Minto-Brown Island Park Studio

Fall 2010 • Landscape Architecture

Logan Bingle • Landscape Architecture

Vanessa Nevers • Landscape Architecture

Deni Ruggeri • Assistant Professor • Landscape Architecture

UNIVERSITY OF OREGON

SCI
Sustainable Cities Initiative

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About SCI

The Sustainable Cities Initiative (SCI) is a cross-disciplinary organization at the University of Oregon that seeks to promote education, service, public outreach, and research on the design and development of sustainable cities. We are redefining higher education for the public good and catalyzing community change toward sustainability. Our work addresses sustainability at multiple scales and emerges from the conviction that creating the sustainable city cannot happen within any single discipline. SCI is grounded in cross-disciplinary engagement as the key strategy for solving community sustainability issues. We serve as a catalyst for expanded research and teaching, and market this expertise to scholars, policymakers, community leaders, and project partners. Our work connects student energy, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCY

The Sustainable City Year (SCY) program is a year-long partnership between SCI and one city in Oregon, in which students and faculty in courses from across the university collaborate with the partner city on sustainability and livability projects. SCY faculty and students work in collaboration with staff from the partner city through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCY's primary value derives from collaborations resulting in on-the-ground impact and forward movement for a community ready to transition to a more sustainable and livable future. SCY 2010-11 includes courses in Architecture; Arts and Administration; Business Management; Interior Architecture; Journalism; Landscape Architecture; Law; Planning, Public Policy, and Management; Product Design; and Civil Engineering (at Portland State University).

About Salem, Oregon

Salem, the capital city of Oregon and its third largest city (population 157,000, with 383,000 residents in the metropolitan area), lies in the center of the lush Willamette River valley, 47 miles from Portland. Salem is located an hour from the Cascade mountains to the east and ocean beaches to the west. Thriving businesses abound in Salem and benefit from economic diversity. The downtown has been recognized as one of the region's most vital retail centers for a community of its size. Salem has retained its vital core and continues to be supported by strong and vibrant historic neighborhoods, the campus-like Capitol Mall, Salem Regional Hospital, and Willamette University. Salem offers a wide array of restaurants, hotels, and tourist attractions, ranging from historic sites and museums to events that appeal to a wide variety of interests. 1,869 acres of park land invite residents and visitors alike to enjoy the outdoors.

Course Participants

Deni Ruggeri, Assistant Professor, Landscape Architecture

Logan Bingle, Landscape Architecture Undergraduate
Stephanie Christie, Landscape Architecture Undergraduate
Laura Culver, Landscape Architecture Undergraduate
Justin Demeter, Landscape Architecture Undergraduate
Alexandria Donati, Landscape Architecture Undergraduate
Autumn Ellison, Landscape Architecture Graduate
Jonathan Haller, Landscape Architecture Undergraduate
Karim Hassanein, Landscape Architecture Undergraduate
Aimee Jeske, Landscape Architecture Undergraduate
Zach Katz, Landscape Architecture Undergraduate
Crystal Morrison, Landscape Architecture Undergraduate
Vanessa Nevers, Landscape Architecture Graduate, Architecture Graduate
Jay Pezzotti, Landscape Architecture Undergraduate
Heather Redetzke, Landscape Architecture Graduate
Leanne Wagener, Landscape Architecture Undergraduate
Michael Weir, Landscape Architecture Graduate
Holly Workman, Landscape Architecture Undergraduate

SCI Directors and Staff

Robert Liberty, Executive Director

Nico Larco, SCI Associate Director, and Assistant Professor of Architecture

Marc Schlossberg, SCI Associate Director, and Associate Professor of Planning, Public Policy, and Management

Chris Jones, SCI Program Manager

Amy Hause, SCI Program Manager

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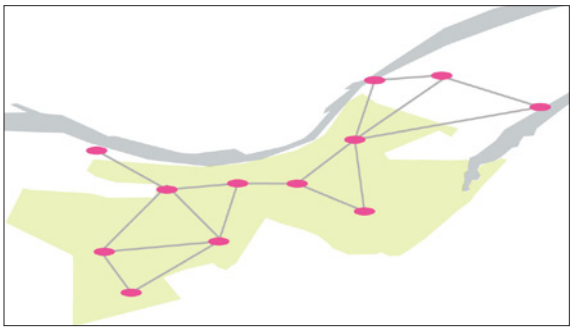
Executive Summary

Minto-Brown Island Park is a complex system of habitat, agriculture, outdoor recreation, and cultural history. All of these elements have immense value for the citizens of Salem and should be preserved and enhanced for the enjoyment of today's visitors and for the generations of visitors to come. It is with a deep respect for all that Minto-Brown Island Park has to offer that this studio has generated its guiding design ideas: Reveal Complexity, Enrich Experience, and Grow Community. These ideas provided a set of principles that served as a framework for investigation, discussion, and ideation throughout the course of this project.




Figures 1 - 3 (left to right). Welcome sign; Twelve Landscape Rooms; Community gardens.

In addition to the revised interpretive trail system that was originally identified by the City of Salem as a scope for the project, students in the Minto-Brown Island Park studio took it upon themselves to conduct a series of investigations that would inform not only the proposal for a new interpretive trail, but also a proposal for a new park master plan vision that responds to both the present and future needs of Salem's citizens.

