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# Wayside Rail Trail

Town of Weston Traffic and Sidewalk Committee

Tom Zhou - May 9, 2016

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Central Massachusetts Rail Road under Church Street with an old train station in Weston

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# 1. Executive Summary

The Massachusetts Department of Conservation and Recreation and Massachusetts Bay Transportation Authority have granted Eversource Energy permission to file construction permits to build an H-20 Agricultural Road on the abandoned Central Massachusetts Rail Road- Wayside. Weston, along with eight other towns is included in this project, and like other communities, Weston is deciding to make the best of this situation. A rail trail was proposed for this corridor in 1997, which Weston decided not to be a part of, however, in recent years the support for a rail trail has risen. Because that a gravel road is going to be built, Weston could partner up with Eversource Energy to turn with the road not only for service trucks but people as well. Weston has many different concerns regarding both the rail trail and Eversource's project as well. Weston needs to monitor Eversource's construction to make sure that they properly dispose of contaminated soil and rail ties, lessen the impact on Weston's Wetland's, and install proper barriers to prevent runoff. If Weston decides to create a rail trail, several issues need to be resolved. The current bridge over the Fitchburg Line is falling apart; it needs extensive work to make it operational. The former underpass under Conant Road was filled in the 1980s; Weston needs to build something that allows people to cross the road; Asphalt vs. gravel is another question that needs to be answered, people of Weston need to decide what is best for them. This project will cost Town of Weston \$100,000-\$2,635,411.2 depending on various funding and decisions, but whatever options Weston chooses, it will be decided by the people.

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## 2. Introduction

The Massachusetts Department of Conservation and Recreation (DCR) leased 104 miles of former Rail corridor from the Massachusetts Bay Transportation Authority (MBTA) in 2011. It passes through the Town of Weston along with eight others. The DCR intends to design and construct a 12-foot wide multi-use pathway in partnership with the local districts. DCR has been conducting their research into the environmental and legal issues of said project, along with creating preliminary design for the project. As of 2014, the MCRT - Wayside has been certified by the Secretary of Energy and Environmental Affairs; DCR has established path development guidelines and presented at a community key stakeholders meeting.



104 mile corridor



3 mile corridor in Weston

This report is about the Mass Central Rail —Wayside. The goal of this report is to summarize Wayside project initiated by the Massachusetts Department of Conservation and Recreation (DCR) in 2011 and its impact on the Town of Weston. This report includes the goals of the DCR, necessary information about the project, and some potential issues may arise during its construction.

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## 3. Brief History

The Massachusetts Central Railroad was chartered on May 10, 1869, and began construction of the Central Mass. line on September 2, 1869. Boston and Lowell Railroad's Lexington and Arlington Branch at North Cambridge Junction west to Hudson was the first section that started service in 1881. A year later in 1882, it was extended west through Berlin and Clinton to Holden. The company that was responsible for the railroad failed, stopping all operations in 1883, it was reorganized later in the same year and service started again in 1885. In 1887, the line reached its maximum length, ranging from Boston to Northampton. The stockholders decided to lease the line to the Boston and Lowell Railroad to become part of the Boston and Maine Railroad system on April 7, 1887. In March 1901, the B&M acquired a majority of Central Mass stock.

Passenger service on the rail line peaked in 1903 with fourteen round trips per day. The B&M system issued a series of cutbacks as the result of The Wachusett Reservoir. The Wachusett Reservoir was built from 1897 to 1906 and flooded part of the Central Mass line in Boylston and West Boylston. The B&M system was forced to construct a new alignment south of Clinton center in 1903; the new alignment used the Worcester, Nashua and Rochester Railroad. The New York, New Haven and Hartford Railroad gained control of B&M system in 1907; as a result, the Central Rail Line was once again a major railway. The New York, New Haven and Hartford Railroad had controlled nearly all railroad in 1914, when a legal campaign by a lawyer named Louis Brandeis broke up the near-monopoly.

Passenger service was cut to one daily round trip in 1928 and only ran east of Clinton after 1932. By 1959, passenger service was cut back to Hudson, with the frequency of one round trip a day, and in 1965, the service was cut again, now only went as far west of South Sudbury. In 1968, the passenger counts were averaged at 77 riders per day. The rest of the railway was discontinued in 1971, due to the deteriorating tracks, low ridership, and low

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budget. The Wayside Rail Right of Way was bought by the MBTA on December 27, 1971, but the service was not restored.

