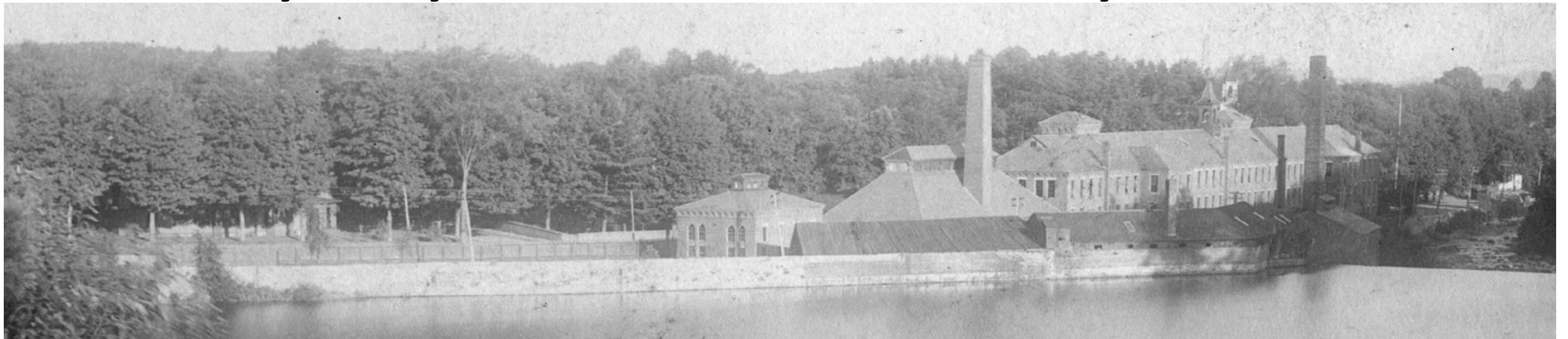


**Draft Report**

# **Feasibility Study for the Mill River Greenway at the Brassworks**



Town of Williamsburg, Mill River Greenway Brassworks Subcommittee

November 15th, 2015

**Draft Report**

# **Feasibility Study for the Mill River Greenway at the Brassworks**

***Prepared for:***

Town of Williamsburg  
Mill River Greenway Committee  
Brassworks Area Subcommittee

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November 15th, 2015

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# Site Analysis: History of the Brassworks

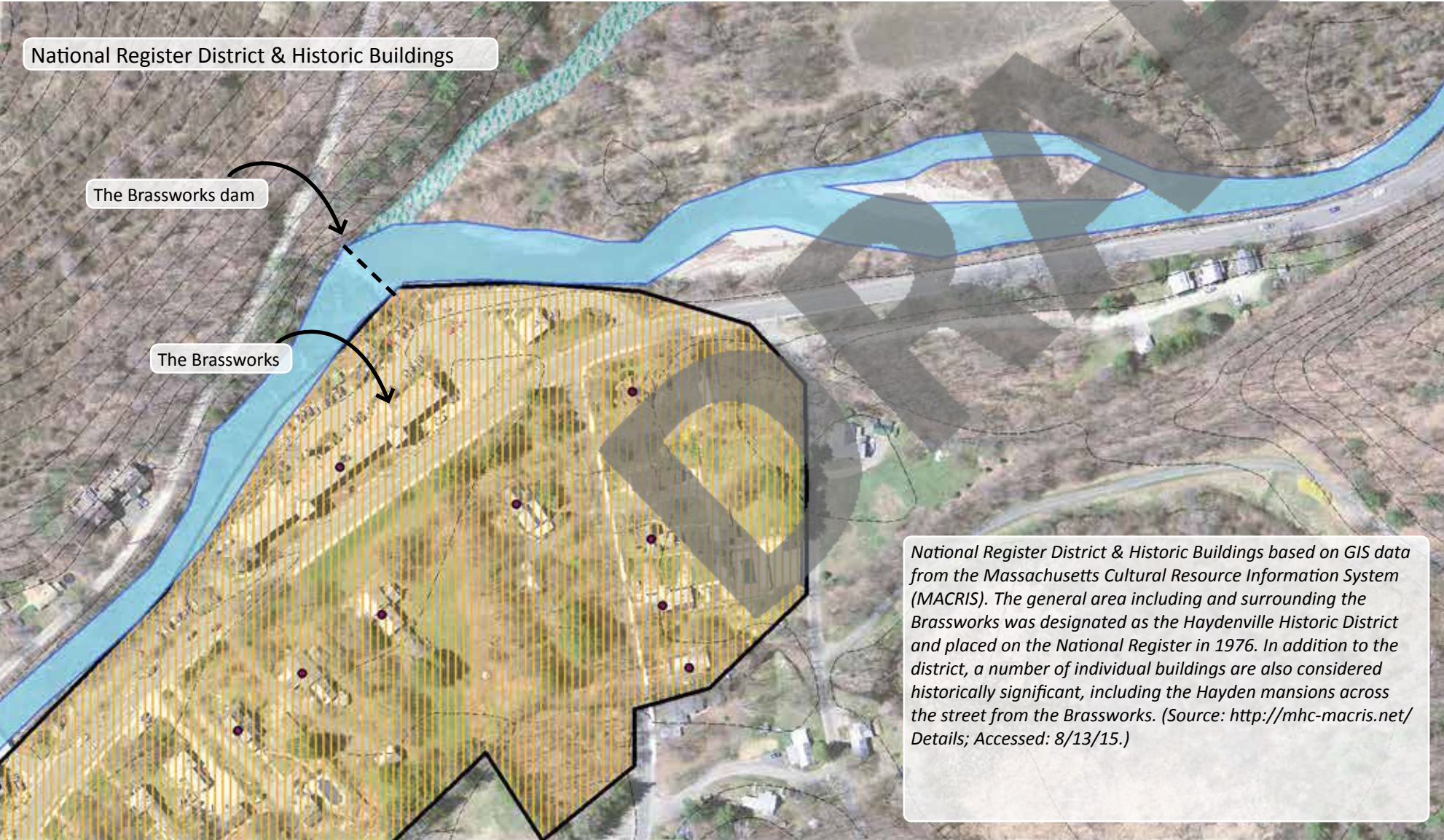
## Summary

The Mill River once served as the principal source of power for local industry, and therefore played a large role in determining the pattern of settlement and economic activity along the river in the 17th and 18th centuries. In 1874, a poorly constructed dam upstream in Williamsburg burst, causing a flood that severely damaged the Brassworks and other mills along the river, completely destroying Skinnerville and the center of Leeds. With 139 people killed, it was the worst dam disaster the nation had seen up to that time.

Known as the Hayden and Gere Brass Works at the time, the Brassworks was owned by the Hayden brothers, after whom the village of Haydenville is named, and was one of the largest producers of brass plumbing fixtures in the nation. After the Brassworks was rebuilt, it was sold but continued to produce brass castings until 1954. The 1874 flood severely damaged the Brassworks dam, which

had supported a large millpond in the river's flood plain (see sheet 5 for map of former millpond). The dam was rebuilt with the mill, but began to decay after the Brassworks closed in 1954. By 1970, the flashboards holding the water level 2-4' higher had disintegrated. Today, the river cuts its way through the remains of the dam and the pond is much reduced in size. While further damaged in Hurricane Irene, the dam continues to impact the ecology of the river and is the site of ice jams during the spring thaw.

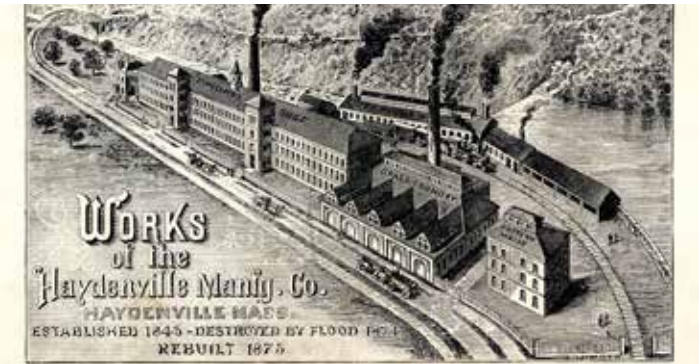
Having stood empty for nearly 30 years, the Brassworks was rehabilitated by a group of investors in 1982 with the help of a federal block grant that established the Brassworks Reuse Fund. In 1993, the Hilltown Cooperative Charter Public School was founded at the Brassworks, where it served hundreds of children until the summer of 2014, when it moved to Easthampton. Currently owned by Herb Berezin, the Brassworks provides office space for rent, but is under-occupied.



The Brassworks was severely damaged by the 1874 flood. Some of the original foundation still remains. (Source: [digitalcommonwealth.org](http://digitalcommonwealth.org); accessed 8/17/15.)



After the 1874 flood, residents gather along the Mill River to see the extent of the damage. (Source: [digitalcommonwealth.org](http://digitalcommonwealth.org); accessed 8/17/15.)



Despite the destruction of the 1874 flood, the Brassworks was rebuilt and thriving shortly thereafter, as illustrated by this 1875 rendering. (Source: WHS)



Damaged by storms, the dam is perhaps half its original height, and what remains of the former pond is filled with sediment. Much of the original pond area is growing in with vegetation.



# Site Analysis: History of the Surrounding Landscape

## Summary

The historic landuse surrounding the Brassworks and its former Mill pond was primarily agricultural. From the time the area was settled in the 1700s, the land along the river was cleared for pastures, orchards and field crops. From historic photos, it appears that much of the land was open through the 1960s, with the exception of some large trees. From historic aerials (see Appendix A), it appears that the land began to revert to forest in the 1970s. In recent years some of the land along the river was cleared again for agriculture by Valley View Farm. (see Appendix A).

## Observations

- The Brassworks building, many neighboring structures, and the general district are historically and culturally significant to the history of Haydenville.

- The Brassworks dam is only a few feet high (reflecting damage from Hurricane Irene in 2011) and the lower water levels have greatly reduced the size of the former Millpond.

## Implications

- The Brassworks could serve as an important natural, cultural and historic interpretive node within the larger Mill River Greenway.
- The dam and former mill pond changed historic hydrological patterns and soil conditions and continue to affect conditions along the upstream corridor.

## Historic Photo Timeline:



**1910:**  
*The mill pond extended northwest from the Brassworks. This photo shows the extent of the pond reaching even further perhaps than the historic 1873 map (lower left corner).*



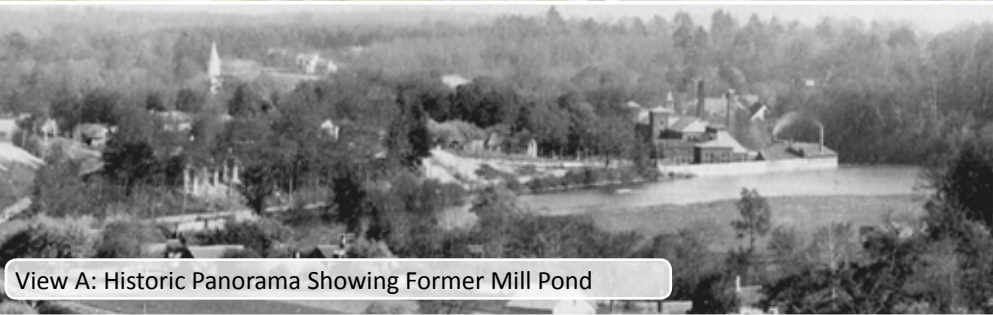
**1921:**  
*West of the Mill River, the land was cleared for pasture, and occasional recreational use up until 1946. This photo likely captures the town's 150th anniversary celebration.*



**1940-1965:** *This photo shows the foundation of a bridge that once connected Route 9 to the west side of the river. The photo shows the land being used as a cow pasture, with scattered Elm trees, now deceased.*



**1960s-1970s:** *This photo shows the presence of a few big trees in the background along Walpole Road, and orchards on Miller's Hill.*



View A: Historic Panorama Showing Former Mill Pond

An historic map of Haydenville from 1873, overlaid with a recent aerial photograph, shows the extent of the former millpond.



