



TOWN OF WILLIAMSTOWN, MASSACHUSETTS
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Welcome to **North Adams** Massachusetts



Mohawk Bicycle/Pedestrian Trail

Feasibility and Investment Study

March 31, 2010

MMI #3926-01-8



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1.0 INTRODUCTION

In June 2009, Milone & MacBroom, Inc. (MMI) was retained by the Berkshire Regional Planning Commission (BRPC) under contract of the Massachusetts Executive Office of Transportation (EOT) to conduct and complete a Feasibility and Investment Study for the Mohawk Bicycle/Pedestrian Trail that would connect the city center of North Adams to the town center of Williamstown. This trail section would have an approximate length of six miles and could potentially follow sections of an existing sewer easement along the Hoosic River, the state Route 2 right-of-way (ROW), and the Pan American rail corridor. It would most likely cross through private, municipal, state, and federal properties. This study is being funded by grant money received from the National Scenic Byway Grant Program of the U.S. Department of Transportation, which is part of the Federal Highway Administration, and in part by the Fund for Williamstown.

Several design goals were developed during the course of this study that included:

- Provide a safe and user-friendly pedestrian/bikeway trail that could reasonably be used by a typical family with children
- Locate the trail off road as much as feasibly possible
- Maintain a universally accessible grade to accommodate users of all abilities
- Maintain the historical trail route between Williamstown and North Adams
- Locate the trail near and provide public accessibility to the Hoosic River and its floodplain
- Maintain vistas for trail users
- Provide accessibility to commercial and retail properties (including museums)
- Protect significant and/or sensitive natural and historical resources
- Protect private property

This study report provides a brief history of the trail corridor, its existing conditions, environmental issues and impact analysis, conceptual siting of a preferred trail route and

alternative route analyses, a discussion on project phasing and acquisition, a preliminary opinion of project budget, and a discussion on future operations and maintenance planning.

It is important to note that this study is intended to provide a feasible guide as to the logical next steps of the trail design process. This study will highlight several key components that will require further analysis and coordination. The analysis will be in further development of base mapping allowing for more detailed design efforts including the definition of existing rights-of-way and private properties; limits of any proposed easements and property acquisitions; and preliminary, semifinal, and final design documents. The coordination will be in respect to further investigation of regulatory permitting requirements, private property impacts, and easements and/or acquisitions.

1.1 Trail Corridor History

The Mahican-Mohawk Trail is a transportation route that has been used for thousands of years by native peoples traveling east-west from the major north-south travel routes of the Connecticut River Valley in the east and the Hudson River Valley in the west. A distance of 100 miles separates the two valleys at the location of the Mahican-Mohawk Trail. The trail used the east-west river valleys of the Deerfield River in the east and the Hoosic River in the west as a means of efficient travel over the Hoosac Mountain Range.

The trail was adopted early on as a transportation route during European settlement of the area in the 1600s. It has been improved ever since, first as a road to connect the settlers' forts and farms and next as a railroad corridor during the industrial revolution of the early and mid 1800s. It allowed the mills that sprang up along the river valleys to take advantage of the energy provided by the fast-flowing water. The trail was used during both the Revolutionary and French and Indian Wars for the movement of troops and supplies for several battles important to the outcome of the wars. It can be said that the history of the region runs deep along the trail.



The present day finds state Route 2 following the historic trail route. Approximately 34 miles of the Mahican-Mohawk Trail have been recreated recently as a foot and paddling trail beginning at the confluence of the Deerfield and Connecticut Rivers in Deerfield, Massachusetts to just east of North Adams, Massachusetts.

The section of trail from North Adams to Williamstown covers a distance of approximately six miles, depending upon the actual routing, and is being proposed as a bicycle/walking facility running from the future northern terminus of the Ashuwillticook Trail at Western Gateway Heritage State Park west to the intersection of Syndicate Road and Route 7 in Williamstown. This will be the beginning of a future section of trail following the Hoosic River north into Pownal, Vermont before heading into New York to ultimately end at Stillwater, New York on the western bank of the Hudson River.

Many of the trails already in existence in the Williamstown/North Adams area include difficult terrain, vehicular and pedestrian conflicts, and lack of connectivity between each other and the surrounding communities. It is the intent of the trail design to utilize the beautiful backdrop of the Berkshire Mountains and Hoosic River and be constructed with a gradual gradient and uniform surface that will be accessible to the vast majority of the community, tourists, and students alike. This trail system has the opportunity to function as both a recreational facility and a commuter route between the two closely linked communities and colleges.

1.2 Project History and Past Studies

Local interest groups began work on a study of a proposed greenway route as early as 1999 when the Hoosic River Watershed Association (HooRWA) and the Williamstown Rural Lands Foundation partnered in an effort to continue the Mahican-Mohawk Trail west. The North Adams Bikeway Committee has identified a potential route in the city of North Adams, and an environmental planning class at Williams College has studied the



project and proposed three alternative routes into Williamstown using an interceptor sewer line easement, a greenway along the Hoosic River, and a segment that would share the Guilford Transportation Company rail right-of-way (ROW).

In 2000, the North Adams Trail Feasibility Committee investigated several routes that would extend the Ashuwillticook Rail Trail north from Adams into the center of North Adams and then turn west into the Massachusetts Museum of Contemporary Art (MASS MoCA) grounds and run along the Hoosic River into the center of Williamstown. The BRPC would like to recognize the tireless efforts of the Mohawk Trail Advisory Committee in furthering the development of the project.

In November 2006, the BRPC received a grant from the National Scenic Byway Grant Program to initiate work on a potential bicycle/pedestrian trail that will travel between the city of North Adams and the town of Williamstown. This project was being considered Phase I of a multiphased, multiyear project. The proposed trail will hopefully one day serve as a northern extension of the Ashuwillticook Rail Trail.

This Phase I project consisted of three main components: (1) conduct a detailed feasibility study to determine the preferred and alternative routes, (2) open dialogs with landowners and abutters along the trail routes, and (3) develop preliminary designs and cost estimates for the routes we identify in the feasibility study. This study is a product of the byway grant.

In June 2007, the BRPC and the Mohawk Bicycle/Pedestrian Trail Advisory Committee sponsored a public forum at the Beth Israel Congregation in North Adams to publicly announce the Mohawk Bicycle/Pedestrian Trail project. A survey to gauge public needs and desires for a potential bicycle/pedestrian trail was passed out among the attendees of the public forum. Fifty surveys were completed and deposited at the door as people left the forum. Respondents were asked to choose out of a list of 11 items the three most important aspects of a proposed bicycle/pedestrian trail. The three most often selected aspects were "safety" (selected as 24% of total responses to the question), "accessibility" (selected as 20%), and "scenery" (selected as

19%). Many people stated at the meeting and in the survey that staying away from roads and the railroad tracks should be a high priority in designing the trail. It can also be gleaned from other survey responses that most of the people attending the public forum envision a bicycle/pedestrian trail to serve primarily as an outdoor recreational facility and only distantly as a transportation route.

Throughout 2007 and 2008, BRPC staff and several local residents from within the northern Berkshire County region conducted fieldwork, the purpose of which was to identify a preferred route and alternate routes that make sense given the terrain and public preference. The BRPC acted as the technical consultant on the project, working with a Technical Advisory Subcommittee composed of hikers, bicyclists, and interested residents. Although the recommended routes of previous studies were consulted, the subcommittee decided that it would not have any preconceived route when it began its investigation. It felt that all options within the study area should be considered, field verified, and analyzed as potential routes. The routes were then given to MMI, whose staff then investigated the feasibility of the preferred and alternate routes in more detail.

2.0 EXISTING CONDITIONS AND ANALYSIS

During June 2009, MMI landscape architects with the assistance of BRPC staff completed several days of on-site field reconnaissance in North Adams and Williamstown, walking and photo documenting many potential trail routes along the project corridor. The fieldwork included documenting existing and potential trail design constraints as well as documenting possible trail routes on field maps. MMI used available Massachusetts Geographic Information System (GIS) mapping provided by the BRPC and the towns' assistance in the development of the base mapping. For purposes of this study report, MMI has subdivided the potential six-plus-mile trail segment into seven sections. These sections were developed based on field analysis, review of resource mapping, field-observed design constraints, and surrounding land use. These sections do not represent a construction phasing plan; however, these sections may become

feasible options for future use as funding and construction planning implementation documents.

The seven sections are:

- Section 1 (Syndicate Road to Cole Avenue, approximately 5,100 linear feet)
- Section 2 (Cole Avenue to Galvin Road, approximately 7,900 linear feet)
- Section 3 (Galvin Road to Ashton Street, approximately 1,200 linear feet)
- Section 4 (Ashton Street to Protection Avenue, approximately 5,700 linear feet)
- Section 5 (Protection Avenue to the Route 2/Barbour Street intersection, approximately 4,100 linear feet)
- Section 6 (Route 2/Barbour Street intersection to Brown Street, approximately 4,800 linear feet)
- Section 7 (Brown Street to the Route 8/State Street overpass, approximately 3,400 linear feet)



Aerial photo of Route 2 trail corridor from North Adams (right) to Williamstown (left).

(Photo Image: Google Maps)

Please refer to next page for map depicting proposed trail routing from North Adams (right side) to Williamstown (left side) along the Route 2 and Hoosic River corridors.

Insert Map referenced on prior page

The following report sections discuss in more detail the existing conditions, both general site and environmental, as well as the preferred and alternate routing scenarios for the individual trail sections. Please remove the mapping provided in Appendix A to help visually follow along with the written descriptions provided in the following sections.

2.1 Section 1 (Syndicate Road – Cole Avenue)

Section 1: General Site Conditions Discussion

There is an informal trail head on the east side of Syndicate Road approximately 100 feet south of the intersection of Route 7 and North Street. This leads down a short slope to the sewer easement, which currently includes an area of rough mown grass and a footpath traveling north from the Williams College athletic field complex. The Hoosic River is located to the north of the sewer easement in this section and varies in distance from immediately adjacent to the sewer easement to over 500 feet to the north. A combination of wetland and upland wooded area sits between much of the easement and the river just west of the field complex. Much of this area was once a landfill that has since been capped or has densely revegetated itself over time. The athletic field complex (approximately 35 acres) borders the Hoosic River for approximately 1,500 feet. Located to the south of the field complex is Stetson Road, a wellfield and pumping station, town skate park, and a Little League field (across the street from the skate park). All of these areas are within the published 100-year flood zone. An automotive repair facility sits on the corner of Stetson Road and Cole Avenue just east of the town ball field; multifamily housing units are located on the southern corner of Cole Avenue and Stetson Road. A crosswalk exists on Cole Avenue 125 feet south of the intersection of Stetson Road. The Pan American rail corridor is located on the north side of the Hoosic River following a steep bank along the river. Route 2 runs through the center of the Williams College campus in this section and has sidewalks and attractive large green spaces on either side. The road and surrounding corridor/campus does have historical significance as it was designed by the Fredric Law Olmstead office (see Figures 1 and 2).



Williams College athletic fields with the Hoosic River to the north (right).

Section 1: Environmental Site Conditions Discussion

This section of the proposed trail route varies in vegetative cover from multipurpose recreational fields to forested uplands and wetlands. The Federal Emergency Management Agency (FEMA) 100-year flood zone covers much of this segment. An existing sewer line easement maintained by Williamstown exists south of the Hoosic River and is currently classified as a meadow. A mix of forested upland and wetland covers the land area between the sewer easement and the Hoosic River. The sewer easement provides edge habitat to a variety of wildlife species.



Sewer easement area.

The overstory consists of red maple, sugar maple, cottonwood, black cherry, quaking aspen, grey birch, and sycamore. The understory is dense consisting of Morrow's honeysuckle, multiflora rose, spicebush, silky dogwood, common winterberry, Japanese



Forested community.

knotweed, Ostrich fern, dame's rocket, sensitive fern, poison ivy, and oriental bittersweet. Several small seasonal watercourses were observed through this forested corridor. These forested upland and wetland areas provide good wildlife habitat for a variety of species including beaver, white tailed deer, raccoon, eastern garter snake, scarlet tanager, American robin, and wood thrush.



