line joins the Old Colony Line north of the Lakeville Station and bypasses that station, and it would mean another station would be needed; however, the existing station could be used if the Wareham extension were built.

Ms. Egan said there is no room in the system at the Braintree bottleneck on the Old Colony line, so if trains are added from New Bedford/Fall River through Middleborough there would not be enough capacity on the corridor for additional trains from Wareham. If Middleborough ridership was increased and the Wareham extension was added, the area from Braintree north would likely have to be triple-tracked to provide capacity.

In answering the question about loss of ridership if Middleborough is chosen, Ms. Egan said the trip is longer and trains will have to slow down to negotiate a sharp angle on the secondary, which will reduce performance. It does not perform as well as Stoughton. She added that Attleboro and Stoughton lines serve both Back Bay and South Station. Middleborough serves only South Station.

Ms. Egan said that no rail line can be self-sustaining. The state would subsidize it. Cost estimates will be provided in Phase 2 of the project. She will get more information on the MBTA assessments.

Regarding rail traffic on the freight line, Ms. Egan noted that the current freight trains run infrequently. Commuter trains would add 32-38 trains per day. She said safety measures would be added to the line, such as gates and horns. There will be trade-offs, such as if communities want quiet zones, horns would not be used, but this raises safety issues. She added the state will work with communities to reduce noise and vibration impacts. With regard to a tunnel in Taunton, she noted the area is not very long, so the grades up and down would be too steep for the commuter rail trains to negotiate.

Additional comments and questions

- Gerry Pieri, Green Harbor, said while he does not live locally, he spent the last four decades looking at this project as a former Assistant Secretary of Transportation. He said the Stoughton via Whittenton Junction works best. He noted that the Attleboro line switches do not work well in a high speed environment. Middleborough is more difficult. He said that some of the Taunton grade crossings could be moved and others eliminated. The electrified and diesel commuter rail speed is a function of the right-of-way, not the vehicles. Diesel engines can reach speeds of 103 mph with little difficulty. Intrusions into grade crossings can be reduced by 97 percent with median barriers. Smart growth goals of serving an additional 8-10,000 homes are good. Some routes will serve more than others.
- A participant commented on the Middleborough option, asking if the Wareham extension would still be precluded with double-tracking. He also asked how factors were weighted?
- Susan McGrath, East Taunton resident and abutter to tracks, noted that her home had been built before the rail line. She asked if the line is at-grade at Route 140 in Taunton? She

noted the sharp corner in East Taunton, river and grade crossings and proximity of the tracks to community ball fields. Traffic is already an issue in Taunton Center, near schools and for access to the mall. She asked about the station symbol at Old Colony Avenue? She is concerned about water resources, including brooks and tributaries and also about dangers to large animals from collisions with trains.

- Heather Lewis, South Easton, said she thinks the environment should be the most important criterion. She is disappointed with the alternatives presented. She doesn't think they are alternatives to the 2002 alternative, but are modifications. She expected something different. She noted that she has hiked on the abandoned rail bed and her son was able to float a toy boat on the bed even before the recent storm. Water on the rail bed is an issue.
- Doug Lewis, South Easton, also said environmental protection is the most important criteria, specifically water resources. The Stoughton alternatives pass near Easton drinking water wells. National attention about water resources is growing and it is a growth issue. Water can't be replaced. He asked about the decision-making criteria. What are the criteria and how are they weighted? What is the process to get to the next step in April? He would like to know more about the timeline and activities.
- A participant asked why the focus was getting people to Boston? Business is more mobile now and jobs should be kept local. The New Bedford and Fall River economies should be supported with local job generation.

Ms. Egan addressed the comments and question above. She said the train won't solve all the region's problems. There are many other initiatives taking place concurrently. It's not an "either/or" approach. Appropriate solutions will include many components. Initiatives to bring more jobs and appropriate development to the South Coast are already in the planning stages. The many initiatives must all take place in the larger context of regional economic development. She understands that some people don't think the money should be spent on the project, but she noted that Boston is the economic engine of the region and there must be access to that market.

Ms. Egan explained that there is no precise equation for weighting and evaluating the criteria. She said the public process is designed so the decisions can be made collectively, with a transparent process. People's wishes are taken seriously. Input from this series of meetings will be summarized and provided to the Interagency Coordinating Group, which includes 11 federal and state regulatory agencies. The decisions must be made within the context of environmental law. The agencies will consider the public's input when deciding which alternatives will advance to Phase 2. There are extensive wetlands and any alternative will have some environmental impact. Wetlands are highly valued. The recommended alternative must be practicable and the least environmentally damaging. Alternatives are also judged on how well they meet the project purpose.

Ms. Egan said she appreciates the public's thoughtful comments and the Interagency group will consider them as the group makes the decision on the short-list in April. Once the list is narrowed in April, the environmental review process – Massachusetts Environmental Policy Act/National Environmental Policy Act – will begin to develop a Draft Environmental Impact Report/Draft Environmental Impact Statement and a series of public hearings will be scheduled. Opportunities for public review and comment will continue throughout the environmental review process.

- Representative Canessa noted that it would be short-sighted to choose the Middleborough corridor and; therefore, exclude extensions to Wareham and the Cape. Extending rail to the Cape is important to the Senate President.
- A participant asked for confirmation that a third rail at Quincy is necessary to extend the Middleborough line to Wareham.
- Priscilla Chapman, Massachusetts Audubon Society, thanked Ms. Egan for recognizing the importance of the Assonet Swamp. She is disappointed that the Route 24 and 140 rail alternative is off the table. She urged the team to rethink the decision.
- John Walsh, Lakeville, has land that borders the Assonet Swamp. He said at the Berkley meeting there was no similar emphasis for the Assonet Swamp as there was for the Hockomock Swamp. He asked if private land is viewed differently than public land during evaluations?

Ms. Egan asked Mr. McArdle to review the Route 24 rail decision process, which eliminated the rail alternative. Mr. McArdle said there three types of rail systems that were considered, in addition to the highway alternatives. Commuter rail, heavy rail such as the Red Line and light rail such as the Green Line. Commuter rail cannot negotiate the topography and steep grades that would be necessary to fly over the interchanges. He said the Route 24 rail alternatives had many issues, including constructability and travel times. Land acquisitions would be necessary to build another travel lane to accommodate rail and automobile vehicles. Once at Route 128, the question becomes where to tie into the existing system. Requiring a transfer at 128 to the existing line wouldn't work because there is currently no capacity on the trains for additional passengers at that station. Tying heavy rail into Quincy Adams would require adding capacity to the Red Line to accommodate the additional trains. The light rail option is penalized because a transfer would be required to the Red Line, which increases the travel time. These reasons are the main ones for eliminating the Route 24 train alternative.

