The Jaycee Arboretum & Senator Roch Riverwalk

Conceptual Site Master Plan

Project funding provided in part by the Rhode Island Department of Environmental Management, Urban and Community Forestry Program, and a Coastal Fellowship through the University of Rhode Island College of Environment Life Sciences, in cooperation with the URI Regenerative Community Design Lab in the Department of Landscape Architecture Program.

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THE ENVIRONMENT
AND LIFE SCIENCES

Project Team

The following team members were part of the URI Regenerative Community Design Lab (RCDL) that developed conceptual green space plans for several Rhode Island communities, aimed at conserving, enhancing, connecting, and protecting their community natural resources.

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Disclaimer: The drawings in this report are conceptual and were prepared to show approximate location and arrangement of site features. They are subject to change and are not intended to replace the use of construction documents. The client should consult appropriate professionals before any construction or site work is undertaken. The URI RCDL is not responsible for the inappropriate use of these drawings.

Acknowledgements

The URI RCDL team would like to acknowledge the following individuals for their contributions and support throughout the project:

Jeff Caldwell | Director of Public Works
West Warwick, Rhode Island

Marilyn Shellman | Town Planner & Economic Development Coordinator
West Warwick, Rhode Island

Wendy Boudreau | Community Organizer
West Warwick Health Equity Zone

Jack Lancellotta | Executive Director
West Warwick Jaycees Alumni Association

Ron Holloway | Chair
Jaycee Arboretum Project

And all those who volunteered their time for the betterment of the Town of West Warwick.

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APPENDIX A

Part 1

Introduction and Background

Background

Riverpoint Park is built on the site of the old Hay Street landfill. The park holds the Town of West Warwick's field complex which includes five ballfields including the McCarthy Baseball Stadium, three soccer fields, two lighted basketball courts, four tennis courts, a skate park and picnic area at the Riverpoint Gazebo.

In 1998, the Jaycees Riverpoint Corridor/Arboretum, situated on the south-side of Riverpoint Park, was opened to the public. In 2002, the Senator Roch Riverwalk was made possible through a three-million-dollar Rhode Island Preservation, Recreation and Heritage grant. The 1.3-mile riverwalk takes visitors on a beautiful walk which runs along the Pawtuxet River. The two sites are collectively known as the Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk.

The Riverwalk has sustained some wear and tear over the years from storms and seasonal flooding. There was a significant flood in 2010 which caused some damage along the trail way. Prior to the flood, there was a pedestrian crossover foot bridge connecting the site to the rear portion of the Royal Mills Apartment Complex and an ADA-approved ramp leading to Providence Street. Unfortunately, this too was washed away in the flood.

Project Description

Our project site is located at 106 Hay Street in West Warwick. The Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk are also part of the larger Riverpoint Park. The Town of West Warwick Public Works Department asked the team to focus on the entry to the Riverwalk and portions of the Riverwalk itself with particular attention to addressing:

- the existing entry structure into the Riverwalk
- the erosion along the Riverwalk path from the entry point to the fishing area
- the fishing area

Design Summary

The URI RCDL team met with a member of the Town of West Warwick Public Works Department on June 6, 2024, for the initial site visit. The team was given a tour of the site and provided with additional background on some of the challenges the site presents. The URI RCDL team was also fortunate to be able to speak to a member of the community who had been walking the Riverwalk trails for over a decade. He was able to provide his perspective on the site and what it means to the community.

Thereafter the team conducted a comprehensive site analysis to understand the constraints and opportunities, the story of Riverpoint Park and the surrounding area, as well as the Pawtuxet River Watershed.

Two preliminary conceptual designs for the Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk were developed based on the input from stakeholders, site photos, municipal GIS resources, Google Earth images, historic records and additional time spent by the team walking the site.

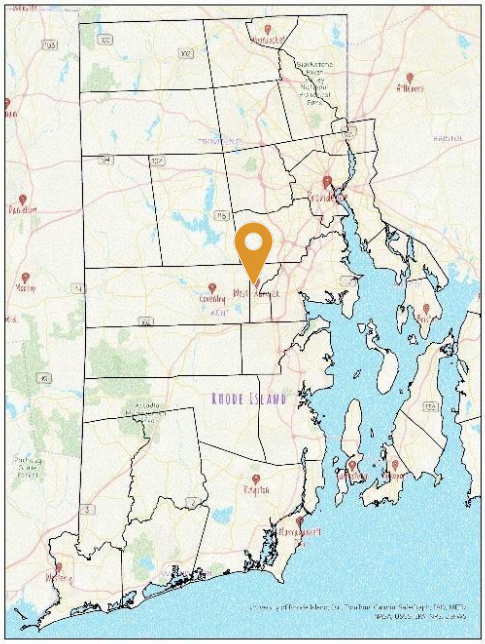
On July 23, 2024, the RCDL team presented the two preliminary design concepts to the Director of West Warwick Public Works, as well as other stakeholders at the West Warwick Public Works building. During the presentation, the stakeholders provided feedback on the design elements they preferred in the two conceptual plans.

After receiving and analyzing their feedback, the URI RCDL spent the next week refining the final plan to incorporate the design elements preferred by the community stakeholders. The team also conducted research on the best plant species to include in the final planting plan and appropriate materials for use throughout the plan based on RIDEM preferences. Using this research and a review of precedence from other similar sites, the URI RCDL presented the final design concept to the same group of stakeholders at the West Warwick Public Works building on July 31, 2024. Each area of the plan was illustrated on individual 24 x 36 design boards, allowing the team to go into greater detail about each section of the plan. The team also delivered the final report to the stakeholders along with hard copies of the plan and presentation boards.

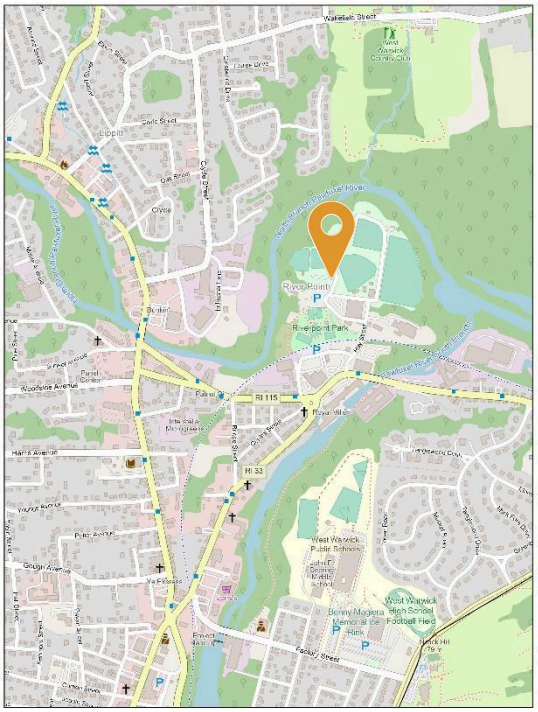
Meeting notes from the initial and final conceptual design presentations can be found in the appendix.

Project Location

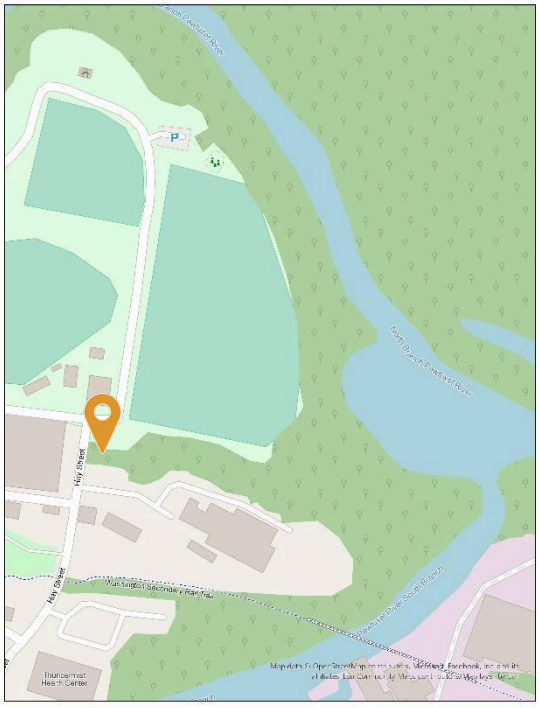
The Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk is in West Warwick off Hay Street.



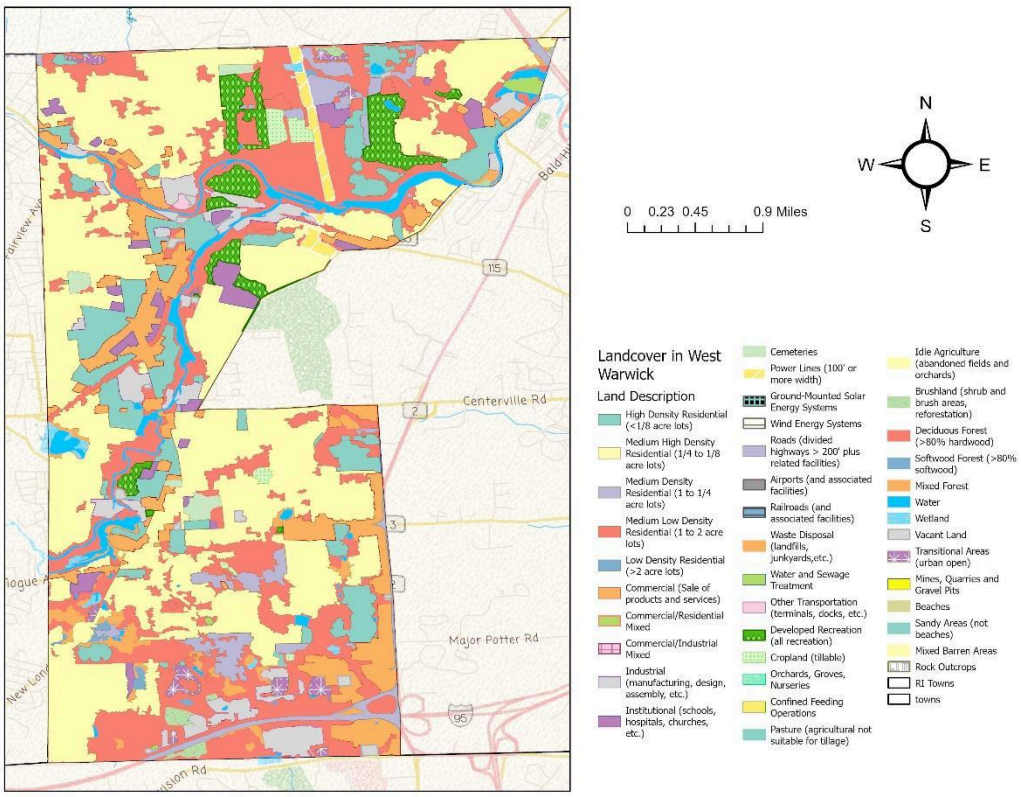
West Warwick, RI



Riverpoint Park



Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk



West Warwick landcover data.

