Developing a Mitigation Agreement for Passenger Rail Expansion Projects in Massachusetts Communities

A Major Qualifying Project proposal
submitted to the faculty of Worcester
Polytechnic Institute in partial
fulfillment of the requirements for the
Degree of Bachelor of Science

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Abstract

The goal of this project was to develop a mitigation agreement for use by Massachusetts towns impacted by passenger rail expansion projects. This was accomplished by analyzing existing mitigation agreements within the Commonwealth, as well as studying case studies regarding commuter rail layover stations. Interviews were also conducted between town representatives from passenger rail affected towns. The resulting agreement can be used between host communities and either the Massachusetts Bay Transit Authority (MBTA), AMTRAK or other passenger rail service providers.

Capstone Design Statement

In order to meet the constraints set forth by the Accreditation Board for Engineering and Technology (ABET) this project meets the requirements of the capstone design experience for Major Qualifying Projects. According to ABET General Criterion 4, “students must be prepared for engineering practice through curriculum culminating in a major design experience based on knowledge and skills acquired in earlier course work and incorporation engineering standards and realistic constraints that include most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political.” (Criteria for Accrediting Engineering Programs, 2008)

Social & Political:

A substantial portion of this Major Qualifying Project applies both a social and a political approach in order to create a suitable agreement that can be applied between towns in Massachusetts and the Massachusetts Bay Transit Authority (MBTA). Interviews were held with both town representatives and its residents in order to research past mitigation agreements and asses its progress. This agreement is partially based on the results of past mitigation agreements within both the state of Massachusetts as well as other states that have had similar projects done.

Ethical:

This project follows the code of ethics set forth by both the American Society of Civil Engineers and the American Planning Association. This project used knowledge to help create an agreement between the two entities all the while having as little impact on the environment as possible. All work was done honestly and in compliance with all rules pertaining to this project in order to enhance knowledge. [1] Since interviews were conducted, it was necessary to comply with Worcester Polytechnic Institute's Institutional Review Board to ensure that the rights and welfare of human subjects were not violated[2].

Sustainability:

Mitigation agreements along with Environmental Assessments are critical in determining which sustainable and environmental concerns should be addressed when new projects are being implemented. Some sustainable concerns include: land use, water conservation and energy conservation. Mitigation can ensure that these issues are monitored, especially when an Environmental Assessment may overlook concerns brought up by the town.

Health and Safety:

The created mitigation agreement will dictate how and in what fashion steps will be taken to make sure that the resulting station is in compliance with all health and safety codes.

[1]ASCE Code of Ethics; The American Institute of Certified Planners Code of Ethics and Professional Conduct
[2] Worcester Polytechnic Institute Institutional Review Board

Both the MBTA and the afflicted Massachusetts towns will review concerns including but not limited to: air quality concerns, noise regulations and abutter issues. Construction of railways must be performed in compliance with the Office of Rail Regulation and the "Railway Safety Regulations – 1999"[3].

Environmental:

In conjunction with abiding by sustainability concerns, Massachusetts towns and the MBTA will work jointly too reduce the impact that the layover station will have on the environment. Similar to the consideration in regards to sustainability, the mitigation agreement will address potential environmental impacts such as: air, noise and water, in order to act in the best interests of the town's environment.

Economic:

Upon the completion of the mitigation agreement as well as the resulting construction of the layover station, the revenue generated will be distributed according to the plans established. It can be assumed that once the station is being used regularly, the MBTA will observe an increase in their yearly profits. Moreover this mitigation agreement will provide a foundation for conversation between the MBTA and Massachusetts towns regarding how much each party will contribute to the project. Naturally this agreement will not reflect or dictate how the project will or should be funded.

[3] - Railway Safety Regulations 1999

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1. Introduction

The Massachusetts Bay Transit Authority (MBTA) has provided transportation alternatives to the people of Massachusetts for over 40 years. By offering a cheap and easily accessible way for residents to travel throughout certain regions of the state, they have helped to reduce the amount of cars and therefore traffic on the highways. Subsequently they have assisted in reducing the amount of pollutants in the environment. For many towns, the commuter rail service provided by the MBTA connects its residents to the highly commercial city of Boston.

In many cases, when the MBTA provides transportation alternatives to towns, agreements are made between the host towns and the MBTA to alleviate concerns from both parties. Most recently, the MBTA created a proposal to restore commuter rail service on the Old Colony Greenbush Line. This restoration would affect the towns of Braintree, Weymouth, Hingham, Cohasset, and Scituate. In order to appease both parties a mitigation agreement was created to dictate how the station would operate as well as outlining which party was responsible for certain aspects of construction and completion.

Transportation officials in Westminster have proposed to reinstate passenger rail service in Westminster. There is already passenger rail service that ends in Fitchburg, roughly 10 miles east of Westminster. The extension will assist a percentage of the

71.4%[4] of working adults living in Westminster commuting to work. This project will result in construction and creation of a new passenger station in Fitchburg as well as a train layover facility in the Westminster Business Park. In order for this project to not negatively affect the town, Westminster officials want to know how other communities, like Scituate, who have entered into a mitigation agreement with the MBTA have functioned since the agreement took effect.

Westminster officials are mostly concerned with how this project will affect the town, fiscally, environmentally and economically. In the town of Scituate, a mitigation agreement was created for the proposed restoration of the Old Colony Greenbush commuter rail service. In that mitigation, several factors were addressed including construction, noise and vibration, grade crossings, and the facility itself. All, if not most, of these factors are also of concern to Westminster. For Scituate these matters were mitigated by dividing up the responsibility between the towns and the MBTA. One example was the station mitigation for Scituate. The MBTA had to agree to provide a certain amount of parking spaces at North Scituate station and place the platform on a specific side of the track. The MBTA also agreed not to place any form of advertising billboards in the Greenbush Line property. Their overall advertising activities were limited as to accommodate the Project's Historic Preservation Design Guidelines. As a result of these issues, as well as many others, additional mitigation agreements are required to have an overall grasp of the relationship between the host community and the MBTA.

[4] US Census Bureau – 2005-2009 American Community Survey

This project is intended to create a model mitigation agreement between MBTA and the host towns. This agreement is based on past agreements created between the MBTA and other towns in an effort to generate an agreement that would suffice both town and the MBTA. Westminster was identified as a case study for the agreements creation as they are currently going through the process of having a layover station initiated in their town. The resulting agreement can serve as a basis for Westminster and other communities in Massachusetts that might be affected by future rail service projects. This project was completed by analyzing past agreements conducting interviews with those towns, and determining the town's satisfaction with the progress as well as the final agreement. It also provides a basis for what other issues should be addressed for this circumstance. Ideally, this project will help to assist not only the town of Westminster, but other towns in Massachusetts by creating the most successful plan for the town and its constituents.

2. Background

2.1 HISTORY OF PASSENGER RAIL SERVICE IN MASSACHUSETTS

Prior to the early 1900s, transportation in the commonwealth of Massachusetts was run primarily by private railroad companies. In 1830 the Boston and Lowell Railroad became one of the first railroads in North America. Before this historic railroad's creation, goods and services between Boston and the cities north were transported across the canal or by horse drawn carriage. This new railroad proved to be an improvement as both cities began to grow industrially.

Since 1830, the private railroad companies operated in Massachusetts with eminent domain and limited monopoly, granted to them by the state. Under eminent domain, the government can implement land takings for a public use or purpose. The owner of the land being acquisitioned will be fairly compensated through a mutual agreement. It wasn't until the creation of the Metropolitan Transit Authority (MTA) in 1947 that there became a public entity for most of the transportation systems in the greater Boston area.

In 1964 the MTA became formally known as the Massachusetts Bay Transit Authority (MBTA). The MBTA along with Philadelphia's Southeastern Pennsylvania Transportation Authority are the only two US transit agencies to operate all of the five major modes of transportation. These include commuter rail, subway or elevated trains, trolleys, trolley

busses and motor busses. Today the MBTA is the nation's 5th largest mass transit system, with 13 commuter rail road lines and 5 subway (T) lines. The commuter rail provides transportation for residents as far west as Worcester and Fitchburg. Most of the lines terminate in Boston.

2.2 ENVIRONMENTAL REGULATIONS

All projects being executed by state agencies, such as the MBTA, and federal agencies, such as the Federal Transit Administration, are required to act in accordance with the Massachusetts Environmental Policy Act and the National Environmental Policy Act. The National Environmental Policy Act (NEPA) was created in 1969 to help encourage and promote more informed decision making made by federal agencies, especially when those agencies are conducting major federal projects that will significantly affect the environment. NEPA sets requirements which dictate that agencies must make known to the public potential environmental impacts that can occur as a result of the project. NEPA enforces an agency to consult and review all possible alternatives to mitigate these impacts as well as presenting an option for a "no action"[5] decision. A "no action" decision can mean that the proposed project will not occur as a result of the NEPA review process, or it can mean that there can be no change or diversion from the original project management plan and the proposed project will occur as initially described.

[5] Preferred Impact- National Environmental Policy Act

Under the Massachusetts Environmental Policy Act (MEPA), all state agencies are required to perform some form of study to understand the environmental impacts of their proposed developments. Subsequent to this study, these agencies are then required to take reasonable steps to "avoid, minimize and mitigate"[6] any possible dangers to the environment. MEPA requires public disclosure of mitigation practices which will motivate comments and concerns from residents as well as local, state, regional agencies. MEPA does not necessarily consider whether or not the project benefits the environment but rather it helps the agencies realize and bring to light the potential environmental consequences of a project. Moreover, the MEPA and its officials act with the best interests of the residents.

Two requirements of the NEPA process are Environmental Assessments and Environmental Impact Statements. An Environmental Assessment (EA) is an environmental investigation detailing if the proposed action will significantly affect the environment. It also states why the project is needed and why this specific would be the most appropriate action. Once an EA has been created, there is a 15-30 day review period and during that time, the public can also view the assessment and make comments on them. The results of the review as well as the comments brought up will lead to the final decision on the EA. There are two routes that can be taken upon conclusion of an Environmental Assessment; Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS). An EIS is only created if by way of the EA a significant impact to the environment was found.

[6] Massachusetts Environmental Policy Act

If the EA finds that there is a need for an EIS, one will be created to address all of the environmental impacts that were believed to be important and perhaps mitigated as a result of the project. During this process the public has the opportunity to provide input. Afterwards, dependent on the project, mitigation might be created to appease the overall concerns by the community in which the project is being implemented. Within the EIS[7], there will be a section dedicated to describing other potential alternative designs that were considered prior to the selection of the current project's design. This section also includes how those alternatives followed environmental regulations, as well as the reasoning behind why they were dismissed for project consideration.

2.3 WESTMINSTER – CASE STUDY

The town of Westminster, located in Worcester County, was officially incorporated as a town in 1759. It wasn't until 1848 that the town was connected to the Vermont Massachusetts Railroad in Fitchburg by way of a newly constructed road. By 1900 an electric street car service traveled through Westminster and connected to Fitchburg and Gardner which provided other means of transportation between these regions of Massachusetts. Currently the MBTA only serves the citizens of Westminster through a station in Fitchburg. Today, the Montachusett Regional Transit Authority (MART) is proposing to restore MBTA passenger rail service about 4.5 miles west of the present MBTA terminus in downtown Fitchburg. This will result in the construction of a new passenger station in Fitchburg, as well as a new layover station in Westminster Business

[7] FHWA Environmental Toolkit – Project Development – NEPA Documentation

Park. This project will provide additional transportation alternatives for the residents of both Fitchburg and Westminster. The layover station in Westminster is about 1.2 miles away from the proposed station site.

In February 2010, the United States Department of Transportation, (USDOT), awarded this project a TIGER grant worth $55.5 million dollars, which covers both the station as well as the layover facility in Westminster. A TIGER grant, or Transportation Investment Generating Economic Recovery grant, is part of the American Recovery and Reinvestment Act of 2009, which was established to allow the USDOT to invest in road, rail, transit and port projects that promoted economic recovery as well as create jobs. TIGER grants are only to state and local governments as well as any agencies which fall in their division. Below is a map of the proposed layover facility as well as its distance from the Fitchburg station.