Williams College athletic fields.

The remaining land cover within this section of the trail consists of maintained lawn and a narrow strip of forested riparian vegetation along the river. The multipurpose athletic fields are owned and used by Williams College. The existing wildlife habitat is poor to fair within the athletic fields.

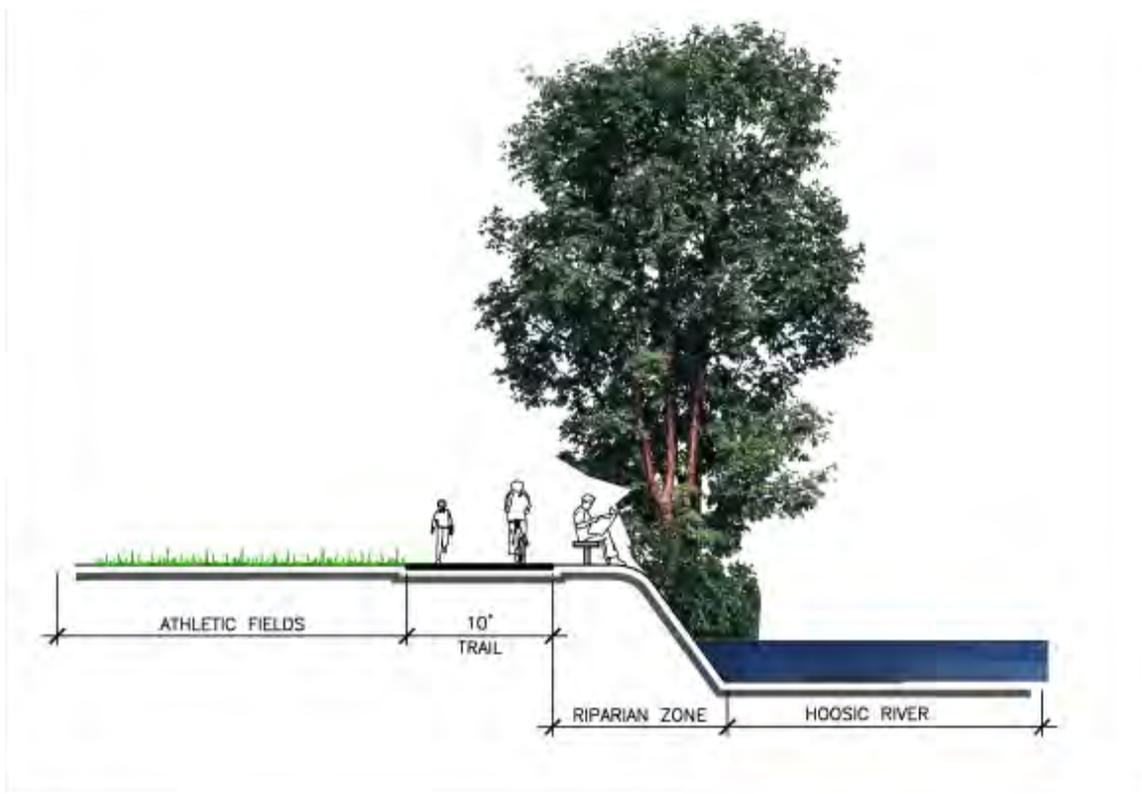
Section 1: Preliminary Trail Routing Discussion

In its entirety, Section 1 is relatively flat with the exception of the capped landfills. It appears most feasible that a trail would use the sewer easement when first starting off Syndicate Road. As the river peels off from the sewer easement, we are presented with three options: (1) follow the riverbank through low-lying wetlands, (2) stay along the partially wooded sewer easement and go over the landfill, or (3) follow an existing walking trail to an existing field down a sewer access road. From this point, there

appears to be room to accommodate a trail between the athletic fields and the riverbank, which is wooded and has several benches overlooking the river. One possible alternate would be to cross the fields and come down the south side of Stetson Road. This area consists of an open and wooded wetland system and associated small pond. Trail placement here would require either the placement of fill in the wetlands or construction of an elevated boardwalk type structure and would be the furthest option from the river. Utilizing Stetson Road as a shared-use trail and roadway system would be an extremely difficult and potentially dangerous trail route due to the volume of people and traffic during a Williams College sporting event that renders the road almost impassable.

Section 1: Analysis of Trail Routing Alternates

Upon our review of the existing conditions, it appears that the most practical and feasible route would be to route the trail from the sewer easement through the woods to the edge of the athletic fields, then following the existing footpath along the athletic fields past the restroom building, and then continuing the trail along the outside (north) of the athletic fields along the river. The trail will then cut between the Williams College and the Anderson Little League fields as there is no useable land between the Anderson field and the Hoosic River. The route will then cross Stetson Road, travel around the side and back of the skate park, down the side of an existing side yard of the public housing complex, and out to a proposed at-grade crossing of Cole Avenue (see Figures 1 and 2). This option will require permission from Williams College and the Public Housing Authority in the form of a legal easement, use agreement, ROW, or property acquisition to utilize portions of their lands for the public trail system. All preliminary discussions with Williams College representatives have been favorable, and more formal discussions should continue as the project moves forward.



Illustrative Section

Potential trail location between the Williams College athletic fields and the Hoosic River.

The opportunity of trail placement in this location does not come without challenges as permitting and construction of a trail along the riverbank and in the floodplain will have more design and analysis efforts due to local, state, and federal permitting requirements and review. This option will require permission from Williams College and the Public Housing Authority in the form of a legal easement, use agreement, ROW, or property acquisition to utilize portions of their lands for the public trail system. However, the trail placement here will meet the goal of exposing the trail users to the river views and the recreational/educational opportunities it provides, all while providing a safe separation from vehicular traffic in the area.

Section 1: Preferred Route ±4,700 Feet

Pros

- Stays away from golf driving range and Williams College athletic fields.
- Partially travels along the river edge.
- Avoids any travel on or along Stetson Road.
- Avoids any major crossing of wetlands.
- Existing parking areas.
- Direct linkage to Williams College Recreation Complex.

Cons

- Trail does not always follow the river edge.
- Trail traverses former landfill area.
- Trail will potentially require two watercourse crossings.
- Trail route between baseball and Little League field area (may be congested at times).
- Route crosses existing wellfield area.

Section 1: Alternate 1 ±3,500 Feet

Pros

- Route follows existing footpath on cleared sewer access road.
- Route follows existing paved access drive through portion of athletic fields.
- Direct access to trail from Stetson Road (campus).

Cons

- Route requires crossing of existing informal golf driving range and athletic practice fields.
- Route does not follow river edge.

Section 1: Alternate 2 ±1,500 Feet

Pros

- Route follows river edge.

Cons

- Area may be prone to flooding or erosion from river.
- Trail may require extensive permitting and regulatory reviews.
- Trail may require elevated sections or boardwalks.

Section 1: Alternate 3 ±600 Feet

Pros

- Route avoids crossing wellfield and public housing property.
- Route crosses Cole Avenue at an existing intersection.

Cons

- Route uses Stetson Road, which can be congested with vehicular traffic during events.

2.2 Section 2 (Cole Avenue – Galvin Road)

Section 2: General Site Conditions Discussion

Directly across from Stetson Road on Cole Avenue is a property commonly known as the "Photech" site. This was the site of a photo finishing company that occupied the site during the 1980s and fled town in the middle of the night leaving behind a superfund site, or Brownfield, sitting on the south bank of the Hoosic River. The site has since been remediated with most of the buildings taken down and removed, and the town, which now owns the property, has been actively seeking a developer for the property. The

current layout of the property leaves the top of the riverbank open for the potential location of a trail. A second possible route could potentially be along the southwestern property line.



**Potential trail route along the Hoosic River
(left of the building shown) through former Phototech site.**

The trail has the potential to enter a town property along the southeast property line via a cleared sewer easement. The existing sewer easement traverses over 1,000 feet along the Hoosic River to the confluence of the Green River. At this point, crossing of the Green River will require a substantial pedestrian bridge whose lowest structural chord will need to be elevated to be above the 100-year flood elevation of the river. After crossing the Green River, the cleared sewer easement continues through a wooded corridor on the southeast bank of the Hoosic River that is located within the existing floodplain for approximately another 1,200 feet. The land on the southeast side of the Green River is part of the Williamstown 250th Anniversary Linear Park and Trails. The preferred trail route would use some of the existing trail routes and would provide connection to the remainder of the park.



Map showing the Williamstown 250th Anniversary Park and Trails.

The sewer easement leaves town-owned property and enters a large private property known as The Spruces. The Spruces is a tight-knit mobile home community that sits on a small portion of the large property that consists of open fields currently being used for corn production adjacent to the Hoosic River. Bordering the east side of The Spruces development is Williams Brook, which enters into the Hoosic River. A paved sewer access drive and sewer siphon chamber are located to the east of the brook along the river, with a portion of woodlands and agricultural fields to the south. The Pan American (Norfolk Southern) rail corridor is located on the north side of the Hoosic River for this section, and Route 2 is approximately 2,000 feet to the south of the river (see Figures 2, 3, and 4).

Section 2: Environmental Site Conditions Discussion

Section 2 of the proposed trail will pass through an abandoned industrial complex, floodplain forested areas, maintained sewer easement, agricultural fields, and The Spruces trailer park. The proposed trail alignment would be located entirely within the 100-year floodplain and may include three bridge crossings. The forested floodplain areas consist of large-diameter cottonwoods, willows, sycamores, silver maples, and red

maples. The moderate density understory consists of Morrow's honeysuckle, silky dogwood, ostrich fern, poison ivy, Japanese knotweed, sedges, and grasses. The forested floodplain provides good habitat for a variety of passerine birds, insects, mammals, amphibians, and reptiles.



Green River bridge crossing area.

The first bridge crossing would cross the Green River, a tributary to the Hoosic River, at an existing sewer crossing. The Green River is a cold-water fishery resource. At the proposed bridge crossing location, both the right and left banks of the Green River are flanked by raised concrete sewer siphon structures. Although these structures may have the potential for use

as bridge abutments, additional support structures may be required. In addition, the right bank of the Green River (facing downstream) appears to have been recently stabilized with riprap. A second bridge crossing will be needed southeast of the Green River at a man-made drainage channel/stream that collects surface water from the bordering fields and residential properties and then discharges water into the Hoosic River.

Agricultural fields are located along the central portion of this section of the trail. A dense riparian zone separates the trail from the Hoosic River. The agricultural fields are currently used for growing corn. A depressional forested wetland is located in the center of the fields and will not be impacted by the proposed trail alignment. The dense riparian zone would also remain intact. The agricultural fields provide fair wildlife habitat for species such as white tailed deer, raccoon, red fox, wild turkey, red tailed hawk, and a variety of passerine birds.