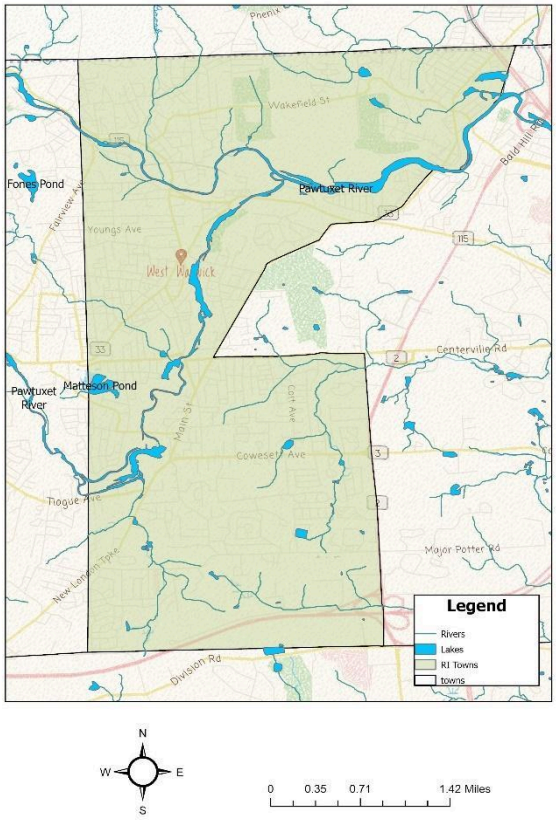
Part 2

Inventory and Analysis

Site Inventory and Analysis

Prior to any design work, the URI RCDL team visited the site with a member of the West Warwick Public Works Department. The team was shown around the site and provided additional background information to help develop a comprehensive site inventory. Using the site inventory, the URI RCDL conducted a site analysis to understand the constraints and opportunities offered by the site. The team also conducted research on the history of the park and the surrounding area, as well as the plants and wildlife that live within the Pawtuxet River Watershed.

History



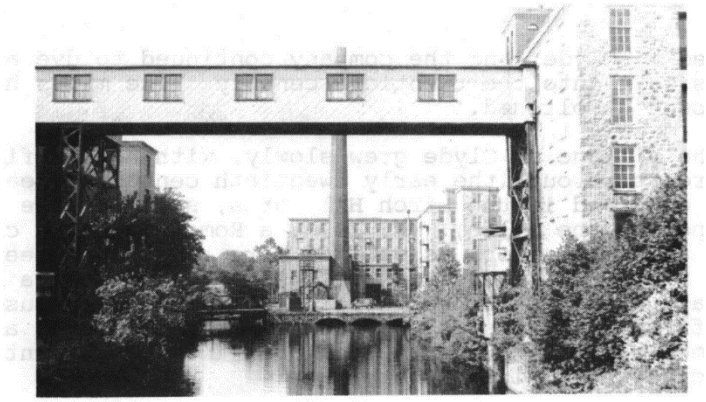
The area of West Warwick has had a long and varied history. For thousands of years prior to the arrival of European explorers in the 1500s, the area now known as Rhode Island was inhabited by indigenous tribes: the Pequot, the Nipmuc, the Niantic, the Narragansett, and the Wampanoag. In general, the economies of the indigenous cultures in the area were based on maize cultivation, hunting and fishing. By the time that the first European settlers arrived in the 1600s, the predominant tribes in Rhode Island were the Narragansett and Wampanoag.

The land which now forms West Warwick was purchased by Samuel Gorton (1593–1677) who was an early settler and civic leader of the Colony of Rhode Island and Providence Plantations and President of the towns of Providence and Warwick. In 1642, the Narragansett Sachem Miantonomi sold a tract of land to Gorton and his eleven followers. The area was originally called Shawomet but later changed to Warwick. Throughout the following years, the large land divisions of the 1600s were broken up by succeeding generations of early Warwick families and as newcomers to the town purchased lands.

Agriculture remained the principal economic activity of West Warwick through the eighteenth century. It was dotted with family farms that were separated by fields and woods and were connected by narrow, rough roads. In the 19th century things changed and manufacturing became the focus of the town's economic activity. This was largely the result of the town's proximity to waterways which could be harnessed for power.

West Warwick is dominated by the Pawtuxet River which is one of Rhode Island's largest streams. It is created by the North and South Branch tributaries which meet Riverpoint. The North Branch begins at the Scituate Reservoir and flows through the villages of Phenix, Lippitt, and Clyde before meeting the South Branch. The South Branch begins at the Flat River Reservoir and passes through Crompton, Centerville, and Arctic before reaching Riverpoint. From Riverpoint, the Pawtuxet flows through Natick and then on to Narragansett Bay.

Textile mills were built along the rivers and waterways and became the center of small villages to include, Centerville, Crompton, Natick, Lippitt, Phenix, Riverpoint, Clyde, and Arctic. By the end of the nineteenth century, most of West Warwick's residents had transitioned from farming to manufacturing. These mill villages gave West Warwick the characteristic arrangement it retains to this day.



Riverpoint Mills; Providence Street, Riverpoint

The Riverpoint Village, which is home to our site, is centered on the area between East Main, Bridge, and Providence Streets. The village was established in the early 1800's when the Greene Manufacturing Company built a small spinning mill on the South Branch and constructed over twenty houses for its mill hands. By 1862, Riverpoint was a substantial settlement with its mills, workers' houses, a store, a church, a post office,' and a railway depot.

Throughout the late 1800's the Green Manufacturing Company made several more additions to the Riverpoint Mills and the town grew from 540 villagers to 2,500, making Riverpoint the third largest town in West Warwick.

Up until the early 1900's West Warwick had been part of Warwick. However, there was a significant discrepancy in how the land was used between the eastern and western parts of the town. The land located in the east favored farming, shore resorts and suburban developments. As previously discussed, the land to the west was primarily industrialized and urbanized. Because these populations had such differing interests, the Rhode Island General Assembly voted to incorporate West Warwick as a separate town in 1913.

As manufacturing became less important in West Warwick in the twentieth century, other types of development have filled in the spaces between the nineteenth-century mill villages. While many of the mills have been repurposed, they still beautifully represent the unique history of the area.

(The information above was sourced from the History and Architectural Resources of West Warwick, Rhode Island: A Preliminary Report by the Rhode Island Historical Preservation Commission)

Plants and Wildlife within the Pawtuxet River Watershed

Pawtuxet River Watershed

The project site is located within the Pawtuxet River Watershed which covers 231 square miles and is the second largest watershed within the boundaries of Rhode Island. It covers the center of the state and approximately 235,000 residents live within the watershed. The watershed is in parts of the cities and towns of Cranston, Scituate, Warwick, Coventry, West Warwick, Johnston, Foster, Gloucester, Exeter, Providence, West Greenwich, East Greenwich, and Smithfield. The Pawtuxet Watershed contains some of the most protected freshwater in the state. The Scituate Reservoir provides drinking water to 60% of Rhode Island's population and another 8,000 acres are protected by the Big River Management Area in West Greenwich. Downstream of these areas are two of the state's largest chemical manufacturers, three municipal sewage treatment plants and the state's sole operating sanitary landfill. The Pawtuxet River was once considered the dirtiest river in Rhode Island by Save the Bay. This had a significant impact on the fish that lived in river and the wildlife that populated the surrounding area.

Since 2001, the Pawtuxet River Authority has been working to restore fish to the Pawtuxet which live in the ocean but must come to fresh water to reproduce/spawn. These species which are native to New England include: alewife, the blueback herring, and the American shad. The Atlantic Salmon and Striped Bass are also part of this group, but to date, do not prefer Rhode Island fresh waters to spawn.

Alewife

Blueback Herring

American Shad

Before European settlers came to North America, all these species traveled into the Pawtuxet system to spawn. Unfortunately, due to the creation of dams and discharge of pollutants during the Industrial Revolution these species were either unable to access the river or could not survive in the polluted waters.

Since the early 1970's the water quality has been continuing to improve. Additionally, RIDEM supports the populations through routine stocking. The lakes, ponds, rivers, and streams throughout Rhode Island that are designated as trout-stocked can be found at the following URL:

- https://www.arcgis.com/home/webmap/viewer.html?webmap=2d544eb50d244ecfb0e4c9581f59d89c&extent=-72.2256,41.0479,-70.5283,42.3186

The improving water quality, fish stocking, and dam removal at the mouth of the Pawtuxet has allowed a number of these species to return and populate the first seven miles of the river for the first time in over 200 hundred years. There are still twenty-three dams remaining on the Pawtuxet River, including the largest dam in the state at the Scituate Reservoir.

Leaving the river and returning to the arboretum, visitors are treated to a welcoming esplanade filled with attractive flowers, mini-trees, seasonal plants and shrubbery. It is well-maintained by members of the West Warwick Jaycees Alumni Association along with volunteers from the local community. The arboretum offers visitors an opportunity to experience a unique variety of plants. The arboretum is also bordered on the north-side by a row of Green Ash trees which are likely infected with Emerald Ash Borer. Unfortunately, these pests will ultimately kill the trees and therefore a plan to replace those trees should be considered now.

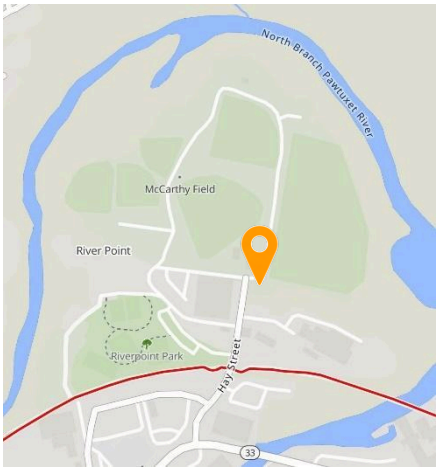
Additionally, the wooded area that includes the Riverwalk is overgrown with many invasive plants which the town should consider removing.

Rosa multiflora

Toxicodendron radicans

Celastrus orbiculatus

Riverwalk Trail



The team spent time walking the Riverwalk trail. It's an easy 1.3-mile loop which provides visitors with scenic views of the Pawtuxet River. While the trail isn't complicated, there is a lack of signage describing the length and difficulty level of the trail which would be helpful for visitors that are unfamiliar with the Riverwalk. In addition, the Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk is located quite close to the Washington Secondary Bike Path which is the state's longest bike path. The path runs 19 miles from Cranston Street in Cranston to Log Bridge Road, just past Route 102, in western Coventry. This provides an opportunity to expand access and awareness of the arboretum

and Riverwalk. With appropriate signage, bikers would be encouraged to detour off the bike path, al Washington Secondary Bike Path e arboretum and Riverwalk.

Signage and Wayfinding

In conducting the site analysis, the URI RDCL found that general signage, directing visitors to Riverpoint Park and Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk, was lacking. In addition, there was a lack of wayfinding signage throughout the park and along the Riverwalk. The URL RCDL believes that any future enhancements to the Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk should include appropriately placed signage that ensure visitors can find the park, navigate the Riverwalk and educate visitors on the history of the area and the plants and wildlife that live along the Pawtuxet River. Finally, URI RDCL strongly recommends trail maintenance beyond the areas covered in this study.

Existing Conditions Images

View of Riverpoint Park entry gate.

View of the Jaycees Riverpoint Corridor/Arboretum.

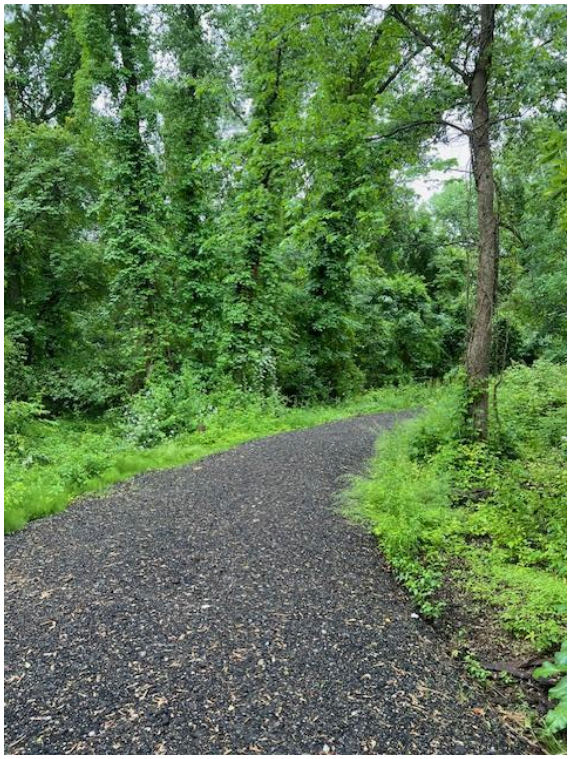
View of the allee of Green Ash trees.