State and public resources were included in this phase, Ms. Egan said. The Assonet Swamp and other resources will be factored into Phase 2 evaluations. She said it's important for the team to view these resources first hand. Although a resource may not be on the 10,000 foot review level maps, all resources will be noted in Phase 2.

Ms. Egan addressed Representative Canessa's question about bundling the Wareham extension into the overall project. The Wareham extension to Middleborough would require triple-tracks at Quincy. The Wareham project has been discussed, but is not currently on the books. It has not been developed enough to warrant inclusion and possibly eliminate the Middleborough alternatives. The project team will keep the idea in mind and look at system requirements. She noted that there are many projects that have not been developed beyond the basic idea and they cannot be factored into evaluations. For instance, there is a proposal to widen Route 24, but it is not on the books and; therefore, cannot be used in this project's evaluation process.

In response to a question, Ms. Egan said that trip time is weighted and quality of service is important.

- A participant asked if, in determining cost-effectiveness, are ecosystem services considered?

Ms. Egan said she understands resource economics, but it is not part of the regulatory environmental review. The team did; however, look at the wetland impacts and found that mitigation costs did not change the ranking of any alternative.

- Doug Lewis, South Easton, asked what the dates of the ridership study were and what the current Providence/Boston trip time is? He said before the state spends $1 billion, it should know the ridership numbers. A clear answer has not been provided.

Scott Peterson, Central Transportation Planning Staff (CTPS), said that travel time ridership forecasting and competing alternative costs will be considered in Phase 2. He used 2000 Census Journey to Work data for this initial evaluation. Time and transfers were factored in. Transfers are viewed by passengers as more time consuming than they really take, which is why they make an alternative more unattractive to potential riders. Ms. Egan said the scoring matrices are on the website. More detailed ridership information will be available in Phase 2. The previous study in 2002 forecast ridership to 2010 the typical forecast period at that time. The new ridership forecast will be for 2016 to 2034, Mr. Peterson said. Ms. Egan added that the state knows there is a demand. Thousands travel back and forth between the South Coast and Boston, more than the 8,000 passengers the project will add capacity for. Mr. Peterson added that 80-90 percent of people commuting are driving. Changing land uses and other factors will increase the cost-effectiveness of the project. Cluster and other development patterns will add to the cost-effectiveness over time.

- A participant noted there is a lot of data. Stoughton's travel time is the best trip time. How much wetlands will be lost? Information on the impacts to water resources and MBTA assessments must be provided. Stoughton seems to be the best from a cost-benefit, cost-effectiveness perspective.

General session flipchart notes

- First stop at Bridgewater
- Why is there ridership lost on Middleborough?
- Do assessments to towns vary per alternative?
- What will be the grade crossing treatment?
- Will Wareham be impacted by New Bedford and Fall River trains?
- How will you weight the criteria as you go forward?
- Environment should be the top consideration.
- Disappointed that alternatives aren't different.
- Why aren't we developing local opportunities?

Freetown Meeting – March 12, 2008

Freetown Elementary School

Questions and Comments

Responses to questions and comments, where appropriate, follow bulleted groupings.
Names are provided where given by speakers.
Flipchart notes from general session discussion are also included.

- Lisa Pacheco, Freetown Selectman, said economic growth is important and it must be smart growth. Connections to the Riverfront Business Park and Fall River Industrial Park are important. The project should encourage migration from the north to the south for economic development, not just south to north migration. Both sides of Freetown should be served.
- Larry Ashley, Freetown Selectman, said an off-ramp and intermodal facility at exit 8 ½ are important and a transit-oriented development overlay should be prepared. He expressed concern about a layover facility in the center of Assonet at the site Boston Beer formerly occupied. There are abutting residential neighborhoods. The community does not want a layover facility.
- Donna Kulpa, Dighton, said she has advocated for years for transportation access for the elderly, low-income and disabled populations. She said station access should not be parking lot dependent. She also asked how the project would be funded.
- Jean Fox, Lakeville Selectman, said she works in New Bedford. There is an out-migration of workers; however, there has been some growth. The average income is lower. She said a north to south movement is important and noted more affordable land. Jobs should be kept local.
- Robert Raymond said he works in the Freetown Planning Department. The highway system hasn't changed much; however, traffic has increased significantly. He sees no way to relieve congestion except to build rail.
- Joseph Shaw, Freetown, noted that although there will be environmental impacts, the increasing dependency on oil for fuel must be addressed.
- Nuno Couto, Taunton, said he is for the project, but has heard on the radio that the train will provide access to the community for an undesirable population. He would like to see evidence of the anticipated economic growth.

Ms. Egan responded that it is unknown how much economic growth will result from the project. The issue is being studied now and the state is looking at ways to quantify the expected development. Most existing studies on economic growth are related to light rail systems (similar to the Green Line), not commuter rail. EOT has a team of specialists who are studying the issue. They are looking at appropriate station locations to attract new jobs, how much economic activity can be expected and how to tap into that growth to help pay for the project, and identifying priority natural resource areas. Results of the study are expected in summer 2009 and will include a suite of recommendations tailored to each community. The team has been meeting with Selectmen and others in each corridor community to learn about priority economic development and natural resource protection areas.

Ms. Egan noted that fare costs have not been set, yet. The project will be Americans with Disabilities Act compliant. The project will be designed so that feeder local services, such as

bus, will connect to the new system. The team will coordinate with regional and local transit providers to accomplish this.

Ms. Egan said that Census data was used to get origination and destination information for the region. She said the idea to bring jobs south, so there is a flow between the economies. She noted that Attleboro and Stoughton will stop at Back Bay, opening up that market. Middleborough will not stop at Back Bay.

Forecasting and planning out to 2030 is a short horizon, Ms. Egan said, but current transportation planning processes do not go out more than 20-30 years. It's important to look out as far as possible, but cost is an issue.