# Site Analysis: Parcel Boundaries

## Summary

The most likely route of the proposed shared-use path must cross the property of four land owners: Herb Berezin, Susan Fortgang and David Nehring (who own Valley View Farm), Eversource Energy and the Town of Williamsburg. A clear understanding of property boundaries is needed in order to resolve current uncertainties about land ownership in some areas along the river.

## Observations

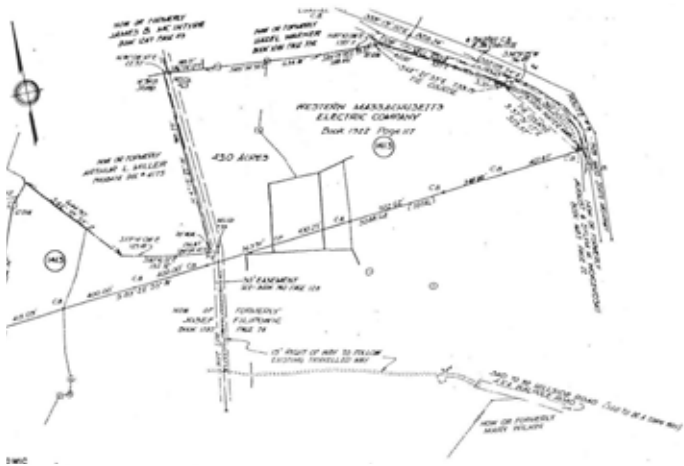
- In order to secure the route for the shared-use path, the town will need to negotiate with land owners to obtain, through purchase or donation, easements or fee ownership of the path corridor.
- Differences between the available property surveys have resulted in some

uncertainty about land ownership.

- The Town Assessor’s map from GIS aligns more accurately with the 1976 survey than it does with the 1916 survey, although it still does not align perfectly.
- The river appears to have served as a property boundary for the 1916 Valley View Farm survey, and has apparently shifted in its course over time.

## Implications

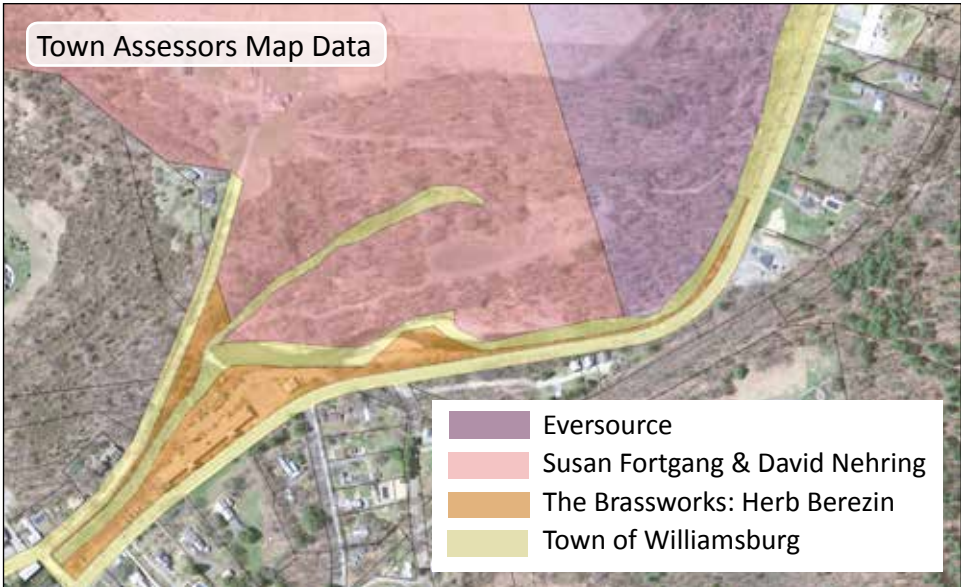
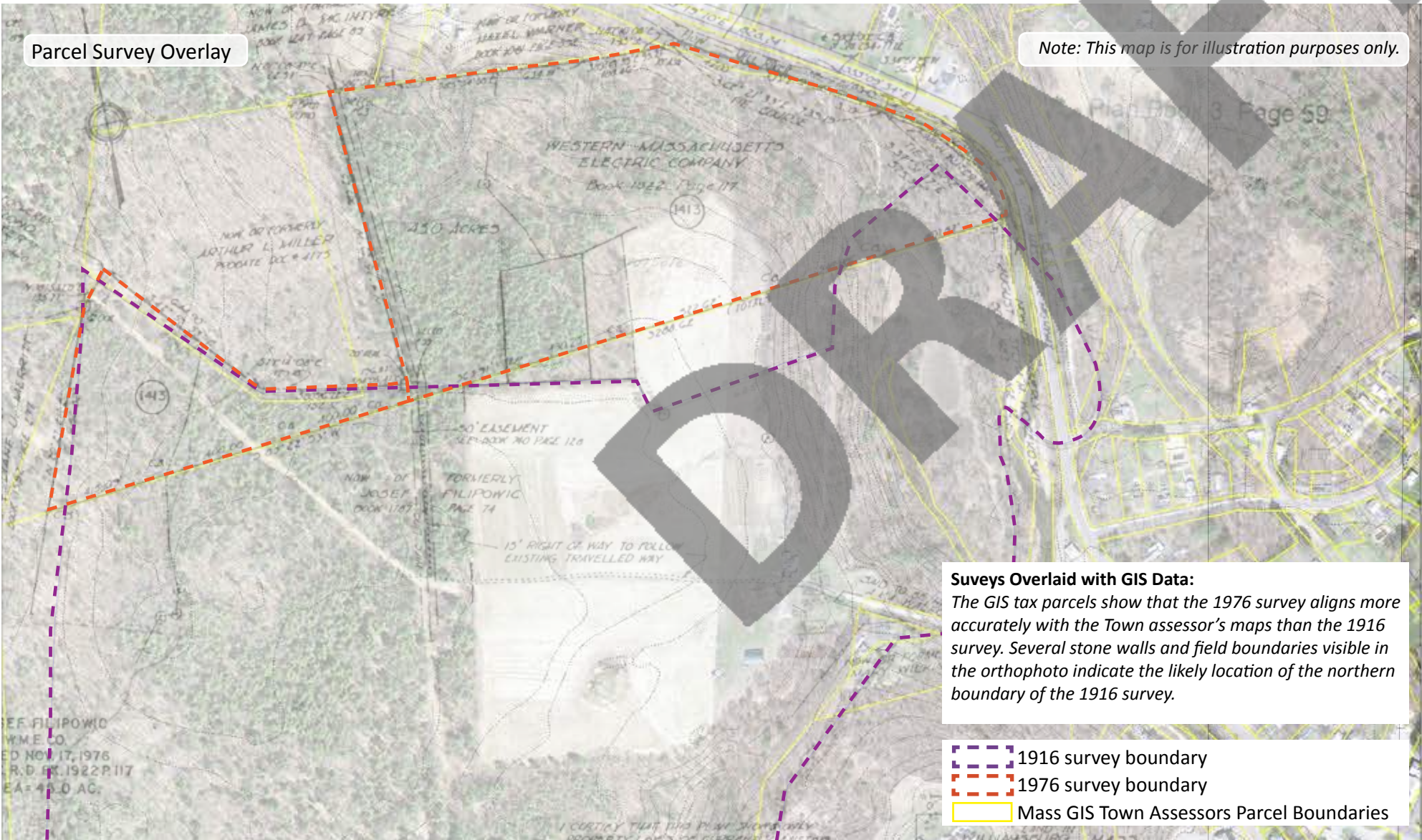
- A definitive boundary survey of the properties would resolve discrepancies and help move the project forward. Ownership of the river itself also needs to be clarified.



**1976:**  
The parcel that Eversource Energy (a public utility company) owns is not currently being utilized. Eversource may be willing to sell the parcel.



**1916:**  
The parcel map for what is now Valley View Farm does not align well with either the 1976 survey nor the town’s current GIS level 3 assessor’s maps (see overlays, opposite). However its northern edge does seem to align with the field edge and stone walls visible on the aerial photo.





# Site Analysis: Zoning, Parking and Traffic

## Summary

Zoning requirements are unlikely to impact the design or construction of the shared-use path, but they do affect land use in the corridor. Under current zoning requirements the Brassworks only has enough parking to service about 40% of the available floor area. Reducing the number of parking space to accommodate the shared-use path would exacerbate the problem.

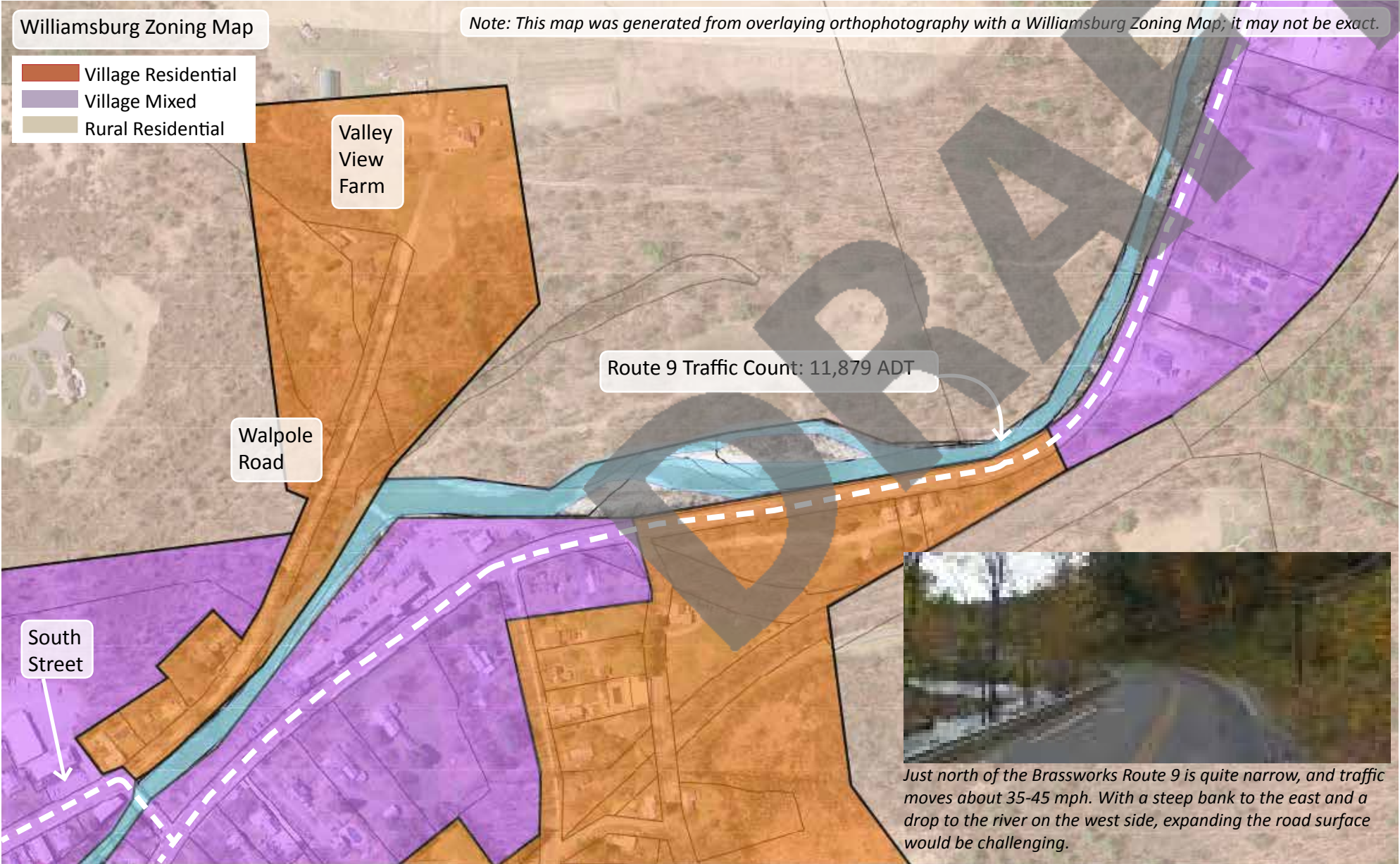
## Observations

- The Brassworks is zoned as Village Mixed.
- Village Mixed zoning requires 1 parking spot per 250 square feet.