View of the chain link fence and property on south-side of arboretum.

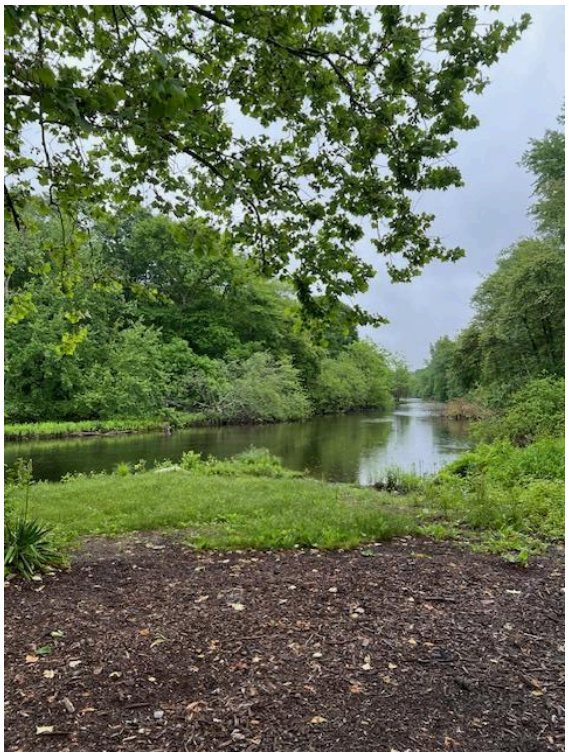
View from the arboretum to the Riverwalk entry.

View from the Riverwalk to the entry structure.

View of the north-side of the start of the Riverwalk.



View of the erosion on the top part of the Riverwalk.



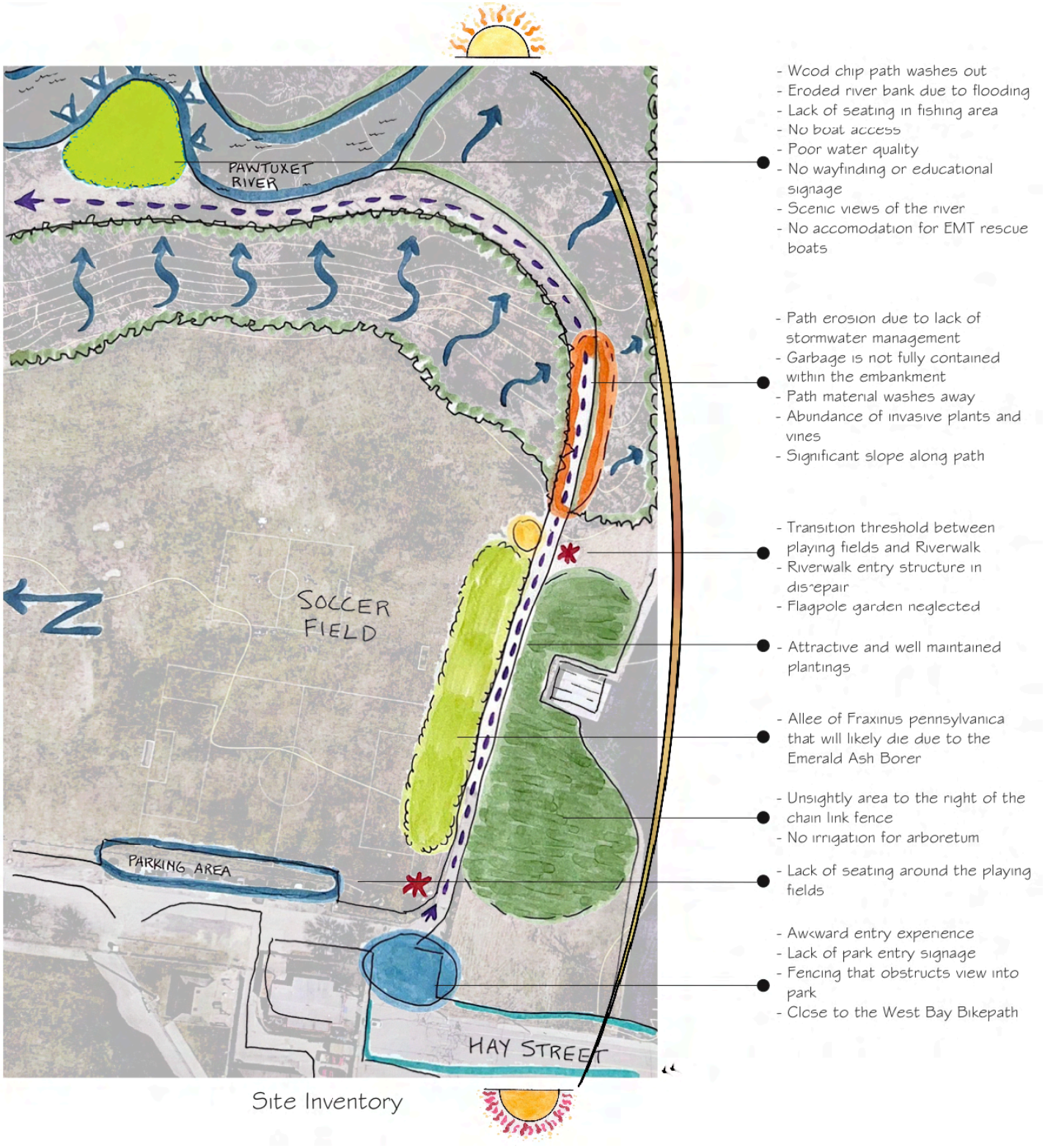
View of the Riverwalk leading down to fishing area.

View of the Pawtuxet River from the fishing area.

View of the fishing area.

View of the eroded part of the Riverwalk near the fishing area.

Site Inventory



Site Inventory

Site Analysis

- Maximize the potential of the site
- Consider adding a raised deck or boardwalk over the section of the path that washes out
- Consider adding rip-rap or another stabilization material along the river bank
- Add seating
- Add a deck for fishing and boat access
- Opportunity for educational signage about site history and ecological systems

- Appropriately place culverts and rip rap swales to address stormwater runoff
- Remove the invasive plants but consider planting a noninvasive ground cover to stabilize the embankment and cover the trash
- Consider replacing existing path with a medium that would resist washing away

- Collect stormwater to irrigate arboretum plantings
- Replace the entry structure
- Update the flagpole garden with low maintenance plantings
- Opportunity to create a better threshold experience between the playing fields and Riverwalk

- Develop plan to replace the Fraxinus pennsylvanica trees to anticipate impact of Emerald Ash Borer

- Add additional bench seating around the soccer field

- Consider planting noninvasive vine on the chain link fence to restrict the unsightly view of adjacent area

- Consider lowering fence
- Create an entry experience outside the fence through plantings/signage
- Connect the park with nearby greenway through signage

Site Analysis Summary

Considerations:

- Awkward park entry experience
- General lack of park signage
- Lack of seating around the playing field
- Unsightly area on the south-side of the arboretum
- No irrigation for arboretum
- Allee of Fraxinus pennsylvanica that will likely die due to the Emerald Ash Borer
- Lack of seating around the playing fields
- Riverwalk entry structure in disrepair
- Path erosion due to lack of stormwater management
- Remnants of the old land fill are not fully contained within the embankment
- Riverwalk material washes away
- Abundance of invasive plants and vines
- Significant slope along path
- Eroded riverbank due to flooding
- Fishing area and path affected by seasonal flooding
- No boat access
- Poor water quality
- Existing natural beauty

Opportunities To:

- Enhance the visibility and programmatic elements of a naturally beautiful area to provide a unique public space for community gathering and outdoor activities
- Create a better park entry experience for visitors through plantings and more appropriately placed signage
- Connect the park with the nearby greenway and Washington Secondary Bike Path through signage
- Improve signage, maps and wayfinding throughout the park
- Create a better threshold experience between the playing fields and the Riverwalk
- Use stormwater best management practices to address the erosion along the Riverwalk
- Remove the invasive plants but consider planting a noninvasive ground cover to stabilize the embankment and cover the landfill remnants
- Use raised decking to address the effects of seasonal flooding in the fishing area
- Educate visitors about the history of the area and the flora and fauna that live in the area

Part 3

Preliminary Design Concepts

Introduction

Per our charter with the RIDEM, the URI RCDL team created two preliminary concept plans which included illustrative conceptual master plans, sketches and perspective drawings. When considering the site, the team broke it into four different sections:

- Park entry experience and Jaycees Riverpoint Corridor/Arboretum
- Sen. Donald E. Roch Riverwalk entry point
- Sen. Donald E. Roch Riverwalk from the entry point to the fishing area
- Fishing area

The team presented both concepts to stakeholders within the Town of West Warwick where the team gathered their feedback on both concepts. The stakeholder's feedback was used to create the final comprehensive master plan, planting and material plans, which will be described later in this report.

Preliminary Concept 1 – A Rustic Riverwalk

Visitors will enter the Riverwalk through a new wooden entry that guides them to a refurbished trail and boardwalk along the Pawtuxet River where they can relax in the fishing area to enjoy a picnic or experience the river from the deck.

Design Description

The Problems

- Awkward entry experience
- Stormwater management issues
- No signage
- Underdeveloped site for public use
- Seasonal flooding impacts
- Visible remnants of landfill adjacent to path

The Solutions

- Strategically place signage throughout site
- Incorporate step pool conveyance to manage stormwater
- Use board walk to address impacts of seasonal flooding

The Benefits

- Enhance the aesthetics of the area
- Cost effective solution which provides more opportunities for the community to connect with the Senator Roch Riverwalk
- Through signage, create opportunities for community education and awareness
- Better connection to Riverpoint Park and the Washington Secondary Bike Path

Park Entry Experience and Jaycees Riverpoint Corridor/Arboretum

To provide a more welcoming experience for visitors, the URI RDCL recommends replacing the existing tall fence with a lower split rail fence that matches the fencing within the park. This would provide a more welcoming experience, allowing visitors to view the park. The team also recommends creating a cohesive suite of wooden signs to be placed strategically throughout the park.

View of the existing Riverpoint Park Entry

Perspective of reimagined Riverpark Point entry experience

Vegetation

As discussed previously, the Green Ash trees are likely infected with the Emerald Ash Borer which will ultimately kill the trees. Therefore, the team recommends replacing every other Green Ash along the north-side of the arboretum with another deciduous tree such as silver maples, river birch or tulip poplar. Then in the coming years, the remaining Green Ash's would be replaced with the same deciduous trees. Finally, the arboretum contains an abundance of flowering perennials and is separated on the south-side from the neighboring property by a chain link fence. Unfortunately, the area to the south-side of the fence lacks visual appeal and takes away from the beauty of the arboretum. Therefore, the URI RCDL recommends planting a non-invasive vine such as Climbing Hydrangea, Trumpet Honeysuckle or some variety of Clematis along the fence that would eventually cover the fence and help to obstruct the unsightly view.