Additional comments and questions

- Martha Schroeder, Lakeville, said wildlife protection is important to her. If tracks will be upgraded, wildlife corridors and passageways should be incorporated. She hopes the state will do everything necessary to protect species, minimize the use of herbicides, etc.
- A Lakeville resident and member of FARE (Friends of Assonet River Environment) asked if a second track south of Taunton is needed, why must there be a split?
- Lou Gitto, Stoughton, asked EOT to consider short-term highway alternatives, so longer term infrastructure issues can be addressed over the next 10-15 years. In that time period, the bottleneck at Braintree could be broken. If the bottleneck isn't broken, economic growth along the Old Colony corridor will be stifled.
- Donald Michaud, Attleboro, said he lives near the bypass. He wants to know how the state will fund the project. He favors the train, but not through Attleboro. There is too much congestion on the Attleboro line. He said when Amtrak upgraded the corridor for the Acela, new rail beds and ties were laid. There is now more noise and vibration due to the cement ties. The Acela trains have different wheels and are quieter. He asked about ridership cost versus car travel. He thinks adding the Stoughton line will increase overall redundancy of the system.
- Donna Kulpa, Dighton, said she has concerns about paying for the project through bonding. There are already regional transportation agency funding issues. She said the Southeast Regional Transportation Association and others should join together to work out regional issues and ensure disparities in MBTA funding for the region are addressed. She added that the Taunton Disability Association had worked with CSX Rail to fix the grade crossing at Oak Street to make passage across the grade crossing easier for people with disabilities. She asked that similar improvements be made to other grade crossings.
- A participant asked about the possibility that the MBTA might purchase the freight lines in the southern end of the corridor from CSX.
- Nuno Couto, Taunton, asked about the level of state commitment to the project. Will it really be built and will it be on-time?

Ms. Egan said that state funds and bonds will be used for the project. There won't be one single funding source, but she is not certain at this time what the mix will be. The state expects to issues its funding plan in January 2010. It will report on the economic development study and funding mix. She agreed that regional transit funding is an important issue. She said the team is coordinating now with the Southeastern Regional Transit Authority and the Greater

Attleboro/ Taunton Regional Transit Authority, the regional agencies in the South Coast. EOT will coordinate with these agencies more during the project scoping in the next phase.

If the MBTA owned the freight lines, it would not necessarily need to double-track to New Bedford, for instance, Ms. Egan said.

Mr. McArdle responded to the comment about cement ties. He said they are stiffer than timber, so they generate more noise, but there are measures that can minimize noise and vibration. Timber ties and ballast mats could be used in sensitive areas of the corridor where new rail beds will be built or existing ones rebuilt. The team will conduct a noise and vibration study in the next phase. Baseline noise will be measured by monitors and would then be modeled to forecast noise and vibration with trains.

Ms. Standley responded to the question about wildlife protection measures. She said embankments that are currently barriers to passage could be made more permeable. The project would provide an opportunity to rebuild existing culverts. Currently they do not have shelves, so only fish can pass. The Army Corps of Engineers, MA Department of Environmental Protection and MA Natural Heritage and Endangered Species Program will work with the team on wildlife mitigation issues.

Ms. Egan noted that automobile costs generally average about $7-$8,000 per year for fuel, maintenance, etc. On a personal note, she said her monthly commuter rail pass costs $180 for Zone 4. Her automobile costs are about $500 per month. It's universally known that public transit is more cost-effective. She added that both public transit and private automobile travel are subsidized.

In terms of level of commitment, Ms. Egan noted that the state had completed the Plan for Action for the South Coast project within 90 days. She was hired as a dedicated staff person for the project, which is on schedule. She said she can't guarantee the project will be built, but the state has a great team working on it and she wouldn't have taken the job if she didn't believe in it.

Additional discussion

- Barbara Boone, North Easton, asked who the ultimate decision-maker is? *The Army Corps of Engineers is the ultimate decision-maker on the alternative selected, Ms. Egan said. The Corps co-chairs the Interagency Coordinating Group and will determine the LEDPA. The Corps takes public input very seriously. It will be up to the Legislature and Administration to identify and secure funding.*
- Robert Raymond, Planning Department, asked how environmental and human impacts will be weighed, such as takings, noise, etc. *Ms. Egan noted that the decision will be made within the framework of environmental law, but the agencies are not indifferent to human impacts. Phase 2 will look at and weigh grade crossings, noise, construction and other impacts. Mr. Anacheka-Nasemann, US Army Corps of Engineers, said the Corps will issue a public notice when the permit application is submitted. Public interest is included in the review. The Corps must balance myriad interests and look at other issues such as impacts to historic properties, safety and economics. He said no decision will satisfy everyone.*

- A participant is concerned about administration changes and the impacts to the project timeline. *Ms. Egan said that she was appointed to this new position and given the resources to further the project. Mr. Anacheka-Nasemann said that the Corps is a department within the Defense Department run by a Colonel and Lieutenant Colonel who serve three- year terms. He noted that he has been working on the project since 2001 and there are standards in place for those who follow him.*

General session flipchart notes

- Smart "Growth" is important
- Impacts on environment twenty years from now may well be greater without rail.
- Studies on Economic Growth
- Why double track New Bedford if there is no freight.

SOUTH COAST RAIL

Summary Notes - January 2008 Civic Engagement Meetings

At the second round of civic engagement meetings for Phase 1 of the project, we asked the question: What do you think of the proposed alternatives and evaluation criteria? Regional meetings were held in Norton on January 15; in Fall River on January 16; and in Easton on January 31. This packet includes a summary of the presentation made at all of the meetings and a list of the issues raised by the participants.

THE PRESENTATION

1. Project Background

The Executive Office of Transportation South Coast Rail Manager, Kristina Egan, presented the overall project background and used a PowerPoint presentation to highlight her key points (a copy of the presentation is available at www.southcoastrail.com or by request in print from EOT). The presentation included an explanation of the project as well as the purpose of the meetings. The civic engagements are opportunities to update the public on the project as well as to gather public input by specifically asking communities: *"What do you think of the proposed alternatives and the evaluation criteria?"*

Ms. Egan presented the project purpose, which frames the planning:

> To more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, Massachusetts to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities.

Ms. Egan noted that southeastern Massachusetts is the fastest growing area in the state. Governor Patrick's administration is addressing this growth and a number of other goals, including: restoring public transit to the cities of Fall River and New Bedford and improving mobility and transportation choices in the region; reducing congestion and improving highway safety; reducing air pollution and addressing climate change; stimulating job growth; revitalizing the South Coast cities; and preserving natural resources. The project has a long history, and a Final Environmental Impact Report identified a preferred alternative in April 2002. In April 2007, Governor Deval Patrick released a Plan for Action for the project to include (1) a civic engagement process, (2) a corridor plan to develop a smart growth approach and assist cities and towns with preservation and priority development planning and (3) a thorough environmental review process.

The Patrick-Murray Administration also committed to taking a fresh look at the alternatives, and evaluating several different transportation routes along which the project could be built. To conduct this analysis, the Executive Office of Transportation in partnership with the Massachusetts Bay Transportation Authority (MBTA), is undertaking a two phase environmental review. Phase 1 is a six-month period in which EOT is listening to public suggestions on alternatives and evaluation criteria. This phase takes place between October 2007 and March 2008. Up to 6 alternatives will enter Phase 2, an in-depth environmental investigation and public review of the alternatives. The investigation will take two years, from 2008 to 2010, resulting in the choice of a final mode, route, stations and layover facilities. Permitting will begin in 2010, with construction to begin in 2012. Service start-up is planned for 2016.