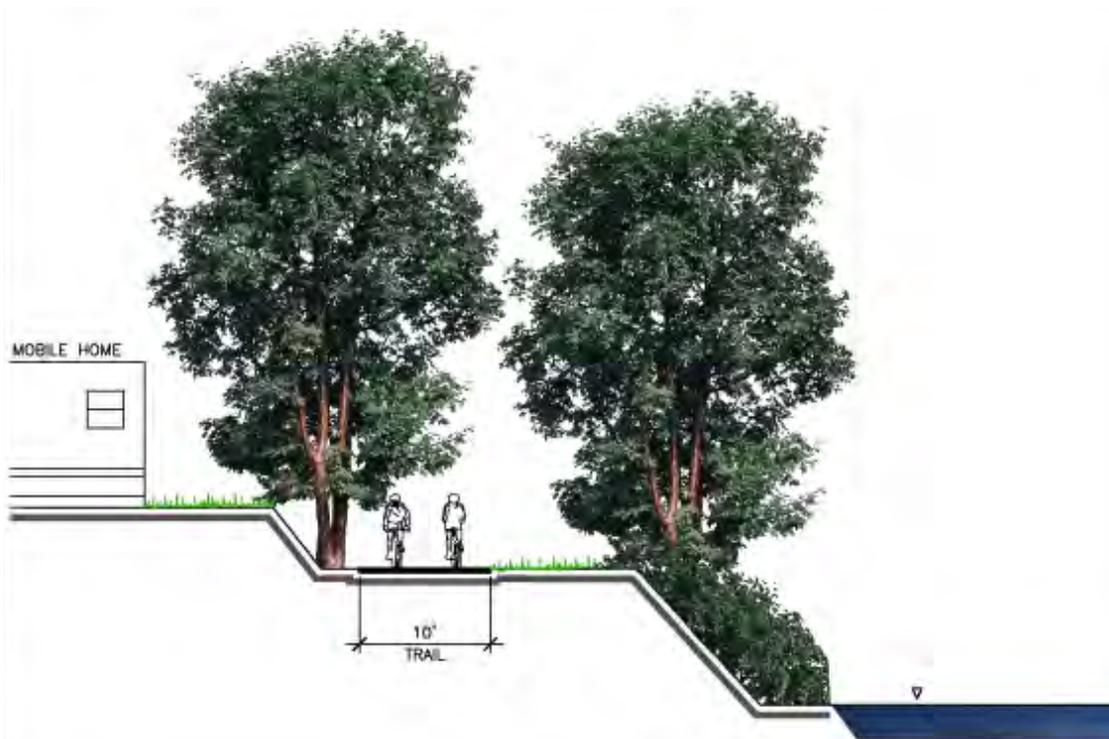
Existing corn fields.

The third bridge crossing for this trail section occurs at Mount Williams Brook, which is located along the southeast edge of The Spruces trailer park. This brook is another tributary of the Hoosic River and is much smaller in size as compared to the Green River crossing.

Section 2: Preliminary Trail Routing Discussion

This section contains limited elevation change from west to east along the south bank of the river. Except for the Photech site, the entire area is within the floodplain of the Hoosic River. Elevated bridge crossings will be required for the trail at the Green River, a stream on the western border of the agricultural fields, and at Williams Brook to the east of The Spruces community. Much of the preferred trail route is cleared at this time and currently exists as sewer access easement. As the trail approaches The Spruces development, the preferred routing would be to swing south and head along the western edge of the development to Route 2 along an agricultural road. Once at Route 2, the trail would follow the existing sidewalk along the northern side of Route 2 to the intersection at Galvin Road, which is the Williamstown-North Adams line. A possible third alternate would be to cross Route 2 at the existing walk just east of The Spruces' entrance drive and run alongside the southern edge of Route 2 to the Williamstown-North Adams line. Further meetings and detailed coordination with the individual property owners will need to take place before a trail design and routing are established through the trailer park. Several alternate routing options exist, all of which will come with some degree of difficulty. One option may require relocation of some trailer units along the river to accommodate the trail. Depending on the design issues, there appear to be two feasible route alternates east of The Spruces. One route would cross Williams Brook and then follow the paved driveway along the sewer access easement to Galvin Road. The second would travel south within the trailer park sharing the development's internal roads and would then cross the stream further south at the previous location of a former covered bridge. Once a crossing is achieved in this location, the trail would then follow an abandoned section of Higgins Drive out to Galvin Road. The Williamstown/North

Adams municipal boundary then divides the intersection of Route 2 and Galvin Road heading north/south (see Figures 2, 3, and 4).



Possible alternate trail through The Spruces community along the Hoosic River.

Section 2: Preferred Route \pm 9,500 Feet

Pros

- Route avoids The Spruces mobile home development.
- Avoids constraints on future development of Photech site.
- Requires little forest or vegetative clearing.
- Provides direct access to The Spruces residents.

Cons

- Trail route is within Route 2 ROW at Williamstown/North Adams line.
- Trail does not follow the river at The Spruces mobile home development.
- Trail is on road along Galvin Road.

Section 2: Alternate 1 ±800 Feet

Pros

- Route follows the river.
- Ease of constructability.

Cons

- More constraints on future site redevelopment.

Section 2: Alternate 2 ±2,500 Feet

Pros

- Route follows the river.
- Route stays off The Spruces mobile home development roads.
- Route stays off Galvin Road.
- Route follows sewer access road off Galvin Road.

Cons

- Route may require the relocation of 10 mobile homes.
- Requires construction of a bridge.

Section 2: Alternate 3 ±2,200 Feet

Pros

- No relocation of mobile homes required.
- Route uses abandoned roadway and crosses watercourse at former location of an existing driveway bridge.

Cons

- Route is on The Spruces' internal roadway.
- Route travels on Galvin Road ROW.
- Requires construction of a bridge.

Section 2: Alternate 4 ±500 Feet

Pros

- No utility poles on southern side.
- Adequate room for trail.
- Fewer driveways this side of Route 2.

Cons

- Requires crossings of Route 2 mid block (to cross back again in Section 4).

2.3 Section 3 (Galvin Road – Ashton Street)

Section 3: General Site Conditions Discussion

Galvin Road comes to a dead end at the south bank of the Hoosic River. A single-family home is located on the east side of the street approximately 50 feet from the river. The sewer easement traverses between the structure and the river. The easement continues approximately 800 feet along the top of the riverbank, then turning south between residential lots and entering Kateley Lane approximately 250 feet from the intersection of Ashton Street. Ashton Street travels north/south between Route 2 and Massachusetts Avenue crossing the Hoosic River and the railroad tracks at grade. The railroad corridor continues tight along the north bank of the river (see Figure 4). Route 2 in this area is straight and flat with approximately 20 residential lots on the north side between Galvin Road and Ashton Avenue. Utility poles also line the north side of Route 2. The south side of Route 2 has fewer houses and no utility poles. There is a stream corridor running

roughly southeast/northwest between Route 2 and the Hoosic River behind the Route 2 residential properties and agricultural fields and open land to the south.



Agricultural field along Galvin Road, possible alternate trail route along tree line.

Section 3: Environmental Site Conditions Discussion

The vegetative cover within Section 3 of the proposed trail does not differ much from what has been described under Section 2. This section includes forested floodplains, agricultural fields, and residential properties. Again, this section of the trail, if it were to follow the riverbank or fields, would be located within a 100-year floodplain.

Section 3: Preliminary Trail Routing Discussion

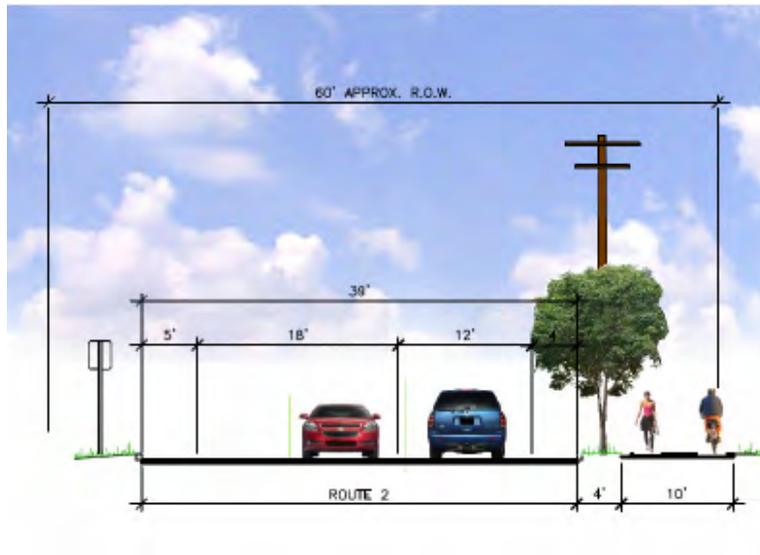
The preferred trail route would continue along Route 2 either on the north or south side of the roadway from the intersection of Galvin Road east past the intersection of Ashton Avenue. It would then turn away from Route 2 back toward the town-owned land into a trail route that would eventually follow and cross the river (See Section 4). This trail section



Existing conditions at Route 2 section of proposed trail.

would consist of a paved trail system parallel to but separate from the roadway. As part of this feasibility study, a coordination meeting was held at the Massachusetts Department of Transportation (MassDOT) District I office to discuss the proposed concepts for trail alignments, specifically in the vicinity of Route 2. Several illustrations and maps were developed in order to facilitate the discussion and have been attached as appendices to this report. Although the concepts generally received positive feedback, it is imperative that any further project development continue to be closely coordinated with the MassDOT District I office. Although it is the intent of the trail design to limit the amount of trail along vehicular roadways, any trail design that involves a trail in close proximity to a state or local roadway will need to be closely coordinated with local engineering staff, the Department of Public Works (DPW), as well as the MassDOT.

Section 3: Preferred Route ±1,800 Feet



Illustrative Section depicting a proposed multiuse trail along Route 2 corridor.

Pros

- The route is in the public ROW.

Cons

- Route crosses many residential driveways.
- Route 2 vehicular traffic.
- Utility relocations will be required.

Section 3: Alternate 1 ±2,200 Feet

Pros

- Avoids sharing roadways with vehicular traffic.
- Avoids Route 2 construction and vehicular conflicts.

Cons

- Crosses private properties requiring easements or purchases.
- Likely stream crossing on corner lot of Route 2 and Ashton Avenue.

Section 3: Alternate 2 ±1,800 Feet

Pros

- Route partially follows river and sanitary sewer easement.

Cons

- Route shares the extremely narrow roadway ROW of Kateley Lane.
- Route traverses two private parcels requiring easements or purchases.
- Route shares the roadway with Ashton Road vehicular traffic.

Section 3: Alternate 4 ±1,900 Feet

Pros

- Trail avoids utility poles/utility relocations on north side of Route 2.
- Trail crosses fewer driveways along north side of Route 2.

Cons

- Route 2 vehicular traffic.
- Locating trail on south side of route requires two pedestrian crossings of Route 2.

2.4 Section 4 (Ashton Street – Protection Avenue)

Section 4: General Site Conditions Discussion

The City of North Adams owns a ±6.5-acre parcel of open space land to the east of Ashton Avenue on the south bank of the Hoosic River. This open space parcel contains a

small public parking lot for the use of canoeists and informal trails along the river. The sewer easement also traverses through the property, is located approximately 250 feet south of the river, and appears to be associated with an earthen fill or "berm" condition. The city-owned property comes to a point behind a residential property located on Route 2. To the west of this property, the river is immediately adjacent to Route 2. As the river breaks from Route 2, the conditions change from a U.S. Army Corps of Engineers flood control berm to an area of bordering wetland vegetation behind the berm to approximately 1,000 linear feet of mixed-use commercial/residential developments. The flood control berm transforms from an earthen berm into a vertical flood control wall behind the area of commercial development. The Appalachian Trail (AT) crosses the river and railroad at this point. From Phelps Avenue to the south, hikers cross Route 2 and enter an extremely narrow pedestrian bridge constructed as part of the AT, that travels over the Hoosic River and over the existing railroad tracks eventually delivering them onto Massachusetts Avenue. The distance from the intersection of the AT footbridge east to Protection Avenue is approximately 1,500 feet. The north side of Route 2 is residential in this section and generally includes a sidewalk that is set back from the curb. An earthen berm exists behind the residential properties and continues to the Protection Avenue bridge. There is a sidewalk on the west side of the existing Protection Avenue bridge over the Hoosic River (see Figures 4, 5, and 6).

An existing railroad corridor is located on the north side of the river at the top of the riverbank for approximately the first 250 feet east of Ashton Avenue. From here, the river meanders south and has created a wide area of low woodlands mainly within the 100-year floodplain. This area leads into the site of the previous North



**Former North Adams wastewater treatment facility.
Proposed trail route to follow earthen embankment.**

Adams wastewater treatment facility. This property has been bermed and walled to be protected from the 100-year flood zone.

From here, approximately 2,500 feet of woods and city-maintained open space exist just west of Protection Avenue. The AT footbridge crosses this section at about the midway point. Approximately 500 feet west of Protection Avenue, several drainage ditches and intermittent watercourses will require attention if trail is proposed in this location (see Figures 4, 5, and 6).