Acer saccharinum

Betula nigra 'Heritage'

Liriodendron tulipifera

Hydrangea anomala

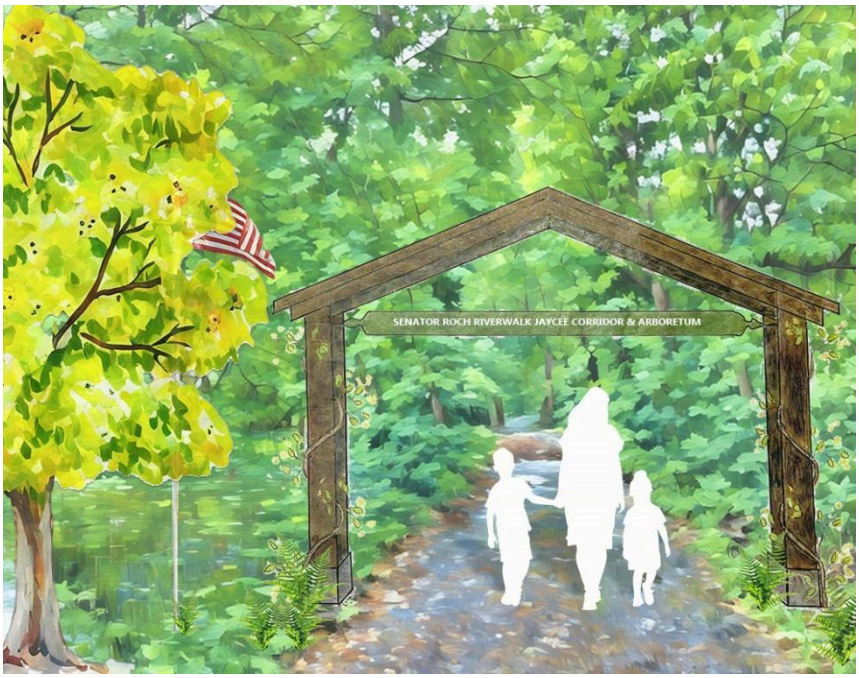
Lonicera sempervirens

Clematis

Sen. Donald E. Roch Riverwalk Entry Point

The team is aware that the Boy Scouts constructed the wooden entry structure into the Riverwalk in 2003. Unfortunately, the structure is showing its age and needs updating. Therefore, the URI RCDL recommends replacing the entry structure with a new wooden structure as shown below. The structure features the old green sign created by the Boy Scouts and the design and shape of this structure would be the basis for any new signs placed throughout the area.

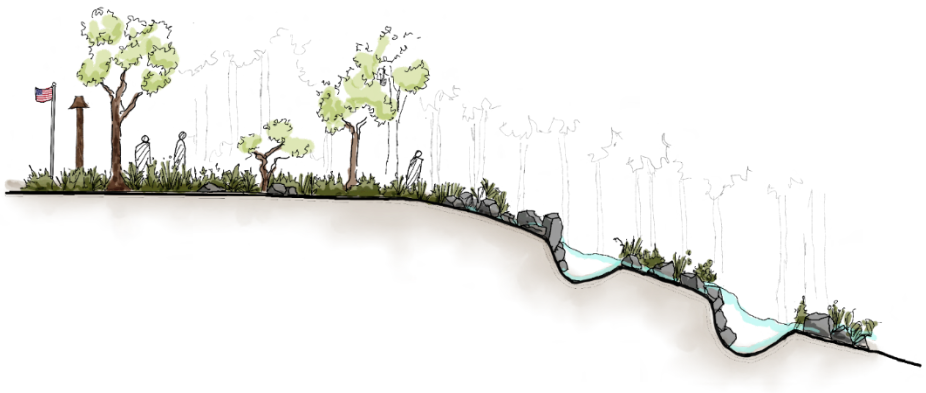
View of existing Riverwalk entry.



Perspective of new wooden Riverwalk entry, featuring the original Boy Scout sign.

Sen. Donald E. Roch Riverwalk from the entry point to the fishing area

To address the stormwater and erosion along the top portion of the Riverwalk, the URI RCDL recommends installing a culvert that directs the water below the path and over to the south- side of the path. Along the south-side of the path, the team recommends installing a series of step-pools with rocks and plantings to help manage and mitigate the storm water. The size and number of step-pools required would be determined by the amount of stormwater to be mitigated, the soil profile, and the degree of hillside slope.



Section view of the step pool conveyance in eroded area of path.

Fishing Area

In the fishing area, the URI RCDL recommends installing a boardwalk over the area of the Riverwalk that gets washed out and muddy. In the fishing area itself, the team suggests maintaining the simplicity of the area but adding picnic benches and additional seating so visitors can spend more time in that area, enjoying the beauty of the river. The URI RCDL also recommends adding riprap or some other type of bank stabilization material along the riverbank to help prevent additional erosion. The team also suggests adding a small dock, that would extend into the river. This would be a great spot for visitors to enjoy the Pawtuxet and provides access for emergency services needing to come into the area via the water.

View of existing fishing area near the Pawtuxet.

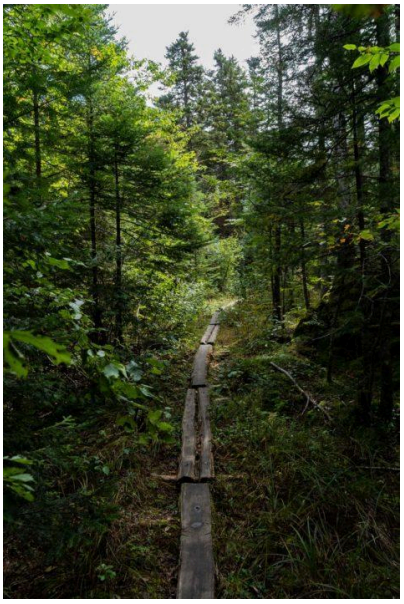
Perspective of fishing area with dock and boardwalk.

All the recommendations described above, can be seen on the illustrative conceptual master plan on the following page.

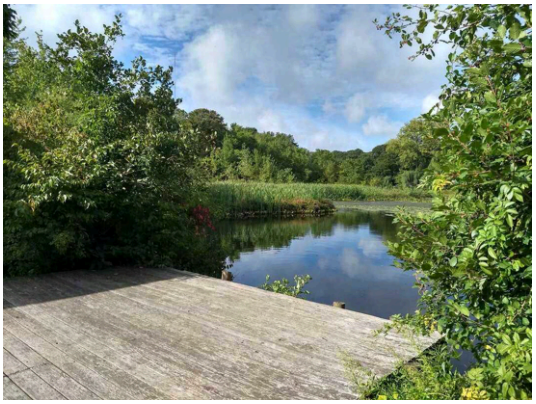
Complete Preliminary Concept 1

Concept 1 - Design Precedents

Example of a log path in the woods.



Example of split log trail.



Centerville Pond Fishing Area and Canoe/Kayak Launch

Example of chain link fence with flowering vine.

Example of a wooden park entryway.

Example of bikers enjoying the view of the water from a bench.

Preliminary Concept 2 – Connecting the past to the present

Visitors will enter the Riverwalk through a stone arch, reminiscent of the mills in the area. From there, all their senses will be engaged as they descend along the path which leads to an extensive raised platform for community gathering and passive enjoyment of the Pawtuxet River.

Design Description

The Problems

- Awkward entry experience
- Stormwater management issues
- No signage
- Underdeveloped site for public use
- Seasonal flooding impacts
- Visible remnants of landfill adjacent to path

The Solutions

- Develop stone signage based on nearby mills
- Create sensory experience to channel stormwater
- Use extensive raised decking from the path to the water's edge

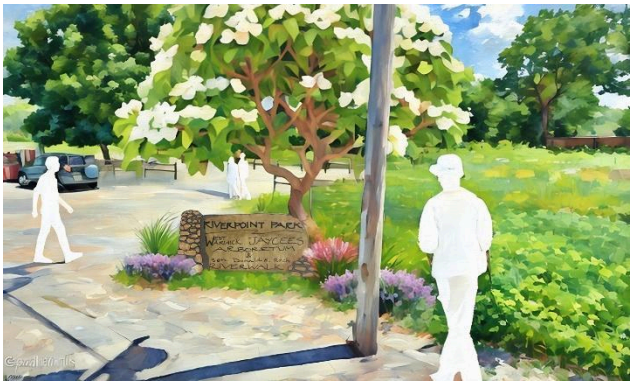
The Benefits

- Elevate the aesthetics of the area
- Create a desirable destination for community members and visitors
- Maximize the opportunities afforded by such a naturally beautiful site
- Expand awareness amongst the community

Park Entry Experience and Jaycees Riverpoint Corridor/Arboretum Vegetation

As discussed in the first concept, the existing entry isn't very inviting nor is it obvious to visitors. Therefore, the URI RDCL recommends replacing the tall fence with a lower profile split rail fence. Additionally, the team recommends creating an entry area outside the fence with plantings and a new stone sign. To emphasize the unique historical context of the site, the stones used in the sign should be similar to the stones used in the legacy mills throughout the area. While the team is aware that the area directly outside of the entry fence is not part of the park, there might be an opportunity to coordinate with the landowner to use a portion of the unused property to create an enhanced Riverpoint Park entry experience which will benefit the West Warwick community.

View of the existing Riverpoint Park entry.



Perspective of reimagined entry sign outside the fence.

Vegetation

As discussed previously, the Green Ash trees are likely infected with the Emerald Ash Borer which will ultimately kill the trees. In this concept, the URI RCDL recommends replacing all the Green Ash trees with unique specimen conifers, adding to the existing plant species in the arboretum.

Cedrus deodara 'Aurea'

Cryptomeria japonica

Chamaecyparis nootkatensis 'Pendula'

Sciadopitys verticillata

Chamaecyparis obtusa 'Crippsii'

Calocedrus decurrens

In addition, as described in the first concept, this concept also addresses the unsightly area to the south-side of the fence. In this concept, the URI RCDL recommends adding a trellis in front of the fence which could be planted with the same non-invasive vines described in the first concept. The trellis could extend the height of the fence and further restrict the unsightly view.

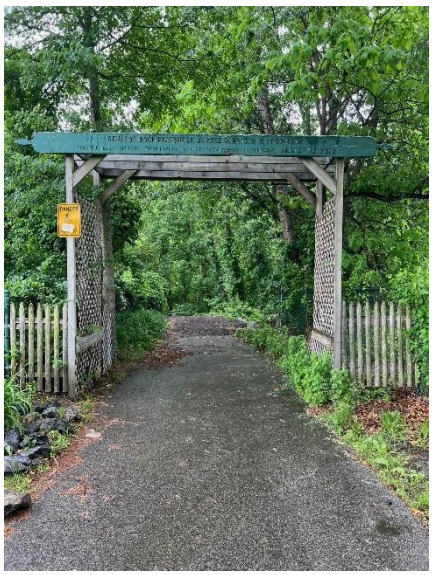
Hydrangea anomala

Lonicera sempervirens

Clematis

Sen. Donald E. Roch Riverwalk Entry Point

As discussed in the first concept, the original Riverwalk entry structure is in disrepair and needs to be replaced. Therefore, the URI RCDL recommends replacing the entry structure with a stone arch, using the same type of stones as the entry sign and prominently featuring the original Boy Scout sign. The design and shape of this structure would also be the basis for any new signs placed throughout the area.



View of existing Riverwalk entry.

Perspective of stone Riverwalk entry, featuring the original Boy Scout sign.

Sen. Donald E. Roch Riverwalk from the entry point to the fishing area

As discussed in the first concept, stormwater management is necessary to address the erosion along the portion of the Riverwalk. Therefore, the team recommends redirecting the water from the north-side of the path to the south-side of the path via a culvert. Along the south-side of the path, the team
would use various sized stones and boulders, along with plantings, to create a more natural way of

managing the storm water. The length of the stormwater conveyance would be determined by the amount of stormwater to be mitigated and based on the degree of slope.

Section view of the stone step conveyance in eroded area of path.

Fishing Area

For the fishing area in this concept, the URI RCDL suggests stabilizing the bank with riprap or some other type of bank stabilization material to help prevent additional erosion. The team recommends creating a raised platform that would entirely cover the fishing area and the section of the Riverwalk that washes away. It would also extend slightly over the riprap and provide a place for boats to tie up, if necessary. This approach offers a more permanent solution to the impacts of flooding within the area while also providing a stable, dry area for visitors to enjoy the river.

View of existing fishing area near the Pawtuxet River.

Perspective of raised platform over the fishing area.

All the recommendations described above, can be seen on the illustrative conceptual master plan on the following page.

Complete Preliminary Concept 2

Concept 2 - Design Precedents

Example of deck extending over river.

Example of vegetated riverbank.

Example of stone entry arch.

Example of stone entry sign.

Example of stone storm water conveyance.