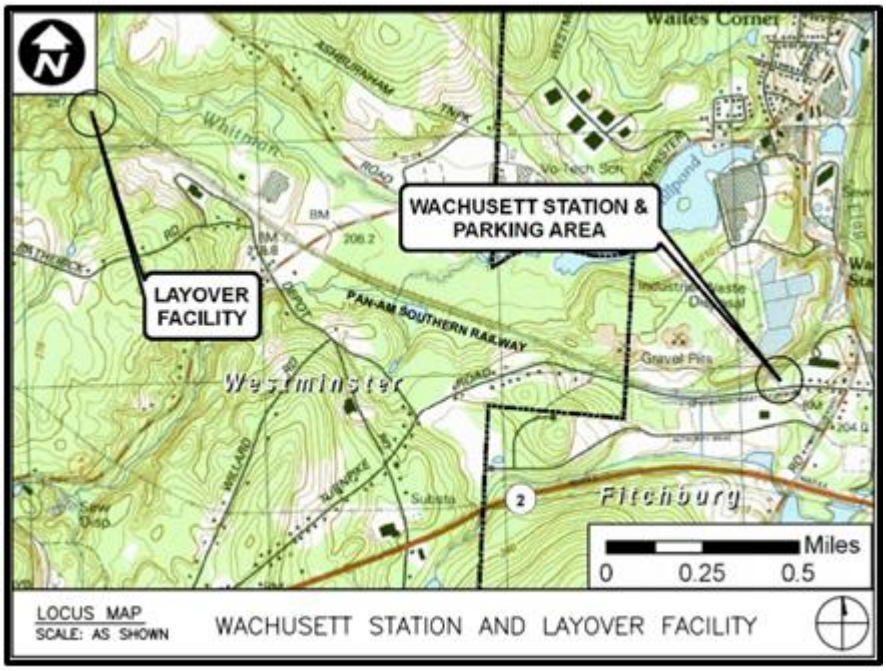


FIGURE 1

Although MART (a regional transit authority) is a supporter of the project, the MBTA (a state transit agency) will be responsible for the construction and operation of this facility. This layover station is designed to store six commuter rail trains overnight. Construction started in October 2010 and is expected to be complete and fully operational by October 2013. The layover facility is currently the primary issue surrounding this project. Residents of Westminster are concerned over the impending light, noise, vibration pollution impacts that this station might cause in the area as well as its effect on the surrounding wetlands.

2.4 WHY IS MITIGATION NEEDED?

Mitigations are an important aspect of alleviating the concerns of the residents because they allow for the town's residents to ensure that the project does not negatively impact the town. Mitigations can address numerous concerns that a project can have on a community by providing some forms of solutions that will appease both the town and the agency involved in the work. These solutions, especially in regards to a commuter rail layover station, can address noise and vibration complaints, grade crossings, nearby wetlands, the stations visual appearance as well and the station as a whole.

3. Methodology

The primary goal of this project was to develop a model mitigation agreement that could be applied toward any Massachusetts town and the MBTA or other transportation agency. The process to develop this agreement included identifying and analyzing previous mitigation agreements between host communities and commuter rail layover stations. To reach this goal the following objectives were identified:

1. Collect and organize past mitigation agreements between host communities and commuter rail agencies in Massachusetts
2. Research mitigation agreements in other states to generate a broader scope of mitigation practices for commuter rail layover stations
3. Produce a list of commonly found themes amongst the agreements that can be applied to the mitigation agreement for Westminster and other communities
4. Conduct interviews with people in the towns that were affected by passenger rail projects as well as an in-depth analysis of the effects of mitigation
5. Compile a list of the positive impacts from the host towns to create an appropriate approach for the development of a model mitigation agreement
6. Create a model mitigation agreement that can be applied between Westminster and the MBTA, as well as other towns in Massachusetts.

3.1 OBJECTIVE 1 "COLLECT AND ORGANIZE PAST MITIGATION AGREEMENTS…"

In order to fully understand the influence that mitigation agreements have on a community and the effects that they leave, it was important to be able to identify past

mitigations as well as their standing results. During the research, it became increasingly difficult to locate mitigations that addressed the exact provisions of this project; mainly mitigations related to commuter rail layover stations/facilities. It became apparent that although there were many commuter rail projects within Massachusetts, there was a noticeable lack of mitigation agreements. One possible reason could be that the Environmental Assessment did not identify significant impacts on the surrounding environment, thus making the need for an Environmental Impact Statement as well as a mitigation agreement, unnecessary. Therefore, in the instances where a mitigation was not found, finding the original Environmental Assessment proved to provide a good basis for finding out why mitigations are necessary for some projects, versus unnecessary for others.

Below is a list of mitigations or environmental assessments that were examined and used as a basis for comparison for the model mitigation.

a. Mitigation Agreement Concerning The Greenbush Line Project in the Town of Scituate
b. Wachusett Extension Final Environmental Assessment
c. South County Commuter Rail Environmental Assessment
d. Worcester Commuter Rail Extension Project Environmental Impact Report

3.2 OBJECTIVE 2 "RESEARCH MITIGATION AGREEMENTS IN OTHER STATES…"

During the research process of gathering past mitigations in Massachusetts, it became understandable that broadening the scope of mitigations or environmental assessments might help in creating a more universal mitigation agreement. Although

the model mitigation will be recommended for use amongst Massachusetts Towns, it is important to note factors that may have not been considered in the previously listed project, but were considered for other projects. Below is a list of recent commuter rail projects that have been implemented in their respective cities/states.

1. Georgia Passenger Rail Study
2. Metra Rail Study (Illinois)
3. CalTrain Rail Study (California)

The listed projects are currently being examined and proposed in their respective states. Since all projects being conducted by state agencies have to abide by NEPA regulations as well as request funds through the TIGER grant program, there are similar guidelines and thresholds for the projects which simplified the process of generating a broader scope of mitigation practices. There was an Environmental Assessment conducted for the Georgia Passenger Rail Study which produced a Finding of No Significant Impact (FONSI) for the project.

3.3 OBJECTIVE 3 "…LIST OF COMMONLY FOUND THEMES…"

Based on the information gathered in the previous objectives, it was important to compile and create a list of themes or mitigation topics that were used in most, if not all, of the mitigations and environmental assessments investigated. In order for a topic to make this list, it would have needed to be included in a minimum of three (3) of the documents assessed. Although currently, there is only one mitigation agreement investigated, some factors that were addressed in the mitigation are very

relevant for any future mitigation agreement. More specifically, the involvement and requirements of each party involved which outlines each party's responsibility especially the cooperation and participation from the towns Selectman and the MBTA. The importance of mutual collaboration from both parties is important to ensure the success of the mitigation agreement.

The resulting list not only identifies the broad mitigation topic but it also adds, different ways that the issue was mitigated.

3.4 OBJECTIVE 4 "CONDUCT INTERVIEWS…"

Interviews were conducted with representatives from two towns: Westminster and Auburn. The representative from Westminster was Town Planner Stephen Wallace. The interview was held December 8, 2011 at Westminster Town Hall. The representative from Auburn was Town Manager Julie Jacobson who had the position of Economic Development Coordinator during the Worcester Commuter Rail Extension Project. The interview was held in Ms. Jacobson's office in Auburn on January 18, 2012.

Prior to conducting these interviews, WPI requires that each student comply with the Institutional Review Board (IRB) in order to understand and follow ethical guidelines and regulatory requirements in regards to human subjects[8]. This is

[8] Worcester Polytechnic Institute Institutional Review Board

especially important when conducting interviews in which a person's identity might be at risk for criminal or civil liability. In complying with this requirement, a form was filled out identifying how the interviews were to be conducted, in what ways a person's identity might be disclosed, and in what ways would that risk to that person be reduced. Both interviewees were read a confidentiality notice and asked if they would want their identities disclosed for this project.

During the interview, other questions that were asked included: that person's view on how the mitigation process was handled in their town, as well as any suggestions they might have to revise the process in the future. Results from the interviews assisted in the creation of the draft mitigation, especially in establishing a relationship between the host town and the MBTA.

3.5 OBJECTIVE 5 "LIST OF POSITIVE IMPACTS FROM HOST TOWNS…"

In order to create a list of positive impacts, information was gathered from previous host towns' Environmental Assessments and Mitigations as well as subsequent interviews conducted in current and future host towns. In order for specific impacts to be included in the list, they needed to be included in most, if not all, of the mitigations and environmental assessments investigated. If an impact was noted as important during an interview, it was added as a subheading underneath an appropriate heading.

SCHEDULE OF WORK COMPLETED

Below is a schedule of when objectives and tasks were started and finished:

Monday	Tuesday	Wednesday	Thursday	Friday	Sat/ Sunday
O C T				October 28, 2011 Finalized Methodology	
O B E R			November 3, 2011 Finalized Background	November 4, 2011 Completed Objective 1	N O V E
				November 18, 2011 Complete Objective 2	M B E R
		November 30, 2011 Completed Objective 3			D E C
	December 6, 2011 Began Objective 4		December 8, 2011 Interview in Westminster		E M B
December 12, 2011 Began Objective 5			December 15, 2011 Created a MQP outline of topics to address		E R
		January 18, 2012 Interview in Auburn			J A N
	January 24, 2012 Begin Objective 6				U A R
January 29, 2012 Completed Objective 4					Y F E
				February 10, 2012 Completed Objective 5	B R U

February 13, 2012 Submitted Rough Draft of MQP		February 15, 2012 Submitted Rough Draft of Mitigation			A R Y M
	March 20, 2012 Submitted 2nd draft of MQP		March 22, 2012 Submitted 2nd Draft of Mitigation		A R C H
				April 6, 2012 Final Project Submission	A P R I
					L

4. Results/Analysis

Each mitigation and environmental assessment was investigated and analyzed. The following are the resulting analyses of the documents:

4.1 MITIGATION AGREEMENT CONCERNING THE GREENBUSH LINE PROJECT IN THE TOWN OF SCITUATE

This mitigation agreement was created in March of 2002 in regards to the planned restoration of a commuter rail service at grade on the Old Colony Greenbush Line. This line passes through the Massachusetts towns of Braintree, Weymouth, Hingham, Cohasset and Scituate. The purpose of this project was to provide those previously mentioned towns with access to transportation services in order to support Massachusetts' long term transportation and environmental plan for the Boston metropolitan area. Prior to the creation of the mitigation, a Final Environment Impact Report (FEIR) was made public on June 2001, in accordance with the Massachusetts Environmental Policy Act. In accordance with the results from the FEIR, a mitigation agreement was needed to further appease the affected towns. Within this agreement, it lists the responsibilities of all parties involved especially their roles during and post construction.

Since a mitigation agreement was created, it is safe to assume that there were environmental impacts that would occur as a result of the project. There were also additional issues raised by the town that needed to be mitigated. Some of these impacts were: the safety of Scituate once the railway is operational, noise and

vibration impacts on the surrounding properties, concern about grade crossings (train horns, median barriers, and visibility of signs indicating the crossing), issues with the station and layover facilities aesthetics, concerns over the neighboring wetlands, as well as other town concerns (design characteristic, and monetary compensation for the use of the towns land).

Below are figures showing the location of Scituate Massachusetts including where the resulting layover facility was placed. In Figure 2, the purple line shows commuter rail service provided by the MBTA before the reopening of the Greenbush line which is shown in green. Figure 3 shows the created Scituate passenger station outlined in purple as well as the railroad tracks outlined in red.