Introduction

The City of Salem asked the Minto-Brown Island Park research and design studio, led by University of Oregon Landscape Architecture Professor Deni Ruggeri, to provide a new interpretive trail plan for Minto-Brown Island Park located in Salem, Oregon. The primary considerations, as given by the City of Salem, for the development of this interpretive trail plan were to investigate new trails and connections that would facilitate improved way-finding within the park, provide interpretive opportunities and increased access to the Natural Resource and Conservation Service (NRCS) restoration areas and the Willamette River, and increase pedestrian and bicycle connectivity to downtown Salem via a future bridge and easement linking the northern perimeter of Minto-Brown Island Park to Riverfront Park.

In order to develop a proposal for a new interpretive trail plan, this studio launched an intensive investigation to understand the natural and cultural fabric that defines Minto-Brown Island Park at present, and the potential to enhance the value of the park for Salem's present and future residents. This investigation revealed a multitude of opportunities to engage the community of Salem in a variety of park experiences, both new and traditional, that would help generate support for, and increase awareness of, the value of this park to the city. These exciting investigations led to the decision to develop and propose a new master plan for Minto-Brown Island Park in conjunction with the development of the interpretive trail plan.

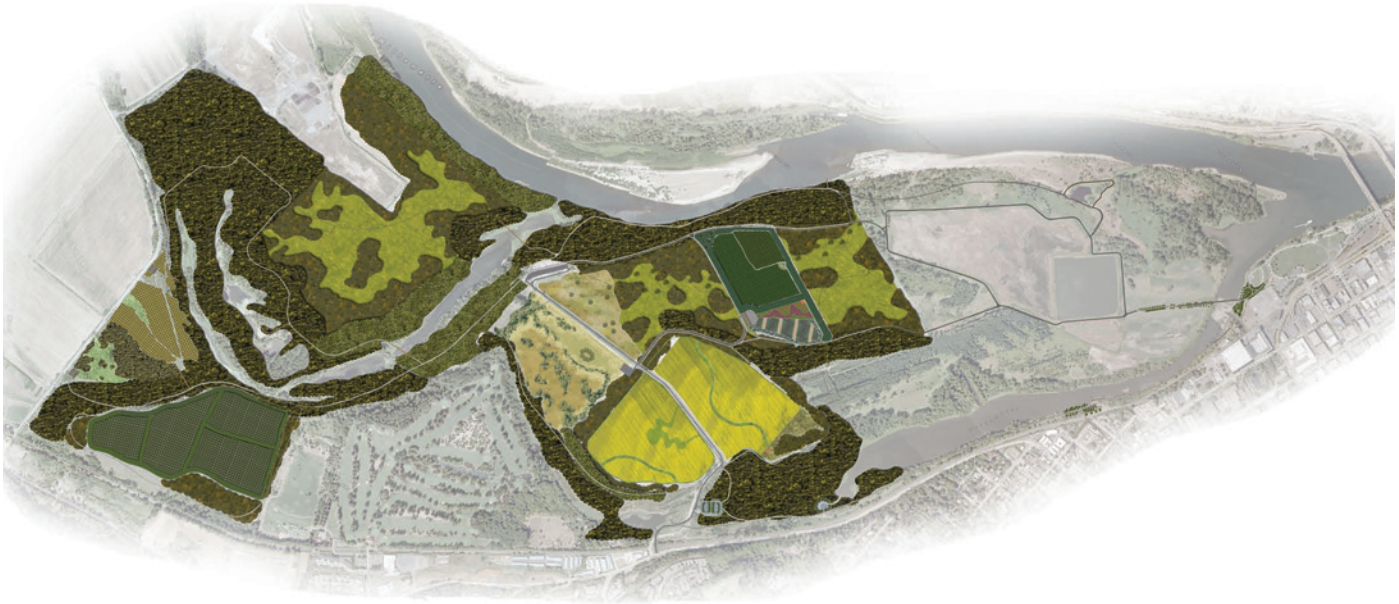


Figure 4. Minto-Brown Island Park Master Plan.

Methodology

Throughout the fall term of 2010, the students in the Minto-Brown Island Park studio worked collaboratively with the City of Salem to develop an interpretive trail plan in conjunction with a new master plan vision for Minto-Brown Island Park. What sets this studio apart from typical environmental design studios is that the students functioned as a unified entity in the generation of a single master plan vision. This involved an iterative process encompassing research, information sharing, discussion, design, and stakeholder feedback phases. Ultimately, the students worked in smaller groups, each focusing on one of five critical areas of investigation that were determined by the studio participants as a whole. Each of these investigations added value to the overall master plan vision and should be considered in relationship to one another.