Section 4: Environmental Site Conditions Discussion

Section 4 is a relatively long section of trail that passes through forested wetlands and uplands and along maintained dikes. A small portion of this trail is located within the 100-year floodplain. A small public parking lot services a trail and canoe launch within this section. The existing trail is located along the left bank (facing downstream) of the Hoosic River and meanders through a forested floodplain area. South of the trail, a raised berm exists that is colonized by large trees. The trail will cross over the Hoosic River along this section providing access to the river's right bank. The trail will meander through a forested wetland corridor that has both poorly and very poorly drained soils. Having wetter soils may require the use of boardwalks through portions of this wetland. Wildlife habitat is considered good within this forested wetland.



Forested conditions under Appalachian Trail bridge.

The forested wetland then rises in elevation and transitions into a man-made grassed dike and a former wastewater treatment plant site. As the trail continues east, it enters another forested riparian zone, some of which may be wetland. Vegetation along this riparian zone consists of black locust, cottonwood, box elder, Norway maple, red maple, tree-of heaven, Morrow's honeysuckle, Japanese knotweed, Oriental bittersweet, and poison ivy.



Existing grass dike.

A small intermittent watercourse would need to be crossed west of the AT bridge. A second stream crossing will be required at Sherman Brook, another tributary to the Hoosic River. The route will probably require cut and fill in the narrow band of land near and under the AT bridge. The coordination of planning and design details with the U.S. Army Corps of Engineers will be required whenever the trail is proposed to be located on flood control berms. Coordination with the Pan Am Rail will also be required in the vicinity of the AT bridge due to the route's close proximity to the railroad bed.

Section 4: Preliminary Trail Routing Discussion

From Ashton Avenue, the preferred trail route follows the Route 2 ROW to east of the Redwood Motel. The route then leaves the Route 2 ROW and crosses a private parcel to reach the city parcel. Preliminary discussions with this private property owner have occurred through the public involvement processes. More detailed discussions will be required with additional nearby property owners to validate the feasibility of this route. At about this point as the river narrows, it appears to be a feasible location for crossing the river with a pedestrian bridge. Crossing the river at this location brings you to a wooded parcel just west of the former North Adams Wastewater Treatment Facility

(NAWWTF). Locating the trail in this location along the riverbank would potentially avoid impacts to a large area of bordering wetland vegetation and provide a favorable alignment for the trail. The trail could potentially follow the top of the existing berm at the NAWWTF. Leaving the area of the former NAWWTF would bring the trail to cross an existing brook that will require an elevated structure or bridge to cross.

Approximately 750 feet west of the wooded stream bank, the trail would intersect with the AT footbridge. There appears to be ample room for the trail to pass underneath the existing footbridge between the concrete abutments and between the railroad and the river. Another 750 feet of wooded riverbank brings the trail to Sherman Brook. This brook has been realigned as part of a previous flood control project. Sherman Brook will also require an elevated trail crossing structure. From here, the trail will proceed east approximately 600 feet on an existing grass berm to Protection Avenue.

It should be the intent to cross the river, where required, at narrower locations along the river where banks are generally high on both sides. Crossing at wide river sections will increase the length and cost of a bridge and potentially require mid-span bridge piers that will increase the potential difficulty in regulatory permitting processes. Although many different types of pedestrian trail bridges are currently available, some more inexpensive than others, the sustainability, structural loading, span lengths, and construction feasibility are all factors that will need to be considered in the design process.



Potential single-span pedestrian bridge over the Hoosic River (across from Stop & Shop).

Section 4: Preferred Route ±5,700 Feet

Pros

- Follows river and uses existing earthen flood control berms.
- Route uses municipal property.
- Relatively few private properties impacted.
- Route 2 is a public ROW

Cons

- Route requires a crossing of two small watercourses.
- Route is not along the River

Section 4: Alternate Route 1

Pros

- Provides connectivity between school and neighborhoods on south side of Route 2, including newly renovated city-owned athletic complex (Alcombright Field).
- Pedestrian light exists at Route 2.
- Current owner of Cariddi Mill building supportive of trail on the edge of their property if needed.

Cons

- Requires crossing of Route 2.
- Trail along existing roadways and sidewalks on Protection and Phelps Avenues.
- Requires coordination with AT bridge renovation or new pedestrian bridge.
- Requires bridge crossing of Hoosic River (behind Alcombright Field).

2.5 Section 5 (Protection Avenue – Route 2/Barbour Street Intersection)

Section 5: General Site Conditions Discussion

Headed east from Protection Avenue, the south bank of the river contains an earthen berm that extends approximately 750 feet to the Route 2 vehicular bridge. There are several residential properties located between the berm and Route 2. The river continues south past Route 2 and wraps around an existing neighborhood comprised of public and private housing prior to crossing under Route 2 approximately 2,500 feet to the east. The north side of Route 2, between the Hoosic River bridges, is mainly commercial. The area to the west of Desmond Avenue and south of the railroad contains a residential neighborhood. The area to the east of Desmond Avenue and south of the railroad is currently a mix of commercial and light industrial complexes. The abandoned section of West Main Street, across from the bowling alley and to the south of the railroad, travels approximately 750 feet east and terminates at the former bridge location that once crossed the Hoosic River. From Protection Avenue, the north bank of the Hoosic River is also a flood control berm. There is a commercial/retail use at the edge of the river on the north side of Route 2 with a parking area extending to the edge of the riverbank. Likewise on the south side of Route 2, there is a commercial enterprise operating with a parking area and a building right to the top of the riverbank. Sight lines at Route 2 in this location are poor from the west because of the vertical geometry and crest of the existing roadway bridge over the Hoosic River. South of Route 2, a school exists on Phelps Avenue, an old mill complex exists along the west side of Protection Avenue, a town athletic field complex sits at the end of Protection Ave (south), and there is a wide wooded riverbank with a shelf and informal trail along most of its distance. The southern loop of river continues from the Route 2 bridge, behind the neighborhood roads of Greylock, College, and Harding Avenues. The Greylock Valley Apartments, a public housing development bounded by Greylock Avenue and Sullivan Street, is an area where crime has been noted as a neighborhood issue. Residents along Harding Avenue, a quiet

neighborhood known for its elderly population, are concerned that a trail along the river could create a paved but out-of-sight place that would facilitate more illegal activity in the area.

Section 5: Environmental Site Conditions Discussion

Section 5 has similar conditions as described under Section 4 that include the existing grassed dike along the eastern bank of the river. A trail in this location will require the crossing of a small intermittent watercourse as well as a substantial bridge crossing of the Hoosic River to the east of the existing town athletic fields.

The bank of the river along this section is predominantly vegetated with herbaceous and shrubby plants including silky dogwood, Japanese knotweed, joe-pye weed, grasses, and sedges.

Section 5: Preliminary Trail Routing Discussion

The proposed trail would travel south on Protection Avenue to Route 2, cross Route 2 at the existing crossing, and continue south on Protection Avenue to the rear of the existing mill property.

As shown on Figure 6, from Protection Avenue it is anticipated the preferred trail route will head

west through a private mill property, turn south behind several residential properties, and enter the town-owned park and Alcombright Field. The route will then cross Protection Avenue in the park and head east to a proposed river crossing. The river crossing location will need to be verified through analysis of more detailed field topography and floodplain information.



Proposed trail route behind town athletic fields.

The first alternate trail route in this location, which would avoid crossing Route 2 entirely, would have the trail leave the flood control berm to run along the toe of the railroad ROW to Greylock Avenue. From Greylock Avenue, the trail route would run east on Clark Street. This would have to be an on-street or shared road alternate as this is a narrow road within a close-knit neighborhood with no sidewalks. It should be noted that the traffic volume on Clark Street is very low. During the public involvement process, the neighbors on both Greylock Avenue and Clark Street expressed their concern regarding a shared use of the roadway, citing parallel parking, street congestion, narrow street widths, and neighborhood dogs. These concerns have been noted and should be considered as the project moves forward. Traveling from Clark Street, the trail would require an at-grade crossing of Desmond Avenue, a street with higher traffic volumes that is currently used as a cut-through from Massachusetts Avenue to Route 2. After crossing Desmond Avenue, the trail could travel through an existing industrial property that appears to have adequate room to locate a trail in the front and down the north side of the parcel, paralleling the railroad ROW. Agreements with several private property owners in the form of easements, property acquisitions, or alternative methods will be required to allow for this routing scenario. At Roberts Drive, the trail would cross onto the abandoned West Main Street and would then require a bridge to be placed on the existing abutments of the original West Main Street bridge. A more detailed structural analysis of the existing abutments would be required.

A second alternate trail route in this location would use the flood control berm on the north side of the river and cross Route 2 at the existing liquor store parking lot. A trail location in this area would require slight alterations to the existing parking lot to provide safe separation from the parking lot intersection. Close coordination with the existing property owner regarding trail easements and parking lot modifications will be required in order for this trail route to succeed. Again, a similar approach will be required on the south side of Route 2 with a second commercial property; however, there is more room on this side of Route 2 to accommodate a trail scenario. During the public involvement

process, several residents and business owners expressed their concern regarding safety issues of combining existing parking lots and pedestrian traffic as well as the poor sight lines at the intersection of the Route 2 bridge and the existing retail businesses. These concerns have been noted and should be considered as the project moves forward.

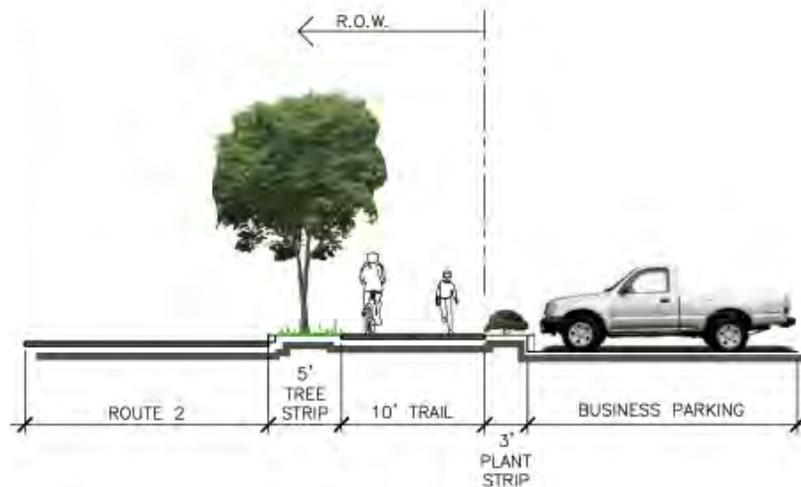
Entering the back of the bowling alley property from the industrial property, the trail could continue along the edge of the railroad ROW out to Roberts Drive. Roberts Drive also appears to be a cut-through from Massachusetts Avenue to Route 2. East of Roberts Drive is a section of West Main Street that currently dead ends on the north bank of the Hoosic River. This is the location of a former roadway bridge that has been removed. A new 200-foot plus pedestrian bridge would need to be constructed to cross the river at the old bridge location.

One resident, Mr. Bob West, submitted an alternate routing plan that has been included as an appendix to this report. In general, Mr. West's alternate explores the use of the existing AT bridge, the southern bank of the river from Phelps Avenue and Alcombright Field, over to Barbour Street. The alternate proposed appears to eliminate the need for one pedestrian bridge crossing of the Hoosic River and allows for the trail to be configured in a straighter alignment.

We offer the following explanation as to why that alternate has not been shown in the feasibility report. The area south of the Hoosic River meander, between the river and the old Barbour Street alignment, was investigated by local BRPC and the Technical Advisory Subcommittee for its potential as a feasible trail site. The southern banks of the Hoosic River in the area were found to be extremely steep, a densely vegetated riparian corridor that includes many ground water seeps along the banks' entirety. Although in plan or map view the trail in this location appears extremely feasible, the actual field conditions in this location will be expensive and difficult, if even possible, to construct and satisfy the regulatory permitting requirements. The option of utilizing the existing Barbour Street roadway and path does have a favorable horizontal alignment for a trail;

however, the vertical geometry of the existing street and path is not favorable for bikeway design.