Examples of crushed stone paths.

Stakeholder Feedback

On July 23, 2024, the RCDL team presented the two preliminary design concepts to a group of stakeholders including: the Director of West Warwick Public Works, the West Warwick Town Planner & Economic Development Coordinator, the Cooperative Forestry Program Supervisor from RIDEM, a representative of the West Warwick Health Equity Zone, the Executive Director of the West Warwick Jaycees Alumni Association, and the Chair of the Jaycees Arboretum Project.

During the presentation, held at the West Warwick Public Works building, the team conducted a question-and-answer session to gather feedback from the stakeholders on the elements of each concept that they thought would be most suitable for the site. The URI RCDL team integrated the preferences of the stakeholders to create the final conceptual master plan described in Part 4 of this report.

What They Liked

- Stone arch
- Enhanced entry experience
- Replacing the Green Ash trees
- Climbing vine on the existing fence in the arboretum
- Step pool conveyance along the top of the Riverwalk
- Large stone natural conveyance along the top of the Riverwalk
- Raised decking in the fishing area
- Removing invasive plants

Additional Considerations

- Tree roots in the arboretum, affecting the playing fields
- Combining the two stormwater conveyances from both concepts
- Appropriate bank stabilization/phytoremediation plants to address the remaining landfill debris
- Better, more obvious connection to the bike path
- Funding/state or federal grants
- Maintenance

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Part 4

Final Conceptual Design

Final Design Concept

Using the feedback gathered from the Town of West Warwick Director of Public Works and other stakeholders, the URI RCDL created a final design concept for the Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk which focused on four separate areas that make up the site:

- Park entry experience
- Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk entry point
- Sen. Donald E. Roch Riverwalk from the entry point to the fishing area
- Fishing area

Design Description

Park Entry Experience

Perspective of the expanded Riverpoint Park entry experience.

There is an exciting opportunity to create a more welcoming entry experience for visitors that also connects to the mill history of West Warwick. The URI RDCL recommends replacing the existing tall fence with a lower profile split rail fence that matches the other split rail fences throughout the park. This would allow visitors to see into the park and arboretum. If possible, the team also recommends creating a small entry garden on the outside of the fence which would include a small flowering tree

such as a Cornus kousa. The Kousa Dogwood truly is a tree for all seasons displaying showy, white to slightly yellowish-white bracts that measure 2 to 3 inches long. The tree blooms in late spring and the bracts can nearly cover the entire tree. In the autumn the tree has berries that resemble raspberry fruit and the peeling bark on the mature tree trunks has an attractive mottled appearance. Fall leaf color is reddish-purple and lasts for 3 to 5 weeks.

To determine the vegetation to plant underneath the Cornus *kousa*, the URI RCDL referred to the RI Native Plant Guide which was developed by the URI Cooperative Extension and the Rhode Island Natural History Survey. The team is recommending the following plants which are native, shade tolerant and low maintenance.

Finally, the entry garden includes a stone welcome sign made of stones like the mills throughout West Warwick. The property for this expanded entry does not belong to the park. However, the team is hopeful that the landowner would welcome the opportunity to create this enhanced Riverpoint Park entry experience which will benefit the broader West Warwick community.

Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk entry point

Perspective of the new trees along the north-side of the arboretum

As discussed previously, the Green Ash trees within the arboretum need to be replaced. Taking feedback from stakeholders related to the desire to maintain shade within the area but also address the issues caused by too many roots, the URI RCDL recommends two large to medium trees on either end of the arboretum with a smaller flowering tree in the middle. This approach will provide shade for visitors but will also minimize the number of roots impacting the playing field.

When determining which trees to recommend, the URI RCDL referred to the Rhode Island Guide for Developing Municipal Street Tree Ordinance, the Providence Department of Public Parks Tree List and Chapter 10 (Plantings) of the RIDEM/Water Resources-Wetland BMP manual. The URI RCDL recommends the following large to medium trees:

Nyssa sylvatica

Cercidiphyllum japonicum

Liriodendron tulipifera

NOTE: The team is showing these trees in their full Autumn glory.

Nyssa *sylvatica* (Black tupelo) is a native medium-sized, deciduous tree. The black tupelo is grown as an ornamental for its beautiful, scarlet red, fall color and for its shiny, dark green leaves in the summer. The black gum can reach a mature size of 40-70' and 20-35' wide. The tree prefers average, medium to wet soils in full sun. The tree is dioecious and requires male and female plants to produce fruits. Therefore, if this tree is selected the URI RCDL recommends planting one female tree and one male tree.

Cercidiphyllum *japonicum* (Katsura tree) is a medium-size deciduous tree that has a full, dense, pyramidal habit when young and great variability with age including low stiff arching branches. In cultivation, it will reach heights of up to 40-60' tall and 30-50' wide. Male flowers will appear before the leaves emerge, while the female flowers will usually bloom as the foliage expands. However, the flowers are insignificant, this tree is grown for its foliage. The young leaves are a red/purple, maturing to green with a slight bluish tint. Come fall, shades of red, gold and orange will add color to the landscape. Along with the fall color, the fallen leaves give off the scent of cinnamon, ripened apples or cotton candy. On old trees, the bark is shaggy with loose ends. Plant this tree in the full sun in moist, organically rich, well-drained soil.

Liriodendron *tulipifera* (Tulip tree) is one of the largest native trees in North America growing up to 90 to 120 feet tall. It takes its name from its attractive tulip-like flowers. The tree has alternate, palmately veined, 4-lobed leaves with a smooth margin. The bark is smooth and dark green on young trees. The trunks of mature trees may reach 4 to 6 feet in diameter, usually rising column-like with an absence of lower branches. The crown is compact, pyramidal, and often tapers sharply at the top. This tree prefers moist, well-drained soil, full sun, and slightly acidic soil. The tulip poplar is also a favorite nesting site for birds, and the flowers attract butterflies and hummingbirds.

For the smaller flowing trees, the URI RCDL recommends the following trees:

Cercis canadensis

Syringa reticulata

Heptacodium miconioides

Cercis *canadensis* (Eastern redbud) is a deciduous ornamental tree in the Fabaceae or pea family. It is native to eastern North America and may grow up to 20 or 30 feet tall and 20-35 feet wide. It is a smaller, flowering tree with a nearly flat or rounded crown that is often found growing beneath taller trees. The tree blooms in early spring before the leaves appear, with rose pink to light purple flowers that attract many pollinators including butterflies, and bees. The plant holds great wildlife value as a larval host plant and the bean pod fruits provide food for songbirds.

Syringa *reticulata* (Japanese tree lilac) is a small flowering deciduous tree or large shrub in the Oleaceae or olive family that has an oval to rounded habit. They grow to a height of 25 to 30 feet tall and may be single or multi-stemmed. The bark is reddish brown, but the most distinctive feature is its horizontal lenticels. The leaves are dark green and have a drooping habit. The flowers bloom in June and are creamy-colored panicles that are scented and last only 2 weeks. The blooms are followed by clusters of green and then yellow capsules that can persist through winter. Plant in full sun in organically rich well-drained acidic soils. Its showy fragrant blooms attract hummingbirds, insect pollinators, and butterflies. The tree also provides shelter and habitat for wildlife.

Heptacodium *miconioides* (Seven-son Flower) is a small tree or large shrub in the Caprifoliaceae family. It is known for bringing its stellar display of late-season, fragrant, nectar-rich flowers that attract bees, monarch butterflies and other pollinators. The beautiful fruits and showy bark bring fall and winter interest to the landscape. Buds appear in early summer and are almost forgotten until clusters of seven small flowers cover the entire canopy in fragrant, white petals every September. After the veil of white fades, the flower's sturdier calyx wraps rounded seeds in vivid colors of cherry red to rose-purple. Winter reveals the beautiful exfoliating bark. This tree can grow 10- to 20-feet tall and half as wide in a fountain-like shrub or single-trunk tree forms, depending on the gardener's choice and pruning.

The URI RCDL included the Heptacodium miconioides or Seven-son Flower because several stakeholders expressed their affinity for Lagerstroemia or Crepe Myrtle. The Seven-son Flower has similar characteristics but is tolerant of the Rhode Island climate.

Finally, to address the unsightly neighboring property to the south-side of the arboretum, the URI RCDL recommends planting a non-invasive vine such as Climbing hydrangea, Trumpet honeysuckle or some variety of Clematis along the fence. The perspective to the left shows the fence covered with climbing hydrangea but any of the options below would make a beautiful display while restricting the view of the adjacent lot. Covering the fence with a vine has the added benefit of creating a sense of enclosure for visitors walking through the arboretum.

Perspective of the reimagined arboretum.

Hydrangea anomala

Lonicera sempervirens

Clematis

Hydrangea *anomala* (Climbing hydrangea) has rich green foliage, mid-summer white flowers, yellow fall color, and striking exfoliating bark in winter. This vine is an early summer bloomer and is excellent for a massed effect on brick or concrete walls, arbors, gazebos, or almost any free-standing garden structure. It clings and/or climbs not only by twining but also by aerial rootlets. This woody vine has an almost shrub-like appearance due to its lateral branches and is native to wooded valleys, stream banks, and on rocky mountain slopes. It is somewhat slow to establish and slow to begin flowering after transplanting. It prefers rich, well-drained, moist soil, will grow in sun or shade, and can easily grow 60 to 80 feet. Once established, it has no serious pest problems.

Lonicera *sempervirens* (Trumpet honeysuckle) is a vigorous twining vine in the Caprifoliaceae family that is native to the southeastern United States. Trumpet honeysuckle grows in medium moisture, well-drained, neutral to acidic soils in full sun. It will grow in some shade, but the best flowering is in full sun. It likes organically rich soils. It flowers on new growth, so avoid pruning until after flowering. It is a twining vine that can reach 10 to 20 feet tall and 3 to 6 feet wide. It needs a support structure and thus is an excellent choice for a trellis, arbor, or fence. Native honeysuckle is not invasive, flowers

in mid-spring, is often non-fragrant and a good addition to a butterfly, native, or pollinator garden. Its salt tolerance makes it especially welcome in coastal gardens.

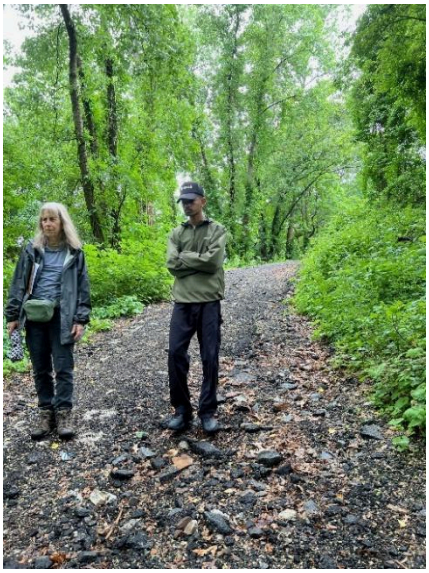
Clematis is a woody, perennial, dense vine in the Ranunculaceae family with many species and cultivars, some of which are climbers and others are spreaders. Depending upon the support structure, they can get to be 6- to 18-feet long. They prefer full sun, with afternoon shade in areas with hot summers. Shade the roots with mulch or a ground cover planting. Moist, well-drained soil with a neutral to slightly alkaline pH is recommended. Flowers can be 4- to 7-inches wide and attract bees, butterflies, and hummingbirds; other birds may nest in the vines. The plants are deer and rabbit resistant. The image above is **Clematis 'Ernest Markhan'** which is a deciduous vine that gets covered with a profusion of large, 4-6" magenta flowers with blunt-tipped velvety petals. It blooms in mid-summer to early fall and is extremely floriferous and can quickly grow up to 10-12'. Introduced in 1926, it would be an excellent choice in the arboretum.