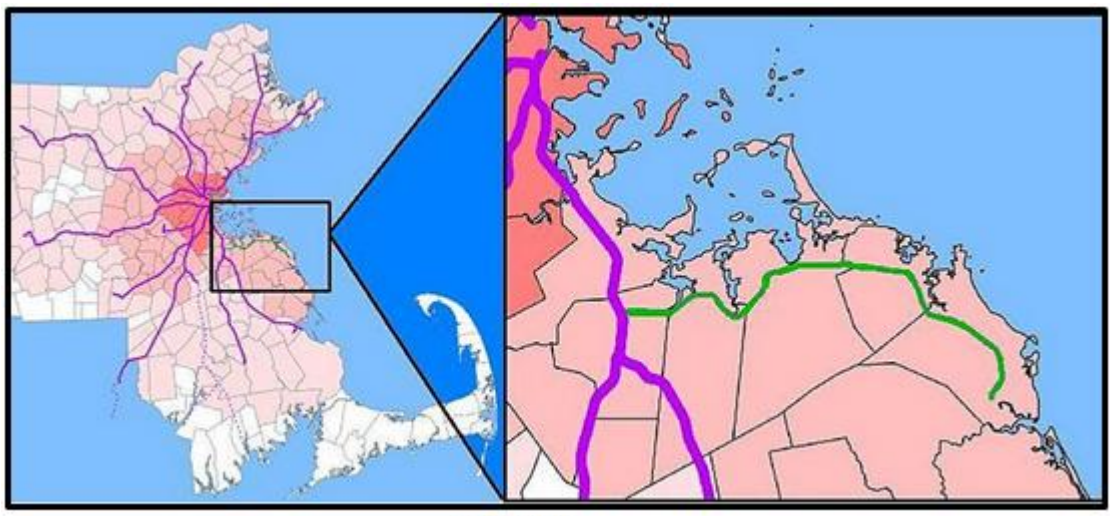


FIGURE 2

FIGURE 3

Below is a complete list of mitigations addressed in the document as well as the ways that each issue was mitigated.

1. **North Scituate Village**

   This impact affected parking areas, walkways, and traffic signals in the area adjacent to the area where the layover station would be restored during the construction phase. In the agreement, the MBTA agreed to alter the current on-street parking situation and the existing municipal parking lot so that there is no decrease in the number of available parking spaces. The MBTA was not charged to use the Town's property for the parking spaces and as a result the modified municipal parking lot remained the Town's property.

   The construction of walkways, sidewalks and crosswalks, including the replacement of an existing steel pedestrian bridge was to be handled by the MBTA. The agreement also stated the new traffic signals and a flashing warning

beacon needed to be installed by the MBTA and must comply with the standards set by the Massachusetts Highway Department.

Moreover, on every occasion that the MBTA used the Town's property for the purpose of conserving the Town's land during construction, upon completion of the project, the revised land remained the Town's property.

2. Noise and Vibration

The MBTA was responsible for mitigating the noise and vibration issues in the town, and the resulting choices needed to act in accordance with the Federal Transit Administration (FTA) Guidance Manual for Transit Noise and Vibration Impact Assessment. In the Environmental Impact Report created for this project, neighboring properties were categorized by the severity that they were affected by noise and vibration. The agreement stated that the MBTA was responsible for creating a 16-foot high noise barrier to mitigate noise impacts on a neighboring housing development. A sound insulation fund was created by the Town and the MBTA permitted the use of those funds to be used by property owners to install sound installation and/or noise barriers along the railroad property line.

3. Grade Crossings

In agreement with the mitigation, at any grade crossing in the Town, the MBTA agrees that train horns will not be sounded unless there is an emergency or temporary situation. The specific type of grade crossing to be used at certain intersections was up to the discretion of the MBTA. However, the use of a four quadrant gate treatment versus the alternative median barrier treatment was included as an option in the agreement. The use of the four quadrant gate

treatment was based on the MBTA's determination of safety at the crossing and compliance with the Federal Railroad Administration (FRA) regulations.

The Town is responsible for the upkeep and maintenance of the median barriers. These barriers are not to exceed the minimum length specified by the FRA. The MBTA is also responsible for providing illuminated warning signs and audible bell sounds around the grade crossings.

4. Station and Layover Facility

For the reconstructed station and layover facility, the issue of parking spaces with respect to the increase of commuters utilizing the station was a big concern. At the Scituate station, additional parking spaces were to be created and maintained by the MBTA. The MBTA also agreed that the air-rights over the station are to only be used for additional parking alternatives. If in the future, additional parking spaces were needed by either the Town or the MBTA, then both parties are to work together to produce a mutually acceptable design for additional parking. Traffic signals and intersection improvements such as left turning lanes and roundabout creation adjacent to the station were the responsibility of the MBTA

5. Fencing and Visual Mitigation

In accordance with the agreement, the MBTA is responsible for contributing and maintaining the fences around the station, and agreed upon parking lots, historic properties, and right-of-ways.

6. Wetlands Mitigation

In accordance with Massachusetts Wetlands Protection Act, the MBTA cannot "clear, cut, fill, dump, alter, grade, landscape, or build upon any wetland without a permit from the local Conservation Commission". For this specific project, the MBTA agreed to do everything possible to avoid or minimize potential impacts to the local vernal pools, as well as using a retaining wall to prevent filling and "salamander tunnels".

7. Right of Way

In the agreement, the Town agreed that the MBTA may acquire by eminent domain, a "friendly taking" of the former railroad Right of Way owned by the Town for the amount of $1.00. The Town cannot challenge the act of the taking or the price of the settlement. The MBTA cannot "take" land not required by the MBTA for commuter rail purposes that are currently occupied by town agencies, such as the Central Fire Station and the Scituate Housing Authority. The MBTA also agreed to not influence the old/existing sewer lines nor install new sewer interceptors within the MBTA's owned land. In order to install new receptors, both the MBTA and the Town must agree on a location.

8. Station Sites

The MBTA and the Town have agreed to collaborate on the basis of parking lot operation. The MBTA has the authority to acquire by eminent domain a permanent easement of land for the purpose of construction and use of a parking lot for the Scituate station.

9. Other Land Acquisitions

In the event that the MBTA needed a temporary construction easement for: widening and realignment of roadways, reconstruction and expansion of a parking area, making landscaping improvements, construction walkways, and construction of wetland replication areas, the Town agrees that this may be done on a "friendly basis" and is subject to the MBTA Board approval. Additionally the MBTA agrees to convey to the Town property that was used during construction, utility easements for utility sleeves that may have been installed, as well as portions of the former railroad right of way that are not required for commuter rail service.

4.2 WORCESTER COMMUTER RAIL EXTENSION PROJECT

The Worcester Commuter Rail Extension Project went through a series of Environmental Impact Reports in which the results deemed that no mitigation was needed.

In November 1994, a Draft EIR was created for the proposed Worcester Commuter Rail Extension Project. This project included renovating what is now called union station as well as connecting commuter rail service to the existing railway. This project served the residents of Worcester as well as the intermediate towns up to Framingham. This EIR contained investigated results for the proposed stations in Ashland, Millbury and Southborough.

Based on the EIR done for the Worcester Commuter Rail station, it was determined that a mitigation agreement was not needed between Worcester and the

MBTA. Some impacts were identified to need a form of mitigation (dust and construction noise) however the risks were considered minimal and did not deem worthy of a full agreement.

Below lists the impacts identified in the EIR. The first 13 environmental impacts were labeled as having little to no adverse effect on the environment. One major reason was that this project was mainly a renovation of an existing building. Some of the concerns that would be considered when constructing a new building, such as area wetlands and visual impacts, were negligible as they would have had to be considered in previous years. The major concern was in the EIR was the effects of noise, dust and traffic in that area during the renovation.

Environmental Impacts

1. **Railroad Right-of-Way**
2. **Local Traffic**
    a. No adverse effect on Level of Service (LOS) on adjacent roadway
3. **Air Quality**
    a. No effects
4. **Noise Vibration**
    a. Noise level was considered to be negligible
5. **Right-of-Way Drainage**
    a. A separate drainage system was constructed to alleviate concerns
6. **Wetlands**
7. **Rare Species & Geologically Significant Natural Communities**
8. **Fencing**
9. **Cultural Resources**
10. **Visual Impacts**
11. **Hazardous Materials**
    a. Negligible
12. **Pedestrian Safety**
13. **Construction**
    a. Short term increase in noise, dust and traffic
14. **Proposed Mitigation & Mitigation Options**

a. Dust
    i. Spraying of water on exposed earth surfaces subject to vehicular traffic was done to decrease the amounts of pollutants being emitted.
    ii. Hay bale and silt fence barriers were employed to minimize erosion and sedimentation from the construction site.
b. Construction Noises
    i. Noise monitoring by contractors inspection & noise testing of equipment was done periodically.
    ii. There was an active community liaison program which communicated the concerns from the community to the contractors and city officials in order to keep track of and relieve potential issues.

The following were impacts were categorized as having a socio-economic effect. The results from that analysis were considered and implemented into the resulting mitigation agreement.

Socio Economic Impacts

1. **Induced Development & Land Use**

In the EIR, a conclusion was found that the character of the neighborhood would not be affected by the introduction of a rail line, with periodic service.

2. **Property Values**

There was great concern for the citizens in the towns between Framingham and Worcester; particularly because the increase in rail service drew an increase in commuters. For the towns of Ashland, Millbury and Southborough, the station is located in a mixed residential and commercial area. Therefore the zoning laws were not altered to account for the new service station. Positive and adverse impacts were then evaluated. By constructing an effective design, proper landscaping and lighting, as well as having sensitive siting of the station, the issue regarding property values was eliminated. The MBTA also believed that since the stations would provide an

easy walk-to-ride for commuters in the surrounding towns, property values would increase.

3. Local Revenues

The host community lost applicable local property tax revenues when the site was obtained by the MBTA. However a gain in property tax revenues by a community hosting a commuter rail station was assumed through induced development as well as the property's proximity to station.

4. Assessments

The Citizens Advisory Council (CAC) was created to offer assistance to the City Manager in order to help select candidates for available positions on the municipal boards. In this case the CAC was able to offer their input as one of the many representatives who were there to offer their from the point view of the city. The city of Worcester was not subject to MBTA assessment since the project took place in Worcester and Worcester is not in the MBTA's district. Prior to the commuter rail extension, Worcester was a city only inhabited by one transportation organization, the Worcester Regional Transit Authority (WRTA). With the addition of passenger rail service, in normal circumstances, an assessment would have been collected to fund the MBTA. Assessments are portions of the sales tax revenue of taxpayers and city organizations.

Figures 4-6 show what the current commuter rail station looks like, as well as a map view of the area during construction and the direction of the rail service.

FIGURE 4

FIGURE 5

FIGURE 6

4.3 WACHUSETT EXTENSION FINAL ENVIRONMENTAL ASSESSMENT

As of October 2011, based upon the results of the Final Environmental Assessment created for Fitchburg, the MBTA decided that since no issues were identified a mitigation agreement would not be needed. With that being said, the Environmental Assessment became an intricate part in finding out why that was so.

The purpose of this commuter rail extension project is to provide alternative transit options for persons traveling to Boston from the selected area. This project is intended to attract commuters from the north central region of Massachusetts. The contents of the Environmental Assessment detail and analyze potential impacts of the project. These impacts include: land use and zoning issues, traffic and parking concerns, noise levels from the trains and its effect on the neighboring community, air and water quality, and the effects that this project will have on historic resources and parklands. On July 13, 2010, a public meeting was held at the Montachusett Regional Transit Authority (MART) Headquarters in Fitchburg, where there was an opportunity for the public to voice their concerns over the intended project. Upon conclusion of the meeting, MART allowed a period of 30 days for the public to submit comments. Although 9 comments were submitted from both public and private agencies, the Massachusetts Bay Transportation Authority (MBTA) and MART still contended that no change in the EA was needed and subsequently no mitigation was needed.

Below are the environmental impacts that were addressed in the Environmental Assessment.

1. **Land Acquisition & Displacement**
    a. Currently Pan Am Southern Railroad LLC owns the railroad right of way to the west of the Fitchburg station. Both Pan Am and the Montachusett Regional Transit Authority (MART) are working collaboratively to create an arrangement which will dictate the roles of each entity. A draft Memorandum of Understanding was created and stated MART will obtain ownership and/or easements of all property of all of the property needed for the project as well as granting the MBTA operating rights over the area at no cost; Pan Am also agreed to allow property access to MART and the MBTA for construction of the station and development of the station facilities at no cost.
    b. The project is intended to occupy 9.5 acres of privately owned land for the layover station in the Westminster Business Park. This procurement process will comply with the Federal Highway Administrations “Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970”.

2. **Land Use & Zoning**
    a. The area where the project will be located has already been zoned for industrial or commercial use. Not only does the proposed facility comply with the industrial use of the adjoining properties, but the overall project will not have any adverse impacts on existing land use or zoning.