A second alternate discussion centered around the use of the existing Harriman and West Airport property as a southern trail route to bypass state Route 2. Although the investigation of this route option was not as detailed as the other more northern routes, this option was discussed previously by the BRPC and Trail Advisory Committee. It was determined that due to current Federal Aviation Administration and safety concerns the airport property, although long and flat, should probably be avoided. However, the options presented on the alternate prepared have been included in this report and should be considered as the project moves forward.



Potential trail along Route 2 (within ROW) with separation from roadway (land use outside of ROW may be different than that shown).

Section 5: Preferred Route ±6,500 Feet

Pros

- Route partially follows the river.
- Land along the river meander is city owned.
- Terrain is level for accessibility.
- Route does not cross private property.
- Route uses municipal property and makes connection to school property and athletic fields.
- Trail crosses river on existing Sacco Memorial bridge.
- Trail crosses Route 2 at intersection with good sight lines and an existing pedestrian-activated light.

Cons

- Route crosses Route 2 and uses Protection Avenue ROW.
- Route traverses steep wooded slope at Sacco Memorial bridge.
- Route requires the installation of an elevated pedestrian bridge over the Hoosic River.
- Route uses existing narrow Protection Avenue bridge.
- Route is not popular with Harding Avenue residents.

Section 5: Alternate 1 ±4,000 Feet

Pros

- Does not cross Route 2.
- Provides direct travel route to city-owned parcels in Section 6.

Cons

- Crosses private parcels [residential (1) and commercial (2)], requiring easement and/or acquisition.
- Route is on street at Greylock Avenue and Clark Street. Although traffic is relatively light, roads are narrow.



Example of shared use roadways (Seattle, WA).



Retrofitted with bike lane and shoulder/parking lane – Florida.



Example of a color and texture separated bike lane – Florida.



Example of a physically separated bike lane – Melbourne, Australia.

- Route crosses Desmond Avenue and Roberts Drive, where sight lines are limited.
- Requires a bridge across the Hoosic River at old State Street crossing.

Section 5: Alternate 2 ±3,200 Feet

Pros

- Avoids steep slopes along river.

Cons

- Uses existing paved roadways on Greylock Avenue and through Greylock Valley Apartments.
- Crosses Route 2.
- Route not favored by Public Safety Commissioner.

Section 5: Alternate 3 ±1,300 Feet

Pros

- Allows ease of construction.

Cons

- Uses Harding Avenue as shared trail.
- Route 2 vehicular traffic and crossing of residential driveways.

Section 5: Alternate 4 ±1,800 Feet

Pros

- Trail follows river on flood berm.
- Route is direct in nature.

Cons

- Trail crosses Route 2 at location with poor sight lines.
- Trail location will affect layout of business parking lot and is opposed by property owner.

2.6 Section 6 (Route 2/Barbour Street Intersection – Brown Street)

Section 6: General Site Conditions Discussion

From the Route 2/Barbour Street intersection, there are approximately 1,000 feet of earthen berm that exist to the railroad ROW. The old West Main Street bridge crossed at the midpoint of this section. Part of a residential neighborhood has been removed from this area due to contamination of ground water.

A residential neighborhood and cemetery are located between Route 2 and the railroad ROW in the vicinity of the Brown Street intersection. The area between the south bank of the Hoosic River and railroad ROW consists of two large parcels. The parcel to the west, bisected by the sewer easement, is mostly wooded with informal trail systems. Most of the site is both wetlands and within the 100-year flood zone. The second parcel, to the east and abutting Brown Street, was the site of an industrial complex that has been recently demolished. The existing vacant parcel appears to be above the 100-year flood zone (see Figures 6, 7, and 8).

The north bank of the Hoosic River is wooded for approximately 3,500 feet from west to east with several streams bisecting the area. The land generally slopes down steeply from Massachusetts Avenue to the river. The last 1,000 feet of land before the Brown Street bridge are commercially developed (see Figures 6, 7, and 8).



Remediated parcel on Brown Street - site of former industrial building. Trail route could potentially be routed along the top of floodwall or incorporated into the future redevelopment planning of the parcel.

Section 6: Environmental Site Conditions Discussion



Forested floodplains.

Most of Section 6 consists of forested floodplain wetlands and uplands. The forested wetlands consist of both poorly and very poorly drained soils.

Vegetation within these forested wetlands consists of red maple, American elm, cottonwood, grey birch, silky dogwood, northern arrowwood, common winterberry, highbush blueberry, spicebush, Morrow's honeysuckle, ostrich fern, cinnamon fern, sensitive fern, dames rocket, soft rush, and skunk

cabbage. The forested uplands consist of sugar maple, grey birch, red maple, Morrow's honeysuckle, spicebush, and poison ivy. A large grassed area formerly known as the fairgrounds is located in the center of the forested floodplain.

Section 6: Preliminary Trail Routing Discussion

A trail in this location would leave an expanded and improved Route 2 sidewalk trail and follow the existing berm north to the railroad ROW. The railroad bed is elevated on fill approximately 20 to 25 feet above the surrounding terrain in this area. One feasible option would be to construct a tunnel through the rail embankment under the railroad tracks. Although the coordination of this option seems daunting, the benefits of providing a crossing of the railroad corridor in this location are very important to the trail network as a whole. Based upon our discussions with the representatives of Pan Am/Norfolk Southern, we can assume the following regarding the feasibility of a tunnel through the earthen embankment and under the active rail line.

"The tunnel would have to be designed in accordance with AREMA specifications. The construction would have to be performed without disrupting rail service." (Taken from email written by George S. Thayer, Pan Am Engineering. Full email is provided as an appendix to this report.)

The details of this tunnel option will need to be coordinated with the railroad property owner and operator as the design progresses. Crossing the rail corridor at this location would allow the trail to enter a low-lying vegetated area along the south bank of the river. The trail route could then potentially follow either the riverbank, the base of the railroad embankment, or the sewer easement through the undeveloped wooded area and eventually out to Brown Street (see Figure 7).



Trail crossing under Pan American railroad line using proposed tunnel.

The alternate of following the sewer easement through the parcels out to Brown Street seems to be the less desirable of the options. This routing cuts through the center of the

western parcel in an east/west direction and then again in a north/south direction (see Figures 6, 7, and 8).

Section 6: Preferred Route ±5,000 Feet

Pros

- Follows the river for the entire route.
- Crosses under railroad ROW, avoiding at-grade crossing.
- Opportunity to coordinate siting of trail with owner of the remediated Sprague site.

Cons

- Railroad tunnel will require approval and close coordination with Pan Am Rail and will be an expensive structure to engineer and construct.
- Areas of boardwalk or raised trail may need to be constructed along the river.

Section 6: Alternate 1 ±4,100 Feet

Pros

- Potentially less wetland impacts.
- Trail crosses under railroad ROW.
- Opportunity to coordinate siting of trail with owner of the remediated Sprague site.

Cons

- Railroad tunnel still required.
- Does not follow the river.
- Probably wetlands permitting and mitigation.
- Brown Street route is on road using existing bridge.

Section 6: Alternate 2 ±2,100 Feet

Pros

- Follows sewer easement, requiring less clearing than preferred or Alternate 1.

Cons

- Does not follow the river.
- Probable significant wetlands impacts and mitigation.
- Divides property and potentially fragments habitat.

2.7 Section 7 (Brown Street – Route 8/State Street Overpass)

Section 7: General Site Conditions Discussion

The area on the east side of Brown Street south of the Hoosic River and north of the railroad ROW contains National Grid, the electric company facility. The electric company facility property backs up to the MASS MoCA property. MASS MoCA's property is located within the confluence area where the main stem and north branch of the Hoosic River join, up to Marshall Street on the east, under Veterans Memorial Drive, and out to Main Street. Across Main Street adjacent to the MASS MoCA driveway, an existing walkway leads to an existing pedestrian footbridge that travels over the active rail line to the north end of Western Gateway Heritage Park. Heritage Park currently provides a connection at the south end under the Route 8/State Street bridge to a one-lane bridge over the Hoosic River to additional parking for Heritage Park. It is believed that the future Ashuwillticook Trail is planned to terminate at the south end of this parking area when extended (see Figures 8 and 9).



Potential alternate trail route between floodwall and substation fence.

Section 7: Environmental Site Conditions Discussion

In terms of land use and vegetative coverage, Section 7 is considered the most disturbed of the trail sections, with most of the trail passing near or through industrial complexes. The trail parallels the Hoosic River through this section. The river has a concrete-lined channel with concrete floodwalls serving as its banks. Wildlife and fishery habitat is rather limited through this stretch.



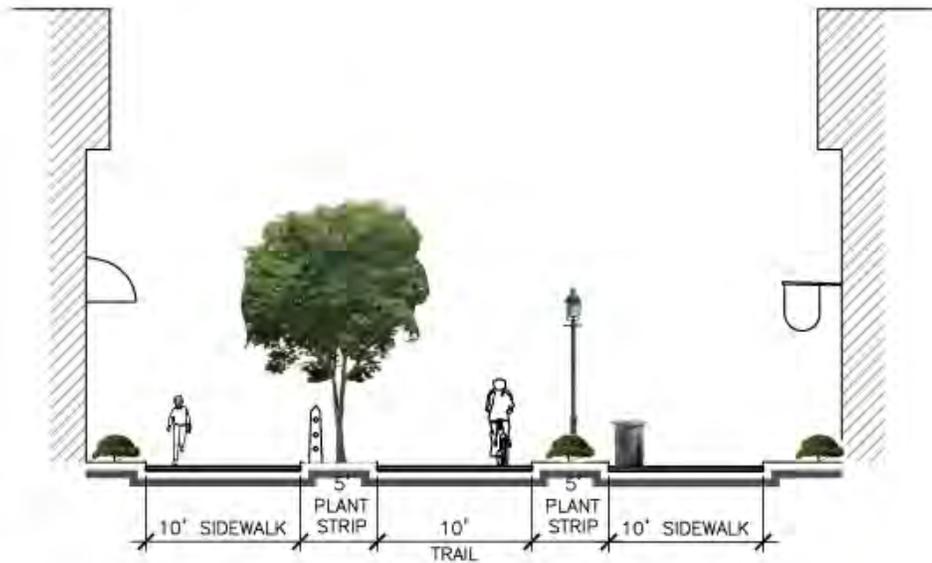
Channelized Hoosic River.

Section 7: Preliminary Trail Routing Discussion

The preferred trail route is to cross the Hoosic River using the existing Brown Street bridge and then travel east in River Street Park on the north bank of the river. The trail will require the crossing of the Hoosic River again just west of the MASS MoCA facility. A new pedestrian bridge will be required to be constructed at or above the top elevation of the floodwalls in this location. The benefit of this route is that it avoids a challenging and narrow section of the National Grid property and eliminates having to use the narrow sidewalk on Marshall Avenue and Main Street as shown in Alternate #1. Additionally, this route would require the acquisition of at least two parcels or two easements on River Street. Once past the electric company, the trail will then have the ability to enter the MASS MoCA property. While on the MASS MoCA property, the trail will have the ability to pass under Veterans Memorial Drive and connect with Main Street and align with the footbridge that crosses the Pan American/Norfolk Southern railroad to Secor Avenue through Heritage Park. Although preliminary meetings with MASS MoCA representatives indicate their willingness and desire to have the trail pass through the property, the exact location of the trail will need to be continually discussed and coordinated with MASS MoCA management to ensure that the location is in the best interest of both the museum and trail users (see Figure 8). The existing footbridge over the active rail line provides a much needed existing crossing of the active rail line corridor. Upon completion of a visual structural evaluation in November 2009, the following assessment of the existing structure and recommendations regarding the additional investigation and analysis programs that should be undertaken have been prepared for this report.