The idea of reinstating rail service on the Central Mass line was brought up in the 1990s, but studies indicated that service was not feasible due to low ridership and high operating costs. In May 1997, the construction of the 3-mile section of the Wayside Rail Trail was approved by a Weston town meeting. However, rising opposition forced a special town meeting on December 8th, 1997 to revote on one article: the approval of the trail, the article was defeated by 698 to 410. On December 30th, 2010, The Massachusetts Department of Conservation and Recreation (DCR) executed a 99 years lease with the MBTA(owner of the land) to develop the entire 104 miles of Wayside Rail Trail segment, Weston included.

DCR proposed a multi-use trail along this whole route. Some section of this formal rail line are already in use as part of the Fitchburg Cutoff Path and part of the Cambridge linear park. The MBTA has reserved the right to terminate the lease for any reason per the premises that of the MBTA's agreement.

Boston Edison company constructed the current power line in the 1950s, which transferred the lines to NSTAR in 1999 when Boston Edison merged with four other companies. In 2012, NSTAR merged with Northeast Utilities to form Eversource in 2015. Eversource expressed interest in creating an utility road at Central Massachusetts Railroad in late 2015. In February 2016, MBTA agreed to let Eversource file required conservation permits in order to build a 12 foot wide utility gravel road. Eversource's construction of a gravel road will significantly decrease the cost of a rail trail, however, Weston must keep alert of the proposal to create a corridor that serves in both Eversource and local residence's best interests, while

environments



minimizing impacts to the surrounding the right of way.

A coal powered train at Central Massachusetts Railroad in 1940s

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## 4. Environmental Impacts

The Massachusetts Central Railroad was built in the late 19th century; it is part of the history of central Massachusetts and many residents who could use it for recreational purposes. The building of this new rail trail is not only about the Town of Weston, but it is about all of the communities impacted by this decision. The environment and social interactions will change between Weston and another towns after this project.

### 4.1 Potential Impacts

#### **Massachusetts Environmental Protection Agency:**

The State issued an Massachusetts Environmental Policy Act (MEPA) certificate for the MCRT in 2014, so the trail is no long under review by the MEPA, as the state found the project proposed has limited risk. The additional permit will be mostly submitted by Eversource if needed as they have agreed to pay for the permitting, design, and construction of the road.

#### **Surface – Asphalt versus Gravel:**

If Weston decided to pave an asphalt trail over the gravel provided by Eversource, during construction the asphalt will produce something called asphalt “fume.” This fume is completely harmless to people, but during the construction, people who live near the trail will be effected by the smell produced by the asphalt, but it will be gone after construction. If Weston decided to keep as a gravel trail, however, it may produce dust during dry weather and produce runoffs after heavy rain or snow, effecting the residents who live nearby. Because the current rail itself is built upon compacted earth, the runoff that is produced by the current rail road would be the same as a gravel road.

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### **Rail and Tie Removal:**

The removal of the rail itself should not provide a significant impact to the residents or people who use the trail, the rail tracks themselves are steel, composing of iron, and other materials, such as manganese that are not harmful to the human body. The wooden rail road ties, however, may pose a threat if not disposed properly. Creosote, Centachlorophenol and Chromated Copper Arsenate are often used to treat rail road ties; these are chemicals that pose a threat to human body, so Weston needs to pay close attention to their removal and disposal by Eversource.

### **Soil:**

Because the old trains used diesel and coal powered engines that are not environmentally friendly, there is the possibility of leaked out fuel in the soil next the trail. If so, these soil need to be treated so they will not accidentally mix with ground water during construction. If the soil is contaminated, it will have to be removed or capped off with compacted soil to make sure that they pose no threat.



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# 5. Social Impacts

## 5.1 Safe Commuting and Exercise

### **Bay State Greenway:**

The Bay State Greenway is a project that was proposed by the Massachusetts Department of Transportation; it is recommended by the 2008 Massachusetts Bicycle Transportation Plan. It is a 788-mile long-distance bicycle transportation network that is designed to connect urban areas. MassDOT is promoting this network as an important transportation mode to reduce emissions and support healthy lifestyles. The Wayside Rail Trail is identified as one of the highest priority projects for the Greenway; it can connect many high population urban towns together, making it easier for people to travel and contribute to the state as a whole.