- The Brassworks is 58,001 square feet with roughly 90 parking spaces.
- To meet the requirements of the zoning bylaw the Brassworks needs 232 parking spots, but it is 142 parking spaces short.
- A small part of the Valley View Farm is zoned as Village Residential and the rest is zoned as Rural Residential.
- The number of people traveling up Walpole Road to Valley View Farm to visit the farm stand and other uses has grown and will likely increase in the future.
- Route 9 is a busy road (11,879 Average Daily Trips (ADT) moving 30-40 mph) with narrow shoulders and short sight lines due to curves.

## Implications

- Under current zoning, redevelopment of the Brassworks is limited by available on-site parking to approximately 22,500 square feet
- The Zoning board may need to waive zoning regulations or change them to allow for additional use: a more reasonable standard of 3 spaces per thousand square feet of floor area would still require 174 spaces.
- Walpole Road would become busier with the expansion of the farm stand and other offerings, but it is already a narrow road (about 13’ wide in some areas) with no shoulders and a relatively steep grade.



The number of the Brassworks parking spaces (90) was estimated using orthophotography. The Town Building inspector should be consulted to more accurately determine parking code requirements.



Walpole road is the only public access to Valley View Farm. The potential for widening the road is limited due to the steepness of the adjoining slopes.



There is little additional land on the Brassworks property to expand parking. Addition of a shared-use path could reduce the amount of available parking.



# Site Analysis: Soils

## Summary

In general the project site has fine, sandy loam and is well draining. Half of the site’s soil is characterized by very steep slopes and the other half by broad, flat alluvial deposits laid down by the river, augmented more recently by siltation within the former mill pond (see p. 5 for historic map overlay).

## Observations

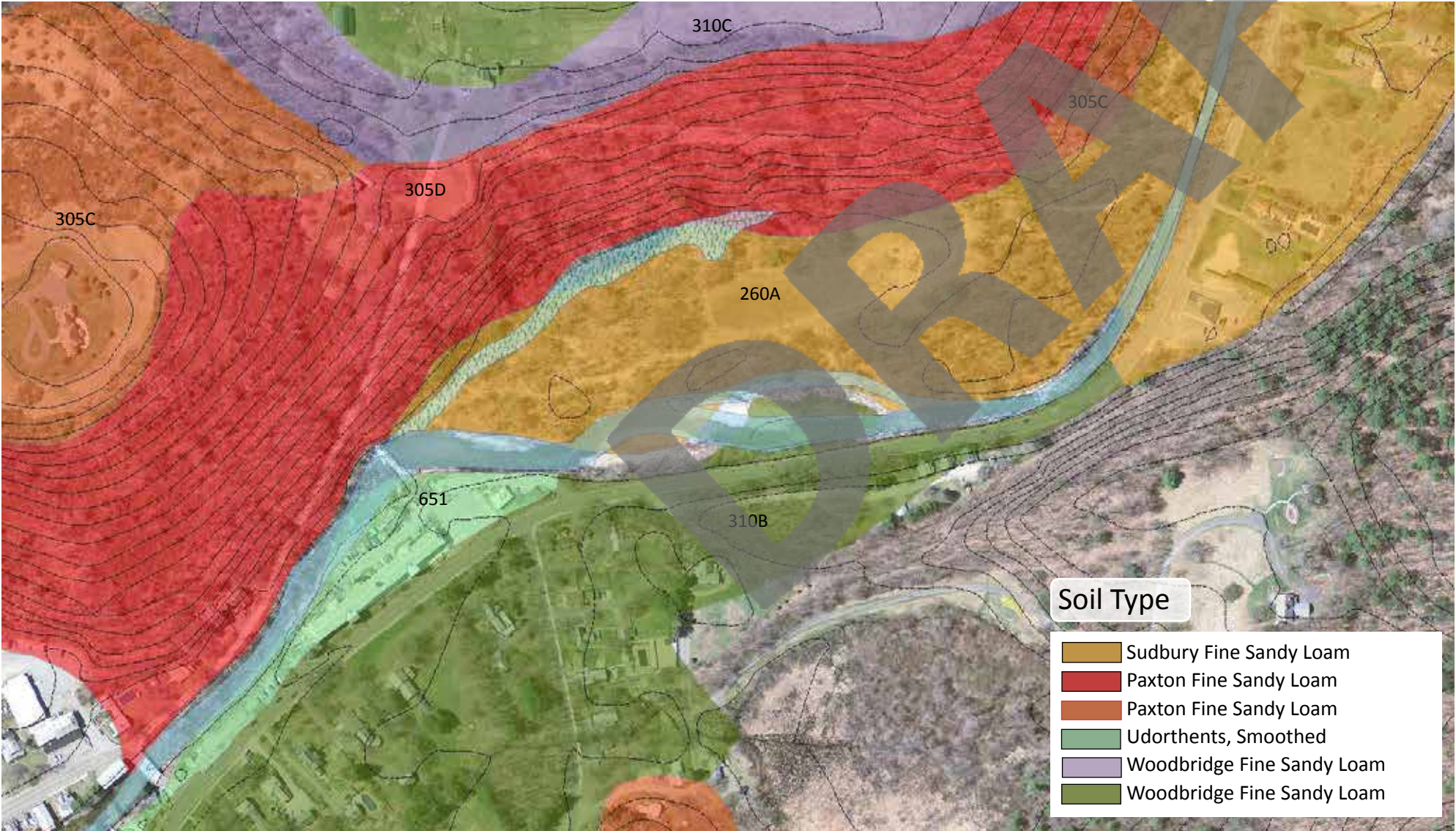
- Paxton Fine Sandy Loam (305D): Steep slopes are subject to erosion.
- Sudbury Fine Sandy Loam (260A): The depth to bedrock along the western side of the Mill River northwest of the Brassworks is 80”, with implications for the design of bridge footings/foundations. This soil has good drainage and the water table is deep enough that it should not interfere with trail construction. This soil is considered Prime Farm Land.
- Prime Farm Land: The stretch of land on the western portion of the river northwest of the Brassworks has been partially cleared and is being farmed by

Valley View Farm.

- The soil survey does not accurately reflect the current path of the Mill River.

## Implications

- Paxton Fine Sandy Loam (305D): Because this soil has a high runoff class and may be erosive, maintaining forest cover is the best way to prevent erosion.
- Sudbury Fine Sandy Loam (260A): Putting the shared-use path through this area would take minimal grading, however soil borings will need to be done to determine the feasibility of installing bridge foundations/pilings.
- Prime Farm Land: Fertile soil along the river supports a healthy crop of invasive species, but will also support any landscaping included as part of the future greenway.
- The path of the river has changed dramatically over time. This should be kept in mind when siting the shared-use path.



## Soil Descriptions

### 260A: Sudbury Fine Sandy Loam:

- Slopes: 0-3%
- Landform: outwash plains
- Depth to restrictive feature: more than 80”
- Depth to water table: 18-36”
- Drainage: moderately well drained
- Runoff class: very low

### 305C/D: Paxton Fine Sandy Loam:

- Slopes: 305C: 8-15%; 305D 15-25%
- Landform: hills
- Depth to restrictive feature:

20-37”  
to dense material

- Depth to water table: 18-30”
- Drainage: well drained
- Runoff class: high

### 310B/C: Woodbridge Fine Sandy Loam:

- Slopes: 310B: 3-8%; 310C: 8-15%
- Landform: ground moraine, drumlins, hills

- Depth to restrictive feature: 20-39” to dense material
- Depth to water table: 18-30”
- Drainage: moderately well drained
- Runoff class: medium



*This soils by slopes map shows fine sandy loam on steep slopes on the west side of the Mill River which are prone to high runoff and erosion. To the south, similar soil (Paxton Fine Sandy Loam) on more moderate slopes is rated very differently.*



*Fine sandy loam in flat areas can be ideal conditions for farming. The band on the west side of the river shows where slopes are too steep for farming, despite similar soil quality.*



# Site Analysis: Slopes

## Summary

Half of the site is characterized by steep, wooded slopes and the other half by a flat, forested flood plain, with occasional open patches.

## Observations:

- A band of steep slopes wraps around the west side of the Mill River, hugging the flat flood plain. Grades range between 20 and 40%.
- Slopes above 15% are not good for building roads or paths in New England.
- Roads/paths with a grade of 10-15% are drivable (though may require four-wheel drive in the winter, but would be challenging for cyclists).
- MassDOT limits shared-use paths to 5% slopes or less without a handrail and 8.3% with a handrail.
- It is possible that the shared-use path could follow the contours next to the

river’s west bank without exceeding 5% slopes, but this would require extensive clearing and engineering to create a continuous terrace or cantilevered boardwalk.

- Slopes on the east side of the Brassworks do not exceed 5%.
- The flood plain has less than 5% slopes.

## Implications:

- The western slopes are not good for building in general and are most likely too steep for building the shared-use path according to MassDoT guidelines.
- Putting the shared-use path through the floodplain would take minimal grading, however soil borings will need to be done to determine the feasibility of installing bridge foundations/pilings.

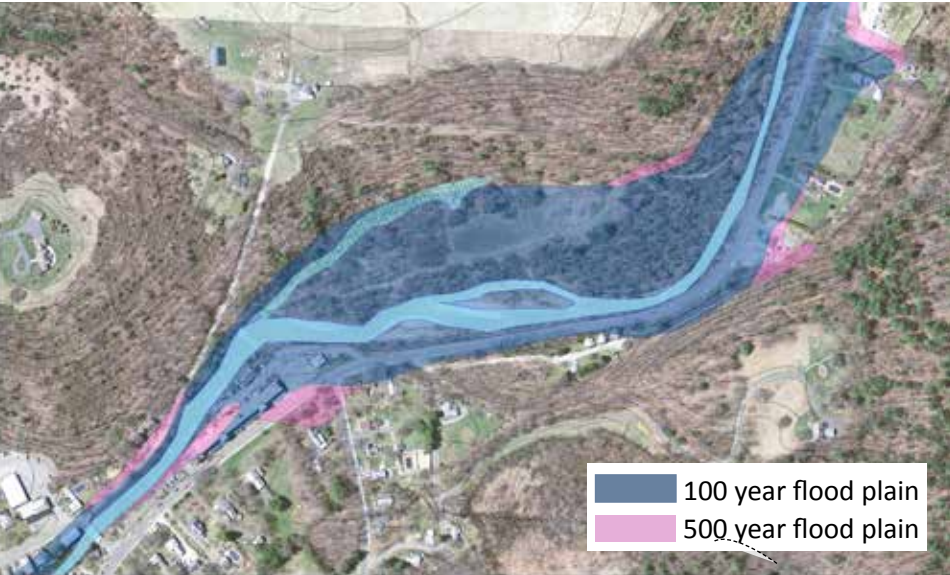


The area west of the dam is characterized by steep, forested slopes, most of which are above 30% and plunge abruptly to the edge of the river.