3. **Traffic & Parking**
    a. According to the analysis, the project will produce an increase in traffic on a neighboring route however there will be a decrease in traffic eastbound traffic on a secondary route. There will be approximately 280 parking spaces needed in

the Fitchburg area as well as 25 parking spaces to accommodate the train crews who would board the trains.

4. **Noise & Vibration**
   a. The EA stated that there would be a slight increase in sound levels at the station and layover facility while trains were present, however the levels were below the impact thresholds set by the Federal Transit Administration. The EA cited that currently Pan Am runs 10 freight trains each day and in comparison to the passenger trains that will travel during the day, there is a greater noise impact from the freight trains than that of the passenger trains. The results from the EA also determined that there are no significant vibrational impacts at any of the sensitive residences in the vicinity.

5. **Air Quality**
   a. The results from the EA found that effects on the air quality would be positive in that an increase in ridership would reduce the amount of vehicle emissions.

6. **Water Quality**
   a. The results of the EA found that the project would not produce any impact on surface water or hydrologic conditions.
   b. Storm Water: The EA found that these will be an increase in impervious surfaces however it was determined that runoff would be managed in accordance with MASSDEP storm water management standards for new construction. To reduce the effect that construction would have on storm water, siltation barriers are to be installed in order to assure that construction equipment will not enter wetland resource areas.

c. Wetlands: During the preliminary design process for this project, all efforts were made to ensure that the development of the layover facility will occur outside of wetland areas, therefore there will be no direct impact on the neighboring wetlands.

7. Soils & Geology

a. In order to circumvent possible impacts on the soils and geology, the platform will be at an area with a relatively steep grade, and the station will be about 15 feet below the grade of residential properties in the area. These grading values will assist in the future construction of the parking facility. The steep grade will allow for additional runoff without saturating the affected soil.

8. Energy Requirements

a. The results from the EA suggest that there will be an overall reduction in energy including fuel usage by both commuters and truck operators, as commuters will gradually switch to passenger rail service and transporting goods will be done by rail.

9. Aesthetics

a. Impacts were reduced for this case by placing the layover facility at a lower elevation that that of the surrounding properties.

10. Safety & Security

a. To reduce the impacts on safety and security, there will be ample lighting, signage, and fencing surrounding the parking lots and facilities. Overall the project will provide commuters with a safer and more reliable option for commuting.

11. Secondary Development

a. The results from the EA found that residents might choose to move out of the city of Boston and develop housing in both the Westminster and Fitchburg community. There are currently lots available at the Westminster Business Park, where the layover station will be built, that is stated as being ready to build land. This will not only encourage developers but also generate an increase in job availability during future construction.

12. Construction

a. The results from the EA showed that there would not be an effect on utility disruption, water quality & runoff, safety& security, access & traffic disruption, disposal of debris & soils, and businesses during construction.

b. Noise: In order to mitigate the impacts on noise that will occur during construction, the contractors are expected to: use appropriate mufflers on construction equipment, use construction equipment and methods of operation that would generate a relative low noise level, schedule construction during times of high ambient sound levels, turn off idling construction equipment, and placing (if need be) temporary walls between noisy activity areas and noise sensitive areas.

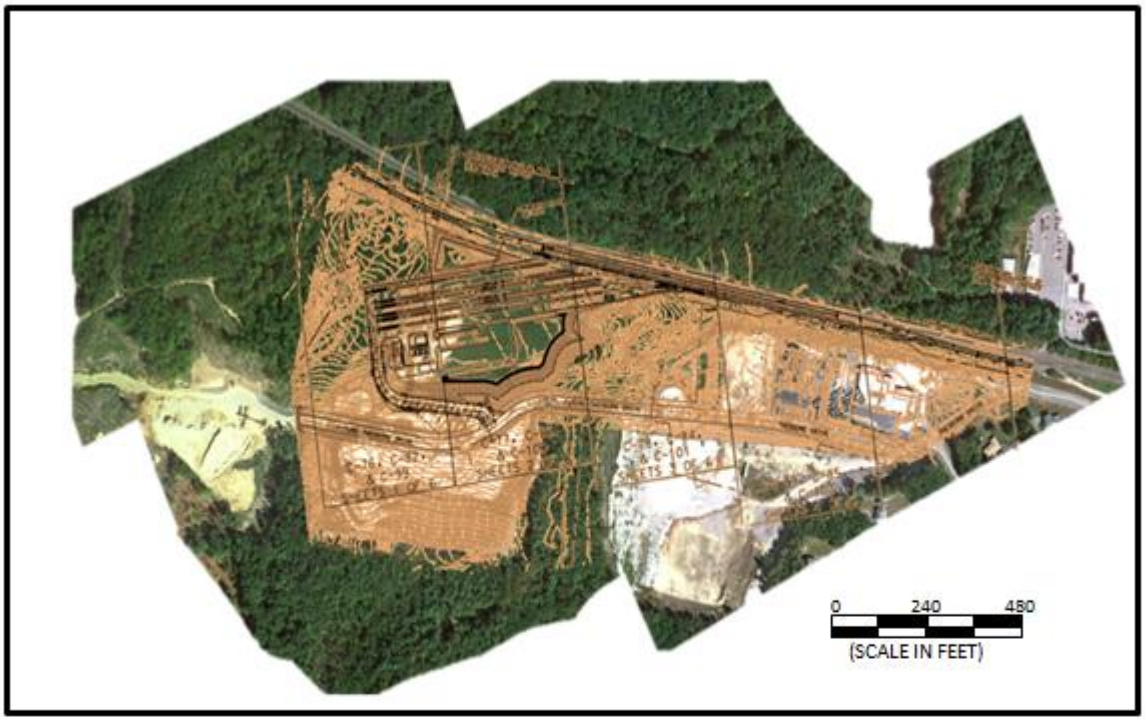
c. Air Quality & Dust Control: The EA believed that there would be a slight impact in this category. In order to minimize potential impacts contractors are expected to: use wetting agents on exposed soil areas, use covered trucks, minimize storage of debris on the site, periodically wash off streets and sidewalks in order to reduce the accumulation of dust, as well as monitor

construction practices to safeguard from unnecessary transfers of loose materials .

In addition to the impacts listed above, the following impacts were also addressed: Contaminated Materials, Flooding, Navigable Waters and Coastal Zones, Community Disruption, Endangered Species & Ecologically Sensitive Areas, Historic Resources & Parklands and Environmental Justice. According to the EA there weren't any significant effects from the project on these investigated impacts.

Figure 8 below shows the proposed area for the layover station, while Figure 9 includes the construction drawings for the project at 30% as submitted by the contractor. In both figures you can see distances from local establishments already in the area. Figure 10 shows the distance from the station in Fitchburg and the proposed layover facility in Westminster.

FIGURE 8



LEGEND:

PROPOSED	WETLAND BUFFER ZONE
EXISTING	PROPOSED CHAINLINK FENCE
RAILROAD R.O.W.	PROPERTY LINE
WETLAND EDGE	

FIGURE 9

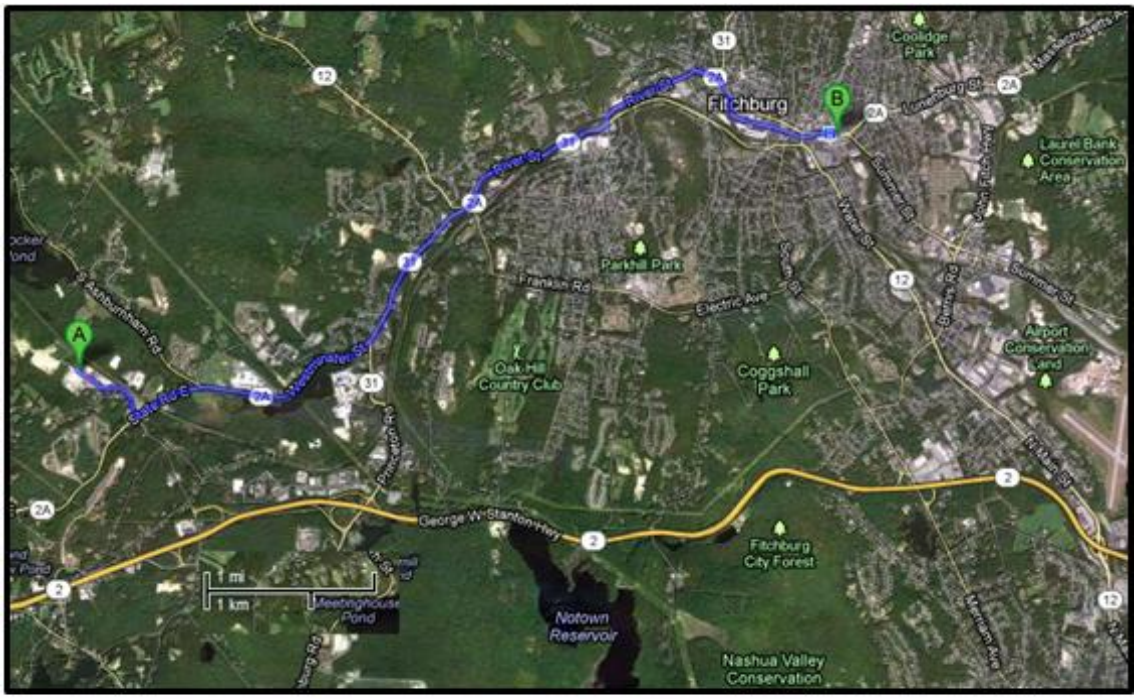


FIGURE 10

4.4 SOUTH COUNTY COMMUTER RAIL ENVIRONMENTAL ASSESSMENT

On August 3, 2002, an Environmental Assessment was created for the extension of commuter rail service along the Northeast Corridor from Providence to North Kingstown in Rhode Island. This project will serve both MBTA commuter rail service into Boston as well as Amtrak regional service. As a result of this Environmental Assessment, the Federal Transit Administration issued a Finding of No Significant Impact (FONSI) for the project. Consequently, an Environmental Impact Statement was not needed nor was any mitigation required.

Within this EA, numerous impacts were identified and investigated. These included: land use and secondary growth impacts, farmland impacts, air quality, noise and vibration impacts, relocation impacts, traffic impacts, coastal zone impacts, hazardous waste concerns, and energy impacts. When the EA was made public, there was a 30 day review period in which comments from the public could be submitted. Only four comments were received and the Rhode Island department of Transportation provided responses.

Below is a list of impacts that were addressed as well as the ways in which these impacts were mitigated.

1. **Land Use and Secondary Growth Impacts**
   - **a.** In regards to the Wickford Junction Station in North Kingstown, the town has approved 300,000 square feet for construction. The site proposed for the station and parking garage is currently vacant and has suitable storage yards for the contractors. The results of the EA also stated that there would not be a

substantial population growth; however there will be an increase in employment opportunities as a result of available commercial space.

2. Pedestrian and Bicycle Movement and Bus Access

a. All proposed crosswalks, sidewalks, and wheelchair ramps that were built at the station site complied with ADA requirements. Elevators and ramps will be ADA accessible.

3. **Noise and Vibration Impacts**

a. To assess the potential noise and vibration impacts, information from the Transit Noise and Vibration Impact Assessment was used to determine the correct process for determining assessments for federally funded transit projects as well as ways to reduce additional noise and vibration caused by these projects. By using this guideline the project was found to have no impact in noise or vibration.

4. Traffic Impacts

a. After conducting future traffic analysis for the area, it became necessary to create plans to upgrade intersections along an adjacent corridor. This included the addition of traffic signals and improving current signal timing adjustments.

5. Visual Impacts

a. In order ensure that the project site would not impede on the surrounding setting proposed grading, loam, seed and landscape plantings were used to provide a screen for the facility. By utilizing this method, there would be no negative effect on the site or surrounding area.

6. **Energy**

   a. One of the overall goals of this project was to reduce automobile transportation and increase the use of transit services, thereby reducing transportation related energy requirements. More specifically on site, environmental control and lighting systems were designed and built to optimize energy conservation in accordance with the Rhode Island Building Code.

7. **Construction Impacts**

   a. A primary concern during construction was the possibility of debris contaminating local water bodies. Although minimal, in order to reduce the flow of sediment from the construction site to local water bodies, sediment control barriers were installed.