Ms. Egan said that during this fresh look, there will be a coordinated federal and state review of the project, which was not the case before. The Army Corps of Engineers is the lead federal agency and the regulatory agencies (11 in total) are working together on the state and federal review. The Army Corps issues a permit only if the alternative chosen is the Least Environmentally Damaging Practicable Alternative (LEDPA). This decision is made by the Army Corps with input from other agencies and the public.

Ms. Egan reviewed the civic engagement process and said that the next set of meetings, in March 2008, will focus on presenting the draft findings of a preliminary analysis of the alternatives to the public and gathering comments. It's clear that EOT heard the public: after the December meetings, EOT had a list of 60 route and transportation mode alternatives and 37 major evaluation criteria categories. There are four main routes: through Attleboro, Middleborough and Stoughton or via a highway.

Ms. Egan turned to Mike McArdle, the lead consultant to the state on this project, to present the transit modes and alternatives and the evaluation criteria.

2. Project Alternatives and Evaluation Criteria – VHB, Inc.

Mike McArdle presented the project routes with each of the various modes of transportation being considered from New Bedford and Fall River to Boston, which addresses the project purpose. Mr. McArdle first presented the different types of transit modes: commuter rail; diesel multiple unit commuter rail (known as DMUs); light rail (like the MBTA's Green Line); heavy rail (like the Red Line); monorail; electrified commuter rail; bus; bus rapid transit; and a busway in a high occupancy vehicle lane (HOV lane).

Mr. McArdle reviewed the potential different corridors using a series of maps. Many of the corridors use existing rail tracks or beds, such as the routes through Attleboro, Stoughton and Middleborough. Other options use a former rail corridor from Taunton to Mansfield and one from south of Taunton to Attleboro. Enhanced bus service for Route 24 is an alternative. The monorail would use the existing highway corridor up Route 24. Some of the options may not fit the project purpose, such as going to Providence. Because many of the 60+ alternatives were permutations of the same alternatives, the team consolidated them to a list of 35. (Note: handouts showing all of the alternatives are available on the project website.)

Mr. McArdle described the process of applying the criteria to the alternatives. This will take place in three steps, in sequence. The team will ask:

1. Does it meet the project purpose? (Step 1)
2. Is it practicable? Is the alternative feasible to build; will it operate efficiently and does it make sense? (Step 2)
3. How do the environmental impacts compare? (Step 3)

At Step 1, does it meet the project purpose, the team will ask if an option improves regional mobility and quality of service. At Step 2, the question of practicability involves improving existing and planned regional system capacity, reliability and quality; compatibility with existing infrastructure; providing benefits at a reasonable capital and operating cost; ability to be constructed within a reasonable timeframe and without substantial impacts; and providing sufficient capacity to meet demand. At Step 3, the team will compare the magnitude of impacts to the natural environment and the consistency of the alternatives with smart growth. This includes approximating the level of wetland loss, estimating the number of stream crossings and number of acres of Priority Habitat affected, as well as the number of acres of protected public open space that would be directly impacted. Mr. McArdle noted that this work will take place on a broad level, with detailed information to be gathered and shared with the communities during the in-depth environmental work of Phase 2.

In closing, Mr. McArdle said the team will use an evaluation system with five ratings: highly favorable, favorable, neutral, unfavorable and highly unfavorable.

Norton Meeting – January 15, 2008
J.C. Solmonese Gym
Questions and Comments

- Chair Robert Kimball, speaking for the Norton Selectmen: The Town of Norton Board of Selectmen, as well as Mayor Crowley of Taunton and Mayor Dumas of Attleboro, are opposed to putting a train track in their communities. They are unified against the Attleboro/Norton route. They pointed out that using the local right of way will require raising the elevation of the electric poles. They are also opposed to the alternate route due to newly developed subdivisions in both Norton and Attleboro. The town has voted to set aside a fund for legal action.
- Representative Betty Poirier: The route will severely degrade the corridor along the route, and she stated her opposition to the alternative Attleboro/Norton route.
- Representative Jay Barrows: He agreed with Representative Poirier that Attleboro is not the most practical route. Speaking to the alternative route numbers 11, 12, 13 and 62, he said that the Old Colony was abandoned in the 1960s and a new sewer line now runs along this route. In addition, the federal government just invested in a $600,000 bike trail, which is extremely popular. He expressed concerns about the capacity - with 17 trains per day and the Acela on the line – and said he hopes that common sense will prevail.
- Senator Jim Timilty: He requested that EOT take the Attleboro alternative off the table since it has 15 at grade crossings. He agrees with his colleagues in the House and Senate, as well as his local constituents, in opposing the Attleboro alternative.

- Representative Steve D'Amico: He appreciates the Army Corps taking the time to look at all the alternatives, no matter how unreasonable they may. This phase started with 60 alternatives, now consolidated down to 35, many of which will be eliminated within the next round. He expressed confidence that as EOT takes a closer look at the Attleboro route with the all of the grade crossings and with the increased time, this route will fall by the wayside, but he supports looking at all of the alternatives.
- City of Attleboro, Mayor Dumas: The City of Attleboro, the Town of Norton and the City of Taunton, and the surrounding communities are opposed to the Attleboro route. It does not provide any economic benefit for any of our communities. He went on the record that these entities are not in favor of this route.
- Town of Norton Conservation Commission Agent, Jenn Carlino: Mass GIS mapping does not clearly show the extensive wetlands along the Attleboro route. Wetlands in this area are underestimated. How will the evaluation address the floodplain impacts? She didn't notice if this will be included in the river and stream portion? Ms. Egan said the floodplain impacts will be addressed in Phase 2. Ms. Carlino said that Chartley Pond is owned by the Conservation Commission and will fall under the protection of Article 97.
- Representing Mayor Crowley, his assistant, Todd Castro, read a statement: The Mayor and the Municipal Council of Taunton have unanimously gone on record to support the Stoughton Route, where there are only five (5) at grade crossings within the city limits, and oppose the Attleboro Route due to tremendous impacts of the fifteen (15) at grade crossings. Stoughton routes have been going through the Hockomock Swamp beginning at or around 1847, locomotives ran through the area for over 110 years. Locomotives at that time were far more environmentally unfriendly then those being utilized today. We are therefore adamantly opposed to the Attleboro Route.
- Dan Domdery, City of Taunton Planning Board: the Stoughton Route is vitally important economically to the City of Taunton and City of New Bedford, so we support the Stoughton Route over the proposed Attleboro alternative.
- Selectmen Town of Mansfield, George Dentino: the Town of Mansfield opposes the Attleboro line because it serves no purpose for us. He understands the purpose of looking at a number of alternatives, crossing them out one by one, but he respectfully asked EOT to cross out the Attleboro route first, then go on from there.
- Norton Selectmen Tim Giblin: Don't waste money on studying this route; spend the money instead to help the communities with schools, municipal police and fire.