Studio Process Workflow

How the studio navigated from initial research to ultimate knowledge dissemination

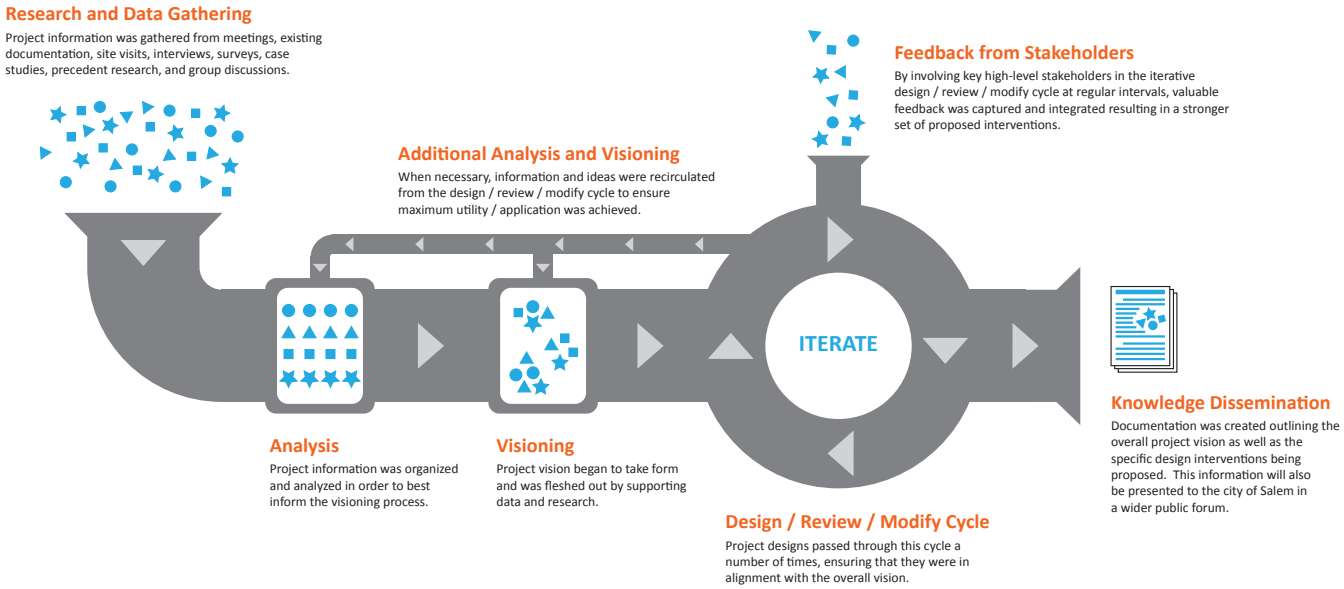


Figure 5. Process diagram.

Existing Conditions

Location

Minto-Brown Island Park is located at 2200 Minto Island Road SE in the heart of Salem, Oregon's state capital. It is an 900-acre park of open and wooded areas with many existing trails for walking, jogging, or biking. The park is a palimpsest of current and historical uses including agriculture, relict orchards, NRCS restoration areas, and an off-leash dog park. The beautiful Willamette River defines the northern and western edges of the park.