Sen. Donald E. Roch Riverwalk from the entry point to the fishing area

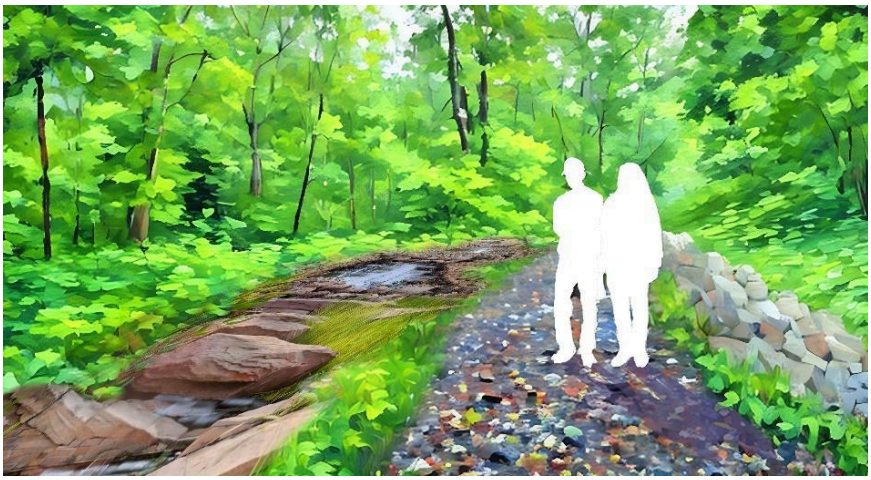
Perpsective of stone arch entryway.

Visitors will enter the Sen. Donald E. Roch Riverwalk through a new stone arch which uses stones similar in character to those used in the nearby mills and complementing the new stone entry sign described previously in this report.

Once through the arch, visitors are currently met with a path that is eroding and washed out due to ongoing exposure to storm water runoff. However, through stormwater management best practices, the stormwater can be redirected and managed through various conveyance options that do not compete with the natural setting but instead enhance the existing beauty of the Riverwalk. When considering stormwater management, the first principle is to spread and slow the path of water, to allow for infiltration on site. This principle is especially important at the Riverwalk site, as the path bisects the area between the decomposing matter from the adjacent landfill and the Pawtuxet River.



Existing Riverwalk path.

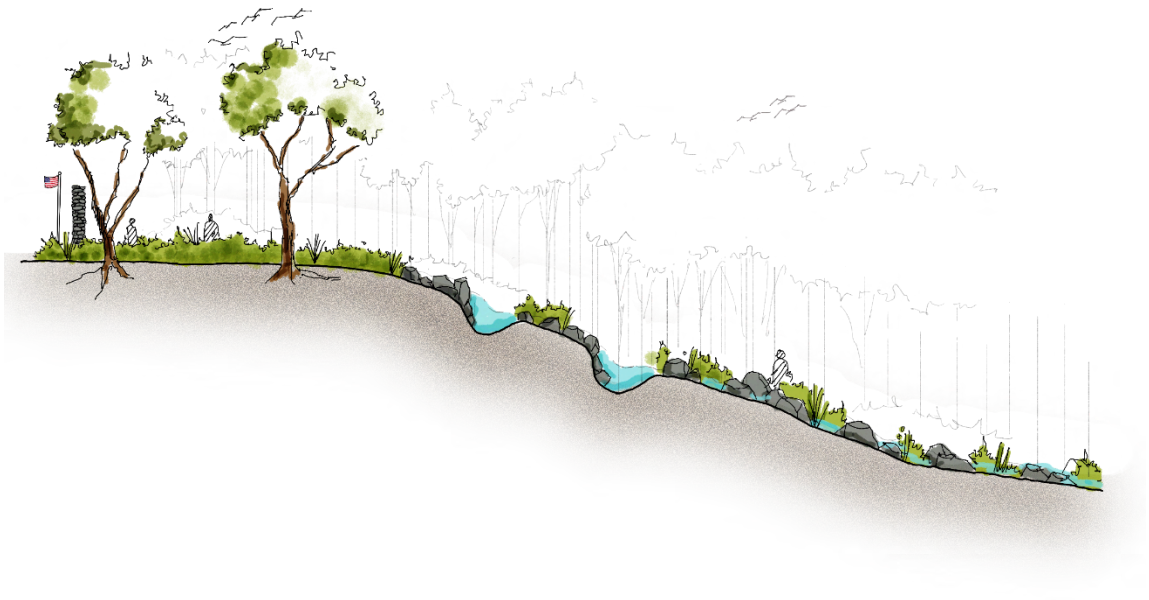


Perspective of natural step pool and stone conveyance and swale.

The Pawtuxet River, formed by the confluence of the North Branch Pawtuxet River and the South Branch Pawtuxet River at the nearby village of River Point, still bears witness to centuries of negative impacts from industrial pollution. It is important that measures be undertaken on this project to avoid adding current pollutants to the beleaguered ecological communities in this waterway.

Currently, the steep bank along the north-side of the top portion of the Riverwalk funnels the stormwater that is running off the playing fields and buried landfill across the Riverwalk and down the south-side slope to the North Branch of the Pawtuxet River. The URI RCDL recommends adding several culverts, appropriately placed where the stormwater is naturally accumulating and running off. The culverts would direct the stormwater under the Riverwalk and over to the south-side of the trail where there is more surface area and a gentler slope to infiltrate the water. The culverts would be placed within a swale that runs along the north-side of the Riverwalk and is filled with stones and vegetation to allow for infiltration.

Any water that isn't infiltrated naturally will be directed through the culverts to the south-side of the trail, where it will be infiltrated through a series of step pools which will collect the water and allow it to percolate into the ground. In larger storms with excessive storm water, a series of large rocks will be placed at the bottom of the step pools to interfere with the water flow and allow any water that was not infiltrated through the step pools to percolate into the surrounding vegetation prior to reaching the river.



Section of the step pool and stone interference storm water conveyance along slope of Riverwalk.

Examples of storm water conveyances are shown on the following page.

Example of step pool conveyance.

Example of stone interference conveyance.

It is likely that some of the storm water runoff is leachate which is rainwater filtered through waste placed within a landfill. Landfill leachate can contain thousands of contaminants which, if left untreated, can cause a health risk and environmental impact. According to the U.S. Department of Agriculture, Forest Service, there are tools available that help identify the pollutants within the leachate and match the appropriate tree or plants species to Phyto remediate the identified pollutants. To restore better ecological function to the site, the invasive plantings on the upland side

the path should be replaced over time with appropriate phytoremediation plantings to help remediate any pollutants within the leachate.

The Riverwalk path itself is currently surfaced with recycled asphalt. While there is an abundance of this material available to the Town of West Warwick and it is a more inexpensive option than other materials, it does not compact well and washes away due to storm water runoff. In addition, the asphalt contains pollutants which are being carried to the Pawtuxet River by stormwater runoff. Therefore, the URI RCDL recommends replacing the recycled asphalt with a more compactible, non-toxic material.

Crushed stone trails provide an all-season surface and if built properly can meet the American with Disabilities Act (ADA) Accessibility Guidelines. Increasingly parks are turning to what are called soft-surface trails. While soil is considered a soft surface trail, it can wash out and become overrun with vegetation, requiring ongoing maintenance. This is evidenced in the image to the left which shows the lower portion of the Riverwalk where the wood chips are washed away, and what remains is soil, overgrown with weeds.

Trails first covered with a geotextile fabric and then surfaced with crushed stone or crusher fines, minimize muddy trail conditions and reduce facility maintenance. Crusher fines in their purest form have no soil mixed in, they are pure crushed stone. Gravel on the other hand is screened to remove the fines which contain the natural binders/cements. Therefore, gravels remain loose because of dead air or pore space within the matrix which allow them to drain well and resist compaction. Crusher fines retain their inherent soil cements and binders which promote soil compaction.

The downward slope of the trail ends in a large level area, part of which is the fishing area. This entire area is vulnerable to erosion and disruption due to its high-water table, lack of vegetation, and propensity for flooding. A thoughtful planting of flood-tolerant vegetation to stabilize the ground and remediate polluted soils and water is recommended. Several species of Salix (willow) are especially well-suited for this area and purpose. Potential salix species could include black willow (Salix nigra), sand bar willow (S. interior), meadow willow (S. petiolaris), heart leaved willow (S. eriocephala) and Ward's willow (S. caroliniana). Planting flood tolerant plants in this area could help lessen erosion, provide phytoremediation function, and restore ecological function including wildlife habitat.

Salix nigra

Salix petiolaris

Salix eriocephala

Fishing Area

Perspective of the raised deck over the fishing area.

In the fishing area, the foremost consideration is to stabilize the riverbank to prevent further erosion. There are several resistive bank stabilization methods which work to prevent erosion by resisting the force of the water. Some examples include riprap, graded boulders or brick matressing. When combined with biological protections such as improving bank vegetation, this can be a good solution to prevent further erosion of the riverbank.

Example of vegetated riverbank.

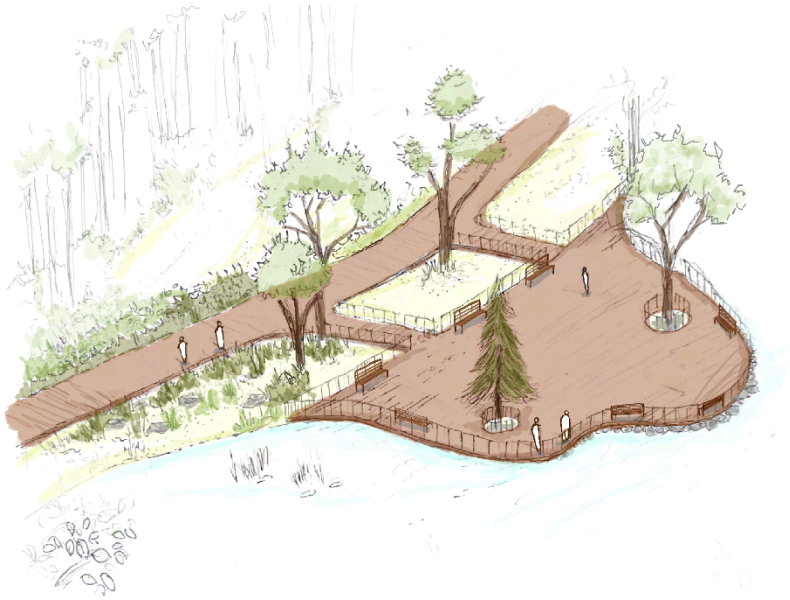
While the hard material preventions described above can be a cost-effective solution in areas with heavy water flow, they can also clash with the natural look of the environment and prevent many types of wildlife from living in the area. Also, the hardened edge may require maintenance to retain its function after disruptive flooding. Therefore, the URI RCDL recommends supplementing the riverbank stabilization materials with a vegetated geogrid which is a combination of geotextiles, rock fills and live materials. The team recommends the following native plants for consideration when creating the vegetated riverbank as they will not only stabilize the bank but will support a healthy ecosystem.

Iris versicolor | Lobelia cardinalis | Sagittaria latifolia

Juncus effusus | Asclepias incarnata | Carex grayi

While the team was asked to focus on a specific area of the Riverwalk and riverbank, the ecological function of the entire waterway would benefit from a broader vegetated buffer with the recommended species of Salix and other plants discussed in this report.

Finally, although the fishing area is scenic, it is prone to flooding with ground that is uneven and often muddy. Therefore, the URI RCDL would recommend creating a raised platform that would entirely cover the fishing area.



Aerial perspective of the reimagined fishing area.

Because the fishing area is adjacent to the Pawtuxet River, the materials used to construct the raised platform should be resistant to rot but should also be non-toxic, so it does not introduce any pollutants into the river. The URI RCDL is providing two options to consider for the raised platform.

Sustainable Composite Decking

There are many vendors that offer composite decking. If the Town of West Warwick decides to use composition decking, the URI RCDL team recommends Trex composite decking which is sustainably made in the United States using 95% recycled plastic film and reclaimed sawdust. It's easy to install and very low maintenance as the composite decking will not warp, rot or splinter.