Other comments and questions:

- Heather Graf, Citizens Concerned About Tracks (CCAT) coordinator: the Project Purpose does not include the City of Taunton. The Criteria does not mention the MBTA Service Policy.
- Norton resident: Create one type of active service to get us there. Concerned about the impact on safety with the many rail crossings and environmental impacts.
- Norton resident: Attleboro should not be allowed; it has fifteen (15) at grade crossings and will cross over Chartley Pond. This can't be environmentally feasible.

- Attleboro resident, Ken Zanoni: He expressed concerns surrounding his property value, the power lines and the wetlands, and safety. He has questions about the overall safety and how this process is going to address this issue.
- Larry Garrone: Step one project purpose – a lot that needs to be defined there.
- Mansfield resident: On the short list, step three, will the project be linking impacts to the environment with smart growth? One suggestion is to add a Step 4, which would assess the impact to human environment to address issues that people are talking about tonight.
- Chuck Murray, Norton: Broad description of north-south 195 as arteries, mobility, environmental impact statement, land taking and impact to grade crossings. Mike McArdle addressed this question, Route 24 varies in cross section, some sections have a medium barrier, some have no strip at all, but there may be opportunities to use one side or the other.
- Chris McGowan, Mansfield: Concerned as to when alternatives number 11-14 and 62 became official part of the process. They have a significant impact to the community.
- Mansfield resident: MBTA will want to cut out 20 minutes of the commute, spending 51 million dollars to make it user-friendlier.
- Norton resident, Ed Kelly: How much of the inter-regional process is being driven by casino in Middleborough? Will the train and casino be considered in tandem at some level since the casino will have an impact on this project?

Q: How does the project team evaluate the human impact of the project?
A: Ms. Egan: In Phase 1, some of the environmental impacts that are being reviewed have implications for public health such as drinking water, habitat, climate change. Phase 2 will take a more in-depth look at the safety and quality of human impact. Mike McArdle added that when going through the state review, the consultants will be looking at noise and vibration impacts, traffic impacts, safety impacts, and impacts to property values to mitigate these issues.

- Norton resident, Ron O'Riley: In item 3.1, Wetlands, won't be looked at in-depth until Phase 2. EOT should look at wetlands in Phase 1. There are a lot more wetlands that are shown on MassGIS as well as many vernal pools. Since some alternatives could be eliminated in Phase 1 under these types of criteria, EOT should not wait until the second phase to review these important issues.

Q: How will the route cross Route 123?
A: Mike McArdle mentioned that the consultants will look at the possibility of going over and under it. This will happen in Phase 2. In this phase, the team will be looking at conceptual cost of the alternatives.

- Jay Barrows: The 2.75 mile extension goes over Chartley Pond, and it goes in or over Route 123, and the National Grid power lines will need to be raised. There seem to be many issues surrounding this alternative.

Q: Norton resident, Paul Nelson: How many alternatives will the environmental review look at?

A: The process will narrow to 5 or 6 alternatives in depth. The team cannot study 35 alternatives at an in-depth level.

- Norton resident, Lyle McBride: At the risk of being up popular, he suggested that many of the plans through Stoughton, Taunton or Attleboro could be good for Fall River and New Bedford. This project could enhance inter-regional communication with "local transportation" since not everyone wants to go to Boston. But the Attleboro Route would make it easier to provide access to the Providence airport. A lot of local driving age people – young and old - don't drive, which means they are dependent on the kindness of strangers.
- A speaker suggested a strong need to lean toward rail, due to a future with high fuel costs.
- Bridgewater, Bob Wood: A good book on the history of railroading is covered in *Men, Cities and Transportation*. He suggested that rail up the median strip of the highway is not feasible due to the number of accidents that happen along our major highways.

Q: What is the anticipated ridership? How much money will be spent on this study?
A: EOT will be using the Central Transportation Planning Staff (CTPS) to model the ridership using census data. In Phase 1, this will be a relative ranking. In terms of cost, the study and environmental work have an estimated cost of $17.2 million, with $3.2 million being spent this year, $0.5 million of which is being used to do a study to help communities along the entire corridor prepare for the train and the growth impacts that are expected.

Q: Since the Boston to Middleborough line goes further south, what is the ridership on the Middleborough line? Why can't the existing freight line be used?
A: The consultants are currently looking at the existing freight line, but the issue on the Middleborough line is from Braintree north to South Station where there is a single track.

- Currently there is no parking available at any station!

Q: You don't have the number for what ridership will be? Do you have the census data from Fall River and New Bedford of people that work and drive to Boston?
A: Once the modeling is complete, there will be more accurate data to share with the public.

Q: Is there a no build option?
A: There is a no build option built into the alternatives.

Q: In order to finance the project, doesn't the project need legislative approval to do the bonding or funding?
A: Ms. Egan said that is correct as far as the budget and funding process.

Q: Ms. Egan was asked to define regional mobility? The project needs to add a definition of region.

A: The study area includes all the area from Canton south and east, west from Middleborough to Attleboro. The region includes 31 cities and towns.

Q: Will the towns have to pay an MBTA assessment fee?
Q: How much money will the project cost per rider?
A: The team will look at overall cost per rider to compare the lines and routes.

Q: Will the work include an evaluation of the subsidy/rider operations?
A: Every transit line in America is subsidized to some degree.

- New Bedford Mayor Scott Lang made closing comments. He reaffirmed the need for transportation to the City of New Bedford to serve the largest number of people for the least amount of cost. He thanked everyone for the opportunity to hear about their concerns.

Fall River Meeting – January 16, 2008
Advanced Technology and Manufacturing Center
Questions and Comments

This meeting was hosted by the South Coast Commuter Rail Task Force.