Left: The slope on the west side of the Mill River is densely forested. Significant clearing would have to occur in order to create a shared-use path through this area.

Below: The 100-year flood plain is constrained by the surrounding slopes, with narrow areas of transition that make up the 500-year flood plain.





# Site Analysis: Hydrology & Wetlands

## Summary

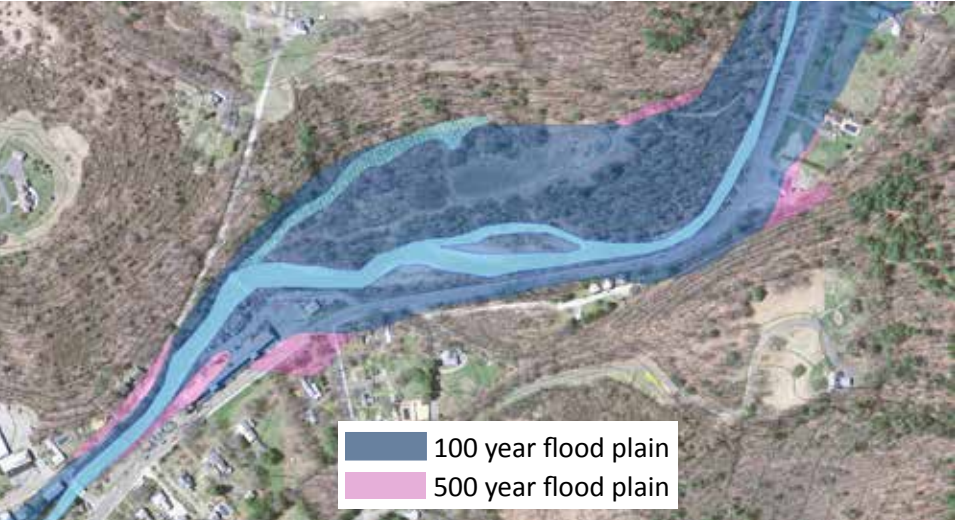
The project site is almost entirely within river and wetland buffers subject to the Massachusetts Wetlands Protection Act. Sensitive construction, building, and farming practices are required in this area.

## Observations

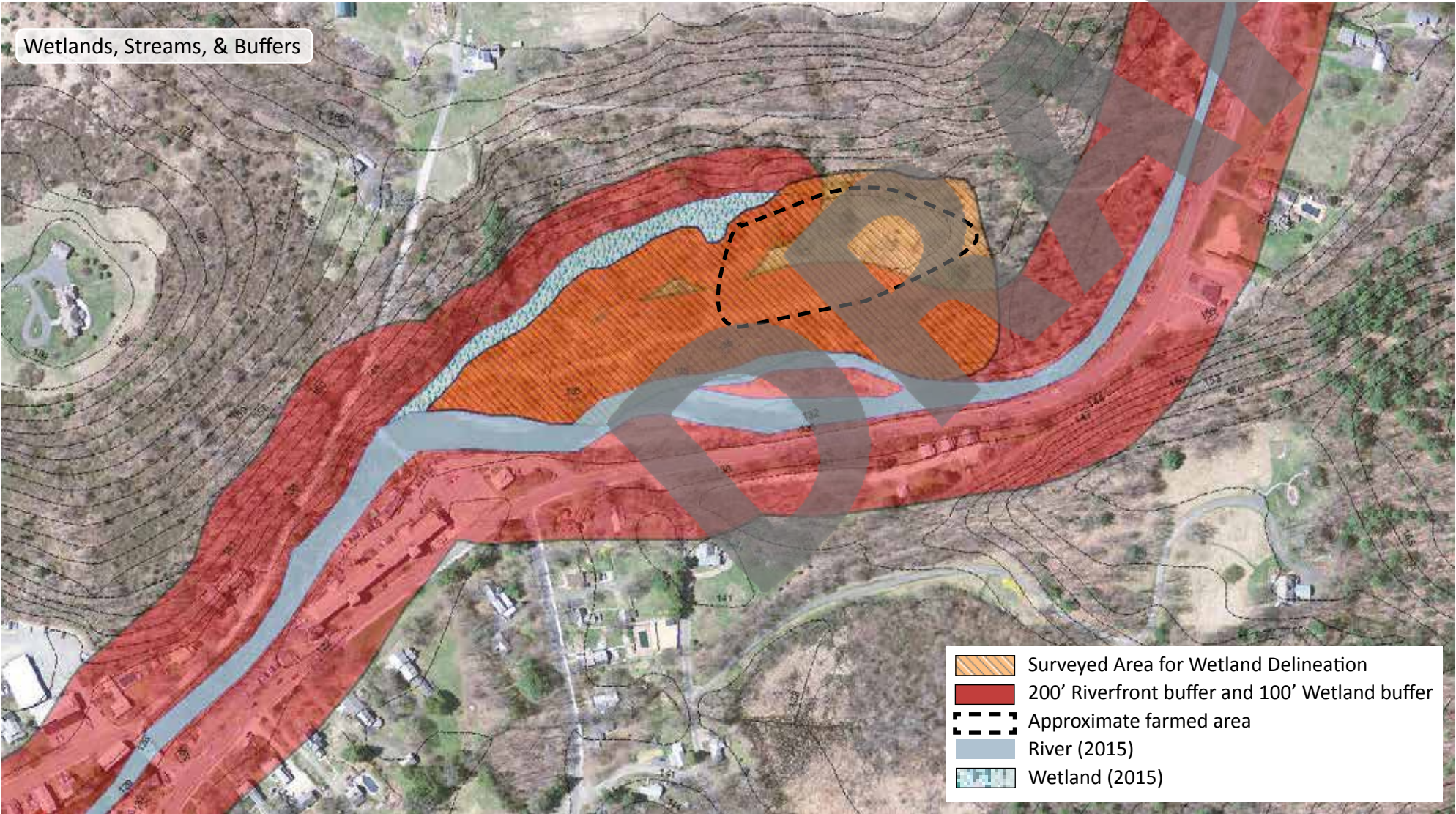
- The proposed shared-use path will have to pass through both the 200 foot stream buffer and the 100 foot wetland buffer, as well as the 100 year flood plain.
- Current GIS data for hydrology does not match the existing conditions.
- The Brassworks dam was further damaged in Hurricane Irene, lowering the level of the water and likely changing the actual area of the flood plain.
- The river has moved over time and will continue to move.
- Valley View Farm had a formal wetland delineation done to confirm they were not farming within a wetland, which was reviewed by the Williamsburg Conservation Commission.

## Implications

- Since the entire project will likely fall within the wetland and riverfront buffers, the design and construction methods employed must minimize impact in the resource areas (e.g. best management practices and minimized hardscaping).
- If any of the wetlands are filled in during the process of building trails and bridges, the design of the shared-use path and park would have to include space for wetland replication and compensatory flood storage.
- The shared-use path and any bridges should be designed to handle occasional flooding.
- The Valley View Farm is currently farming within the wetland buffer, but not within a wetland itself.
- An up-to-date delineation of wetland and floodplain boundaries may be needed to support detailed design and permitting for the multi-use path and bridges.



Above: The shared-use path will have to go through the 100 year flood plain.  
Below: Valley View Farm had a wetlands survey done to confirm they were not farming in a wetland area.



WETLAND BOUNDARY AND GROUNDWATER OBSERVATION PIPE LOCATIONS SHOWN ON PLAN ARE APPROXIMATE ONLY, INTENDED TO FACILITATE ON-THE-GROUND REVIEW AND FOR GENERAL REFERENCE. LOCATIONS BY GPS WITH TYPICAL 2 METER OR BETTER ACCURACY.

AERIAL PHOTO FROM MASS GIS, OLIVER, BING BASEMAP, PRIOR TO DISTURBANCE.

NONE OF THE OBSERVATION PIPES SHOWED WETLAND HYDROLOGY DURING THE MONITORING PERIOD, 4/17/14 - 5/10/14. DOMINANT SPECIES IN DISTURBED AREA APPEARS TO HAVE BEEN MULTIFLORA ROSE (*Rosa Multiflora*).



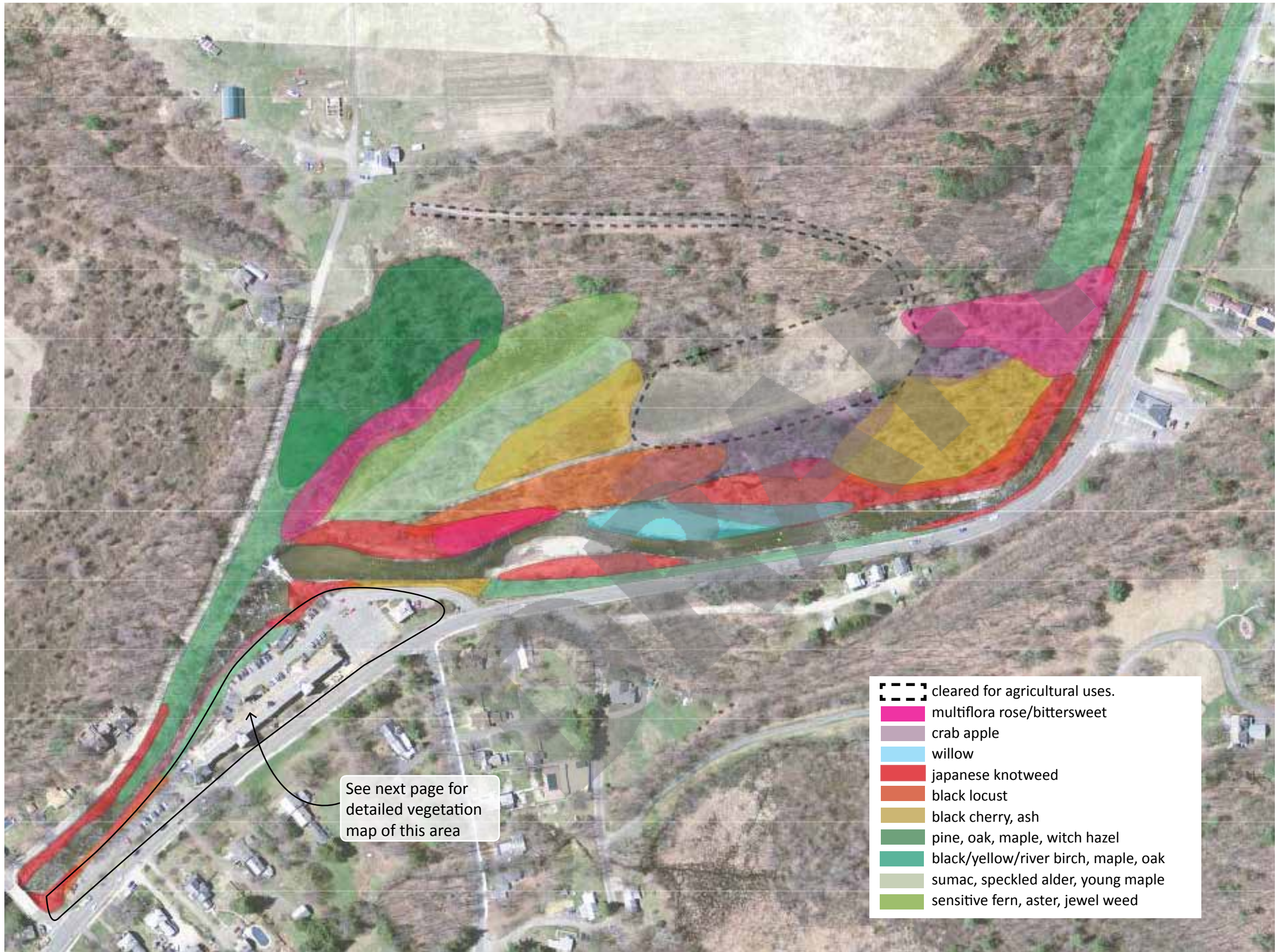
PLAN OF  
WETLAND DELINEATION NEAR  
RECENTLY DISTURBED AREA  
16 WALPOLE ROAD  
HAYDENVILLE, MA

5/10/14

PREPARED BY:  
CHARLES H. DAUCHY  
ENVIRONMENTAL CONSULTANT  
24 OLD LONG PLAIN ROAD  
LEVERETT, MA 01054  
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email: cdauchy@wildblue.net



# Site Analysis: Vegetation (Dominant Plant Communities)



**Summary**

Much of the project site is characterized by early successional species with some patches of older trees and later successional species. An orthophotograph dating back to 1962 shows that much of the landscape was cleared (see History, sheet 6), except for some trees along Walpole Road and along the narrow banks of the river adjacent to the Brassworks. The forest gradually grew in over time, until part of it was cleared again by Valley View Farm between 2010 and 2012. Valley View Farm is using an old road to access a few acres in the flood plain, demarcated by the dotted line in the diagram to the left. Besides the patch of more mature species, there are very few trees with trunks with a diameter larger than 1' (see Appendix).