Accoya Sustainable Wood Decking

If the Town of West Warwick decides to use wood decking, the URI RCDL recommends Accoya. Accoya is real hardwood and is 100% nontoxic, 100% recyclable and has the lowest carbon footprint of any decking material on the market. The decking resists cupping or splintering. It is also a low maintenance alternative as it doesn't require coating and is resistant to rot and insect attack.

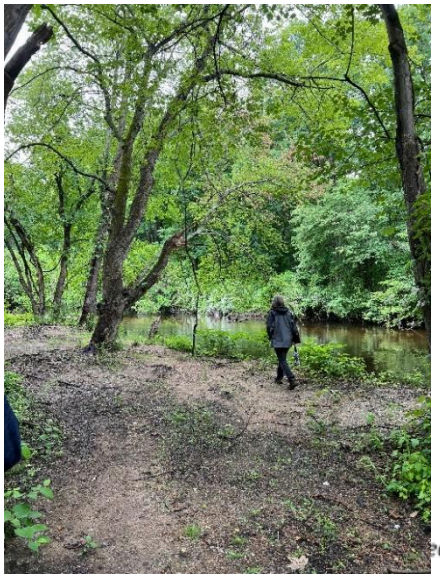
Building a dock would require a permit outlined in the RIDEM Fact Sheet for the Permitting of Docks and Floats. Therefore, the URI RCDL recommends that the raised deck covering the fishing area be extended slightly over the riprap to provide a place for boats to tie up, if necessary. This approach would not require a permit and would offer a more permanent solution to the impacts of flooding within the area while also providing a stable, dry area for visitors to enjoy the river.

Sample educational sign.

The raised deck would provide an opportunity, through signage, to educate visitors on the history of the river and its contribution to the region's economic development; the Pawtuxet Watershed; and the plants and wildlife that live in the area. These types of educational signs can also be placed strategically throughout the area, where there is an opportunity to educate visitors and instill a desire to conserve this place.

Complete Final Conceptual Master Plan

Creating a Healthy Riverwalk Ecosystem



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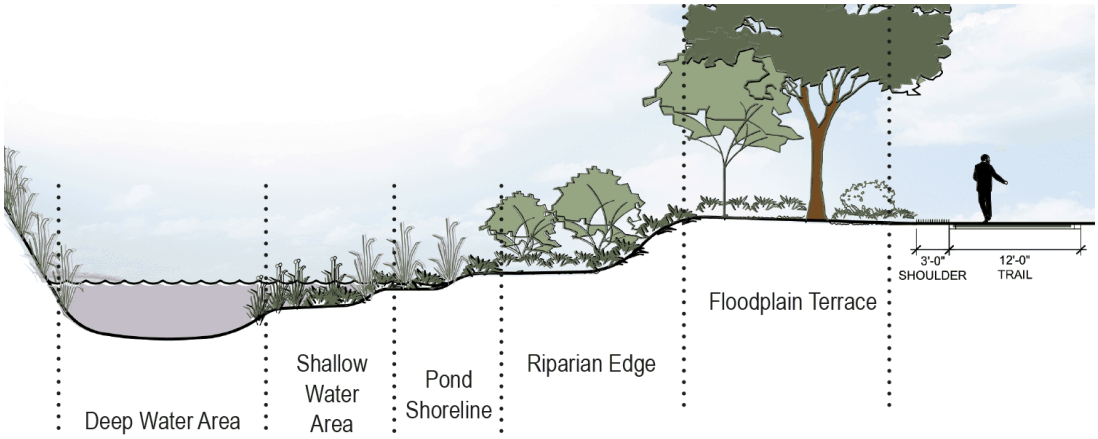
Wide clearing near the fishing area.



Great Rivers Greenway recommendations for streambank planting.

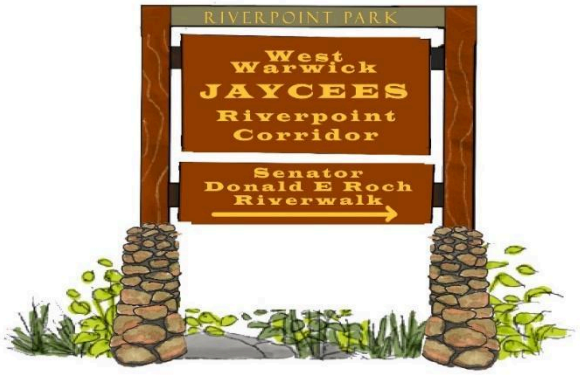
Agroforestry phytoremediation landfill buffer.

Willow being used for phytoremediation.

Jaycees Riverpoint Corridor/Arboretum and Sen. Donald E. Roch Riverwalk Signage

The URI RCDL is also recommending the creation of a cohesively branded suite of signs to be placed throughout the park. The team designed the following signs which can be strategically placed throughout the park to improve awareness, educate visitors and help identify the trail heads and connection points between the three ponds.

Park Entry Sign

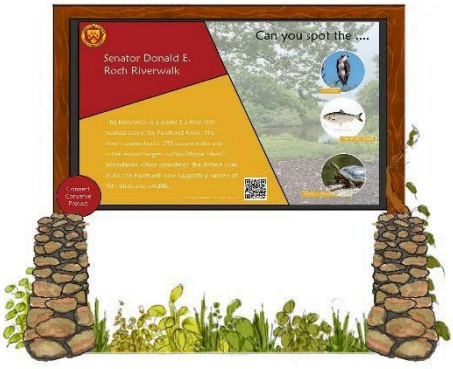


Placed strategically at major park entry points, these signs will welcome and educate visitors about the Riverpoint Park, arboretum and Riverwalk.

Riverwalk Entry Arch

Placed at the entry to the Senator Donald E. Roch Riverwalk, this stone arch will feature the original Boy Scout sign and illustrate the mill history of the Town of West Warwick.

Educational Sign



Placed in various locations throughout the park, these signs will educate visitors about the history of the area, and the park flora and fauna.

Multi-Directional Sign

Placed throughout the trail system, these signs will help visitors know their location within the Riverwalk and navigate to their desired destination.

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Appendix A

Meeting Notes

Initial Site Visit

The URI RCDL team met with a member of the Town of West Warwick Public Works Department on June 6, 2024, for the initial site visit. The team was provided with a tour of the site and given information about some specific areas that require attention. Thereafter the team conducted a comprehensive site analysis, gathering the following constraints and opportunities:

- Entry to the park is awkward. There is no entry sign outside the fence and the fence is quite high and uninviting.
- The Washington Secondary Bike Path is close by but there is no signage that would let people know that.
- The plantings within the arboretum are attractive and well maintained.
- There is row of Fraxinus pennsylvanica that will likely die due to the Emerald Ash Borer and should be replaced.
- There is an unsightly area to the right of the chain link fence within the arboretum.
- There is no irrigation for arboretum.
- There are a few log benches near the arboretum but there could be more benches around the playing field.
- The existing wooden Riverwalk entry structure is in disrepair.
- The top of the Riverwalk is eroded due to lack of stormwater management best practices.
- Remaining debris from the old landfill is emerging from the embankment.
- There is a significant slope along the path.
- Portions of the Riverwalk are surfaced with recycled asphalt and is washing away. It may also contain pollutants which could enter the river through storm water runoff.
- There are an abundance of invasive plants and vines which if left unchecked could choke out existing trees and vegetation.
- The lower portion of the Riverwalk is surfaced in wood chips which washes out.
- The riverbank and the fishing area are eroding due to seasonal flooding and major storm events.
- There is no way to access the fishing area via the water.
- The water should be tested to determine if it’s suitable for fishing
- There is a general lack of wayfinding or educational signage throughout the Riverwalk and arboretum.
- The Riverwalk provides visitors with scenic views of the river.

Initial Presentation

On July 23, 2024, team presented the two preliminary design concepts to a group of stakeholders including: the Director of West Warwick Public Works, the West Warwick Town Planner & Economic Development Coordinator, the Cooperative Forestry Program Supervisor from RIDEM, a

representative of the West Warwick Health Equity Zone, the Executive Director of the West Warwick Jaycees Alumni Association, and the Chair of the Jaycees Arboretum Project.

During the presentation, the team conducted a question-and-answer session to gather feedback from the stakeholders on the elements of each concept that they thought would be most suitable for the site.

What They Liked

- Stone arch
- Enhanced entry experience
- Replacing the Green Ash trees
- Climbing vine on the existing fence in the arboretum
- Step pool conveyance along the top of the Riverwalk
- Large stone natural conveyance along the top of the Riverwalk
- Raised decking in the fishing area
- Removing invasive plants

Additional Considerations

- Tree roots in the arboretum, affecting the playing fields
- Combining the two stormwater conveyances from both concepts
- Appropriate bank stabilization/phytoremediation plants to address the remaining landfill debris
- Better, more obvious connection to the bike path
- Funding/state or federal grants
- Maintenance

References

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Great Rivers Greenway - https://greatriversgreenway.org/design-guidelines/environmental/streambank-planting/

Historic and Architectural Resources of West Warwick, Rhode Island: A Preliminary Report - https://preservation.ri.gov/sites/g/files/xkgbur406/files/pdfs_zips_downloads/survey_pdfs/west_warwick.pdf

How to Control Streambank Erosion - https://www.iowadnr.gov/portals/idnr/uploads/water/stormwater/streambankmanual.pdf

Maryland Department of Natural Resources Chesapeake and Coastal Service Construction Guidance for Regenerative Stream Conveyance - https://dnr.maryland.gov/ccs/Documents/RSC_Training/RSC-Guidance.pdf

North Carolina State Extension Gardener Plant Toolbox - https://plants.ces.ncsu.edu/

NRRI's hybrid poplar wins praises for phytoremediation potential - https://news.d.umn.edu/articles/poplar-phytoremediation

Pawtuxet River Authority and Watershed Council - http://www.pawtuxet.org/

Providence Department of Public Parks Trees List - https://www.providenceri.gov/wp-content/uploads/2017/05/Providence_Tree_List.pdf

Rhode Island Guide for Developing Municipal Tree Ordinances - https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/bnatres/forest/pdf/urban/ri-street-tree-ordinance-guide.pdf

RIDEM Water Resources – Wetland BMP Manual:

- Chapter 6 (Bike Paths, Foot Paths, Trails and Boardwalks) - https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/benviron/water/permits/fresh/pdfs/bmpch6.pdf

- Chapter 10 (Plantings) - https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/benviron/water/permits/fresh/pdfs/bmpch10.pdf

RIDEM Fact Sheet for the Permitting of Docks and Floats Fact Sheet - https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/benviron/water/wetlands/pdfs/wfs13.pdf

RI Native Plant Guide - https://web.uri.edu/rinativeplants/

Riverbank Erosion and Sustainable Protection Strategies - https://www2.kuet.ac.bd/JES/images/files/v2/02_08.pdf

Stocked Trout Areas on the Pawtuxet River - http://www.pawtuxet.org/uploads/4/8/2/4/48249485/trout_fishing_in_the_pawtuxet.pdf

The Art of Building Crushed Stone Trails - https://www.americantrails.org/resources/the-art-of-building-crushed-stone-trails

U.S. Department of Agriculture, Forest Service - https://www.fs.usda.gov/nrs/highlights/2157

Preliminary Design Boards

The Jaycee Arboretum & Senator Roch Riverwalk

URI Regenerative Community Design Lab | July 15, 2024

Concept 1 - A Rustic Riverwalk

Visitors will enter the Riverwalk through a new wooden entry that guides them to a refurbished trail and boardwalk along the Pawtuxet River where they can relax in the fishing area to enjoy a picnic or experience the river from the deck.

View of the fishing and picnic area, small dock and raised boardwalk.