### **Utility Cycling:**

Utility Cycling is a form of transportation that is responsible for commuting such as going to work, school, or university. Many people also bike for shopping, running errands, heading out to see friends and family or other social activities. Utility Cycling is a big part of life in an urban environment like Boston and New York City, where bike lanes are provided for people. However in Weston, although many people still enjoys this kind of transportation, it is very hard for them to do so because of the narrow roads and difficult routes. The Rail Trail can provide not only a safe place for cycling, but also connects people with the center of each town, making going to work and running errands extremely quicker.

### **Exercise Safety:**

Trails often attract people of all ages, as it provides a safe and peaceful environment for their travels. Weston has many hills and turns, with narrow roads and limited amount of sidewalk discourages parents from letting their kids play and exercise on the road. Running and biking in Weston is often considered dangerous without parental oversight, but the creation of this trail will provide a safe place for kids.

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## 5.2 Potential concerns

### **Privacy:**

Weston is known for its rural environment, it is part of the attraction of the town, many houses are far away from their neighbors, let alone traffic. Walking down the trail, many houses next to the trail have exposed backyards to it, because for 40 years the trail was not been used. People are used to it and reopening the trail for recreational purpose will cause concerns about loss in privacy, so it would be useful to inform all residents who live next the rail line that a project is inevitably coming.

### **Parking:**

As of now, there is minimal parking in Weston, with only 3 tiny spots on a narrow road at Gun Club Lane, although parking is possible at Church and Concord Street too. It will effect the people who live next to it and may need some signs to delineate where parking is appropriate. Some residents, such as Dave Hutcheson, are more than willing to let some people use some of their property to gain access to the trail, but not as a permanent solution. Weston needs to find places to allow parking access to the trail. The best potential parking is at the old trail station located under Church street. It is zoned as private property. The station was built in the 1880s, although it is not a registered historical landmark, it is a piece of Weston's history, and protected by the Weston Historical Society. But with good design and careful zoning, it is possible to create a dozen parking spots while preserving the station at the same time.



Old train station under Church Street

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## 6. Construction

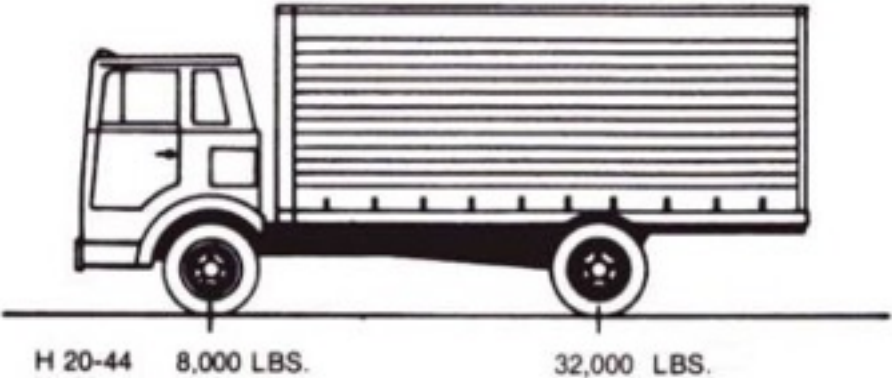
In February 2016, Eversource received permission from the MBTA to perform the engineering work to file conservation permits for construction. Eversource has agreed to pay almost all of the engineering, permitting and construction costs for the route in both Weston and Wayland.

### 6.1 Trail Surface

Eversource is designing an H20 agricultural road for their maintenance trucks. By regulation of the state, Eversource needs to build a road with 12 inches thick of gravel and 11 to 12 feet wide. If Weston wants make it asphalt, the town would need to add 4 inches of asphalt on the gravel. Eversource's gravel road would serve as the base, and Weston only needs to put 2.5 inches of binder asphalt and 1.5 inches of top coat asphalt on the road. A gravel road would be easier on the taxpayers as 3 miles of asphalt costs a significant amount. Gravel may shrink due to winter weather conditions; however, it would be cheaper to repair than patching cracks in an asphalt road. Moreover, construction will not produce asphalt fumes. Gravel is also the quickest to install, which could be viewed by interested residents and Eversource as a good thing since the trail will be operational sooner.

However, having a gravel road may have its problems too as it may not be operational during winter. Massachusetts is known for its harsh winter weather; Weston has an average of 43.8 inches of snow per year and snow removal is difficult on gravel surfaces. It would cost the Department of Public Works a lot of money and time to maintain this road in winter times as shoveling the snow is not an option, salt or sand are the only solutions to clear gravel during winter times. Asphalt, although expensive, is still a cheaper option to paved roads and concrete. Asphalt has a long lifespan as it is flexible in extreme climate conditions., with proper maintenance, an asphalt driveway can last up to 35 years depending on the weather and usage. It is also easier to maintain during the winter times, as snow trucks can

plow an asphalt road. This will allow the Eversource truck to use the road, fixing any power lines that may be affected by a snow storm.