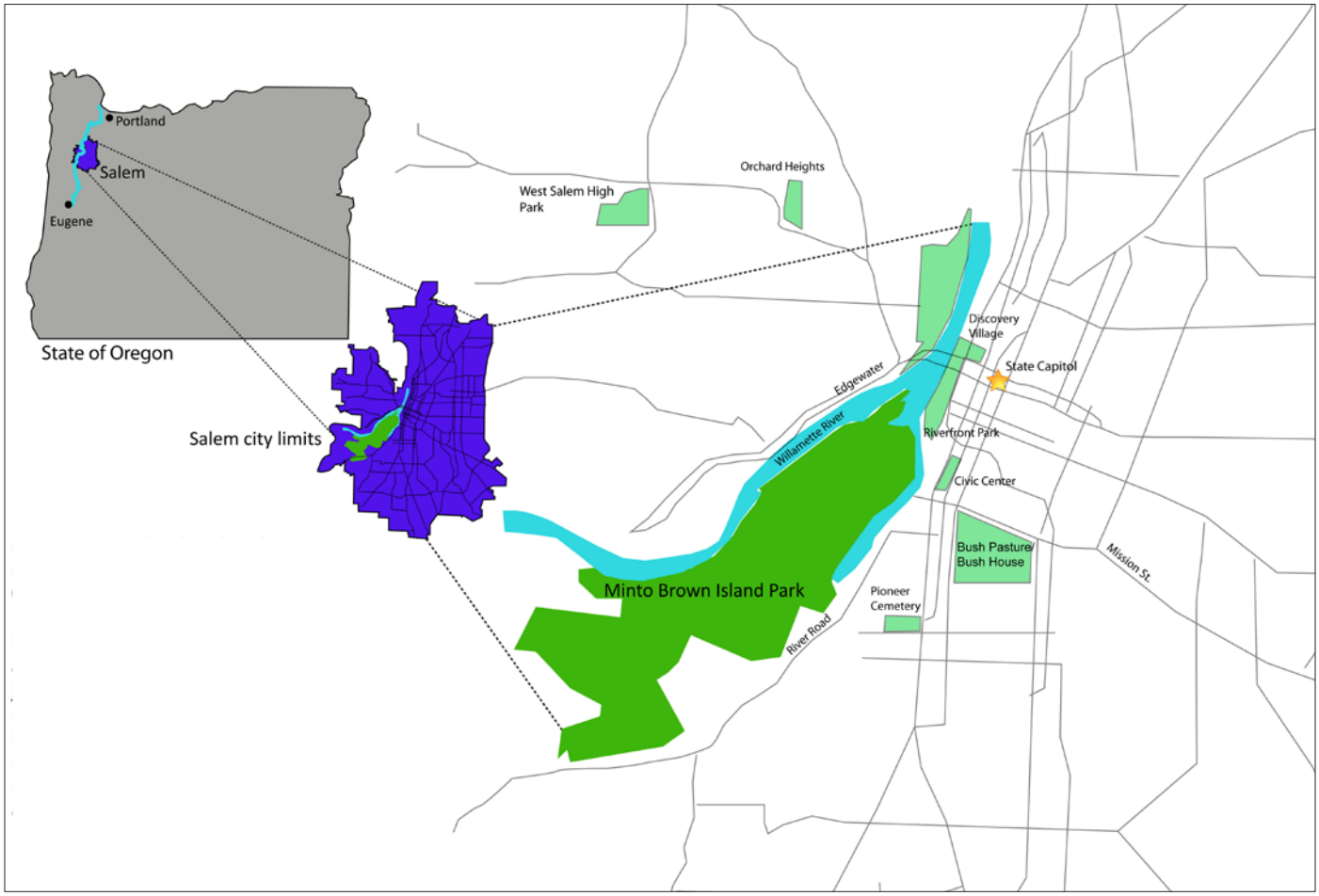


Figure 6. Study area.

Current Uses

Minto-Brown Island Park is host to a variety of uses and landscape typologies. Typical recreational activities such as walking, jogging, cycling, and nature-viewing are only a few of the many uses that define this landscape. Among the unexpected uses and landscapes is the presence of agricultural activity, fallow

fields, and relict orchards. These hold great potential for community building, education, and resource development. Natural landscape typologies include riparian forests; the Willamette River, ponds, and sloughs; savannas and mixed woodlands; NRCS restoration areas; and emergent wetlands. Clues to the park's urban setting are found in the former industrial landscape of the Boise-

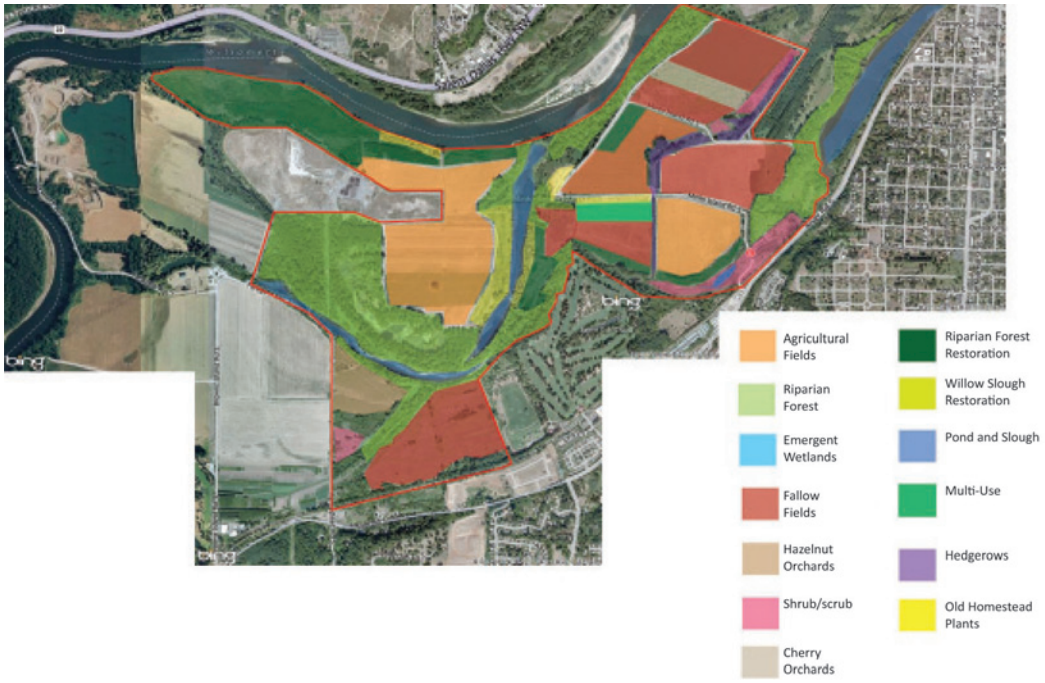


Figure 7. Current land uses.

Figure 8. Boise Cascade. Source: SalemHistory.net

Cascade property to the north of the park, and the presence of a landfill and waste management facility located along the park's southwest perimeter.

Flooding

The Willamette River has had a profound influence on Minto-Brown Island Park. The park is located within the 100-year floodplain of the river, and areas of the park experience annual or biannual flooding. Seasonal flooding leads to the closure of portions of the park's existing trails during the winter months in most years. The park's shape and soil composition have been defined by the steady flow of the river and the cycle of flooding through time. In addition, the park's ecosystem structure as well as the formation and health of its sloughs exist because of the river.