- Observations**
- Invasive and aggressive early successional species dominate the landscape, especially along the banks of the river.
  - Japanese Knotweed is one of the most dominant species within the project site.
  - Black locust is the most dominant tree within the project site.
  - There is a patch of older, higher quality species along the west bank of the river and covering the forested slopes.

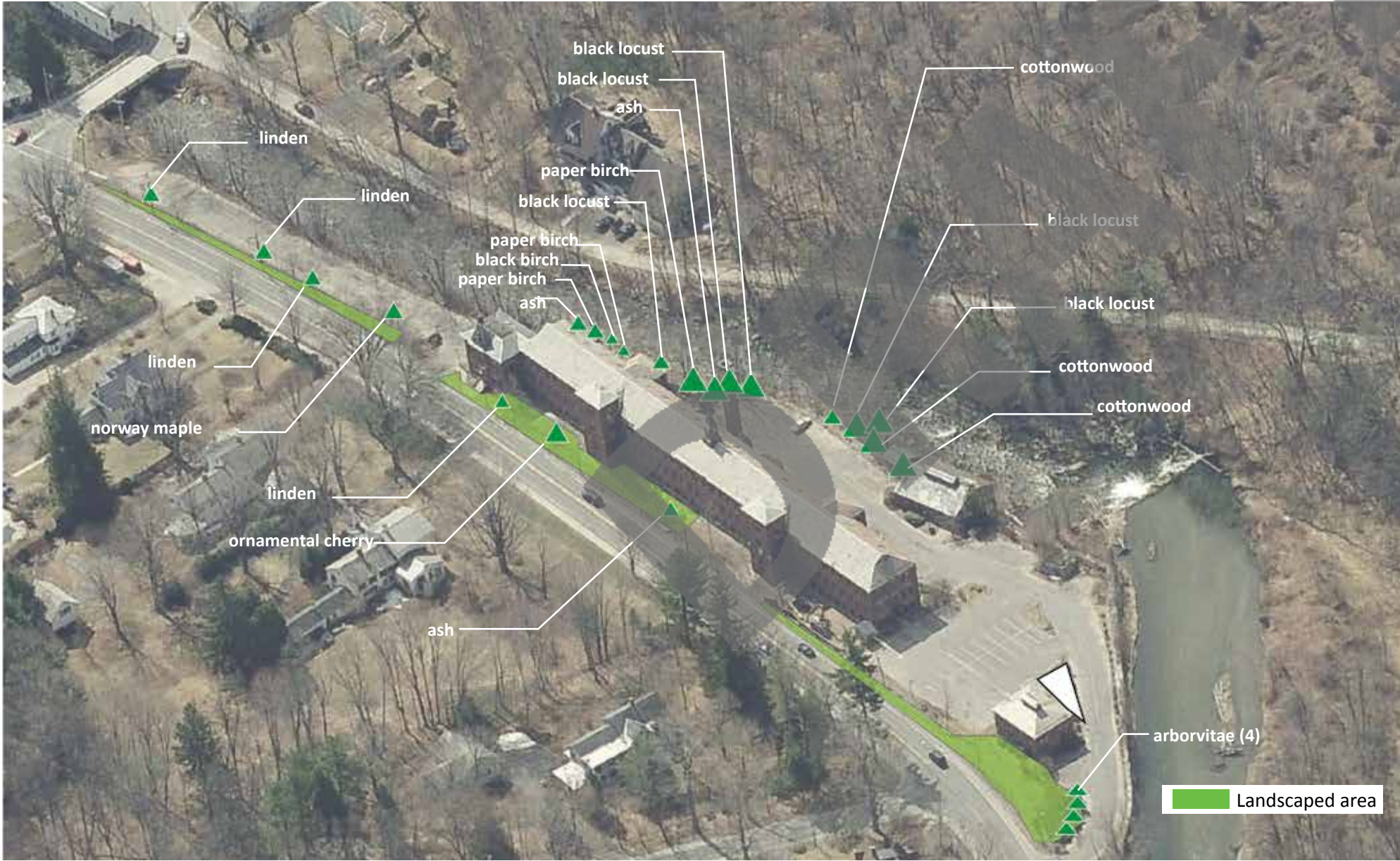
- Implications**
- Consistent clearing of the land has given an advantage to invasive species and aggressive natives.
  - An invasive species management regime should be put into place, especially for the management of Japanese Knotweed.
  - Patches of more mature species (pine, oak, maple, witch hazel, and birch) should be preserved.
  - If more land is cleared for farming, areas with invasive species should be cleared first.



# Site Analysis: Vegetation (Brassworks Landscaping & Adjacent Volunteer Trees)

## Summary

The Brassworks has a limited amount of trees and other landscaping surrounding the building and parking lots. In general, the landscaping on the west side of the Brassworks along the river is less cared for and has grown up with a mix of native volunteers and invasive species.



*A linden in front of the Brassworks adjacent to route 9 leans towards the road.*



*Some relatively young landscape trees line the parking lot along Route Nine. Most of the trees are Lindens and Norway Maples, and all have trunks that are less than 12" in diameter.*



*There is a stand of arborvitae by the main entrance to the Brassworks.*



*Some volunteer trees (mostly black locust, birch, and ash) have grown up along the flood wall on the west side of the Brassworks. Most are relatively young, with trunks of 12" diameter or less.*



# Site Analysis: Ecological Value, Wildlife, & Conservation

## Summary

The project site falls within designated Priority and Estimated Habitat under the Natural Heritage & Endangered Species Program. This site is also designated as “Core Habitat” under Biomap2, which was developed by the Massachusetts Department of Fish and Game through the Natural Heritage and Endangered Species program in order to protect the state’s biodiversity within the context of climate change. According to BioMap2, “Core Habitat identifies key areas that are critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth” (p. 4, BioMap2, 2012).

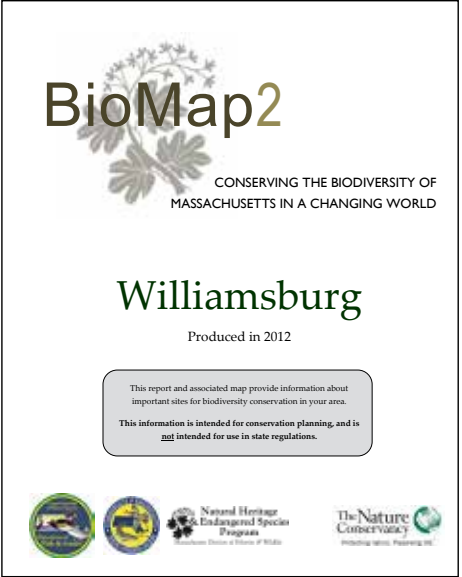
## Observations

- Species of concern along this stretch of the river include the Ocellated Darner and the Northern Black Racer.
- The Ocellated Darner is a dragonfly whose nymphs need clear, shallow, swift, rocky streams. They are very sensitive to water quality.
- The Northern Black Racer is a snake that inhabits young upland forests. Though they are relatively common, their habitat appears to be disappearing.

## Implications

- Because the site is designated as NHESP habitat, the proponents of the project will need to obtain a state permit under the Massachusetts Endangered Species Act (MESA).

- The project will likely be permitted, but disturbance should be minimized and concentrated in areas where disturbance has already occurred.
- Mitigation of existing issues of erosion and invasive species could improve the ecological health of the Mill River as part of the project.
- Educational signs could help residents learn about the value of the forest and foster environmental stewardship.
- Best management practices should be used during construction to ensure that disturbance to sensitive habitat is minimized.



Detailed reports are available from the state for designated BioMap Core Areas.



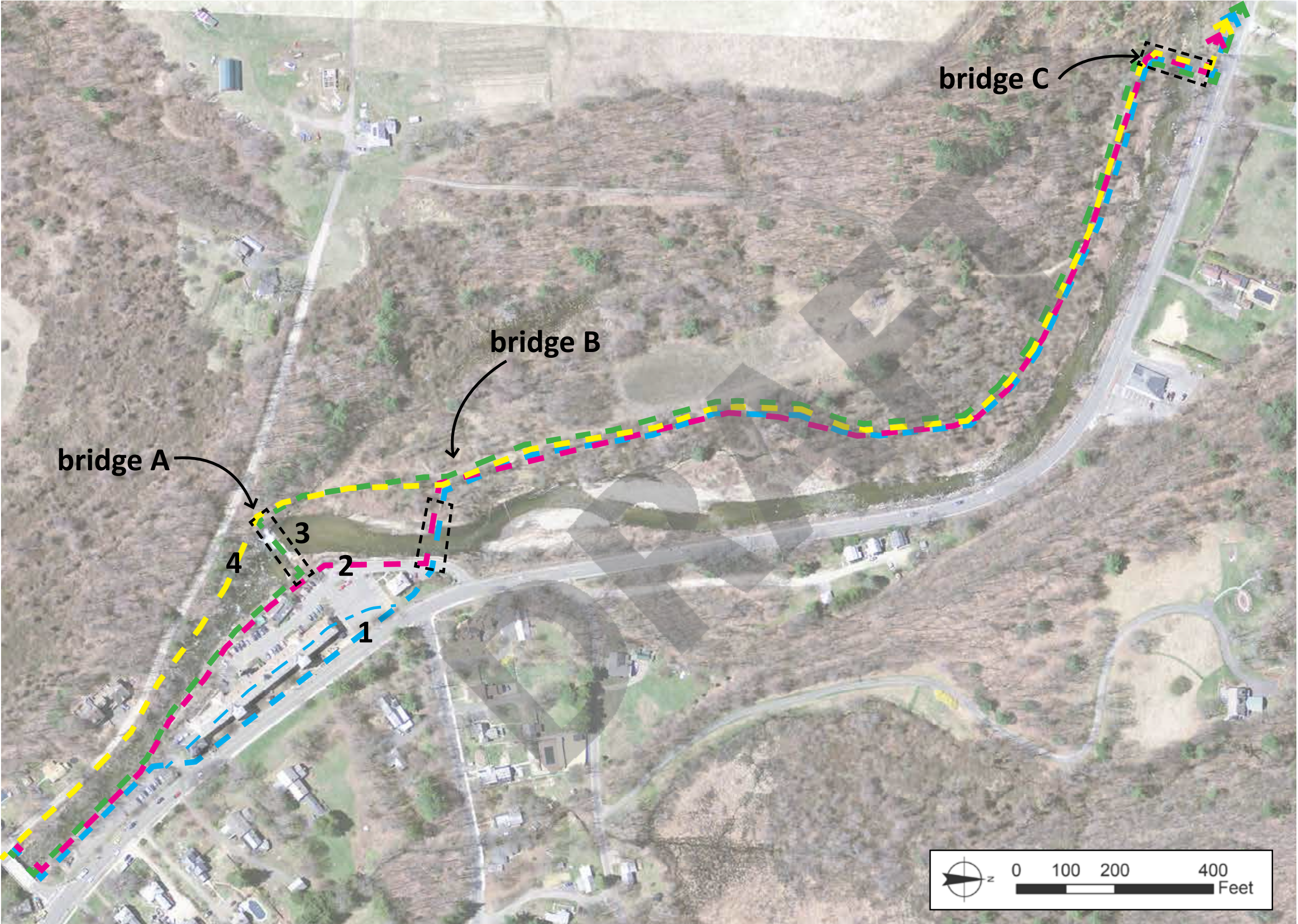
Left: A northern black racer warms up on a sunny river rock.