The Problems:

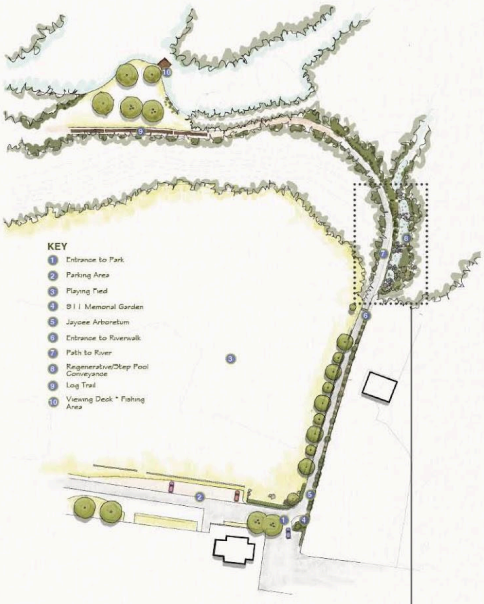
- Awkward entry experience
- Storm water management issues
- No signage
- Underdeveloped site for public use
- Seasonal flooding impacts
- Visible remnants of landfill adjacent to path

The Solutions:

- Strategically place signage throughout site
- Incorporate step pool conveyance to manage storm water
- Use board walk to address impacts of seasonal flooding

The Benefits:

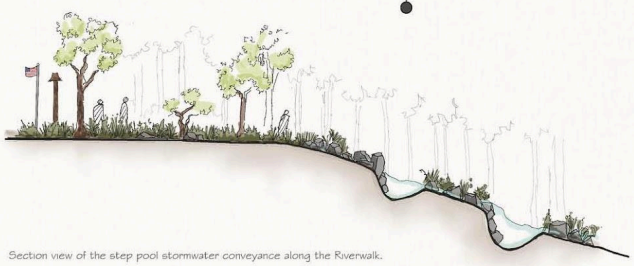
- Enhance the aesthetics of the area
- Cost effective solution which provides more opportunities for the community to connect with the Senator Roch Riverwalk
- Through signage, create opportunities for community education and awareness
- Better connection to Riverpoint Park and the West Bay Bike Path



Conceptual master plan.

View of the new Riverwalk wooden entry arch.

View of the updated entry into the Riverpoint Park.



Section view of the step pool stormwater conveyance along the Riverwalk.

Example of step pool conveyance for storm water.

The Jaycee Arboretum & Senator Roch Riverwalk

URI Regenerative Community Design Lab | July 15, 2024

Concept 2 - A Riverwalk connecting the past to the present

Visitors will enter the Riverwalk through a stone arch, reminiscent of the mills in the area. From there, all their senses will be engaged as they descend along the path which leads to an extensive raised platform for community gathering and passive enjoyment of the Pawtuxet River.

View of the raised platform in the fishing area, extending over the river.

The Problems:

- Awkward entry experience
- Stormwater management issues
- No signage
- Underdeveloped site for public use
- Seasonal flooding impacts
- Visible remnants of landfill adjacent to path

The Solutions:

- Develop stone signage based on nearby mills
- Create sensory experience to channel stormwater
- Use extensive raised decking from the path to the waters edge

The Benefits:

- Elevate the aesthetics of the area
- Create a desirable destination for community members and visitors
- Maximize the opportunities afforded by such a naturally beautiful site
- Expand awareness of the Riverwalk and Arboretum amoungst the community

Conceptual master plan.

View of the new Riverwalk stone entry arch.

View of the updated entry into the Riverpoint Park.

Section view of the stone stormwater conveyance along the Riverwalk.

Example of stone step conveyance for stormwater.

Final Design Boards

The Jaycee Arboretum & Senator Roch Riverwalk

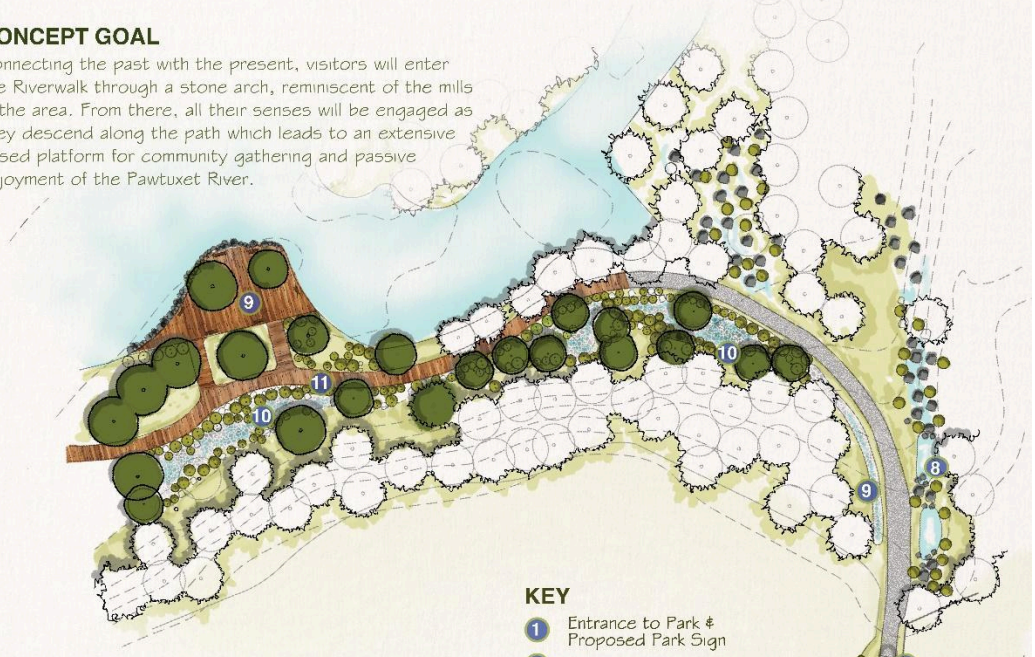
URI Regenerative Community Design Lab | July 30, 2024

RI DEM THINK BIG WE DO

Disclaimer: This drawing is conceptual and was prepared to show approximate location and arrangement of site features. It is subject to change and is not intended to replace the use of construction documents. The client should consult appropriate professionals before any construction or site work is undertaken. The URI RLDL is not responsible for the inappropriate use of this drawing.

CONCEPT GOAL

Connecting the past with the present, visitors will enter the Riverwalk through a stone arch, reminiscent of the mills in the area. From there, all their senses will be engaged as they descend along the path which leads to an extensive raised platform for community gathering and passive enjoyment of the Pawtuxet River.



KEY

1. Entrance to Park & Proposed Park Sign
2. Parking Area
3. Playing Fied
4. 9 1 1 Memorial Garden
5. Jaycee Arboretum
6. Proposed Trees
7. Entrance to Riverwalk
8. Regenerative/Step Pool Conveyance
9. Swale
10. Bioswale
11. Boardwalk
12. Raised Deck & Fishing Area

Perspective Drawing

Perspective of the reimagined Riverpoint Park entry

Planting Suggestions

Aquilegia candensis

Chelone glabra

Geranium maculatam

0 30 60 90

Scale: 1" = 30'

NORTH

Park Entry Experience and Jaycee's Riverpoint Corridor/Arboretum

URI Regenerative Community Design Lab | July 30, 2024

Disclaimer: The drawings on this board are conceptual and were prepared to show approximate location and arrangement of site features. They are subject to change and are not intended to replace the use of construction documents. The client should consult appropriate professionals before any construction or site work is undertaken. The URI RCDL is not responsible for the inappropriate use of these drawings.

The Problems:

- Awkward entry experience
- Unsightly area near arboretum
- Ash trees infected with Emerald Ash Borer
- Riverwalk entry structure in disrepair

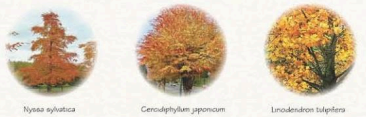
The Solutions:

- Create entry experience outside gate
- Plant non-invasive vine on fence
- Replace existing trees
- Updated stone entry arch into Riverwalk

The Benefits:

- More welcoming entry experience for visitors
- Restrict unsightly view while creating a sense of enclosure for visitors within the arboretum
- Provide shade for visitors while minimizing impacts of tree roots on the playing fields
- Celebrate the history of West Warwick with the stone arch

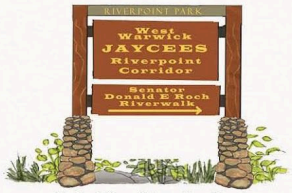
PLANTING SUGGESTIONS



Large trees

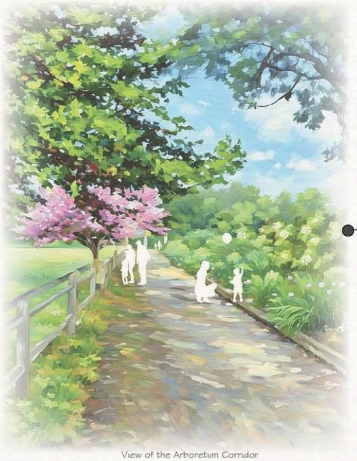
Small trees

Vines



Updated Stone Entrace Sign Example

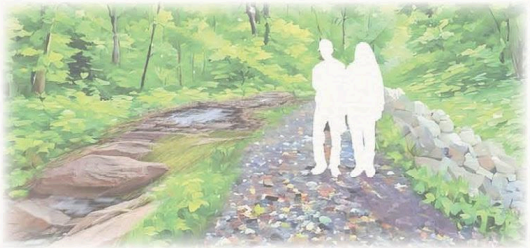
View of the new Riverwalk stone entry arch.



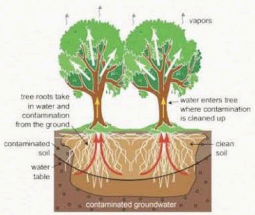
View of the Arboretum Corridor

Senator Donald E. Roch Riverwalk - Entry Point to Fishing Area

URI Regenerative Community Design Lab | July 30, 2024



View looking uphill on slope- Water retention pools to Thai rock garden (left), and rip-rap swale (right)



Phytoremediation graphic from
A Citizen's Guide to Phytoremediation

Wayfing Sign with Trail Map

The Problems:

- Path erosion due to stormwater runoff
- Recycled asphalt on path washes away and contains pollutants
- Abundance of invasive plants and vines
- Debris from landfill not contained in embankment

The Solutions:

- Add culverts to direct stormwater runoff
- Manage stormwater through various conveyance measures
- Remove invasive plants and replace with plants that support phytoremediation of leachate
- Replace asphalt with crushed stone

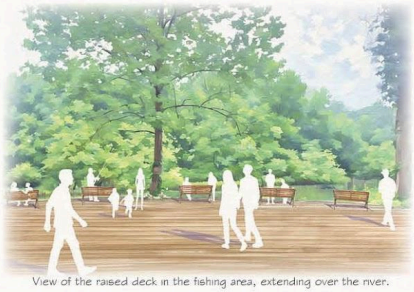
The Benefits:

- Minimize Riverwalk erosion
- Infiltrate stormwater through conveyances that enhance the natural beauty of the area
- Create a healthier environment through phytoremediation
- A Riverwalk that is more accessible to all visitors

Section A - Showing Riverwalk Path

Senator Donald E. Roch Riverwalk - Fishing Area

URI Regenerative Community Design Lab | July 30, 2024



View of the raised deck in the fishing area, extending over the river.

Planting Suggestions

The Problems:

- Eroded riverbank due to flooding
- Fishing area and path affected by seasonal flooding
- No boat access
- Poor water quality

The Solutions:

- Use raised decking to address the effects of seasonal flooding in the fishing area
- Create vegetated riverbank for stabilization
- Use species of Salix to create broader vegetated buffer along river

The Benefits:

- More permanent solution to the impacts of flooding in the fishing area while also providing a stable, dry area for visitors
- Vegetated buffer will support a healthier ecosystem for plants and wildlife
- Boat access for emergency management technicians

Educational Signage example

Anal Perspective