Figure 9 shows the inundation of Minto-Brown Island Park at different stages of flooding; the water levels are based on contours from USGS maps. Typical annual flood levels, shown in brown, do not have a significant impact on the park, but are responsible for the closure of portions of the riverside trail. The red

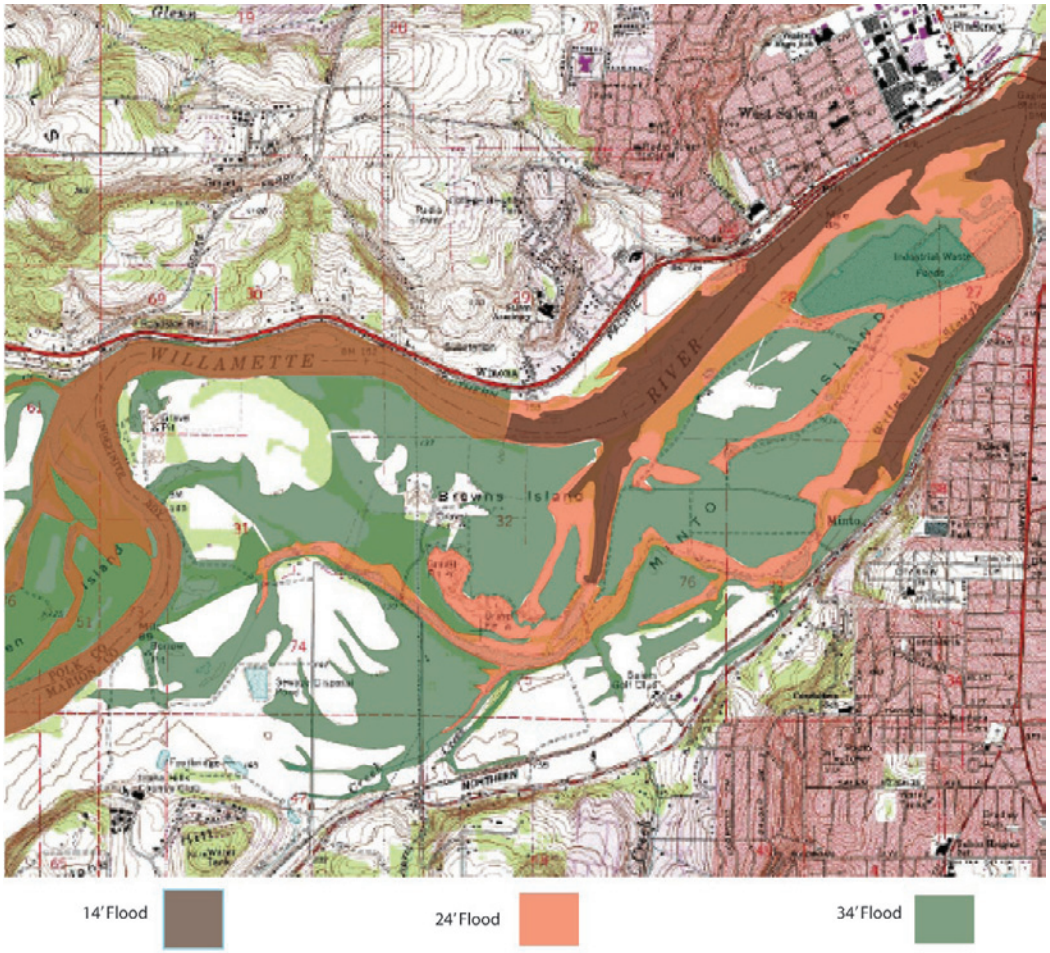


Figure 9. Flood patterns.

represents less frequent flood events; water at this level has a greater impact on the park resulting in the submersion of portions of several paths and the closure of the main road into the park. The green represents a major flood event; while infrequent, water at this level would result in the near total submersion of the park.

Habitat Patches and Corridors

While several habitat patches and corridors exist within Minto-Brown Island Park, there is a need to increase the connectivity of these patches in order to enhance their viability as successful habitat areas. As shown in the diagram, a large habitat patch exists along the river and adjacent slough. This patch forms a large corridor, allowing wildlife to move through the park along the river's edge. There are two additional habitat patches on the eastern side of the park; however, these patches are isolated and would benefit from connectivity to each other and to the larger patch along the river.