Left: The ocellated darner needs cold clear water to survive.



# Alternatives: Overview



The following alternatives focus on four different possibilities for how the shared-use path will pass through the Brassworks area (shown left). North of the Brassworks, the four alternatives converge on the west side of the Mill River. From this point is assumed that the shared-use path will travel parallel to the river bank on the west side of the Mill River before crossing bridge C, therefore all of the alternatives require bridge C. Alternative 1 and 2 also require bridge B. Alternative 3 also requires bridge A.

An interesting option to consider for Alternative 1 is to place a portion of the path through the Brassworks building itself.



# Alternative 1: Along Route 9 - “the Path of Least Resistance”

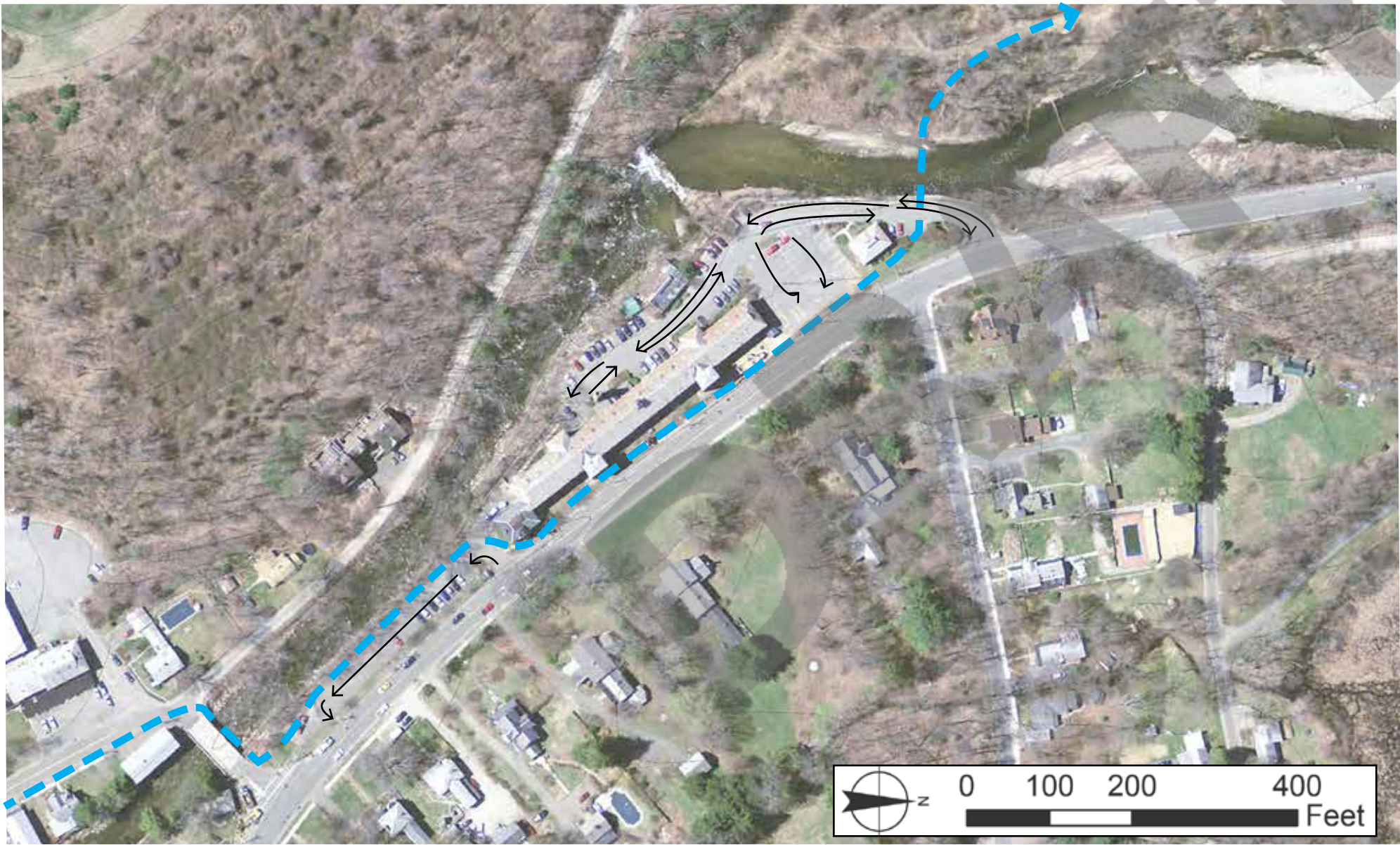
The path passes between the Brassworks and Route 9, below a retaining wall, with a new bridge crossing the river at the north end of the Brassworks. Vehicular circulation remains the same in the main Brassworks lot and no parking is lost. Parking in the southern lot moves closer to Route 9 and circulation becomes one way.

**Pros**

- 1. The path does not remove parking from the main lot behind the Brassworks.
- 2. The path is visible to drivers from the road.
- 3. The path winds through a shaded area in front of the Brassworks.
- 4. Trail users will get a several views of the river.

**Cons**

- 1. The path will cross car traffic near the main northern entrance.
- 2. The shared-use path will cross in front of the loading dock, creating potential conflicts.
- 3. This alternative will require a 2 foot retaining wall along the southern parking lot so that parking can move closer to Route 9. .
- 4. There may be conflicts with some of the telephone poles and utility lines that run through between Route 9 and the Brassworks.
- 5. The southern-most entrance to the Brassworks building will need to be closed, but there is another entrance to the same floor around the corner.



**Photos of key areas**



In order to fit a 10’ path and the parking lot together, the width of paving will need to be expanded, which may call for a roughly 2’ retaining wall next to route 9.



Wrapping a 10’ path around the front of the Brassworks will impinge on the southern end of the building. Here, the stoop will need to be removed or relocated.



The path will continue around the north-east side of the smaller northern building. This may require the existing retaining wall be extended to the north.



The space between the Brassworks and route 9 is currently underutilized and in need of attention. The path and some adjacent plantings may have the potential make this space more functional and beautiful.



# Alternative 1: Questions & Next Steps

## Questions & Considerations:

- How will the path cross the existing bridge at the south end of the Brassworks property?
- Is it possible to make the southwest parking lot one-way, adding another/entrance exit on the end of the parking lot near the Haydenville library?
- How will the Brassworks be used in the future and how will this change parking requirements, particularly if more of the building were put into in residential use?
- Are there any potential conflicts between building uses and a path running between the building and Route 9?
- Will MassDOT approve a bikepath that shares space with a parking lot?
- Would the intersection of a bridge and the northwest entrance/exit to the Brassworks pose a problem for MassDOT? How close can the intersections be? Would vehicles need a stop or yield sign?

## Next Steps:

- Consult a traffic engineer to identify southwest parking lot constraints and requirements
- Consult with Brassworks owner to determine future use of the Brassworks
- Consult MassDOT for more details regarding turning, intersection, and signage requirements for the bikepath
- Commission a boundary and topographic survey as the basis for ongoing planning and design efforts.

DRAFT



# Alternative 2: Along the Eastern Riverfront

The shared-use path follows the edge of the river from the existing bridge north to a new bridge at the North end of the Brassworks property. Vehicular circulation remains the same, though the path compromises some parking spots. The southern parking lot moves closer to route 9 and becomes one way.

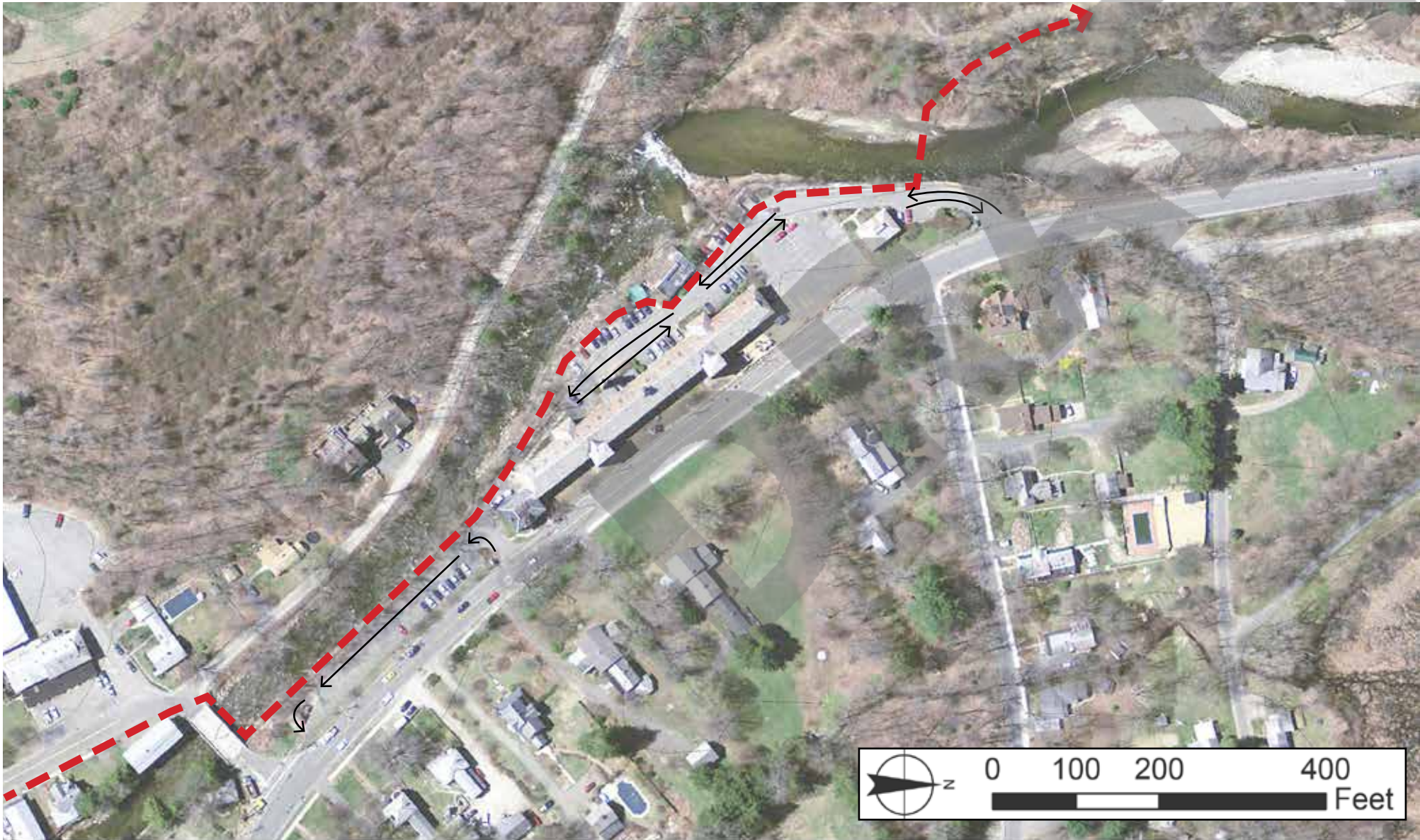
### Pros

- 1. Trail users are buffered from car traffic along route 9.
- 2. Trail users get a view of the entire length of the river behind the Brassworks.