- Dan McGaffy, Rochester Board of Selectmen: Triangle feature is important with the connection from New Bedford to Providence. The feeder system is critical for fixed routes; people will need a way to get to the rail without driving due to parking constraints. SRPEDD is also aware of the increased demand on Route 495 as well as the casino impact. Grade crossings will need to be addressed.
- Bob Carney, Dartmouth Board of Selectmen: I would be concerned about time and construction and expense of monorail and rail.
- Lisa Pacheco, Freetown Board of Selectmen: Freetown's exit 8 ½ and the construction of the layover or station site in the same area may cause traffic problems and constraints.
- Heather Graf, CCAT: Our position is to support re-establishment rail service to the Cities of Taunton, New Bedford and Fall River, while we adamantly oppose the Attleboro alternative.
- John Bullard, Southeastern Commuter Rail Task Force: Climate change is an issue that should be taken into account. It is important to measure relative carbon emissions from the different alternatives. We should also be planning to power the trains with cleaner fuels and technologies that mitigate climate change. We should also plan to adapt to climate change and be mindful that we locate stations in places that won't be impacted by sea level rise.
- Nick Morrison: You should take into consideration time/speed of travel. Not only the speed of the train but the estimated total commute time for someone in the southeast to get to Boston and home.
- Roland Hebert, SRPEDD, New Bedford resident: Ridership should take into consideration shorter rides and stops in between the south and Boston, for example New Bedford to Brockton. Capture all regional rides.

- Lou Gitto, Stoughton: Consider the cost of energy in the future and how that may affect increased ridership.
- Robb Johnson, The Nature Conservancy: Middleborough alternatives should include an option that does not require the train to back-up into Lakeville due to the delay that incurrs. Some alternatives will reinforce bad growth patterns. Induced growth and impact traffic, secondary growth impacts, should be considered.
- Richard McCarthy, Town of Raynham Planner: Monorail on highways would make serving towns difficult, especially developing in a smart growth way. Foster smart growth principles for land use planning.
- Priscilla Chapman, Massachusetts Audubon: Thank you for allowing due process for considering alternatives for the South Coast Rail project. It is important to follow the Army Corps of Engineers process to get at a practicable alternative, but we are hoping that you do not eliminate alternatives that would be less environmentally damaging in the first phase if you go from 35 alternatives to 6. How will you define demand? Mike McArdle gave a brief overview of how this will be defined.
- Sue Peterson, SRPEDD Commission: We could improve wetlands with the rail project. Especially taking a closer look at wetlands restoration/improvement. By creating a net/net benefit since not all of the wetlands have been damaged equally.
- Edgar Adams, Roger Williams University: Development patterns that would be encouraged by different alternatives should be considered in the criteria. Clarify smart growth criteria and how will this be measured. Expanding highways will worsen habitat loss.
- Philip Viveiros: Alternatives need clarification within the criteria for Station level development potential (around stations). As well, integrate and enhance local bus service, including GATRA and BAT.
- Jim Soule, Fall River: Station sites for Fall River and New Bedford should take into consideration sea level rise. Weaver's Cove in Fall River should be considered as a station site.
- Tony Macedo, Raynham: Monorail up Route 24 could have potential problems for route and station sites along the highway. Mike McArdle gave a brief overview of how Route 24 currently exists.
- Chris McGowan, Mansfield: Had a question concerning the location of the station site in Fall River near the Heritage State Park.
- Nick Morrison: What will be the total cost of fare? Pricing of fares needs to be addressed. People will not use it for commuting purposes if it is too expensive and only want to use if for recreation.
- Robb Johnson, The Nature Conservancy: In the process of evaluating will there be a scale or weight? We shouldn't have only one form of power considered for alternatives, competitive with future.
- Carolyn LeMarre, Taunton River Watershed Alliance: Could you post GIS maps, land use on the web-site?
- John Bullard, Southeastern Commuter Rail Task Force: Consider sequencing a solution for changing fuel sources.
- Roland Hebert, SRPEDD: Have financing deficit for transportation. By waiting until 2010 puts project in competitive disadvantage. We should support the Cabral Bill as way to help fund the project.

- Anthony Cucchi, The Trustees of Reservations: In terms of mode of transportation with the changing technology maybe an adaptability or retro-fitting of mode could be incorporated into the plan.
- Dave Farmer, Attleboro resident: Consider carbon footprint, pricing and initial screening with stage-by-stage implementation and how this can be converted.
- Lou Gitto, Stoughton: Consider subsidy in context of future costs of travel. When you define cost/rider and fares, consider full cost of service. By stating the full cost of service and the subsidy/rider.
- Robb Johnson, The Nature Conservancy: To address Roland's previous comments concerning a finance plan, I vote for moving it up and the administration should come out with a plan before 2010. A tremendous amount of expectations have been raised, but how will we pay for it? Speed up finance plan.

Easton Meeting – January 31, 2008
Southeastern Regional Vocational Tech School
Questions and Comments

Key Points Raised:

- An appreciation for the fresh look and the review process; the importance of due process in evaluating and choosing an alternative
- Decision should be based on analysis and not politics
- Impacts on municipal and private wells, groundwater, water quality. Put more weight on water supply impacts.
- Concern about safety and children
- Concern about whistle noise
- Concern about grade crossings and impact on traffic flow
- Concern about adequate mitigation to property owners on and near the rail rights of way
- Do the ridership figures make the project practicable? Quantify demand, existing and future.
- The possibility of freight trains adds another level of environmental concern
- Abutters are nervous about nighttime freight
- This is an economic development project
- Location of layover facilities
- 15 grade crossings in Taunton, with 11 of them within a 1 ¼ mile radius
- Norton bypass route has two wildlife preserves that span about ½ mile, plus part of Chartley Pond, an area with about a mile of conservation restriction along the right of way.
- The Mansfield sewer line runs beneath the old Mansfield line.
- Protecting large, unfragmented ecosystems—such as the Hockomock--is an important stated priority for the State
- There are 15 historic properties affected by the Stoughton route plus the potential for historic finds in the Hockomock during construction

- A number of trees would have to be cut down, just along the Pine Oaks Golf Course
- Support for a monorail along Route 24
- Support for the Middleborough alternative
- Impact of possible casino location (access for jobs and tourists)
- No diesel. Plan for future use without fossil fuels.
- Travel cost of the train for consumers vs. quality of service received
- Capacity of the rail line up north and at South Station
- Cost/benefit of the Stoughton line vs. cost to upgrade between Braintree and Boston
- Funding the project and the financial impact on the communities. Effect on Local Aid and local MBTA assessments.
- Consider disability access in all planning
- Consider air rights above stations, if possible
- DMUs have more flexibility
- Request to send MBTA assessments for Bristol County communities to the Easton Board of Selectmen

SOUTH COAST RAIL

Summary Notes – November/December 2007
Civic Engagement Meetings

At the first round of civic engagement meetings for Phase 1 of the project, we asked the question: What new alternatives should we consider and how should we evaluate them?
Regional meetings were held in Berkley on November 28; Stoughton on December 5; and Dartmouth on December 6. This packet includes a summary of the presentation made at all of the meetings and a list of the issues raised by the participants.