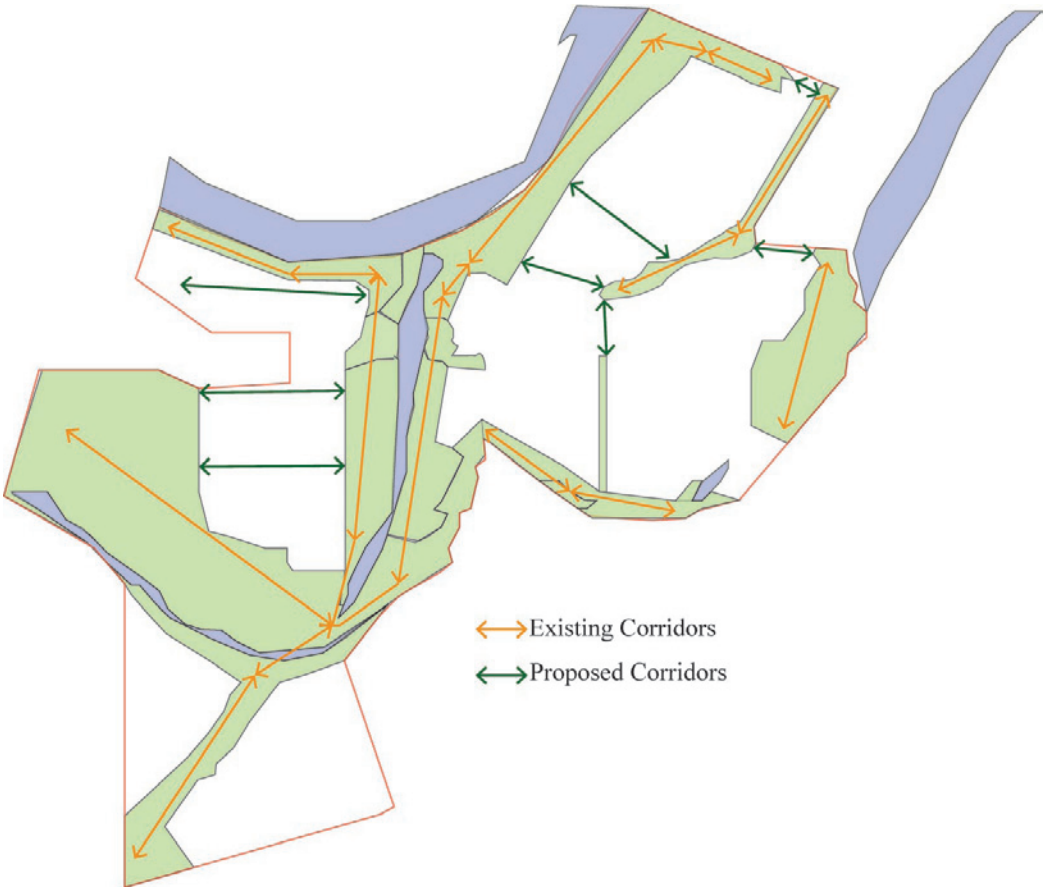


Figure 10. Habitat corridors.

Bird Migration Corridors

The Pacific Flyway is a bird migration corridor that runs along the Pacific coast from Alaska to South America. A wide range of birds use this corridor, from Canada Geese to Swallows. The Willamette Valley is a key resting point on the Pacific Flyway and provides an abundance of food and shelter. However, human development and agricultural threatens the habitat needed by many migratory bird species.

Two National Wildlife Refuges, a state park, and a state forest are located within 30 miles of Minto-Brown Island Park. These protected areas are important habitat preserves used by migratory birds resting in the Willamette Valley on their way south. The National Wildlife Refuges have documented the presence of several significant migratory birds, including Dusky Canada Geese and multiple species of Swallows. Figure 11 shows the possibility of these birds coming to Minto-Brown Island Park. The protected areas are shown by their distance from and orientation around the park. Possible migration routes connecting these protected areas to the park are shown in red.

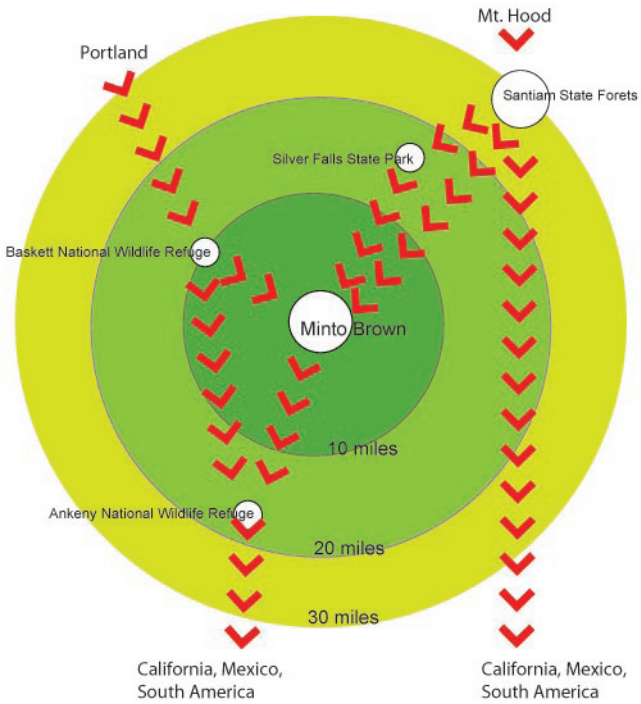


Figure 11. Flyways.

Summary of Design Recommendations

The Minto-Brown Island Park master plan vision that resulted from this studio consists of a series of five critical investigations: Habitat; City Access; Trails, Signage, and Wayfinding; Programmed Activities; and Sustainable Agriculture. These investigations function as interrelated components that act as the structural framework for a series of design recommendations to improve wayfinding, urban connectivity, habitat, visitor experiences, and community value for Minto-Brown Island Park.