### Cons

- 1. Significant excavation will be required to lower the existing the Brassworks loading dock to ground level.

- 2. MassDOT requires that there be a 3 foot clearance from the edge of the trail to objects/obstructions, and there is a pinch where this may not be possible.
- 3. The structural integrity of the building could be compromised by the removal of the loading dock.
- 4. The Brassworks parking lots will lose at least 8-10 parking spots, and the parking lot, which is already tight, will get tighter.
- 5. Tenant parking demand, as well as zoning requirements for parking, may eliminate this option.
- 6. Cars and trail users will share a small stretch of the parking lot road near the entrance. This may not comply with DOT Standards.



### Photos of key areas



In order to fit a 10' path and the parking lot together, the width of paving will need to be expanded, which may call for a roughly 2' retaining wall next to route 9.



Connecting the path from the southern parking lot to the back parking lot will be challenging because of an existing loading ramp. The ramp will need to be removed and the ground leveled.



Path users and vehicles would have to share a section of the parking lot, or parking will need to be eliminated.



With little room to widen the road, path users and two way vehicular traffic will have to share this portion of the road leading to the Brassworks entrance on route 9.



# Alternative 2: Questions & Next Steps

## Questions & Considerations:

- Is it possible to make the southwest parking lot one-way, adding another/entrance exit on the end of the parking lot near the Haydenville library?
- How will the Brassworks be used in the future and how will this change parking requirements?
- How will parking regulations of the zoning bylaws affect existing and potential uses within the Brassworks?
- Will MassDOT approve a bikepath that shares space with a parking lot?
- Is removing the loading ramp to create an at-grade passage for the path possible?
- Is the pinch spot in the passageway behind the Brassworks too narrow for MassDOT requirements, which requires 3 foot horizontal clearance on either side of the trail?
- Would the intersection of a bridge and the northwest entrance/exit to the Brassworks pose a problem for MassDOT? How close can the intersections be? Would vehicles need a stop or yield sign?

## Next Steps:

- Consult a traffic engineer to identify southwest parking lot constraints and requirements
- Consult with Brassworks owner to determine likely future use of the Brassworks
- Consult with the Town Building Inspector and Zoning Board to determine parking requirements/code and whether more parking can be eliminated.
- Get an assessment by a structural engineer of the feasibility of removing the loading dock and bringing the pavement back down to grade level
- Consult with MassDOT regarding whether the corner of the Brassworks counts as an “obstruction” for the horizontal clearance requirements (p. 9-2).
- Consult MassDOT for more details regarding turning, intersection, and signage requirements for the shared-use path.



# Alternative 3: Crossing at the Historic Dam

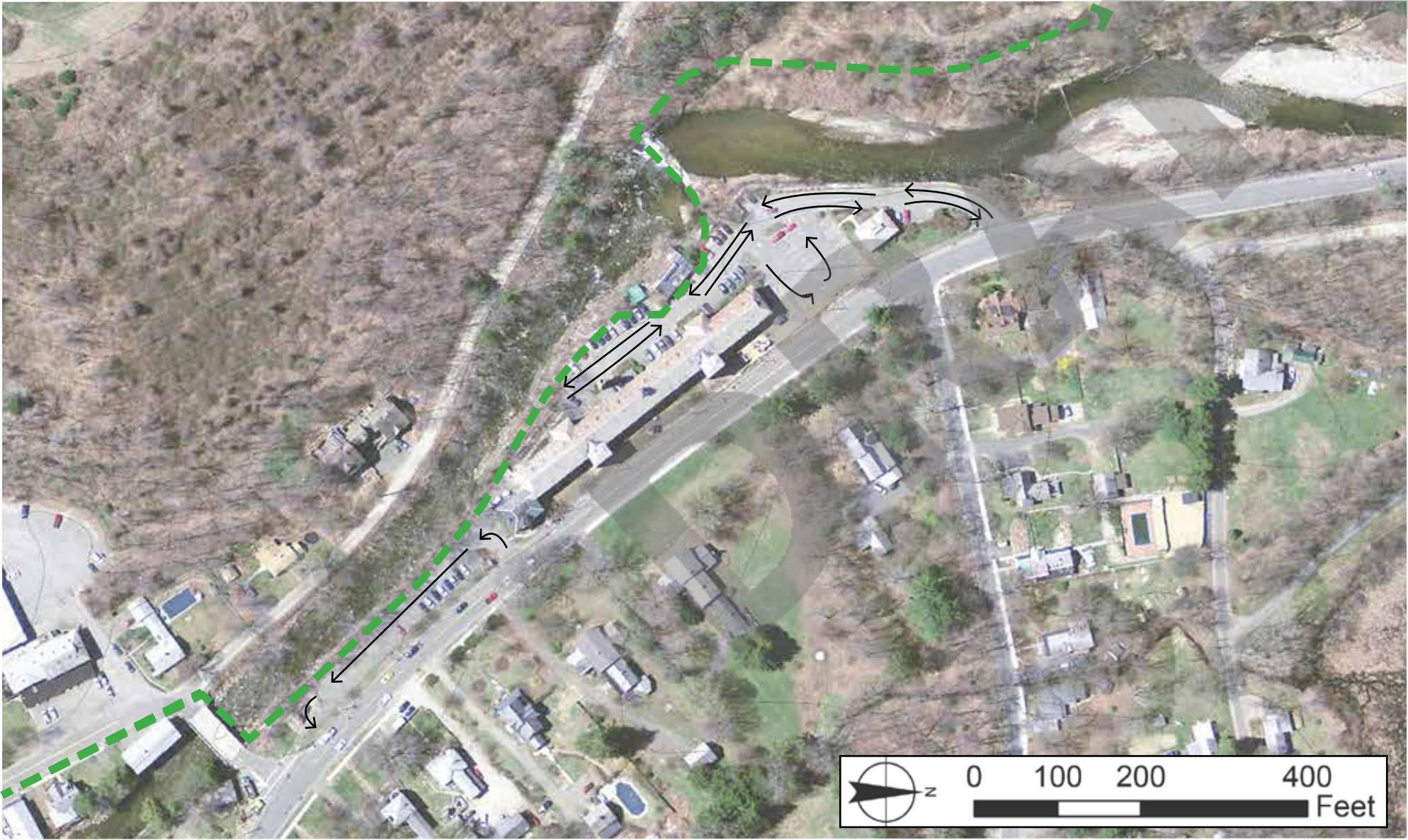
*Vehicular circulation remains the same through the Brassworks parking lot, though some parking spaces along the river on the north side could be compromised by the path. A new bridge uses the foundations of the historic dam. The southern parking lot moves closer to Route 9 and becomes one-way.*

## Pros

- 1. The historic dam foundations are re-purposed.
- 2. Trail users are buffered from car traffic on Route 9.
- 3. Trail users get a continuous view of the river and a striking river crossing.
- 4. Fewer conflicts between cars and trail users.

## Cons

- 1. Demolition will be required to lower the existing Brassworks loading dock/ ramp to ground level
- 2. The structural integrity of the building could be compromised by the removal of the ramp. Consulting a structural engineer will be necessary.
- 3. The Brassworks parking lots will lose at least 6 parking spots.
- 4. The path will go through a wetland and floodplain, likely requiring replication and compensatory flood storage.
- 5. The path will go through a very steep section of river embankment and forest.
- 6. Cars and trail users will likely have to share a small stretch of the parking lot road.
- 7. Informal use of the swimming hole at the dam could be compromised.



## Photos of key areas



*In order to fit a 10' path and the parking lot together, the width of paving will need to be expanded, which may call for a roughly 2' retaining wall next to route 9.*



*Connecting the path from the southern parking lot to the back parking lot will be challenging because of an existing loading dock/ramp and stair. The ramp will need to be removed and the ground leveled.*



*It may be possible to use the foundation of the existing dam, pending structural investigation, potentially reducing construction costs and impacts.*



*Path users will get a lovely view of the dam and river, but the bridge itself will change the existing character of the area.*



# Alternative 3: Questions & Next Steps

## Questions & Considerations:

- Is the existing historic dam structurally sound enough to use the existing foundation for a new bridge?
- Is it possible to make the southwest parking lot one-way, adding another/entrance exit on the end of the parking lot near the Haydenville library?
- How will the Brassworks be used in the future and how will this change parking requirements relative to the Williamsburg Zoning bylaws?
- Is removing the loading ramp to create an at-grade passage for the bikepath possible?
- Is the pinch spot in the passageway behind the Brassworks too narrow for MassDOT requirements, which requires 3 foot horizontal clearance on either side of the trail?
- Would the intersection of a bridge and the northwest entrance/exit to the Brassworks pose a problem for MassDOT? How close can the intersections be? Would vehicles need a stop or yield sign?
- Would clearing the steep, forested area on the northwest side of the dam be ecologically destructive?
- What impacts would the bikepath have on the wetland just north of the dam?
- Where would wetland replication areas and/or compensatory storage be placed in order to put the shared-use path through the wetland area on the west side of the Mill River?

## Next Steps:

- Consult a structural engineer to evaluate the feasibility of re-purposing the existing dam substructure as foundation or footing for the bridge.
- Consult a traffic engineer to identify southwest parking lot constraints and requirements
- Consult with Brassworks owner to determine future use and parking requirements at the Brassworks
- Consult with the Town Building Inspector and Zoning Board to determine likely interpretation of parking requirements under the zoning bylaws and whether shared parking or off-site parking strategies could be used.
- Consult a structural engineer on the feasibility of removing the loading dock and bringing the pavement back down to grade level
- Consult with MassDOT regarding whether the corner of the Brassworks counts as an “obstruction” under their horizontal clearance requirements (p. 9-2).
- Consult MassDOT for more details regarding turning, intersection, safety rails/fencing and signage requirements for the bikepath.
- Consult a Landscape Architect or structural engineer specializing in ecologically sensitive boardwalks and bridges to assess the impact of a trail through the steep forested area and wetland.
- Develop a preliminary design for the path through the wetland area in order to consult the Conservation Commission as to what kind of mitigation would be required.
- Commission a boundary and topographic survey as the basis for ongoing planning and design efforts.