The Presentation

1. Project Background

Kristina Egan, South Coast Rail Project Manager, Executive Office of Transportation, opened the meeting and used a PowerPoint presentation to explain the project. **[Please note that the PowerPoint is available at www.SouthCoastRail.com in its entirety. The presentation is abbreviated here.]**

Ms. Egan explained the goals, purpose and history of the project. The first round of civic engagement meetings – these three and other community, neighborhood and business presentations - are opportunities to give the public updates on the project and to gather public input by specifically asking two questions: What new alternatives should we consider and how should we evaluate them?

Ms. Egan presented the project purpose, which the entire project flows from:

> To more fully meet the existing and future demand for public transportation between, Fall River/New Bedford and Boston, Massachusetts to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities.

Ms. Egan said that the project has a long history and a preferred alternative was identified in a 2002 environmental document. Governor Deval Patrick announced a new plan for action in April 2007, and this new look at the region includes wide ranging civic engagement, a Corridor Plan and a new Environmental Review.

The planning includes both a state (MEPA) and federal (NEPA) environmental review process. The Army Corps of Engineers co-chairs the Interagency Group with EOT. The Corps uses a methodology known as the Least Environmentally Damaging Practicable Alternative (LEDPA); it can only issue a permit if the alternative is one that can be built with the least damage to the environment.

The Project Goals include serving the South Coast; improving mobility in the region; reducing congestion and improving highway safety; reducing air pollution and addressing climate change; stimulating and channeling job growth; revitalizing the historic cities in the region; and preserving natural resources.

The Corridor Plan will help identify station locations and areas for natural resource and historic preservation. The project will also provide technical assistance to the communities so they can develop and implement land use changes.

Ms. Egan said the project has two phases. In the first six months, EOT is asking questions, collecting and examining data and conducting an alternatives analysis. The schedule for the alternatives analysis calls for three rounds of public meetings in Nov/Dec 2007; Jan/Feb 2008; and March 2008. The in-depth environmental review, which will take two years, begins in April 2008. The Corridor Plan results are slated for release in April 2009, with Priority Development and Preservation Areas designated in October 2009. A project financing plan will be released in January 2010. The alignment, station and layover facility locations and environmental document will be completed in 2010, when permitting will begin. Construction will begin in 2012 and service is scheduled to begin in 2016.

Ms. Egan asked Mike McArdle, Project Manager for the Vanasse Hangen Brustlin, to present the current list of alternatives and the Evaluation Criteria.

2. Project Alternatives and Evaluation Criteria

Mike McArdle outlined the project corridors and alternatives that meet the project purpose. He reviewed the potential modes under consideration, including: enhanced bus routes, bus rapid transit, light rail, heavy rail, commuter rail, and monorail. Mr. McArdle used a series of maps to review the different corridors that have been considered in the past, as well as new ones. Many of the routes use existing rights-of-way, such as the Attleboro, Stoughton and Middleboro corridors. Two other options would use a former rail corridor from Taunton to Mansfield and one from Myricks to Attleboro. The monorail

would use the existing ROW up Route 24. Heavy rail would also be taken into consideration for transit through Middleboro, Attleboro or Stoughton. Mr. McArdle said the team was collecting suggestions for alternatives at this series of meetings. Then evaluation criteria will be applied to the alternatives to screen the list to a manageable number for the environmental review.

Mr. McArdle reviewed the steps in the review of the alternatives. The team is asking questions at each step and will rate the alternatives on how well they perform at each step. The questions include:

1. Does it meet the project purpose?
2. Does it make sense, cost effective, etc.?
3. Environmental impacts

Some options will drop out at Step 1 if they do not meet the project purpose; for example, rail to Providence. At Step 2, practicability involves compatibility with existing infrastructure; proving benefits at a reasonable capital cost; ability to be constructed within a reasonable time frame and without substantial impacts; and the ability to meet travel demand in the region. At Step 3, the team will compare the magnitude of impacts on the natural environment and the consistency of alternatives with smart growth goals. This includes estimating the level of wetland loss, the number of stream crossings and Priority Habitats affected, as well as the number of acres of protected public open space that could be affected. Mr. McArdle noted that these will be high level estimates, with detailed information, including wetlands mapping and flagging, to be completed in Phase 2. Mr. McArdle reviewed the evaluation system for the ratings, which includes five levels: highly favorable, favorable, neutral, unfavorable and highly unfavorable.

Berkley Civic Engagement Meeting
November 28, 2007

Questions and Suggestions

- There were suggestions on how to advertise the meetings in the communities and share project information: including providing more lead time for press releases; notifying cable stations; asking Selectmen to announce the meetings; sending notices to the Councils on Aging in the region.
- Meeting participants suggested locating state facilities in the South Coast region; appointing a Transportation Czar to coordinate all transportation facilities; finding ways to encourage economic development in the region.
- Regarding Evaluation Criteria, speakers suggested that the alternatives should be: time efficient; more appealing; use the most direct route and not involve a transfer; be efficient – trains go both ways, multi-fundamental approach; be "Not so pie in the sky" (cost effective); consider affordability – fiscal burden on towns, tax payers, consumer, and municipalities; encourage Smart growth; use right of ways, especially Route 24 – least environmentally damaging. More people should be encouraged to work at home.
- A monorail up Route 24 would be the most visible route (people sitting in their cars stuck in traffic and seeing the monorail go by could be prompted to use transit).

Questions/Comments:

- How many crossings and trips in Berkley?
- Rep. Sullivan noted the long history of the project and expressed hope that there will be a good solution that considers the issues fairly.
- $1.5 million being spent on this project when there have been buses 5 years ago.
- Given problems with route 24, there is a strong need for other transportation alternatives for southeastern MA.
- On Route 24, Route 140 and Route 44 there are accidents daily, so this is for the South Coast region as well.
- 32 trains/day in Berkley at the two grade crossings already.
- Lakeville is seeing growth related to the rail, the other communities will see it as well (20% of most trips are shopping, and errands, highest traffic time is related to schools).
- Is there something in it for Berkley? Where will the closest station be?