Habitat	City Access	Trails, Signage and Wayfinding	Programmed Activities	Sustainable Agriculture
1. Habitat Bridge 2. Edge Transitions 3. Sustainable Management 4. Habitat Restoration 5. Connectivity of Patches and Corridors 6. Education	1. System connecting park to the city 2. Esplanade Trail 3. Slough Access Parking Lot 4. Redesign Parking Lot 1 and add a bus stop	1. Designing trails and boardwalks around flooding 2. New Arrangement of Loops 3. New Signage to promote Education and Wayfinding	1. Canine Recreation Area 2. Flex Space 3. Natural Play 4. Camping 5. Art Farm 6. 12 Landscape Rooms	1. Biodiesel Production Fields 2. Community Garden and Orchard 3. Bioethanol Production Fields 4. Restore Filbert Orchard 5. Increase Parking
				

Figure 12. The five Critical Investigations.

Habitat

The primary design recommendations resulting from the investigation of habitat in the context of Minto-Brown Island Park are reflective of an equal concern and commitment to health for both people and ecology. These recommendations are intended to extend plant and animal life alongside human life throughout the site and in adjacent areas.

- Habitat Corridors: Establishing connections between existing habitat patches throughout Minto-Brown is essential to strengthening the natural infrastructure of the park. Seven possible locations for these corridors have been identified and can be implemented as a series of gradual changes over time.

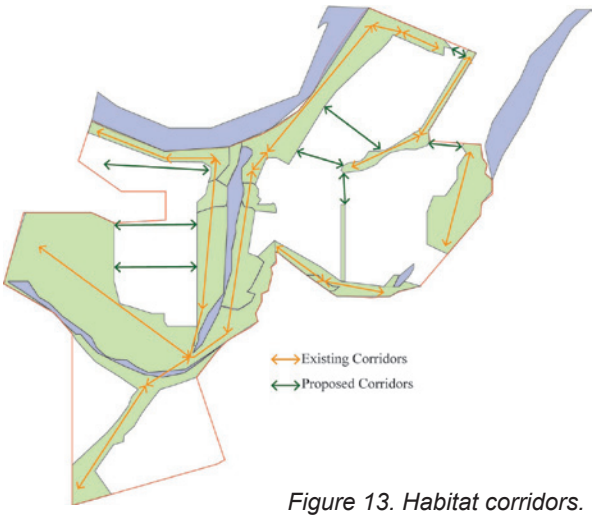


Figure 13. Habitat corridors.

- Enhancement of Existing Habitat: In addition to continuing efforts of protecting animal habitat and bird migration layovers, a series of tools are explored to create habitat for more species, bolster the size and location of critical landscape structures, and improve the health of the significant natural systems already existing within Minto-Brown.

Figure 14. Shore restoration.

- Management of Invasive Species: Traditional management of invasive species typically relies on herbicide use and mowing. Alternative, sustainable solutions are proposed here to be used on their own or in conjunction with traditional methods to improve the overall integrity of the park's native vegetation.

Figure 15. Landscape maintenance.

- Ecological Education: Ecological education for the community is essential in fostering stewardship and concern for the natural environment. An educational component consisting of signage and supplementary learning materials is suggested to enhance the success of the design recommendations for habitat improvement.

Figure 16. Educational signage.

City Access

The focus of this investigation is the creation and enhancement of off-street connectivity between Minto-Brown Island Park and the City of Salem along a path that bypasses city streets, allowing for a more direct non-vehicular pedestrian and bicycle connection. Specifically, these design recommendations address pedestrian access to the northern portion of the park, connectivity from Riverfront City Park and downtown Salem, and connectivity from South Salem to Riverfront City Park and downtown.

Figure 17. Riverfront Park connection.

- Connect Riverfront Park and North Minto Island: This system is intended to facilitate multiple access points to the proposed bridge project that will connect north Minto Island with Riverfront Park.
- New Esplanade Trail: The esplanade is located along the slough on the eastern edge of north Minto Island and is intended to provide pedestrian and cyclist connectivity from Riverfront City Park to the existing main entrance to Minto-Brown Island Park or south Salem.

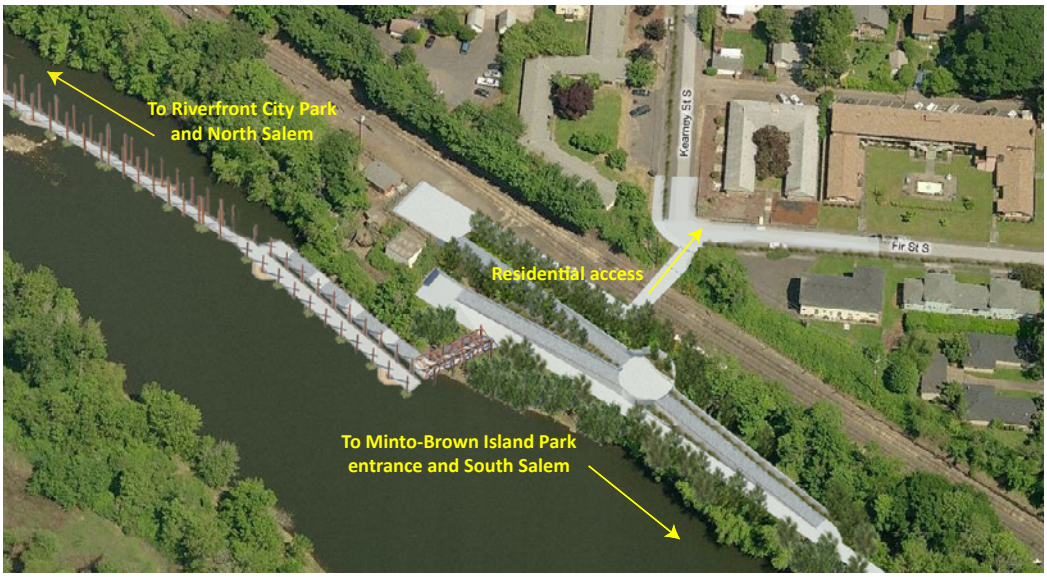


Figure 18. Esplanade.