8. **ADA Access and Public Safety**

   a. This project was built in complete compliance with the American Disabilities Act regarding platform access, ADA accessible parking spaces

In addition to the impacts addressed above, these additional impacts were also investigated and this project was not anticipated to have any adverse impacts on: Park and Recreational areas, Farmland, Social Impacts and Environmental Justice, Relocation concerns, Economic Impacts and joint Development, Air Quality, Water Quality, Neighboring Wetlands, Water Body and Wildlife, Wild and Scenic Rivers, Coastal Zones, Historic/Archaeological Preservation, Hazardous Waste sites and Floodplains.

Figure 11 below shows the station locations as well as the rail corridors affecting this project. Figure 12 shows that land that was acquired and used for the station.

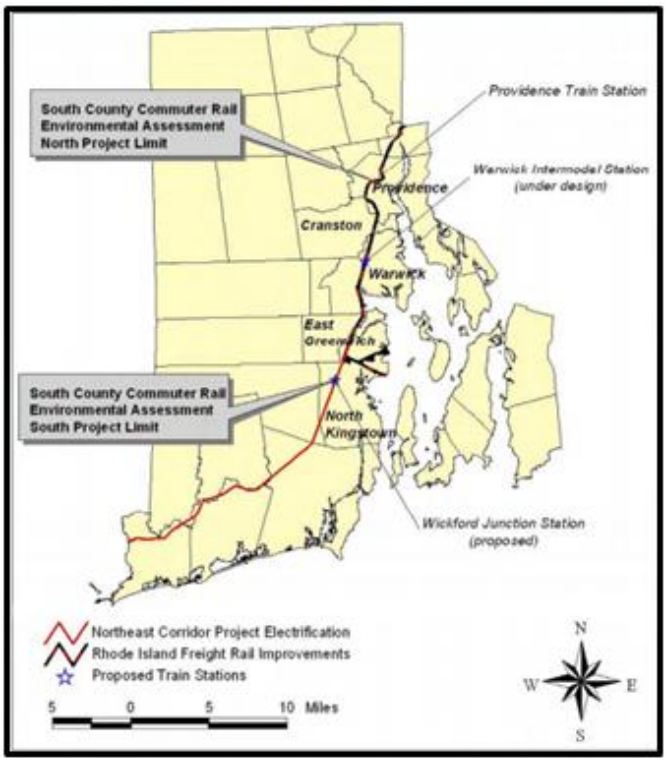


FIGURE 11

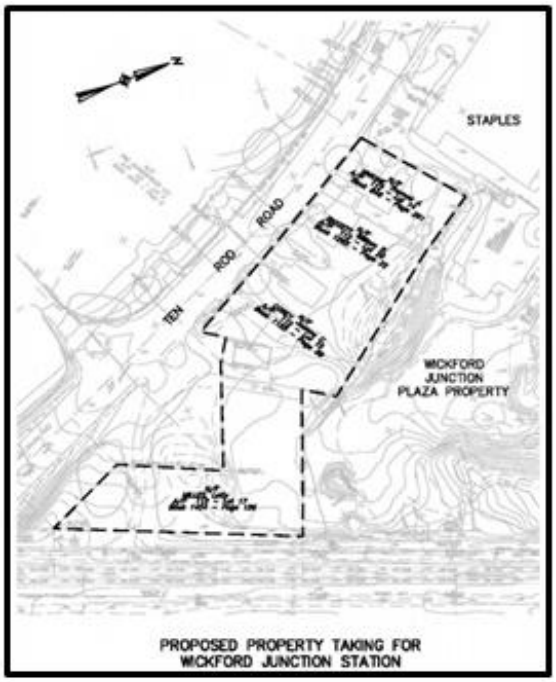


FIGURE 12

4.5 INTERVIEW RESULTS

The purpose of conducting these interviews with different host communities and their representatives was to gather as much information regarding the effects that commuter rail projects have had on these host towns. The information gathered will have a profound effect on the future of rail expansion in Massachusetts. One such interview was conducted in Westminster, Ma, with Town Planner Mr. Wallace. Since Westminster is going through the process currently, this interview provided a good basis for determining what was important for a town who may be considering joining a commuter rail expansion project.

After reviewing the answers to the interview questions, it was clear that the town is not in agreement with the results of the Environmental Assessment. There was concern that they were not treated fairly and that their opinions were not being heard. When asked what advice Mr. Wallace would offer other towns facing rail expansion, he advised that once the Environmental Assessment has been released for public view that the planning board reads, understands, trusts and can verify the findings. Since there is a 30 day viewing period, this should be done as soon as possible. He encouraged the use of additional resources to verify the results from the EA as he believed that in the case for Westminster, since a computer program was used to tabulate projected noise and vibration impact results, the results might not be completely accurate.

A second interview was conducted with a representative from Auburn Ma. This interview provided a substantial look into part of the history of the Worcester

mitigation as well as the resulting effects of the project. Ms. Jacobson offered her expertise as a town manager for Auburn, MA as well as the Economic Development Director of Worcester during the project. She stated that both the City of Worcester and the MBTA were excited for the new transportation opportunity as it would have a positive impact on the economy, and residential opportunities.

Ms. Jacobson offered additional advice for towns or cities that might be facing rail expansion in the future. She emphasized the importance for public participation and the need for residents to know that they have a platform to voice their opinion and concerns regarding the project. Ms. Jacobson also highlighted the following impacts as being significant to address: environmental concerns, noise, aesthetics, traffic, safety, and impacts on the surrounding neighborhoods, residents and businesses.

Both interviews, along with questions and answers are included in the Appendix B.

4.6 RESULTING CONCLUSIONS

After comparing the results from the Environmental Assessments and the Mitigation from Scituate, as well as the information gathered from the interviews, there were five main impacts that were deemed most significant to address when a town is facing commuter rail expansion. Below are the impacts that were identified as well as sub-issues that would need to be mitigated.

1. Environmental Effects
    a. During Construction
    b. Post Construction
    c. Wetlands

    d. Neighboring Water Bodies
    e. Preserving Historic Districts
2. Noise Impacts
    a. Train Horns
    b. During Construction
    c. Post Construction
3. Vibration Impacts
    a. During Construction
    b. Post Construction
4. Aesthetic Impacts
    a. Construction
    b. Development
    c. Use of Land
    d. Grade Crossing Design
    e. Illuminated Signs and Sounds (visual and audible warnings)
    f. Agreements on Station Design
5. Economic Impacts
    a. Monetary Compensation for Land Use
        i. For Station and Surrounding Community Improvements

    Responsible Parties for repairs or compensation on damaged or lost property related to rail operations

The resulting agreement is a product of analysis of the previously mentioned documents, with the technicalities involved to mitigate the impacts listed above.

5. MODEL AGREEMENT

MODEL MITIGATION AGREEMENT INVOLVING PASSENGER COMMUTER RAIL LAYOVER STATIONS IN MASSACHUSETTS

Please note: This is a model mitigation agreement, which is intended for use during the implementation of a commuter rail layover station (both rail expansion and the construction of a facility) between a Massachusetts town or city and the Massachusetts Bay Transportation Authority (MBTA), or other passenger rail provider. This document can be used in part substitution or in conjunction with other agreements made by the town or city. Given that this agreement is just a model, it will need to be reviewed and/or amended by each town or city's Board of Selectmen (governing body), staff, and/or attorneys to address the specific needs of the local government.

Prior to the creation of this mitigation, all parties involved must come to a consensus about the potential impacts that will be mitigated.

This document was prepared, with assistance from:
Worcester Polytechnic Institute
Civil Engineering Department
Professor Suzanne LePage
Professor Tahar El-Korchi

Town of Westminster
Town Officials (including but not limited to)
Town Planner Stephen Wallace

Town of Auburn
Town Manager Julie Jacobson

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

MODEL MITIGATION AGREEMENT INVOLVING PASSENGER COMMUTER RAIL LAYOVER STATIONS IN MASSACHUSETTS

THIS MITIGATION AGREEMENT IS PREPARED FOR AND MADE BETWEEN THE **CITY(S)/TOWN(S)** OF _____, MASSACHUSETTS, HERE BY REFERRED TO AS THE PARTY(S) , AND THE PASSENGER RAIL PROVIDER _____, HERE BY REFERRED TO AS THE MBTA, ENTERED INTO ON **THIS _____ DAY OF _____ (MONTH), _____ (YEAR)**.

RECITALS:

WHEREAS, the Provider has proposed the **restoration or construction/creation** of commuter rail service as well as the **restoration or construction/creation** of a layover station on _____ (name of existing train line or rail location if specified) through the **town(s)/city(s)** of _____ **(the party(s))**, for the purpose of providing an improved quality and equity of distribution of transportation services along this corridor.

WHEREAS, the party(s) and their advisors have conducted extensive negotiations and investigations over the past several **years/months** regarding potential adverse impacts of the intended project, and have formulated ways to avoid, minimize or mitigate these impacts. According to the Massachusetts Environmental Policy Act (MEPA), all state agencies are required to perform a study to assess the environmental impacts a project might have on a community.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Following these guidelines, an Environmental Impact Assessment was created on (date) _____, and made available to the public for comment and inquiry on (date) _____. Under MEPA, the Provider is required to file a Mitigation Finding, which states the numerous actions that the Provider plans on taking to avoid or mitigate environmental impacts that would occur with the absence of mitigation. A Mitigation Finding was created on (date) _____ and made available to the public for comment and inquiry on (date) _____.

WHEREAS, the parties agree that in regards to the cooperation and influence form the Board of Selectmen:

The **Board of Selectmen (or other governing body)** for the town/city, acting in accordance with the appropriate laws governing their role, as well as the Town/City agree that they will not interfere with, impede, delay, oppose, or contest the application and/or issuance of any permits or approvals required for the Project as agreed upon in the construction of this agreement. These include but are not limited to approvals for: sewer, water, electrical or other utility concerns, Fire, Police, and/or Building Department permits.

WHEREAS, the parties shall specify how and in what capacity the **town/city** residents can cooperate or provide input about the Project to the Parties.

WHEREAS, if any changes or impacts to the project are to occur after the construction of this mitigation agreement, the Parties agree to allow either party to seek further mitigation actions associated with the Project regarding potential additional significant impacts.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

If the Parties choose that no party can request any additional mitigation, there should be a clause stipulating the actions taken to address the issues; including who should be responsible for funding the changes.

WHEREAS, in regards to any environmental and related mitigation acts, the Parties should review the results found in the Environmental Assessment (EA) and/or Environmental Impact Report (EIR) to ensure that all measures and potential impacts are addressed.

WHEREAS, if, upon further discussion amongst the parties, a mitigation agreement will be created, then the following impacts should inherently be addressed:

The following impacts address minimum requirements that should be addressed during the initial creation of the mitigation agreement. As they address thresholds, each town/city should make the appropriate modification that will be applicable for the specified area. If, however, there was a Finding of No Significant Impact in the Environmental Assessment, then the following impacts should designate the minimum requirement for new construction in the area.

1. **Noise Mitigation:**

   Noise Assessments are to be conducted in accordance with the Federal Transit Authority's (FTA) "Transit Noise and Vibration Assessment" Manual (May 2006 edition). As such, noise impact criteria should be based on the assessments of existing outdoor noise levels and future outdoor noise levels in the area for the proposed project. According to the FTA's manual, there are two types of procedures that can be prepared which determine both the extent and the

severity of the impacts. These procedures are the General Assessment and the Detailed Analysis.

A General Assessment is used for a variety of projects and show potential noise impacts from the testing procedure. The process for the General Assessment involves making noise predictions for creating an impact contour corresponding to noise impact corridor. An inventory of the noise impacts within that corridor is used to identify areas for mitigation. A Detailed Analysis on the other hand is used to obtain a greater accuracy for assessing impacts as well as the effectiveness of possible mitigations for a specific site. This process is done during the preliminary engineering phase and is then used to predict the effectiveness of proposed mitigations.