# Alternative 4: Along the Western Riverfront

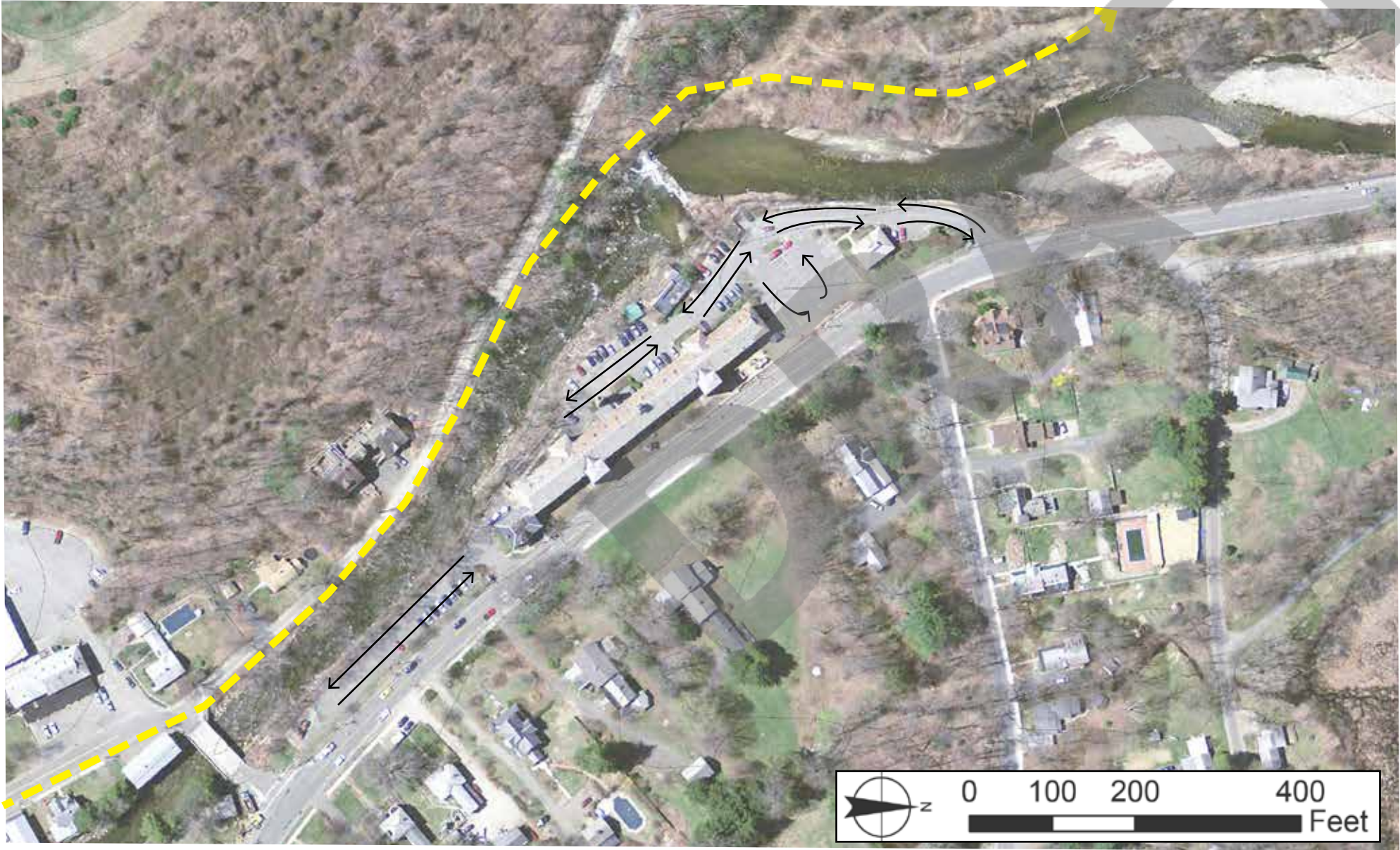
*The path shares space with cars on Walpole Road before diverging and running along the west bank of the river, crossing a finger of wetland and continuing through the forest along the west bank of the river.*

### Pros

- 1. The Brassworks does not need to make any changes to the building or parking.
- 2. The need for a bridge at the Brassworks is eliminated.
- 3. Trail users will get an attractive view of the forest and river.
- 4. There will be fewer conflicts between pedestrians and vehicles.
- 5. Eliminates the need to cross the existing South Main Street bridge.

### Cons

- 1. The path will require cutting a corridor through healthy, mixed upland forest along the very edge of the river.
- 2. Putting the path along a very steep slope could lead to erosion, and a flood could be very destructive to the path.
- 3. Rivers migrate over time; keeping the structural supports of the path intact over time may prove challenging.
- 4. The path will go through a wetland and floodplain. Wetland replication and compensatory flood storage may be required elsewhere on site.
- 5. The retaining walls or cantilevered decks that would likely be needed to construct a path along the steep slope could be prohibitively expensive.



### Photos of key areas



*The path will share part of Walpole Road, which is relatively narrow and steep, before turning off to run along the western bank of the river.*



*Slopes in areas are in excess of 40%, probably requiring a boardwalk or viaduct approach rather than filled terrace with retaining walls. There would likely be impacts on many large trees and ongoing issues with drainage and erosion control.*



*Lacustrine sediment, due to the presence of the historic Mill Pond, extends along the west side of the river. Construction of the path will require careful analysis and planning for drainage and erosion control.*



*The path would probably disturb at least 500 square feet of wetlands, which would need to be replicated elsewhere on site. Filling within the floodplain would need to be mitigated with compensatory storage.*



# Alternative 4: Questions & Next Steps

## Questions & Considerations:

- How much will future traffic volume on Walpole Road increase when plans for Valley View Farm are in full swing?
- Is Walpole Road wide enough to share two lanes of traffic and a bike lane, according to MassDOT guidelines?
- How will clearing the steep, forested area along the west bank of the Mill River from the bridge up through the wetland area impact the river and wetland’s ecological integrity?
- Since the site is subject to state environmental review as a designated Natural Heritage Area, what is the likely impact on rare species and probability of approval under the Massachusetts Endangered Species Act (MESA)?
- Will fortifying the shared-use path with concrete and retaining walls to prevent erosion of the river bank on the west side of the river (across from the Brassworks) be prohibitively expensive?
- Is building so close to the river on a narrow and steep slope structurally sound?
- Are there regulations under the Massachusetts Wetland Protection Act, FEMA, MassDOT, etc. that would prohibit building so close to the river?
- Will residents of Walpole Road object to losing privacy due to the clearing of trees along the river across the road from their homes? On the other hand, would they prefer to have an open view of the river and direct access to the shared-use path?
- Where would the shared-use path create compensatory storage for the wetland that would need to be filled in order to put the shared-use path through the wetland area on the west side of the Mill River?

## Next Steps:

- Consult a Landscape Architect or structural engineer specializing in ecologically sensitive boardwalks and bridges to assess the impact of a trail through the steep forested areas and wetlands.
- Consult Wetland Regulations, FEMA and MassDOT guidelines for clearing and building in proximity to the river/flood.
- Consult with the neighbors about their preferences regarding the clearing of vegetation along the river in front of their houses and potential shared-use path.
- Develop a preliminary design of the shared-use path through the area to test feasibility of construction.
- Consult the Conservation Commission as to what kind of mitigation would be required of the design.
- Commission a boundary and topographic survey as the basis for ongoing planning and design efforts.



# Next Steps: What We Know We Need to Know

## General Questions

### Parcel Boundary Delineation

- What’s the best way to resolve the discrepancy between existing property surveys?
- Could a deeded easement across the various properties be defined without having to prepare a definitive survey of each properties boundaries?
- How important is it to know who owns the bed of the river?

### Emergency Access

- What kind of bridge is required to provide emergency access to areas of the future shared-use path not otherwise accessible from a public road?
- Do one or both of the bridges need to allow for emergency access vehicles (such as fire trucks) to access the entire length of the shared-use path or could a turn-around allow for only one bridge to be drivable?
- If emergency access is required, could an emergency access easement be arranged with the Valley View Farm, eliminating requirements for a vehicular bridge?

### Bridge Feasibility Study

- Are the soil and bedrock conditions of the Mill River flood plain suitable for building a bridge foundation (at sites A, B and C)?
- What are the implications for bridge construction in a sensitive wetland resource area?
- What kind of bridge and trail designs are most suitable for construction in the 100 year flood plain, and what are the implications for permitting?

## Permitting

- The project will take place within an overlapping set of jurisdictions and funding requirements. What are the likely permits and how could design be altered to avoid unnecessary complications?

## Next Steps and Future Studies

- Seek community input to establish the most desirable approach from the perspective of local residents and business owners.
- Deed research and definitive boundary surveys to resolve questions of property ownership.
- Topographical survey of the selected shared-use path route and adjacent areas impacted by design, construction, drainage, etc.
- Delineation of Wetland resource areas subject to the Massachusetts Wetlands Protection Act.
- Delineation of floodplains, including assessment of current FEMA maps and whether they need to be updated due to the partial collapse of the dam.
- Ecological assessment of natural heritage areas designated by the state, including possible field survey for presence of species of concern.
- Geotechnical Analysis, including soil tests or borings necessary to establish suitability of soils along the selected route for path construction.
- Geotechnical analysis to establish suitability of soils or bedrock for bridge footings, pilings, etc.
- Structural assessment of the Brassworks dam and associated structures and floodwalls.
- Invasive Species Mitigation Plan

- Traffic studies to determine design approaches for sharing of existing roads or bridges with bikes and pedestrians, as well as suitability of crossing locations and design of fencing, guardrails and other safety features that might be needed.

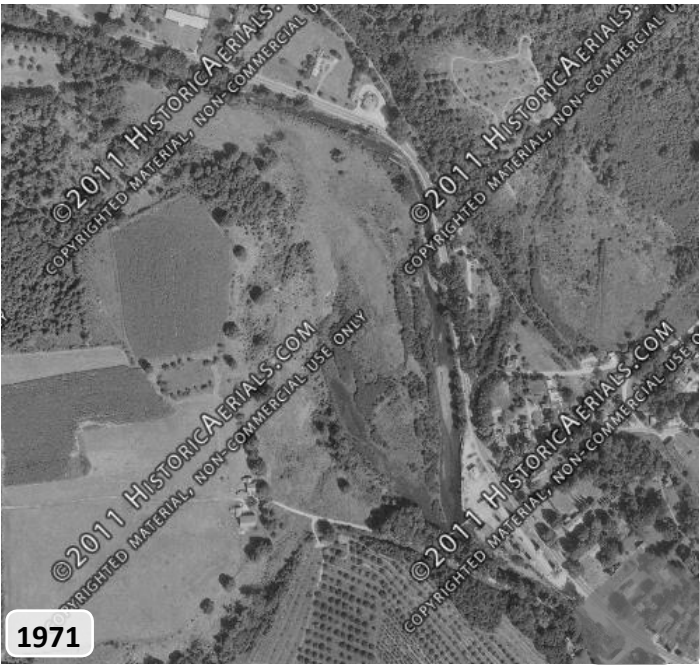
## Design and Permitting

- Conceptual masterplan for Shared-use path, bridges and associated improvements.
- 25% design of Shared-use path for review by MassDOT (the project will have to be carefully coordinated with DOT plans for Route 9 and adjoining path segments, and comply with DOT standard specifications).
- MESA (Massachusetts Endangered Species Act) permit for construction in a natural heritage area.
- Wetlands permit from Williamsburg Conservation Commission for construction within wetland resource areas or buffer zones, as well as floodplains. (With possible participation in review by Massachusetts DEP and US Army Corps of Engineers in certain circumstances.)
- Building permit, including review of zoning compliance, especially for and structures, as well as design approaches which change parking and circulation within the Brassworks property. The building permit would also evaluate compliance with the Americans with Disabilities Act (ADA).
- Possible review by the Massachusetts Historical Commission (MHC) under Section 106 of the National Historic Preservation Act of 1966.
- Certain other permits may be required, either because the project is going to receive federal funding or if it exceeds a certain area of site disturbance. These could include review under the National Environmental Policy Act (NEPA), Federal and/or Massachusetts Clean Waters Act, and the National Pollutant

Discharge Elimination System (NPDES). Could staff at Pioneer Valley Planning Commission or Massachusetts DCR Greenways program assist with review of likely permitting requirements?



# Appendix A: Landuse History



Source: historicaerials.com; Accessed 8/13/15