Once in Heritage Park, the trail can travel under the Route 8/State Street bridge and across the Hoosic River to the Heritage Park remote parking area for eventual connection to the north/south-running Ashuwillticook Trail. This area could provide excellent parking and access to the trail (see Figures 8 and 9). We recommend that this trail end in

Heritage Park until the final location of the northern extension of the Ashuwillticook Trail is fully realized.



Potential trail using center green strip at Heritage Park with pedestrian sidewalks on either side.

An alternate route from Brown Street east will need to utilize areas outside of the MASS MoCA property as it can be assumed that the private property will be gated when the museum is not open. This alternate would be mainly an on-street or signed sidewalk route, first heading north over the Brown Street bridge and then east for approximately 1,800 feet on River Street to the intersection of Marshall Street. At Marshall Street, the trail will turn south and travel past MASS MoCA, then under the Veterans Memorial Highway to meet with Main Street at grade, and then turn south and proceed 750 feet to the entrance for the pedestrian footbridge over the rail line. If sections of the trail are forced to be located along roadways, sidewalk improvements (i.e., width, pavements, and ADA accessibility) shall be considered.



Existing pedestrian bridge over active rail line (North Adams).

General Existing Conditions Pedestrian Bridge Description

The existing bridge is approximately 224 feet long and contains six spans (38'-22'-28'-38'-60'-38') that carry pedestrians over the railroad tracks within Western Gateway Heritage State Park. The bridge consists of steel through girders and floor beams with a concrete deck superstructure. The superstructure is supported on six steel piers, a stone masonry south abutment, and a concrete north abutment. Two utilities are carried on the north side of the bridge. One looks to be an eight-inch gas main and the other a three-inch steel conduit that could carry electrical cables for the lighting. The bridge is approximately six feet wide between the inside edge of the beam flanges. A three-foot chain link fence is mounted to the top flanges of the beams.



Existing pedestrian bridge over active rail line (North Adams).

The section of the bridge over the railroad appears to be flat with the approach spans sloping down to meet the existing grades of the walkway. Based upon a cursory inspection of the bridge, we find that the bridge is in fair condition overall. The individual element conditions are detailed as follows:

Abutments

The north concrete abutment shows a large spall on the bridge seat with numerous vertical hairline cracks running down the stem. The bottom of the abutment is exposed and undermined. This condition can lead to settlement of the approach sidewalk. The abutment also looks to be rotated toward the bridge.



Piers

The steel piers look to be in fair condition with some minor rusting of the steel. The concrete footings show some minor deterioration with the anchor bolts having moderate rust visible.

Deck

There are spalls in the concrete deck adjacent to the expansion joints. The spalls are a tripping hazard and also let water drain onto the bridge seat. The bottom side of the deck shows areas of spalling with exposed reinforcing bars. The deck slab shows deterioration along the edge in contact with the steel girders.



Steel Beams

The bottom flanges of the main girders show moderate to heavy rust with possible section loss in the span over the railroad tracks. The floor beams also show moderate to heavy rust with possible section loss.

For the purposes of this feasibility study, we have included a fee to rehabilitate and/or replace the existing deck of bridge to better accommodate both Americans With Disabilities Act (ADA) standards and American Association of State Highway and Transportation Officials (AASHTO) guidelines for bicycle facilities.

In order to fully understand and accurately propose repairs or replacement to the existing bridge structure, we recommend the following tasks be completed in the future:

1. Perform a full "hands on" structural inspection of the bridge and perform a load rating analysis. Coordinate with the railroad for access and flagging services.
2. Based upon the more detailed evaluation, prepare a preliminary cost opinion for the structural rehabilitation and reuse of the structure.
3. Based upon the more detailed evaluation, prepare a preliminary cost opinion for a new replacement structure with increased width and ADA/AASHTO-compliant dimensions and grades.

These tasks will in essence provide a structure type study that will allow for a better comparison as to the cost-benefit of each approach.

Section 7: Preferred Route ±4,000 Feet

Pros

- Partially follows river.
- Accesses MASS MoCA property.
- Crosses under Route 2, avoiding vehicular conflicts with this roadway.
- Uses existing/approved pedestrian bridge location over the railroad corridor.
- Trail connects into and through State Heritage Park.

Cons

- Requires use of pedestrian bridge to connect MASS MoCA and Heritage State Park.
- Alternate route around MASS MoCA may be required for after hours.

Section 7: Alternate 1 ±500 Feet

Pros

- Trail aligns with trail across street and into MASS MoCA.
- Avoids river crossings required for preferred route.

Cons

- Very narrow stretch of land is available and is not supported by National Grid, the landowner.

Section 7: Alternate 2 ±2,500 Feet

Pros

- Partially follows the river; utilizes an existing municipal park.
- Located across the street from The Porches.
- Provides connection/linkage to downtown North Adams.

Cons

- Crosses commercial property and vehicular access points and will probably require acquisition.
- Uses sidewalks within Marshall Street and Main Street ROWs, requiring some safety improvements.

3.0 ENVIRONMENTAL REVIEW

MMI professional wetland scientists and certified soil scientists completed a preliminary review of the important natural resources that currently exist along the proposed trail corridor and identified any significant resources that need to be avoided and/or protected from the trail. Important natural resources that were reviewed included wetlands, watercourses, vernal pools, potential presence of federal- and state-listed flora and fauna species, soil types, and vegetative communities. As stated in previous sections of this study, routing the trail off road and off rail along the Hoosic River was a primary goal.

The Hoosic River is an important natural resource within the project corridor. The river provides both cold-water and warm-water fishery resources to the surrounding communities. The river has been heavily manipulated over the years as evidenced by the concrete floodwalls and channel within downtown North Adams; the multiple dams found along the river; and its close proximity to residential, commercial, and industrial areas. Although this river has been shaped and impacted by historic anthropogenic activities, the Hoosic River and its bordering floodplains still offer valuable functions such as recreational fishing, canoeing, kayaking, bird watching, and limited hiking.

The Hoosic River is bordered by a variety of soils ranging from excessively drained to poorly drained soils. Many of the soils were deposited by glaciofluvial and alluvial processes and are classified as stratified drift. The primary soil types found along the river and the project corridor include:

Wetland Soils

Saco silt loam

Limerick silt loam

Upland Soils

Copake sandy loam

Copake-Urban Land complex

Groton-Hinckley soils

Winooski silt loam

Hadley silt loam

Urban Land

The following report sections discuss in more detail the existing conditions, both general site and environmental, as well as the preferred and alternate routing scenarios for the individual trail sections.

In May 2007, the BRPC submitted a request to the Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife. According to the NHESP database, there are several priority habitats and estimated habitats along the Hoosic River corridor. A map of these habitats is appended as Figure 3-1. In a letter dated June 1, 2007, the NHESP identified several state-listed rare species. This correspondence is appended as Appendix A.

Based on the NHESP letter, the following priority and estimated habitats are found along the project corridor:

Priority Habitat 2 (PH 2)

Priority Habitats 244 and 245 (PH 244 and PH 245)

Estimated Habitats 800 and 858 (EH 800 and EH 858)

A list of the state-listed rare species is presented in Table 3-1.

TABLE 3-1
Potential State-Listed Rare Species Along Project Corridor

Scientific Name	Common Name	Taxonomic Group	State Status
<i>Catostomus catostomus</i>	Longnose sucker	Fish	Special Concern
<i>Notropis bifrenatus</i>	Bridle shiner	Fish	Special Concern
<i>Glyptemys insculpta</i>	Wood turtle	Reptile	Special Concern
<i>Stylurus scudderi</i>	Zebra clubtail	Dragonfly	Endangered
<i>Carex trichocarpa</i>	Hairy fruited sedge	Plant	Threatened
<i>Carex alopecoidea</i>	Foxtail sedge	Plant	Threatened
<i>Desmodium cuspidatum</i>	Large bracted tick-trefoil	Plant	Threatened
<i>Symphyotrichum prenanthoides</i>	Crooked stem aster	Plant	Threatened
<i>Lonicera hirsuta</i>	Hairy honeysuckle	Plant	Endangered
<i>Eleocharis intermedia</i>	Intermediate spike-sedge	Plant	Threatened

MMI biologists did not complete a comprehensive study for the above state-listed rare species within the project corridor. Flora and fauna surveys will most likely be required after a preferred trail alignment is chosen and as the project moves into the preliminary design phase.

Other Environmental Concerns

Since the trail will be passing through former industrial facilities and along an active railroad, it may be necessary during the preliminary design phases of the project to perform an environmental reconnaissance (Phase I) on suspect areas along the trail, especially those areas that may require excavation into underlying soils.

4.0 PHASING PLAN

A multiuse trail requires many different levels of phasing throughout project development and construction. The phasing depends upon several factors including but not limited to overall length of the project, private property acquisitions required, level of regulatory permitting required, difficulty of construction, and most importantly the amount of available funding. Upon completion of the feasibility study for the Mohawk Bicycle and Pedestrian Trail, we recommend that the trail be phased in a similar manner to the following schedule shown on the next page.

MOHAWK PEDESTRIAN TRAIL – PHASING PLAN

Williamstown Trail Section	Pursue and secure funding for design, acquisition, and construction							
	Prepare RFQ/RFP for engineering/design services to complete preliminary and final design documents (including permitting)							
	Complete permitting, engineering design & construction documents							
	Secure all required easements and/or property acquisitions							
	Advertise for competitive bidding for construction							
	Construct trail							
*	Project schedule - Phasing plan	1	2	3	4	5	6	7
North Adams Trail Section	Pursue and secure funding for design, acquisition, and construction							
	Prepare RFQ/RFP for engineering/design services to complete preliminary (including permitting)							
	Complete preliminary engineering design & permitting							
	Prepare RFQ/RFP for final design and engineering							
	Complete final design and construction documents							
	Secure all required easements and/or property acquisitions							
	Advertise for competitive bidding for construction							
	Construct trail							

*Note: Actual project schedule: Phasing duration is (to be determined) and is dependent upon several factors including, but not limited to, availability of funding and permitting schedules.

5.0 OPERATIONS AND MAINTENANCE PLAN

The consideration given to development of an operations and maintenance plan for a proposed multiuse pedestrian trail and bikeway should be considered the primary means for protection of the state, town, and community investment required to design and construct the trail. A well planned and thought out operations and maintenance program will lead to a more sustainable and functional facility that will preserve the walkers', joggers', roller bladers', and bicyclists' safety.

Lack of a well defined operations and maintenance plan will result in a decrease in trail surface longevity and unsafe conditions such as the accumulation of sand, gravel, trash, or branches; faded lane and safety markings; damaged or missing signage; and the development of potholes, broken pavements, and other rough surface conditions. These unsafe trail conditions may not only lead to decreased trail usage and potential accidents on the trail itself, but they may also cause the trail users to avoid the trail and choose an alternative route that may not be suitable or safe. Bicyclists and/or pedestrians may avoid a facility designed for their use if it is not properly maintained. The maintenance plan should be regarded as an investment in the trail and insurance against repairs or accident claims, which can be costly.

The primary tasks involved with the operations and maintenance planning should be surface quality, maintenance regimen, vegetation management, snow and ice control (if desired), and the role and tasks associated with maintenance agreements and maintenance plans.

Surface Quality and Scheduled Maintenance

The quality of a bikeway's surface is critical in promoting a safe, usable, and efficient transportation route. These trails serve a multitude of users other than bicyclists. These users include but are not limited to walkers, joggers, users of baby strollers and wheel chairs, and in-line skaters, all requiring a smooth surface. The trail shoulders, whether paved, stonedust, or lawn, should also be maintained for use as well.

Wherever feasible, the following design considerations should be included in the maintenance plan to promote a well-maintained, comfortable, and safe trail user experience.

- a. Select trail routes that attempt to avoid public utilities such as poles, manhole covers, and catch basin grates.
- b. Implement a regular inspection program for the trail surface on paths, shoulders, and roadway crossings.
- c. Perform regular maintenance to remove sand, leaves, branches, and debris. Proper cross slope and drainage swale design is a key to preventing surface debris accumulation.
- d. Replace damaged, missing, or obsolete trail and vehicular warning signage and pavement markings.