The first step in the FTA noise assessment process is to determine what the type of project is going to be completed. As this mitigation relates to commuter rail layover stations it is necessary to consult the appropriate section from the FTA Manual regarding "Fixed Guideway Systems". Figure 13 below (portion of Table 4-1 from the FTA Manual), shows the appropriate distance for noise assessments to be conducted. According to the figure, for commuter rail services, there is a set screening distance of 750 feet.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Table 4-1. Screening Distances for Noise Assessments			
Type of Project		Screening Distance* (ft) Unobstructed	Intervening Buildings
Fixed Guideway Systems:			
Commuter Rail Mainline		750	375
Commuter Rail Station	With Horn Blowing	1,600	1,200
	Without Horn Blowing	250	200
Commuter Rail-Highway Crossing with Horns and Bells		1,600	1,200
Rail Rapid Transit		700	350
Rail Rapid Transit Station		200	100
Light Rail Transit		350	175
Access Roads		100	50
Low- and Intermediate-Capacity Transit	Steel Wheel	125	50
	Rubber Tire	90	40
	Monorail	175	70
Yards and Shops		1000	650
Parking Facilities		125	75
Access Roads		100	50
Ancillary Facilities			
Ventilation Shafts		200	100
Power Substations		250	125
*Measured from centerline of guideway/roadway for mobile sources; from center of noise-generating activity for stationary sources.			

Figure 13

After identifying the appropriate distances, another process is completed that identifies the various receptors that can be impacted. These receptors are noise-sensitive land use that could be impacted by the project and are conducted by using the hour of highest level noise for the area. Figure 14 (Table 3-2 in FTA Manual) identifies these receptors in the area around the project site as well as descriptions of specific areas and their land use. For example, if the designated project area was near a school, then the area would be designated as Category 3.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Table 3-2. Land Use Categories and Metrics for Transit Noise Impact Criteria

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq}(h)^*$	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq}(h)^*$	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.

* L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

Figure 14

After selecting the appropriate screening distance and choosing the applicable land use category, it's important to determine the noise exposure at 50 feet from the project site. According to the FTA Manual, in order to calculate this exposure the following items are needed:

1. Number of trains passing by during the day (7am-10pm) and night (10pm to 7am)
2. Maximum number of train passing by during the peak hour train volume
3. Average number of vehicles per train
4. Maximum expected speed
5. Guideway Configuration
6. Noise barrier location (if applicable)
7. Location of highway and street grade crossings

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

The FTA Manual currently lists the equations needed to obtain these adjustment factors in order to calculate the overall noise factors L_{dn} and L_{eq} at 50 feet in decibels. L_{dn} is considered when there is a nighttime sensitivity factor, or when there is non-residential land use that will be affected by noise during daytime hours. L_{eq} is used for evaluating noise in areas where there is no nighttime sensitivity factor. $L_{eq}(h)$ is used in areas where there are primarily daytime activities such as parks or churches, and is defined as being the L_{eq} for the noisiest hour of transit related activity.

Figure 17 (3-3 in the FTA Manual) below shows standard noise exposure levels as well as corresponding allowable noise exposure levels. As the existing noise exposure increases from 45 dBA to 75 dBA, the allowed transit noise exposure increases from 51 dBA to 65 dBA. However, the allowed increase in the cumulative noise level decreases from 7 dBA to 0 dBA. According to the FTA, there is an acceptable level in certain situations where the community has already been exposed to high levels of noise and therefore with the addition of a small increase in noise, the impact would be negligible. In addition, the FTA noted that ".. these criteria are based on general community reactions to noise at varying levels which have been documented in scientific literature and do not account for specific community attitudinal factors which may exist."

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Table 3-3. Noise Impact Criteria: Effect on Cumulative Noise Exposure			
L_{dn} or L_{eq} in dBA (rounded to nearest whole decibel)			
Existing Noise Exposure	**Allowable Project Noise Exposure**	**Allowable Combined Total Noise Exposure**	**Allowable Noise Exposure Increase**
45	51	52	7
50	53	55	5
55	55	58	3
60	57	62	2
65	60	66	1
70	64	71	1
75	65	75	0
Figure 15			

WHEREAS, in order to safeguard against future disputes, each party agrees to hire their own consultant to record all possible data related to noise emanating from the project both during and post construction. If there is a dispute amongst the results from both consultants then the following options should be considered:

a. A third party arbitrator should be consulted to verify or confirm noise values

b. An agreement between the parties stipulating that the party who was in the wrong would pay for the cost of the third party arbitrator

2. Vibration Mitigation:

Vibration Assessments are to be conducted in accordance with the Federal Transit Authority's (FTA) "Transit Noise and Vibration Assessment" Manual (May 2006 edition). Upon determination of the location of the project, it will be determined whether the area lies within the following three categories as defined by the FTA Manual: High Sensitivity, Residential, or Institutional. High Sensitivity is Vibration Category 1 and applies when vibrations interfere with the operation within a building such as hospitals with vibration

sensitive equipment. Vibration Category 2 – Residential applies to residential and land uses where people sleep, including hotels and hospitals where the occupants have no means of reducing the vibration exposure. Institutional, Vibration Category 3, applies to schools, churches and other institutions that do not have vibration sensitive equipment but can still be affected by vibrations.

Similar to the Noise Assessment, there is a General Assessment and Detailed Analysis conducted for Vibration Assessment. However, in regards to the General Assessment, the vibration levels for specific buildings are estimated from a constructed curve of Ground Surface Vibrations and then applying the appropriate adjustment factors such as vehicle speed and track and wheel condition. The Detailed Analysis once again goes into more depth of calculating the projected vibration impact at the project site. Tests of the proposed vehicle are conducted to determine how the local geography will be affected by this additional vibration.

Figure 16 below (Table 9-2 from FTA Manual), shows the screening distances used to calculate vibration impacts. As this agreement applies primarily to commuter rail issues, the first row in the table is most relevant.

Table 9-2. Screening Distances for Vibration Assessment			
Type of Project	**Critical Distance for Land Use Categories* Distance from Right-of-Way or Property Line**		
	Cat. 1	**Cat. 2**	**Cat. 3**
Conventional Commuter Railroad	600	200	120
Rail Rapid Transit	600	200	120
Light Rail Transit	450	150	100
Intermediate Capacity Transit	200	100	50
Bus Projects (if not previously screened out)	100	50	--
* The land-use categories are defined in Chapter 8. Some vibration-sensitive land uses are not included in these categories. Examples are: concert halls and TV studios which, for the screening procedure, should be evaluated as Category 1; and theaters and auditoriums which should be evaluated as Category 2.			

Figure 16

According to the FTA, there has not been a tremendous amount of research done in building vibration however there has been a diverse response in the way that individuals react to the various levels of building vibration. Moreover, the FTA has created standards that will represent predictions for ground-borne vibration annoyance in residential areas and interference with vibration-sensitive activities. The FTA also asserts that passenger train operations create vibrations which last less than 10 seconds

WHEREAS, in order to safeguard against future disputes, each party agrees to hire their own consultant to record all possible data related to vibration emanating from the project both during and post construction. If there is a dispute amongst the results from both consultants then the following options should be considered:

a. A third party arbitrator should be consulted to verify or confirm vibration values
b. An agreement between the parties stipulating that the party who was in the wrong would pay for the cost of the third party arbitrator

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

3. **Aesthetic Mitigation:**

For Massachusetts projects, aesthetic mitigation is covered broadly by the National Environmental Policy Act (NEPA). In accordance with NEPA, there is a requirement that all projects that are undertaken by a federal agency take into account the effects of a project on the environment, including aesthetic effects.

WHEREAS, both parties will agree to the visibility and the appearance of the construction site during construction. If the area is enclosed by business then the parties can come to an agreement regarding the following actions to be taken during construction (unless otherwise stated):

1. Rerouting of traffic to circumvent the area as to not increase traffic pollution
2. Providing additional replacement signs and advertisements for said businesses
3. Providing fences and around the construction site
4. Minimizing risk of inhibiting business customers from partaking in said businesses
5. Installing appropriate grade crossings
6. Station Design
7. Site Security during off hours
8. Assurance that the site does not interfere with historical properties in the area

WHEREAS, both parties will agree to the visibility and the appearance of the construction site post construction. Both parties can come to an agreement regarding:

1. Responsibility for the sites upkeep; including but not limited to landscaping duties
2. Ensure that the project does not impede on the adjacent
3. Sign Illumination

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

4. <u>Economical Mitigation:</u>

Pursuant to the Consolidated and Further Continuing Appropriations Act of 2012, transportation organizations can apply for Transportation Investment Generating Economic Recovery (TIGER Grants), which would help fund projects that will have a significant impact on either the nation, metropolitan area of region. In this case the organization would receive funds to assist in the payment for a project. In town where the project site will be located, this said transportation organization can obtain rights to the land by way of eminent domain as the site will be used for public use and economic development. One consequence of eminent domain is that although it is customary to for the buyer to pay fair market value for the site, there is a tendency for under compensation.

WHEREAS, in order to safeguard against future disputes regarding monetary compensation for the land being used, each party agrees to consider the following options before selecting the one most applicable for the specified condition:

1. PILOT – Payment in Lieu of Taxes: As the town can no longer receive taxable income from the project site area, the transportation agency in charge of the project would offer up a form of payment for the use of the land. The following are suggested payment options. *Although PILOT's are usually done when a non-profit organization is involved, there are abundant similarities especially the "tax exempt" condition that can be applicable to work in these towns favor.*
    a. Lump Sum Payment being a onetime payment placed either prior to completion of the project or within one year of the project's completion.
    b. Yearly Payment conducted for a predetermined period of time, with a specified end date

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

c. The amount of the payment will be negotiated amongst the parties. Generally, this amount is based on the size of the property and its potential economic activity.

2. Collaboration with the company which owns the rail access - This would allow the town to have limited or full access to the rail line for additional transportation needs such as the movement of goods.

5. Environmental Mitigation:

While an Environmental Assessment would investigate potential impacts on the environment, the primary purpose of the EA is to identify impacts that would be considered significant. Regardless of the EA's determination on "significance," these following impacts should be thoroughly investigated and monitored, and the resulting mitigation needs should then be agreed upon by the parties:

1. Impacts imposed during construction
    a. Wetlands and Neighboring Watersheds Mitigation – Must adhere to the Massachusetts Wetlands Protection Act
    b. Air Quality – Must adhere to the Clean Air Act (last amended in 1990)
    c. Water Quality – Locate and monitor water bodies that exist in the area surrounding the project site; create an erosion and sediment control program which will act to minimize the risk of impacts to those water bodies. Siltation barriers and temporary sedimentation basins and diversion swales are just a few options that can be used to inhibit contamination to adjacent water bodies. The parties should also create a spill prevention and response plan which will go into effect if there is an accidental release of contaminant.

2. Impacts imposed post Construction
    a. Wetlands and Neighboring Watersheds Mitigation - Must adhere to the Massachusetts Wetlands Protection Act;

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

b. Air Quality - Must adhere to the Clean Air Act (last amended in 1990), as well as the Massachusetts Greenhouse Gas Emissions Policy & Protocol– The net results of a transportation expansion project such as a commuter rail layover station would work towards reducing the number of vehicle emissions by promoting the ease of daily rail access. With a reduction in passenger vehicles on the road, there will be a reduction in carbon dioxide emissions

c. Water Quality – Any construction that is done must comply with MassDEP stormwater management standards as well as the Massachusetts Stormwater Management Guidelines (February 2008). As such, the stormwater management and drainage design for the project must be completed and obeyed in order to minimize discharge rates as well as encourage recharge to groundwater.

In terms of Environmental Mitigations, the parties are limited by the rules governing the impacts. Subsequently there isn't much room for negotiation between what one party might want versus what is required by law. However, some mitigation measures may go beyond what the law demands and provide an improved environmental benefit.

WHEREAS, in the event of potential arising disputes the Parties should agree to some form of arbitration or mediation prior to the decision to engage in litigation. Both Parties should meet and confer to construct what steps should be taken during the resolution, including when each party **can (not)** void this section of the mitigation to pursue an alternative resolution.

The **town/city (s)** authorizes the following representatives who will be responsible and involved in the resolution of the conflict _____ (can include town administrators or other town officials), and can be reached at

_____(phone and/or fax number, email).

The Provider authorizes the following representatives who will be responsible and involved in the resolution of the conflict _____ (can include project

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

manager/ lead engineer, general manager of the project), and can be reached at _____ (phone and/or fax number, email).