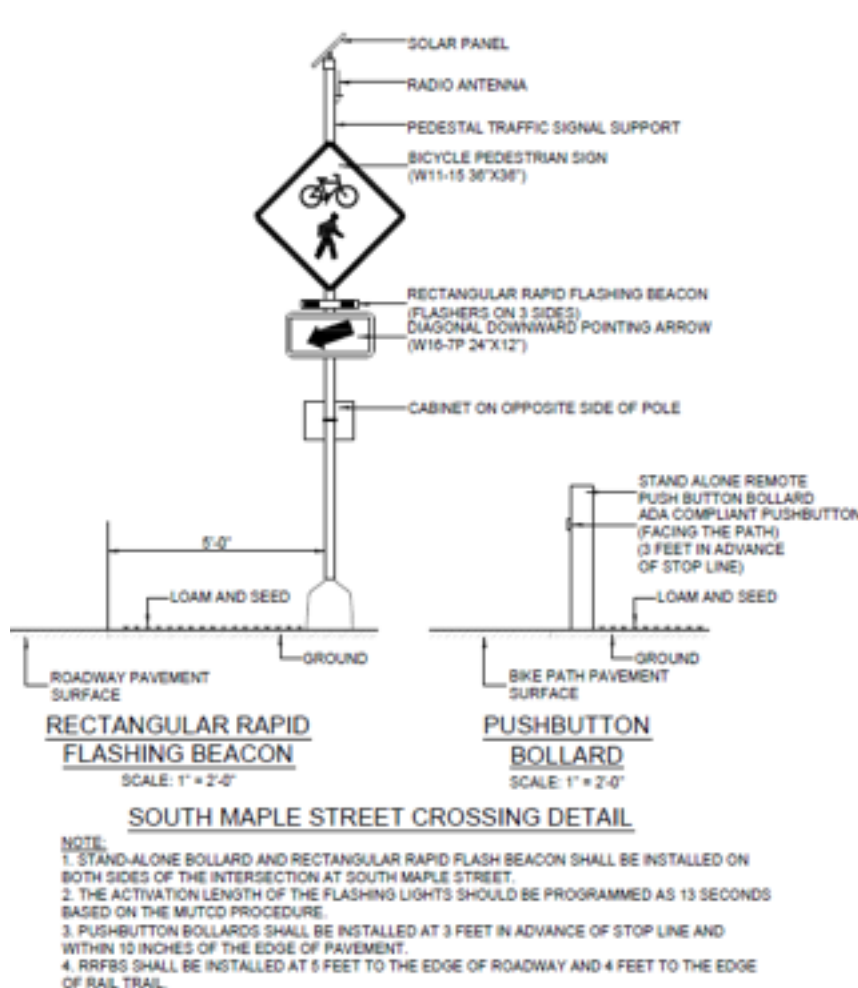
Example for H-20 loading

MINIMUM PAVEMENT THICKNESS – ASPHALT/AGGREGATE			
SURFACE SM-9.5	1.5"	1.5"	1.5"
BASE IM-19.0	2.5"	2.5"	2.5"
AGGREGATE RES- ERVOIR #2 STONE	12" – 24"	12" – 24"	12" – 24"
SUBGRADE CONDITION	Good (DCBR >10)	Fair (DCBR 6-10)	Poor (DCBR 3 - 6)

Pavement requirement for H-20 loading

## 6.2 Road Crossing & Signals

The only road crossing in Weston as of today is at the end of Gun Club Lane, but because there is relatively no traffic on Gun Club Lane, it would be more reasonable to put warning signs instead of road crossing signals. However, if the town decided against a tunnel at the Conant Road Crossing, it would be ideal to have road crossing signals on both sides of the road (pictured below). At the Conant Rd crossing, motor vehicles from both sides have no vision of the bridge until they either turn over a curve or go over a hill. It can also serve as a warning. If an Eversource truck is on either side of the bridge, by illuminating a small light on the side whenever the truck is there would provide more safety for the pedestrians and bikers.