- Rail drives economic development in region, this could be good for our region in terms of safety with more owner occupied housing.
- Why did Taunton get dropped from the project purpose?
- Monorail?
- High level, not detail oriented, three step process.
- 45 minute drive to Boston, time factor for people to get to Boston needs to be appealing - if not, they won't use transit.
- Commuter rail, bus service, not one exclusive answer to the problem – highway, bus service, commuter rail, encourage institutions of the state open facilities in Southeastern Mass. Too much in Boston, make jobs here to cut down on traffic. Need a Traffic Czar.
- Direct route, no transfers, one seat ride – positive factors to include.
- Looking at all alternatives, system needs to evolve and move forward. Train should go both ways.
- The state has to specify the financial burdens on taxpayers, towns/city, etc.
- If Smart growth is the goal, then consider monorail on Route 24 using existing highway rights-of way, which will be less environmentally damaging. Rail would be damaging to the Hockomock Swamp. Berkley was one of the most impacted towns with the least benefit the last time the project was considered.
- People should work from home, don't encourage people to drive/work to Boston. The speaker predicted that 90% of the riders will be going there (Boston), with 10% coming to the South Coast. The $1.7 million should be spent on economic development.
- What happened to the past plan? Don't redo what has already been done.
- Eliminate the alternatives being bandied about - there are already 39 now. Eliminate alternatives which do not achieve the project purpose which should be: providing safe, efficient, reliable commuter rail service fro southeastern Massachusetts from Taunton to the seaport cities of New Bedford and Fall River, to meet the demand for public transportation between the south coast and Boston. Next, do an operational analysis and eliminate the options that are not practicable and those that simply do not work (namely, the proposed "Attleboro Alternative"). This exercise seems to be a waste of time and money, and these energies could and should be spent more productively. The south coast rail project appears to be going backwards instead of moving forward.
- The use of Route 24 monorail could dovetail with proposals for federalization of 24, perhaps with matching funds. Safety – rail crossing should be considered.

- Pricilla from Mass Audubon: Appreciated the open and fair process that is being conducted.

Stoughton Civic Engagement Meeting
December 5, 2008

In general, responses to the questions were provided by Project Manager Kristina Egan, EOT, and Mike McArdle, VHB:

Q: Does the project include improved service in and around these communities in addition to service to and from Boston?
A: Yes, the state will be looking at coordinating and improving public transportation connections to the future service from this region to Boston.

Q: Will this provide weekend service from Stoughton to Boston?
It was decided this suggestion would be included under project criteria.

Q: What would the building of a Casino in this region do to the location of the route?
It was decided this suggestion be analyzed as part of the smart growth corridor plan.

Q: Does the state have a preferred alternative at this time?
A: No, the state does not have a preferred alternative at this time. A brief history of the previous studies and permit was outlined and it was mentioned that Gov. Patrick is committed to the project.

Q: Howard Hansen, Stoughton Town Moderator, asked about east - west connections. Will the project bring people where they currently going or where they may be going in the future?

A: Improvements to feeder transit systems will be investigated as part of this project. There has also been mentioned, at a previous meeting: light rail being run from Fall River and New Bedford to Taunton, as well as light rail to Attleboro and/or Middleborough from Taunton and finally improved bus service between Fall River and New Bedford.

Ms. Egan noted that the South Coast is the fastest growing area in the state and the Administration is promoting smart growth as part of this transportation project to help communities plan transit oriented development and to protect priority preservation areas. She said that the current 41 possible alternatives will be reviewed and a short list of two to six possible routes would go through the permitting process.

Q: Why not build a Vancouver style system?

Q: What about a elevating the track? Similar to what happened to the Long Island railroad in the late 1960s and early 1970s. Then there would be less impact to the community such as grade crossings.

Q: What about the cost to the riders?
A: This will not be determined in this phase, although cost effectiveness is a measure.

Ms. Egan collected a list of Alternatives and Criteria suggestions. They included these Alternatives:

- Commuter Rail on Route 24
- Building a system similar to Vancouver's SkyTrain
- Elevating the railroad similar to what was done with the Long Island Railroad
- Expand existing park and ride lots and widen Route 24
- Do nothing (what happens if we do nothing?)
- Expand platforms to existing commuter rail stations and use light rail to bring people to the existing system
- Use the $1.4 billion and invest in video conferencing technology and promote people to work from home
- Extend Red Line south from Braintree to Middleborough
- Electrify commuter rail
- Build a combined bus /rail transit system to Boston and Providence

Evaluation Criteria to consider included:

- Expanded weekend service for Stoughton
- Safety
- Avoidance of hazardous waste sites
- Economic impact to the local communities
- Most traffic from Route 24 goes west on Route 128 (commuter rail to Boston does not address this)
- Detail the economic benefits to the people of Fall River and New Bedford
- Evaluate the changes from global warming and the impacts to water quality
- Consider noise (Middleborough layover, idling locomotives are very loud); also, elevating tracks may not be a good thing because of noise.
- The number of cars projected to be taken off the road versus the cost
- The ease of the commute
- The time of the commute
- Cost to riders
- Research and pursue non-diesel technology
- Ensure not putting too many trains on any one line
- Quality of service for commuting between communities along the line
- Ability of the region to compete economically in a global market
- Operations and maintenance costs over the useful life of the project
- Compare against highway expansion and repair costs
- Compare against increased gas prices
- Service frequency per hour, not per day

- Service flexibility
- Cost of moving more people out of the city into region, even if they go into smart growth developments they will still need and use cars
- Vehicle miles traveled
- Long-term operating expense
- Providing enough parking (some towns are restricting parking to residents only)
- Protection of drinking water supply wells
- Free parking
- Impact on South Station
- Cost of relocating business to Fall River and New Bedford
- A report on the impact of requiring transfer from one mode to another
- Whatever route taken, what are the impacts to the other parts of the system

Other comments included:

- John Anzivino noted that three of Stoughton's wells that supply 60% of the town's water are directly abutting the old railbed. He also raised a concern about freight service and noise.
- Cynthia Walsh noted that the route taken should get the residents of Fall River and New Bedford to Bridgewater State College. The Casino and other economic developments should be considered in locating the route.
- Kyla Bennett felt the visual impact of service (either rail or monorail) speeding along side or up the middle or Route 24 would be greater on commuters who were stuck in traffic than service hidden in the Hockomock swamp.

Dartmouth Civic Engagement Meeting
December 6, 2007

Overall questions/statements:

- Currently, there are too many options on the table.
- When is the next interagency meeting?
- When will we get answers?
- Not enough time to review material before next civic engagement meetings in January.
- How will you deal with existing delays when it already will take a 1 hour 15 minutes to 1 hour 40 minutes by transit when it only takes 55 minutes by car?
- How can the project deal with South Station expansion issues, such as the community of South Boston taking a position against expansion?
- How will you help protect our local farms when the area is impacted by development?

Suggested Evaluation Criteria:

- Time (travel time, capacity issues)
- Impact of transfer
- Capacity of South Station
- Reinforce existing New Bedford and Fall River station planning
- Keep farmers and wetlands in mind
- Timeliness is extremely important (completeness of trip)
- Number of jobs available along the route

Alternatives to Include:

- Right-of-way to Providence
- New Bedford Industrial Business Park station or stop