Either party shall inform the other with written notification describing the dispute as well as action necessary to remedy the situation. There should be a specific time frame (number of days) in which each party has to respond to the claim as well as either contest or adhere to the claim.

THEREFORE, in consideration of the Mitigation, the Parties can agree to hold this agreement as a legally binding document and agree to the following clauses:

1. **INCORPORATION OF RECITALS.** The foregoing recitals are true and correct and are hereby incorporated into this Agreement by this reference as if fully set forth herein.

2. **LEGALLY BINDING COMMITMENT.** The Parties agree that this Agreement constitutes a legally binding commitment by the Applicants to provide Mitigation in regards to construction and/or addition of the commuter rail layover station.

3. **EFFECTIVE DATE.** This Agreement shall take effect upon the last of the Parties signing this Agreement.

4. **TERM.** This Agreement shall expire upon the Parties' completion of their performance of all obligations herein.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

5. **NOTICES.** Whenever any of the Parties desire to give notice to the other, such notice must be in writing, sent by U.S. Mail, postage prepaid, addressed to the party for whom it is intended at the place last specified. The place for giving of notice shall remain such until it is changed by written notice in compliance with the provisions of this paragraph. Until otherwise designated by amendment to this Agreement, the Parties designate the following as the respective places for giving notice:

FOR COUNTY/CITY:	**FOR THE PROVIDER:**
_____	_____
_____	_____
_____	_____

6. **RELEASE.** When all of the Parties obligations set forth herein are fully paid and performed, all Parties shall be released from the contract: The **town/city** releases the Provider. These releases shall be recorded in the Official Records of _____ (town/city) evidencing such performance.

7. **VENUE; CHOICE OF LAW.** Any controversies or legal issues arising out of this Agreement, and any action involving the enforcement or interpretation of any rights here under, shall be submitted to the jurisdiction of the State Court of the _____ Judicial Circuit of _____County, Massachusetts, the venue sitis, and shall be governed by the laws of the Commonwealth of Massachusetts.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

8. **NO WAIVER.** No waiver of any provision of this Agreement shall be effective unless it is in writing, and signed by the party against whom it is asserted. Any such written waiver shall only be applicable to the specific instance to which it relates, and shall not be deemed to be a continuing or future waiver.

9. **AMENDMENTS.** No modification, amendment, or alteration in the terms or conditions contained herein shall be effective, unless contained in a written document prepared with the same or similar formality as this Agreement and executed by all the Parties to this Agreement.

10. **SEVERABILITY.** If any provision of this Agreement is declared invalid or unenforceable by a court of competent jurisdiction, the invalid or unenforceable provision will be stricken from the Agreement, and the balance of the Agreement will remain in full force and effect as long as doing so would not affect the overall purpose or intent of the Agreement.

IN WITNESS WHEREOF, the Parties have made and executed this Agreement on the respective dates under each signature: **TOWN/CITY** of _____, through its **BOARD OF SELECTMEN/CITY COUNCIL**, signing by and through its **Chair/Mayor**, authorized to execute same by **BOARD/COUNCIL** action on this ____ day of _____, 20_.

The **Provider**, signing by and through its _____, duly authorized to execute same, on this _____ day of _____, 20_.

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Final Signatures – Agreement to the Mitigation:

TOWN/CITY

WITNESSES: **TOWN/CITY** OF

_____

By: _____

_____, **Chair/Mayor**

_____

____ day of _____, 200_.

ATTEST:

By_____

_____ _____, **County/City** Manager

_____, **County/City** Clerk

_____ day of _____, 200_.

APPROVED AS TO FORM:

By_____

County/City Attorney

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

Massachusetts Bay Transportation Authority

Signed, witnessed, executed and acknowledged on this___ day of_____, 20__.

WITNESSES:

DEVELOPER/PROPERTY OWNER

_____

BY: _____

_____

COMMONWEALTH OF MASSACHUSETTS

TOWN/CITY OF _____

_____ personally appeared before me on _____, 20___,

and is personally known to me or has produced _____ as identification,

and who acknowledged that he signed the above instrument as his free and voluntary act.

_____

Notary Public

_____

Name Printed, Typed or Stamped

Certificate No. _____

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

DEVELOPER/PROPERTY OWNER THIRD PARTY (IF APPLICABLE)

Signed, witnessed, executed and acknowledged on this___ day of_____, 20__.

WITNESSES:

DEVELOPER/PROPERTY OWNER

_____

BY: _____

_____

_____ personally appeared before me on _____, 20___,

and is personally known to me or has produced _____ as identification,

and who acknowledged that he signed the above instrument as his free and voluntary act.

_____

Notary Public

_____

Name Printed, Typed or Stamped

Certificate No. _____

NOTE: Items which require customization are underlined and bolded. Comments are shown in italics.

6. Conclusion

Although this is just a model agreement, this document will be beneficial for future towns involved in passenger rail mitigation. A big concern of that town would be if the finding of the Environmental Assessment (EA) resulted in a Finding of No Significant Impact (FONSI). It is important for the town to verify claims made by the other party. The draft mitigation agreement outlines further options to consider when aiding the town with their possible concerns.

It is important to follow a process whereby both parties will adhere to the terms of the document. If this draft mitigation is used, obtaining legal advice is definitely advised to ensure that all legal aspects have been accounted for. This document can be considered for cities as well, however please consult with the appropriate officials to ensure that all legal obligations have been met. It is also important that prior to agreeing to the terms of the agreement that each party expresses clearly their intentions of the projects outcomes, as well as concerns that they have regarding the already completed Environmental Assessment. Upon completion the parties should then try to arrive at a mutual understanding or arrangement.

Figure 17 is a chart showing the list of impacts that were considered most significant during the creation of the Model Mitigation Agreement.

IMPACT	ENVIRONMENTAL	NOISE	VIBRATION	AESTHETIC	ECONOMIC
During Construction	π	π	π	π	
Post Construction	π	π	π	π	
Wetlands	π				
Neighboring Water Sheds	π				
Preserving Historic Districts	π				
Train Horns		π			
Grade Crossing Design				π	
Illuminated Signs and Sounds		π		π	
Agreements on Station Design	π			π	
Monetary Compensation					π

Figure 17

In regard to Westminster, this document might open a conversation had between the town, the MBTA, and MART. Although the citizens of Westminster had expressed their original concerns upon review of the Environmental Assessment there was a clear discrepancy between the wants and needs of the town versus the wants and needs of both MART and the MBTA. As mitigations are used to alleviate concerns from all parties involved, not only do they address the numerous concerns that a project can have on a community but it also provides a forum and process by which solutions can be developed that will appease both the town and the agency involved in the work.

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APPENDIX A

PROJECT PROPOSAL “INITIAL THOUGHT PROCESS BEHIND THE PROJECT”

ABSTRACT:

The goal of this project is to develop a mitigation agreement between the town of Westminster and the MBTA. This will be accomplished by obtaining and analyzing existing mitigation agreements within the state of Massachusetts in regards to commuter rail layover stations. These agreements are to be between host communities and either the Massachusetts Bay Transit Authority (MBTA), AMTRAK or other commuter train providers.

Table of Contents

1. CAPSTONE DESIGN STATEMENT

In order to meet the constraints set forth by the Accreditation Board for Engineering and Technology (ABET) this project meets the requirements of the capstone design experience for Major Qualifying Projects. According to ABET General Criterion 4, “students must be prepared for engineering practice through curriculum culminating in a major design experience based on knowledge and skills acquired in earlier course work and incorporation engineering standards and realistic constraints that include most of the following considerations: economic; environmental; sustainability; manufacturability; ethical; health and safety; social; and political.” (Criteria for Accrediting Engineering Programs, 2008)

Social & Political:

A substantial portion of this Major Qualifying Project applies both a social and a political approach in order to create a suitable agreement between the town of Westminster and the Massachusetts Bay Transit Authority (MBTA). Interviews will be held with both town representatives and its citizens in order to research past mitigation agreements and asses its progress. This agreement will be partially based on the results of past mitigation agreements within both the state of Massachusetts as well as other states which may have had similar projects done. This project also incorporated the following topics covered in the capstone design statement: ethical, sustainability, health and safety, environmental, economic and manufacturability.

Ethical:

This project will follow the code of ethics set forth by both the American Society of Civil Engineers and the American Planning Association. This project will use knowledge to help create an agreement between the two entities all the while having as little impact on the environment as possible. All work will be done honestly and in compliance with all rules pertaining to this project in order to enhance knowledge.

Sustainability:

Accurately constructed commuter rail layover stations are designed to be sustainable to their best ability. The overall goal of this project will provide Westminster with new transportation alternatives, which can therefore reduce the number of privately owned vehicles being used daily. By reducing the impact of vehicles on the environment, both fuel and the environment will be conserved for use by future generations.

Health and Safety:

Based on the mitigation agreement, the MBTA might be responsible for the overall construction of the layover station. The created mitigation agreement will dictate how and in what fashion steps will be taken to make sure that the resulting station is in compliance with all health and safety codes. Both the MBTA and the town of Westminster will review concerns including but not limited to: air quality concerns, noise regulations and abutter issues. (Insert health/safety code regarding railroads)

Environmental:

In conjunction with abiding by sustainability concerns, Westminster and the MBTA will work jointly too reduce the impact that the layover station will have on the environment. Currently the MBTA is working jointly with the Environmental Protection Agency to create a pilot project which will consequently develop a model for “locomotive engine pollution control devices”, as well as creating an Environmental Management System to identify ways to decrease its impact on the environment.

Economic:

Upon the completion of the mitigation agreement as well as the resulting construction of the layover station, the revenue generated will be distributed according to the plans established. It can be assumed that once the station is being used regularly, the MBTA will observe an increase in their yearly profits. It might also be true that with this layover station, the town of Westminster will observe an increase in the number of visitors traveling to their town to make use of the station. There will also be a number of increased job opportunities for the people of Westminster.

Manufacturability:

This project will produce an agreement between Westminster and the MBTA. The agreement will address which entity will be responsible for the construction and completion of the layover station. There will also be an idea for a station design which meets the needs for both the MBTA and Westminster.

2. INTRODUCTION

The Massachusetts Bay Transit Authority (MBTA) has provided transportation alternatives to the people of Massachusetts for over 40 years. By offering a cheap and easily accessible way for residents to travel throughout certain regions of the state, they have helped to reduce the amount of cars and therefore traffic on the highways. Subsequently they have assisted in reducing the amount of pollutants in the environment. For the towns like Westminster, the commuter rail service provided by the MBTA connects its residents to the highly commercial city of Boston.

In order for the MBTA to provide transportation alternatives to towns such as Westminster, agreements needed to be made between the host towns and the MBTA. Most recently, the MBTA created a proposal to restore commuter rail service on the Old Colony Greenbush Line. This restoration would affect the towns of Braintree, Weymouth, Hingham, Cohasset, and Scituate. In order to appease both parties a mitigation agreement was created to dictate how the station would operate as well as outlining which party was responsible for certain aspects of construction and completion.

Transportation officials in Westminster have proposed to reinstate passenger rail service in Westminster. This will assist the 71.4% of working adults living in Westminster commuting to work. This project will have result in construction and creation of a new passenger station in Fitchburg as well as a train layover facility in the Westminster Business Park. In order for this project to not negatively affect the town, Westminster officials want to know how other communities, like Scituate who have entered into a mitigation agreement with the MBTA have functioned since the agreement took effect.

Westminster officials are mostly concerned with how this project will affect the town, fiscally, environmentally and economically. In the town of Scituate, a mitigation agreement was created for the proposed restoration of commuter rail service. In that mitigation, several factors were addressed including construction, noise and vibration, grade crossings, and the facility itself. All, if not most, of these factors will be of concern to Westminster. For Scituate these matters were mitigated by dividing up the responsibility between the towns and the MBTA. One example would be the station mitigation for Scituate. The MBTA had to agree to provide a certain amount of parking spaces at North Scituate station and place the platform on a specific side of the track. The MBTA also agreed not to place any form of advertising billboards in the Greenbush Line property. Their overall advertising activities were limited as to accommodate the Project's Historic Preservation Design Guidelines. For this reason more mitigation agreements are required to have an overall grasp of the relationship between the host community and the MBTA.