“Road Crossing Signals proposed by the DCR: Potential use at Conant Road Crossing”

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## 6.3 Underpasses

**Conant Road Crossing:** The Conant Underpass is the hardest and maybe the most expensive part of this trail for the town of Weston; it was a bridge until it was filled to make it more stable, here are 3 options for the crossing.

**Tunnel:** Building a tunnel under the current bridge seems like the best solution, as it would be the safest option and there is already an existing bridge with some foundation. However, it would also be the most expensive option. If Weston closed the bridge for construction, it might take weeks before the road can be open again. It will make firetrucks take a very steep detour at Hill Top Rd, a very small road, which any kind of vehicle would find difficult to pass. It is possible to create a tunnel without stopping the traffic, however it is a tough process and it may cost the Town millions.

**Side trails:** There are existing side roads on both sides of the bridge for pedestrians to travel up and down, and it would be the cheapest option to widen them and allow them to connect the trail. However, both trails would be difficult to walk due to their steepness, and would be nearly impossible for younger kids.

**Ramps:** Ramps are a cheaper and more convenient alternative to the tunnel. Building small ramps on both sides of the bridge would be cheaper, and there is no need to stop traffic. A larger version of a wheelchair access ramp would be the ideal solution. However, there is a small pond/wetland located on one side of the bridge, building a ramp might affect that wetland.

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## 6.4 Bridge

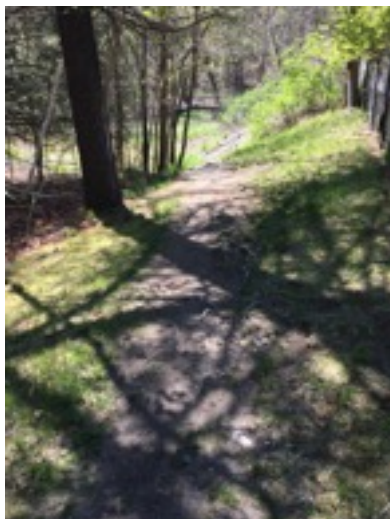
**Over MBTA Fitchburg Line Bridge:** This bridge is the crossing the functioning MBTA Fitchburg Line; the bridge already exists and is stable for now, but needs much work before it could be passable. Rehabilitation of the bridge would include removal and disposal of existing timber ties and steel rails, cleaning and painting steel, replacing mortar joints in the abutments, constructing new timber bridge deck and railings, constructing new back walls/ wingwalls to facilitate widening of the bridge deck to 14 feet. Steve Fogg, the Town Engineer, believes after this work, the bridge will be able to serve pedestrians and bicycles with no problems.



"Existing Bridge Over MBTA Fitchburg Commuter Rail."



"Conant Road bridge: filled in 1980s"



"Conant Road Crossing side trail used by pedestrians"



"Conant Road Crossing side trail used by pedestrians"

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## 7. Finance

Funding for this rail trail will come mostly from the State and Eversource, However, there are still costs that must be managed by the Town of Weston, there is a couple of potential source of Funding.

### 7.1 Construction cost

**Gravel Cost:** Zero, Eversource will pay almost all of the engineering, permitting and construction of a gravel road in order for them to gain access to their power lines

**Asphalt cost:**

The weston trail is about 3 miles long, that is about 15,840 feet long and 4 inches thick of asphalt road if weston decides to pave it with asphalt. According to the Metripolitan Area Planning Council(MAPC), the standard for said road would be 12 foot wide by the State regulation. According to the Weston DPW, asphalt construction costs about \$200 per ton.

**Measure length x width:**  $15840 \times 12 = 190,080$  sq. ft.

**Divide by 9 to get area in sq. yds** =  $190,080 / 9 = 21,120$  sq. yds

**Multiply by thickness of paving in inches** =  $21,120 \times 4 = 84,480$  sq. yd.-in

**Multiply by conversion factor of 0.056 tons per sq.yd.-in** =  $84,480 \times .056 = 4730.88$  tons

**Therefore cost for 3miles long x 12 ft wide surface** would be  $4730.88 \text{ tons} \times \$200 / \text{ton} = \$946,176$ .