Vegetation Management

The long-term control of vegetation and the management of vegetation should be considered during design and construction of the trail. Vegetation management helps to maintain a smooth pavement surface as well as clear zones and adequate sight lines to promote trail safety. A clearing limits section should be developed for areas of the proposed trail that are routed through woodland, brush, or invasive species colonies. The clearing limits should consider the long-term encroachment of the surrounding vegetation and the habitats that will be affected by the clearing. Where clearing is limited by environmental or habitat restrictions, the use of root barriers and environmentally acceptable root deterrents should be considered under and along the trail surface or wherever substantial tree roots and/or invasive plant colonies are identified in close proximity to the trail.

Maintenance Planning

The success and overall use of the trail is dependent upon many criteria discussed in this section. It is often easy to note what needs to be repaired on the trail and extremely difficult to actually coordinate the repair. The successful trail systems commonly have volunteer trail organizations, committees, and groups that will coordinate with the local governmental agencies/landowners to fully understand any ownership, land use, or easement restrictions that may affect any maintenance programs. These not-for-profit trail groups can be instrumental in coordination of fund raising, trail stewardship, and security programming (where applicable). These groups, when organized correctly, serve as a point of contact with the local communities through which the trail traverses. The ability to secure and manage funding from local businesses, local volunteer groups, private individuals, state/federal agencies, etc. helps to administer the implementation and actual maintenance programs such as fencing replacement, repaving, sweeping, clear zone vegetation pruning, trash removal, drainage improvements, signage, etc.

For comparison, MMI recently inquired and compiled the average annual costs incurred to the local municipalities Department of Public Works (DPW) for maintenance of a similarly sized trail system (approximately seven miles of paved trail) that has been in operation for over 10 years in Connecticut. The trail system maintenance costs were based upon the monthly maintenance of the trail or after each significant storm event; the removal of debris, branches, trash, and sediment; branch trimming, mowing, power blower, and brooming. The person/hours and equipment costs were combined to create an annual maintenance budget of \$1,500.00 per mile of trail. The cost excludes major repairs such as repaving, full tree removal, bridge repairs, structural repairs, etc.

It is our recommendation that each municipality or trail group responsible for trail maintenance develop a prioritized repair schedule and budget to better plan for those larger maintenance projects. This schedule can simply be a form referred to as a Visual Trail Inspection Report, or VTIR. The VTIR is completed twice annually by walking the complete trail length, usually in the spring and fall, and recording the trail conditions. Upon completion of the VTIR,

the inspection group, usually comprised of a representative from the municipality, the trail user group, and the company/department performing the maintenance, discuss, formulate, and prioritize a list of improvements and budgets. This budget is used to secure funding through local governments, state grants, or fund raising efforts.

It should be noted that bridges and tunnels should be visually inspected during the VTIR process; however, a structural inspection of all bridges and tunnels should be completed on a two-year basis.

For reference purposes, two sample VTIR forms have been included, one is blank and the other has been partially filled out to provide guidance as to what information is pertinent and should be recorded.

VTIR
(Visual Trail Inspection Report)

Trail Name: _____
 City/Town & State: _____
 Date of Inspection & Weather Conditions: _____
 Name & Contact Information of Inspectors: _____

Station or Mileage	Pavement Condition	Shoulder Condition	Bordering Vegetation	Fencing, Benches, Signage, Etc.	Bridges/Tunnels	Approx. Cost to Repair
0.0-0.5 miles						
0.5-1.0 miles						
1.0-1.5 miles						
1.5-2.0 miles						
Approximate Budget for Repairs Spring-Summer 2010: \$ _____						

3926-01-jr2410-1-chart

VTIR
(Visual Trail Inspection Report)

Trail Name: River Trail
 City/Town & State: Smithtown, MA
 Date of Inspection & Weather Conditions: May 15, 2010
 Name & Contact Information of Inspectors: John Smith, City Engineer (555) 777-7777
Jody Jones, DPW Director (555) 777-5555
Mike Smith, Trail Committee (500) 755-7555

Station or Mileage	Pavement Condition	Shoulder Condition	Bordering Vegetation	Fencing, Benches, Signage, Etc.	Bridges/Tunnels	Approx. Cost to Repair
0.0-0.5 miles	Good	0.1 - Erosion 0.25 - Needs mowing	0.2 - 0.5 - Needs branch clearing, brush cut back	0.2 - Repair two fence rails 0.4 - Remove grass	N/A	\$1,000
0.5-1.0 miles	Good	Good	0.5 - 1.0 - Needs brush cut back	0.4 - Bench needs painting/repair	N/A	\$350
1.0-1.5 miles	Good 1.25 - Pothole needs repair	Good	Good	Good	1.25 - Bridge railing needs repair (broken)	\$750
1.5-2.0 miles	1.75 -1.85 - Repaint lane striping	Good	Good	Good	1.75 - Repaint stop bar at intersection	\$290
Approximate Budget for Repairs Spring-Summer 2010: \$2,390						

3926-01-jn2410-2-chart

6.0 COST ANALYSIS AND DISCUSSION

Any potential trail project can and should be considered feasible only after a thorough analysis of as many aspects affecting the potential design as possible. Even after completion of the analysis, it is sometimes hard to imagine a project as feasible. Although many aspects will contribute to whether or not a project is feasible such as property ownership, permissibility, and constructability, one element that is extremely important is the understanding of the potential cost of construction. In order to understand the cost of construction, a conceptual routing plan, as provided in this report, needs to be developed in order to assign tangible dimensions and costs to the project. It is understood that these dimensions and associated costs do not have the accuracy that will be provided at the preliminary, semifinal, or final level of design. However, they do provide a tangible cost basis from which a better defined project scope, project phasing, and search for project funding can progress. The following is an order of magnitude cost opinion that has been developed based upon the conceptual trail routing plans that have been developed as part of this study. The following costs for design elements are a compilation of recent trail projects' bid and actual construction costs that have been incurred through several projects recently constructed in the northeastern United States.

These numbers should be considered conceptual and can be used to develop budgetary estimates for project phasing, potential Requests for Qualifications/Proposals for future design, and project funding. It should be noted that these costs are subject to change and are based only on the conceptual routing plans included in this study. The costs provided do not include the cost of any property acquisition, property easements, or environmental remediation. Although the intent of the project was to avoid any private property impacts, early on in the process it appeared evident that some easements and/or small property acquisitions may be required to construct the most feasible trail system. During the study process, the team attempted to compile a listing of all potential private property owners (North Adams) that may potentially be impacted by the proposed preferred trail routing scenario. The assessor property cards for those properties in which an easement or acquisition may potentially be required has been included in Appendix E of this report. As the project(s) move into and through the next phases of design, the proposed

impacts, easement, or acquisitions will be further defined and detailed. It is imperative to continue the dialogue with any potentially impacted private property owner initiated during the public involvement process of this study throughout the next project phases. It is the hope that this dialogue can go a long ways in avoiding a difficult and lengthy easement or acquisition agreement process. It should be noted that there are federal guidelines that will need to be strictly adhered to as the property easement and acquisition phases move forward. A 10% contingency has been provided on the construction cost to account for small changes in the project design and any normal fluctuation in the construction bidding and economic climate. A 25% incidentals item has been included in the construction cost to account for the engineering design and permitting aspects of the project.

**MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
A MAGNITUDE OF COST ANALYSIS
MMI# 3926-01**

**Town Of North Adams Trail Segments
Engineers Opinion of Feasible Preliminary Design & Construction Costs
MARCH 2010**

TRAIL SEGMENT & DESCRIPTION	UNIT	QUANTITY	COST	DOLLAR AMOUNT
Section 3 - Galvin Rd. - Ashton St. (North Adams)				
Preferred Trail Route 1830 LF				
Clear & Grub	LS	1	\$33,000.00	\$33,000.00
Sediment & Erosion Control	LF	1830	\$5.00	\$9,150.00
10' Bituminous Conc. Trail	LF	1830	\$100.00	\$183,000.00
Concrete Sidewalk	SF	250	\$10.00	\$2,500.00
3 Rail Wood Fence	LF	150	\$15.00	\$2,250.00
Timber Guide Rail	LF	120	\$65.00	\$7,800.00
Removable Bollard	EA	8	\$2,500.00	\$20,000.00
Restoration	LS	1	\$20,000.00	\$20,000.00
Signs	LS	1	\$300.00	\$300.00
Pavement Markings	LF	1200	\$5.00	\$6,000.00
Information Kiosk	LS	1	\$5,000.00	\$5,000.00
Maintenance & Protection of Traffic	LS	1	\$25,000.00	\$25,000.00
Rt. 2 R.O.W. Trail - 1830 LF				
Remove Bituminous Conc.	SY	1830	\$10.00	\$18,300.00
Bituminous Conc. Curb	LF	1830	\$9.00	\$16,470.00
Sawcut Bituminous Conc.	LF	1830	\$5.00	\$9,150.00
Move Utilities	LS	1	\$100,000.00	\$100,000.00
Street Reconstruction	SY	600	\$75.00	\$45,000.00
Concrete Sidewalk	SF	250	\$10.00	\$2,500.00
Guide Rail	LF	1800	\$65.00	\$117,000.00
Landscaping (Trees)	EA	37	\$500.00	\$18,500.00
Restoration	LS	1	\$4,000.00	\$4,000.00
Maintenance & Protection of Traffic	LS	1	\$25,000.00	\$25,000.00
Segment 3 Subtotal				\$670,000.00

**MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
A MAGNITUDE OF COST ANALYSIS
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Section 4 - Ashton St. - Protection Ave. (North Adams)					
Preferred Trail Route - 5625 LF					
Clear & Grub		LS	1	\$100,000.00	\$100,000.00
Sediment & Erosion Control		LF	4400	\$5.00	\$22,000.00
10' Bituminous Conc. Trail		LF	5625	\$100.00	\$562,500.00
Ped. Bridge (Hoosic River)		LS	1	\$600,000.00	\$600,000.00
Connection to Applachian Trail		LS	1	\$25,000.00	\$25,000.00
Concrete Sidewalk		SF	250	\$10.00	\$2,500.00
Stream Crossing		LS	2	\$50,000.00	\$100,000.00
Timber Guide Rail		LF	100	\$65.00	\$6,500.00
Removable Bollard		EA	8	\$2,500.00	\$20,000.00
Restoration		LS	1	\$64,000.00	\$64,000.00
Signs		LS	1	\$1,200.00	\$1,200.00
Pavement Markings		LF	2810	\$5.00	\$14,050.00
Connection to Canoe Launch		LS	1	\$10,000.00	\$10,000.00
Connection to Stores		LS	1	\$10,000.00	\$10,000.00
Information Kiosk		LS	1	\$5,000.00	\$5,000.00
Rt. 2 R.O.W. Trail - 820 LF					
Remove Bituminous Conc.		SY	275	\$10.00	\$2,750.00
Bituminous Conc. Curb		LF	820	\$9.00	\$7,380.00
Sawcut Bituminous Conc.		LF	820	\$5.00	\$4,100.00
Move Utilities		LS	1	\$250,000.00	\$250,000.00
Street Reconstruction		SY	275	\$75.00	\$20,625.00
Concrete Sidewalk		SF	250	\$10.00	\$2,500.00
Guide Rail		LF	820	\$65.00	\$53,300.00
Landscaping (Trees)		EA	25	\$500.00	\$12,500.00
Restoration		LS	1	\$10,000.00	\$10,000.00
Pavement Markings		LF	820	\$5.00	\$4,100.00
Maintenance & Protection of Traffic		LS	1	\$75,000.00	\$75,000.00
Section 4 Subtotal					\$1,985,000.00

**MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
A MAGNITUDE OF COST ANALYSIS
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Section 5 - Protection Ave. - RT. 2/ Barbour St. Intersection (North Adams)					
Preferred Trail Route - 5850 LF					
Clear & Grub		LS	1	\$105,000.00	\$105,000.00
Sediment & Erosion Control		LF	7500	\$5.00	\$37,500.00
10' Bituminous Conc. Trail		LF	7500	\$100.00	\$750,000.00
Concrete Sidewalk		SF	1000	\$10.00	\$10,000.00
Ped. Bridge (Hoosic River)		LS	1	\$750,000.00	\$750,000.00
3 Rail Wood Fence		LF	6650	\$15.00	\$99,750.00
Timber Guide Rail		LF	160	\$65.00	\$10,400.00
Removable Bollard		EA	8	\$2,500.00	\$20,000.00
Restoration		LS	1	\$66,000.00	\$66,000.00
Signs		LS	1	\$5,000.00	\$5,000.00
Pavement Markings		LF	2950	\$5.00	\$14,750.00
Maintenance & Protection of Traffic		LS	1	\$10,000.00	\$10,000.00
Rt. 2 R.O.W. Trail - 800 LF					
Remove Bituminous Conc.		SY	800	\$10.00	\$8,000.00
Bituminous Conc. Curb		LF	800	\$9.00	\$7,200.00
Sawcut Bituminous Conc.		LF	800	\$5.00	\$4,000.00
Move Utilities		LS	1	\$150,000.00	\$150,000.00
Street Reconstruction		SY	270	\$75.00	\$20,250.00
Concrete Sidewalk		SF	250	\$10.00	\$2,500.00
Landscaping (Trees)		EA	28	\$500.00	\$14,000.00
Restoration		LS	1	\$9,000.00	\$9,000.00
Pavement Markings		LF	800	\$5.00	\$4,000.00
Maintenance & Protection of Traffic		LS	1	\$80,000.00	\$80,000.00
Section 5 Subtotal					\$2,177,000.00

**MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
A MAGNITUDE OF COST ANALYSIS
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Section 6 - RT. 2/ Barbour St. Intersection - Brown St. (North Adams)					
Preferred Trail Route - 5100 LF					
Clear & Grub		LS	1	\$92,000.00	\$92,000.00
Sediment & Erosion Control		LF	5100	\$5.00	\$25,500.00
10' Bituminous Conc. Trail		LF	2900	\$100.00	\$290,000.00
10 Sp. Parking Area & Drive		SY	600	\$45.00	\$27,000.00
Elevated Wetland Boardwalk		LF	2050	\$300.00	\$615,000.00
Concrete Sidewalk		SF	550	\$10.00	\$5,500.00
3 Rail Wood Fence		LF	3050	\$15.00	\$45,750.00
Timber Guide Rail		LF	320	\$65.00	\$20,800.00
Removable Bollard		EA	6	\$2,500.00	\$15,000.00
Landscaping (Trees)		EA	25	\$500.00	\$12,500.00
Restoration		LS	1	\$58,000.00	\$58,000.00
Signs		LS	1	\$600.00	\$600.00
Information Kiosk		LS	1	\$5,000.00	\$5,000.00
Pavement Markings		LF	2500	\$5.00	\$12,500.00
Maintenance & Protection of Traffic		LS	1	\$25,000.00	\$25,000.00
Section 6 Subtotal					\$816,000.00
Section 7 - Brown Street, Route 8 & State Street Overpass (North Adams)					
Preferred Trail Route - 4500 LF					
Clear & Grub		LS	1	\$80,000.00	\$80,000.00
Sediment & Erosion Control		LF	4500	\$5.00	\$22,500.00
10' Bituminous Conc. Trail		LF	4100	\$100.00	\$410,000.00
8' Bituminous Conc. Trail		LF	500	\$100.00	\$50,000.00
Concrete Sidewalk		SF	550	\$10.00	\$5,500.00
Ped. Bridge (Hoosic River)		LS	1	\$600,000.00	\$600,000.00
Reconstruct Ped. Bridge(Over Rail Line)		LS	1	\$500,000.00	\$500,000.00
Removable Bollard		EA	14	\$2,500.00	\$35,000.00
Landscaping (Trees)		EA	75	\$500.00	\$37,500.00
Move Utilities		LS	1	\$500,000.00	\$500,000.00
Signs		LS	1	\$1,200.00	\$1,200.00
Information Kiosk		LS	2	\$5,000.00	\$10,000.00
Trail Pavement Markings		LF	800	\$5.00	\$4,000.00
Bike Lane Pavement Markings		LF	2250	\$5.00	\$11,250.00
Maintenance & Protection of Traffic		LS	1	\$200,000.00	\$175,000.00
Section 7 Subtotal					\$2,339,000.00
COST OPINION TOTALS					
PREFERRED TRAIL ROUTE CONSTRUCTION (North Adams Segments Only)					\$7,990,000.00
15% CONTINGENCY					\$1,200,000.00
SUBTOTAL					\$9,190,000.00
4% PRE-CONSTRUCTION SURVEY, PRELIMINARY DESIGN/ENGINEERING & PERMITTING					\$367,600.00
15% INCIDENTALS (Construction Inspection, Materials Testing, General Administration)					\$1,380,000.00
TOTAL (Includes 15% Contingency, 4% Preliminary Design and 15%Construction Incidentals)					\$10,940,000.00

MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
 A MAGNITUDE OF COST ANALYSIS
 MMI# 3926-01

Town Of Williamstown Trail Segments
 Engineers Opinion of Feasible Design & Construction Costs
 MARCH 2010

TRAIL SEGMENT & DESCRIPTION	UNIT	QUANTITY	COST	DOLLAR AMOUNT
Section 1 - Syndicate Rd. - Cole Ave. (Williamstown)				
Preferred Trail Route - 4900 LF				
Clear & Grub	LS	1	\$100,000.00	\$100,000.00
Sediment & Erosion Control	LF	4900	\$5.00	\$24,500.00
10' Bituminous Conc. Trail	LF	4900	\$100.00	\$490,000.00
10 Sp. Parking Area & Drive	SY	600	\$45.00	\$27,000.00
Elevated Wetland Boardwalk	LS	1	\$40,000.00	\$40,000.00
Concrete Sidewalk	SF	250	\$10.00	\$2,500.00
Stream Crossing	LS	2	\$50,000.00	\$100,000.00
3 Rail Wood Fence	LF	800	\$15.00	\$12,000.00
Timber Guide Rail	LF	360	\$65.00	\$23,400.00
Removable Bollard	EA	8	\$2,500.00	\$20,000.00
Access Gate	EA	1	\$2,500.00	\$2,500.00
Restoration	LS	1	\$60,000.00	\$60,000.00
Signs	LS	1	\$1,500.00	\$1,500.00
Pavement Markings	LF	2500	\$5.00	\$12,500.00
Information Kiosk	LS	1	\$5,000.00	\$5,000.00
Maintenance & Protection of Traffic	LS	1	\$30,000.00	\$30,000.00
SECTION 1 SUBTOTAL				\$951,000.00

**MOHAWK BICYCLE PEDESTRIAN TRAIL FEASIBILITY INVESTMENT STUDY:
A MAGNITUDE OF COST ANALYSIS
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Section 2 - Cole Ave. - Galvin Rd. (Williamstown)					
Preferred Trail Route - 8300 LF					
Clear & Grub		LS	1	\$150,000.00	\$150,000.00
Sediment & Erosion Control		LF	8300	\$5.00	\$41,500.00
10' Bituminous Conc. Trail		LF	8300	\$100.00	\$830,000.00
Ped. Bridge (Green River)		LS	1	\$600,000.00	\$600,000.00
Elevated Wetland Boardwalk		LF	600	\$300.00	\$180,000.00
Concrete Sidewalk		SF	250	\$10.00	\$2,500.00
Stream Crossing		LS	1	\$50,000.00	\$50,000.00
Timber Guide Rail		LF	90	\$65.00	\$5,850.00
Removable Bollard		EA	6	\$2,500.00	\$15,000.00
Restoration		LS	1	\$95,000.00	\$95,000.00
Signs		LS	1	\$1,500.00	\$1,500.00
Pavement Markings		LF	4150	\$5.00	\$20,750.00
Information Kiosk		LS	1	\$5,000.00	\$5,000.00
Maintenance & Protection of Traffic		LS	1	\$20,000.00	\$20,000.00
Rt. 2 R.O.W. Trail - 300 LF					
Remove Bituminous Conc.		SY	220	\$10.00	\$2,200.00
Bituminous Conc. Curb		LF	300	\$9.00	\$2,700.00
Sawcut Bituminous Conc.		LF	300	\$5.00	\$1,500.00
Move Utilities		LS	1	\$100,000.00	\$100,000.00
Street Reconstruction		SY	100	\$75.00	\$7,500.00
Concrete Sidewalk		SF	250	\$10.00	\$2,500.00
Guide Rail		LF	160	\$65.00	\$10,400.00
Landscaping		EA	15	\$500.00	\$7,500.00
Restoration		LS	1	\$95,000.00	\$95,000.00
Maintenance & Protection of Traffic		LS	1	\$50,000.00	\$50,000.00
SECTION 2 SUBTOTAL					\$2,020,000.00
COST OPINION TOTALS					
PREFERRED TRAIL ROUTE CONSTRUCTION (Williamstown Segments Only)					\$2,970,000.00
15% CONTINGENCY					\$446,000.00
SUBTOTAL					\$3,416,000.00
8% PRE-CONSTRUCTION SURVEY, FINAL DESIGN/ENGINEERING & PERMITTING					\$273,000.00
15% INCIDENTALS (Construction Inspection, Materials Testing, General Administration)					\$512,000.00
TOTAL (Includes 15% Contingency, 8% Pre-Construction Design and 15% Construction Incidentals)					\$4,200,000.00

7.0 SUMMARY

The information included in this feasibility and investment study provides the basis for conducting the future efforts required to develop a formal bicycle and pedestrian trail system from Williamstown to North Adams. The actual implementation of the preferred or alternate routes as described in this report will require continued close coordination and involvement with both municipalities and their surrounding communities, individual private property owners, Williams College, the Massachusetts Department of Transportation District 1, MASS MoCA, and the Pan Am/Norfolk Southern Rail Company. With the completion of this study, the project has been shown to be technically feasible, affordable, and supported locally by the majority of the towns' residents and can move forward into the next steps of project development. It should be noted that each community will need to continue to discuss the project's opportunities and constraints and may eventually have to make a series of difficult choices concerning the preferred routing and potential impacts. The design goals, listed below, that have been developed and used to evaluate and select a preferred alternate should continue to be utilized as the project design becomes more detailed.

- Provide a safe and user-friendly pedestrian/bikeway trail that could reasonably be used by a typical family with children
- Locate the trail off road as much as feasibly possible
- Maintain a universally accessible grade to accommodate users of all abilities
- Maintain the historical trail route between Williamstown and North Adams
- Locate the trail near and provide public accessibility to the Hoosic River and its floodplain
- Maintain vistas for trail users
- Provide accessibility to commercial and retail properties (including museums)
- Protect significant and/or sensitive natural and historical resources
- Protect private property

The BRPC will continue to assist the advisory committee and the communities in the advancement of the Mohawk Bicycle/Pedestrian Trail project.

3926-01-8-jn3010-rpt

APPENDIX A

Mohawk Bicycle/Pedestrian Trail

Trail Routing Plans – Index/Figures 1-9

Illustrative Trail Sections – Sheets 1-6

Selected Illustrations – Sheets 7-8

APPENDIX B

**Pan Am Railway Coordination Materials
(Railroad Valuation Maps – Reduced Scale)**

APPENDIX C

**Route 2 and Massachusetts Highway (Department of Transportation)
Coordination Materials (Maps at Reduced Scale)**

APPENDIX D

**Natural Heritage and Endangered Species Program Evaluation and Resources Map
Massachusetts Historical Commission – Project Notification Form and Map**

APPENDIX E

**Stakeholder/Abutters Mailing List for Public Meeting Notice
North Adams Assessor's Cards for Potentially Impacted Property Owners**

APPENDIX F

Public Information Submitted Materials

APPENDIX G

Flood Insurance Rate Map – Town of Williamstown, Panel Number 250046 0020 B
Flood Insurance Rate Map – City of North Adams, Panel Number 250034 0005 B