This project is intended to help the town of Westminster in the creation of a mitigation agreement between commuter train layover stations and host communities. This agreement will be based on past agreements created between the MBTA and other towns in an effort to generate an agreement that would suffice both town and the MBTA. This project will be completed by analyzing past agreements conducting interviews with those towns and determining if both parties are satisfied with the progress. It will also provide basis for what other issues should be addressed for this circumstance. Ideally, this project will help to assist the town of Westminster in creating the most successful plan for the town and its constituents.

3. BACKGROUND

Prior to the early 1900s, transportation in the commonwealth of Massachusetts was run primarily by private railroad companies. In 1830 the Boston and Lowell Railroad became one of the first railroads in North America. Before this historic railroad's creation, goods and services between Boston and the cities north were transported across the canal or by horse drawn carriage. This new railroad proved to be an improvement as both cities began to grow industrially.

Since 1830, the private railroad companies operated in Massachusetts with eminent domain and limited monopoly, granted to them by the state. Under eminent domain, the government can implement land takings for a public use or purpose. The owner of the land being acquisitioned will be fairly compensated through a mutual agreement. It wasn't until the creation of the Metropolitan Transit Authority (MTA) in 1947 that there became a public entity for most of the transportation systems in the greater Boston area.

In 1964 the MTA became formally known as the Massachusetts Bay Transit Authority (MBTA). The MBTA along with Philadelphia's Southeastern Pennsylvania Transportation Authority are the only two US transit agencies to operate all of the five major modes of transportation. These include commuter rail, subway or elevated trains, trolleys, trolley busses and motor busses. Today the MBTA is the nation's 5th largest mass transit system, with 13 commuter rail road lines and 5 subway (T) lines. The commuter rail provides transportation for residents as far west as Worcester and Fitchburg. Most of the lines terminate in Boston.

The town of Westminster, located in Worcester County, was officially incorporated as a town in 1759. It wasn't until 1848 that the town was connected to the Vermont Massachusetts Railroad by way of Fitchburg. Currently the MBTA only serves the citizens of Westminster through this station in Fitchburg. Today, the Montachusett Regional Transit Authority (MART) is proposing to restore MBTA passenger rail service about 4.5 miles west of the present MBTA terminus in downtown Fitchburg. This will result in the construction of a new passenger station as well as a new layover station in Westminster Business Park. Although MART is a supporter of the project, the MBTA will be responsible for the construction and operation of this facility. This layover station is designed to store six commuter rail trains overnight.

4. METHODOLOGY

The primary goal of this project is to develop an agreement between the Massachusetts town of Westminster and the MBTA. The process involved to develop this agreement will include identifying and analyzing previous mitigation agreements between host communities and commuter rail layover stations. These past agreements are to be between other towns in Massachusetts. To reach this goal the following objectives are to be identified:

7. Collect and organize past mitigation agreements between host communities and commuter rail agencies in Massachusetts
8. Research into other mitigations in other states to generate a broader scope of mitigation practices
9. Produce a list of commonly found themes amongst the agreements that can be further applied to mitigation for Westminster and the MBTA
10. Conduct interviews with the people in the towns that were affected by the mitigation as well as an in depth analysis of the effects of the mitigation
11. Compile a list of the positive impacts from the host towns to create an appropriate approach for the construction of the station
12. Create a model Agreement between Westminster and the MBTA to satisfy the needs of both parties

5. PROJECT SCHEDULE

This is a tentative schedule of when objectives and tasks will be started and finished in order to complete this project:

Finalize Methodology – by October 28, 2011

Finalize Background – by November 3, 2011

Complete Objective 1 – November 4, 2011

Complete Objective 2 – November 10, 2011

Complete Objective 3 – November 18, 2011

Begin Objective 4 – November 30, 2011

Begin Objective 5 – December 6, 2011

Begin Objective 6 – December 12, 2011

Complete Objective 4 – January 24, 2011

Complete Objective 5 – January 29, 2011

Finalize Analysis – by February, 2011

Finalize Results – by February 2011

Finalize Conclusion/Recommendations – by February 2012

6. BIBLIOGRAPHY

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APPENDIX B

1. INTERVIEW QUESTIONS

Developing a Mitigation Agreement between the MBTA and Future Host Communities

The goal of this project is to develop and create a mitigation agreement template/format to be used by the MBTA and host towns in regards to commuter rail layover stations. This interview is part of the process of researching past agreements. It helps by allowing the interviewee to study the impacts that these mitigations have had on the towns in which they were implemented. The interview is broken down into four overall sections: Modification in the Town, The Mitigation Process, Public Involvement, and Recommendations for the Future.

Interviewer – Johari Samuels

1. Name, Profession, relation to town:

Changes to Town: Modifications

1. Describe the town/neighborhood's character prior to project implementation
2. How has the town changed since the project's completion?
    a. Business
    b. Traffic Effects
    c. Demographics
    d. Housing Availability
    e. Other Effects
3. Is the town satisfied with the projects outcomes?

The Mitigation Process

1. Where you around/involved during the planning phase?
    a. If so, what was your role?
2. Did the town feel like there was enough time to voice community concerns about the project?
3. Did the town feel like there was enough time to voice personal concerns about the project?
4. Describe the mitigation process completion?
5. Does the town think that a fair solution/mitigation was achieved?

Public Involvement

1. Was there any opposition to/did the public support the project?
2. What were some of the issues brought up during the planning phase?

3. Did the mitigation process help or hurt these concerns?

Recommendations

1. For other towns facing rail expansion in the future, what mitigation techniques would you recommend they explore?
2. How would you change the mitigation process?
3. Additional Comments

1.1 INTERVIEW WITH STEPHEN WALLACE – WESTMINSTER

Add actual interview form to appendix

2. **Name, Profession, relation to town:**
   Mr. Stephen Wallace, Town Planner

Changes to Town: Modifications

4. **Describe the town/neighborhood's character prior to project implementation**
   Typical rural New England town; Not a bedroom community (commuter town); 90% of tax revenue from residential tax in a typical bedroom community where as in Westminster it is 86% and 14% from commercial tax; Wachusett Mountain is a major attraction in area as well as the town's center; there are designated areas for business and industry;

~~5. How has the town changed since the project's completion?~~
   ~~a. Business~~
   ~~b. Traffic Effects~~
   ~~c. Demographics~~
   ~~d. Housing Availability~~
   ~~e. Other Effects~~

~~6. Is the town satisfied with the projects outcomes?~~
   This question was not asked as it would be based on the project's completion. The project had not yet started in Westminster.

The Mitigation Process

6. **Where you around/involved during the planning phase?**
   a. **If so, what was your role?**
   Acts as liaison between MBTA and the town; once Mr. Wallace receives the plans, he then sets up review sessions for public viewing
7. **Did the town feel like there was enough time to voice community concerns about the project?**
   a. Yes but there was a lack of opportunity to do so; Meetings were held for design sessions however they were left out. At the October meeting (where they said that no mitigation was needed) concerns were left unanswered, the town is essentially losing $400,000 tax revenue annually (if land was used to full potential);

8. **Did the town feel like there was enough time to voice personal concerns about the project?** (same as above)

~~9. Describe the mitigation process completion?~~
Since no mitigation was created, I did not find the need to ask this question.

10. **Does the town think that a fair solution/mitigation was achieved?**
The town believes that some of the findings from the environmental assessment were inaccurate esp. noise concerns; the actual test was done by a computer program rather than in post project projections; the town plans on using a private company to perform studies, if they find that impacts are great then they can legally challenge the study and take it from there to create mitigation

Public Involvement

4. **Was there any opposition to/did the public support the project?**
Mainly the surrounding neighborhood had concerns (noise, vibrations); one abutter hired a lawyer to verify that he was being fairly treated.

5. **What were some of the issues brought up during the planning phase?**
Noise, Vibration, Devaluation of property, loss of tax revenue, impact to neighboring wetlands, potential to disrupt other business park residents from gaining access. (The last concern was clearly addressed at the site visit with PanAm and MART.)

~~6. Did the mitigation process help or hurt these concerns?~~
This question was not asked as currently no mitigation is being created for this project.

Recommendations

4. **For other towns facing rail expansion in the future, what mitigation techniques would you recommend they explore?**
It depends on the town; In the case of Westminster, it is a Greenfield business park area, recommend placing it on an industrial or brownfield area;

5. **How would you change the mitigation process?**
The process should rely mostly on field observations and direct measurements rather than computer modeling; Allow the town more time to review the plans given; given the deadline of the Tiger Grant[9], they only had one night to fully review and make a decision.

6. **Additional Comments**
For towns considering a layover station once the Environmental Assessment is released, make sure that the planning board reads, understands, trusts, and can verify findings. This should be done ASAP as there is a 30 day turn around period.

[9] Tiger Grant - http://www.dot.gov/recovery/ost/faqs.htm

1.2 INTERVIEW WITH JULIE JACOBSON - AUBURN

3. Name, Profession, relation to town:

   During the project, Ms. Jacobson was the Economic Development Coordinator for Worcester. She currently works as the town manager for Auburn Massachusetts

Changes to Town: Modifications

7. Describe the town/neighborhood's character prior to project implementation

   Prior to the project implementation, that particular area of Worcester had an old character. There were many industrial and manufacturing buildings surrounding Union Station. Union Station itself was vacant and abandoned.

8. How has the city changed since the project's completion?
   a. Business
      i. ***There was an increase in the number of businesses.***
      ii. ***A lot of businesses started to expand***
      iii. ***Many of the old mill converted into restaurants and other shops***
   b. Traffic Effects
      i. ***Increase in traffic flow***
      ii. ***The roundabout in front of Union Station was altered because of the increase in traffic demand***
   c. Demographics
      i. Increase in young urban professionals in the area
   d. Housing Availability
      i. Buildings turned into homes and condos
   e. Other Effects
      i. Transit Oriental Development (TOD)
      ii. Increase in commercial and residential property values

9. Is the town satisfied with the projects outcomes?
   a. Yes. The city was very thrilled as there was a positive impact on the city
   b. The two-way commute provided economic opportunities for the city
   c. ***More interest in lofts and condos from those commuting to Boston***

The Mitigation Process

11. Where you around/involved during the planning phase?
    a. If so, what was your role?
       i. Ms. Jacobson was more involved with renovations and spin-off economic development than negotiations
       ii. Behind the scenes assistance

12. Did the town feel like there was enough time to voice community concerns about the project?
    a. ***There was a very long process as well as a number of public hearings***
    b. ***Project lasted from about 1995-2000***

13. Did the town feel like there was enough time to voice personal concerns about the project?
    a. ***Same as above***

Public Involvement

7. Was there any opposition to/did the public support the project?
    a. ***Majority of the city in support of the project***
    b. ***There was some concerns brought up regarding crime, environmental, traffic and parking issues***
        i. ***Issues were resolved during hearings and the EIR process***

Recommendations

7. For other towns facing rail expansion in the future, what mitigation techniques would you recommend they explore?
    a. ***Make sure there is a lot of public input***
    b. ***Investigate construction and environmental impacts both short and long terms***
        i. ***Residential and business impacts***
        ii. ***Adequate roads, lighting, signage for changes in the area***
    c. ***Ms. Jacobson also stated that, "If the MBTA were to propose commuter rail service in Auburn, I would work with MBTA officials to have an extensive public participation process to provide residents and property owners with ample opportunity to ask questions, learn about the details of the project, and identify any issues or problems. Then I would work, in conjunction with the Board of Selectmen as well as state and federal elected officials, to ensure that the MBTA addressed the community concerns and provided proper mitigation measures. I think that Auburn residents and business owners would have similar concerns to those expressed by other communities in the preliminary stages of the MBTA commuter rail expansion project in this region: environmental concerns, noise, aesthetics, traffic, safety, and any other significant impact on surrounding neighborhoods, residents and businesses. Recognizing that the expansion of commuter rail can generate extremely positive economic impacts on a community and promotes mass transit, reduces in greenhouse gas emissions, encourages business expansion and stimulates residential growth as well as increased property values, it also has major impacts that must be mitigated in order for the project to be successful and to have those positive impacts on the community."***

APPENDIX C

2 MAP OF COMMUTER RAIL TRANSIT IN MASSACHUSETTS

The locations circled identify locations were Environmental Assessments or Mitigation Agreements were analyzed.