However, this is a subject to change as the asphalt price changed base on crude oil price, its cost will increase and decrease with the price of crude oil, making it more expensive or cheaper depending on the economy. (Source: Weston DPW)



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**Over MBTA Fitchburg Line bridge:**

Here below is cost of the bridge over the current MBTA Fitchburg Line:

Demolition – remove and dispose of existing track and ties: \$20,000.00

Clean and paint steel: \$500,000.00

New timber transverse beams: \$65,000.00

New timber deck and bridge railings: \$75,000.00

New backwalls/ wingwalls at approaches: \$25,000.00

Replace mortar joints in abutments: \$20,000.00

Temporary Protective Shielding: \$20,000.00

MBTA Flagmen (Allowance): \$75,000.0

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Total: \$800,000.00 (Source: State Report)

However, the DCR has submitted a TIP request for capital funds for design and construction of the bridge; it is assumed to cover the cost of the bridge so weston would not need to spend money on it.

**Conant Road Crossing:**

The cost of a crossing can vary from hundreds of thousands to tens of thousands of dollars depends what the Town of Weston decides, the most important part of this crossing is the financial aspect of it, it may required the vote by the entire town along with the several committees.

**Annual Maintenance:**

Maintenance cost for paved asphalt road: \$6,500 per mile includes brush clearing, leaf pickup and other miscellaneous, \$5,000 excludes miscellaneous.  $\$6,500 \times 3 \text{ miles} = \$19,500$ .  $\$5,000 \times 3 \text{ miles} = \$15,000$

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**Summary : Total Cost.**

All costs are added with 20 percent Estimate contingency

Surface material : \$0(gravel) - \$1,135,411.2(asphalt)

Over MBTA Fitchburg Line bridge:\$0(if DCR funding come through ) - \$1,000,000(without funding)

Conant Road Crossing: \$100,000(ramp) - \$500,000(tunnel, shutting down Conant Road)

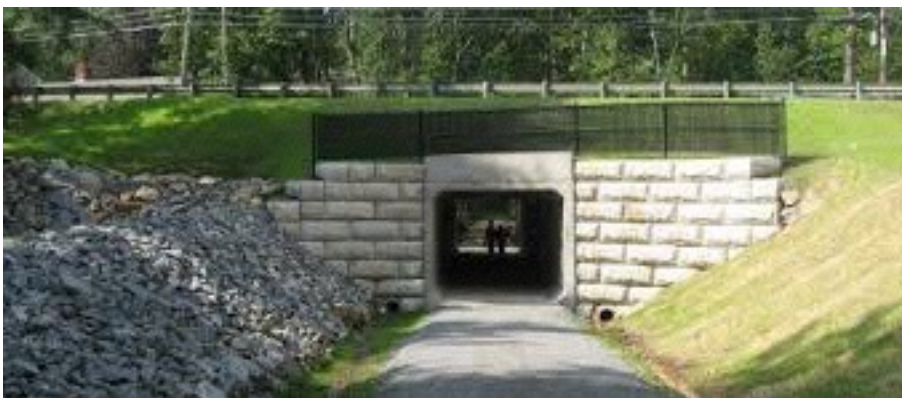
Annual maintenance: \$0(gravel) - \$19,500(asphalt, includes all the treatments as standard roads)

Total Additional improvement cost:

\$100,000 - \$2,635,411.2 + \$0 - \$19,500 annual maintenance



“Dahlemer Weg Pedestrian Ramp. Example ramp for Conant Rd”



“New Pommogusset tunnel, Rutland, MA.  
Example tunnel under Conant Rd  
cost = \$300,000 “

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## 7.2 State Funding

### **Transportation Improvement Program:**

As the Wayside Rail Trail is a form of transportation, Weston can ask for the state's Transportation Improvement Program(TPI) to cover the cost of this trail. It can cover almost all of the money Weston needs to spend on the project, however the program requires Weston to send a request in advance. If Weston requests funding in 2016, we may get in at 2021 at the earliest. Since Eversource is build a gravel road first, Weston can wait to pave it 5 years later, but the Conant Road Crossing still need funding from Weston or the trail will not be operational for five years.

## 7.3 Town Funding

### **Community Preservation Act Funds:**

The Community Preservation Act is a Massachusetts law that provides for participating municipalities to adopt and dedicate a property tax surcharge of up to 3 percent to specified community preservation purposes, with the state matching a portion of local receipts. In 2015 Weston Collected \$1.9 million in CPA property surcharge revenue and over \$635,000 in matching state funds, for a total of \$2.5 million. As of now, Weston has approximately \$6.1 million in CPA funds and, according to the FY16 proposed budget, at the end of the fiscal year, Weston will have \$7,239,122 in CPA Funds. The CPA Fund can very well fund the whole project with more than half remaining. The CPA budget will need to be approved the by town.

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