- Parking Lot Addition and Improvement: An additional slough access parking lot will facilitate non-motorized boating access as an additional recreational activity. The proposal to enhance parking lot 1 with the addition of a bus stop and central bioswale is intended to emphasize this lot as a new connectivity hub within the park.

Figure 19. Park bus stops.

Trails, Signage, and Wayfinding

Minto-Brown Island Park has consistently faced problems relating to visitors feeling disoriented and confused within the 900-acre park. The design recommendations here address these issues to increase park visitors' sense of safety, comfort, and pleasure while exploring all that this park has to offer.

- Recreational Loops: Trails organized in loops will orient park visitors and help them manage their visit by giving distance and travel time estimates for each loop.
- Trail Hierarchy: Three trail types are proposed to accommodate different uses and experiences throughout the park.
- Wayfinding: Consistent signage that incorporates a compass design with the relationship of key landmarks to a particular point, bird's eye view maps, distances and travel time estimates will work in combination to increase visitors' ability to orient themselves within Minto-Brown Island Park.

Figure 20. Wayfinding compass.

- Educational Signage: Signs that inform visitors about the impact of their activities, such as letting dogs off leash in non-designated areas, are likely to be more effective than signs that only prohibit activities without explanation. Signage of this type can be utilized to mitigate harmful impacts on sensitive habitat areas and to assure that visiting Minto-Brown Island Park is a pleasant experience for everyone.

Programmed Activities

Various activities that reflect the needs of Salem, the explicit wishes of park visitors, and the need to establish a strong park identity are explored in this

section. Two of these activities are illustrated in detail and are intended as the primary design recommendations for this component of the proposal.

Figure 21. Canine water play.

- Canine Recreation Circuit: Minto-Brown Island Park is home to one of only two officially designated off-leash dog parks in Salem. The Canine Recreation Circuit is a proposal to expand and improve the existing dog park.

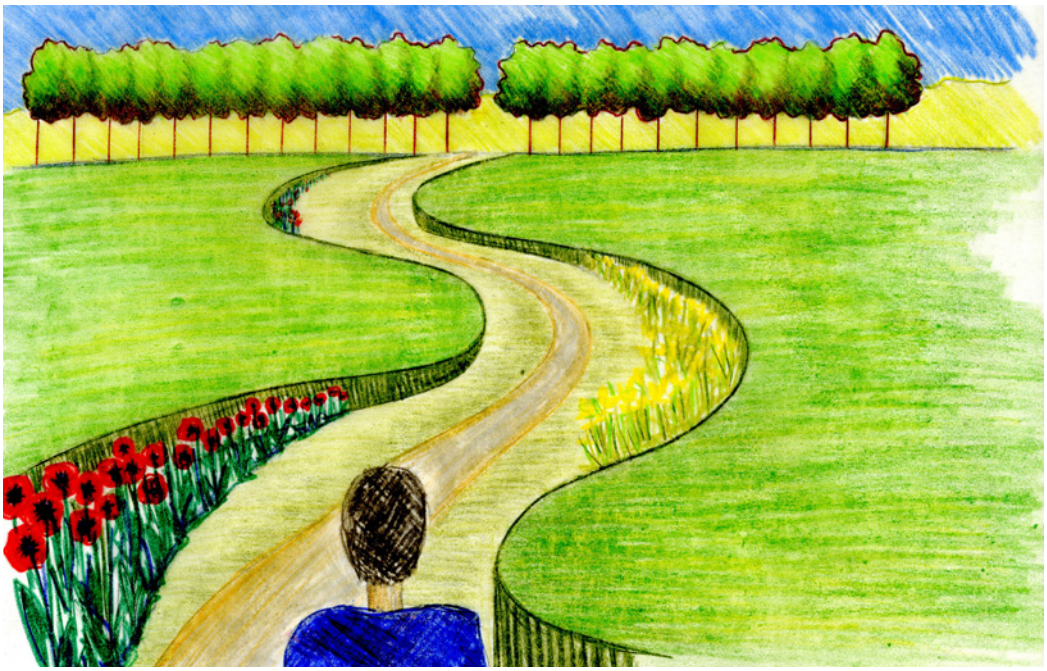


Figure 22. Art Farm – Gallery Walk.

- The Twelve Landscape Rooms: The Twelve Landscape Rooms are a series of unique places within Minto-Brown Island Park that provide opportunities for local artists and community groups to create temporary art installations that touch lightly on the land and communicate the layers of nature and culture that define the park.

Sustainable Agriculture

An array of alternative agricultural practices have been investigated as a potential resource for the community of Salem and as a source of revenue for Salem's parks. The two key components are a community garden and orchard, and the production of biodiesel feedstock crops.

- The proposal for the community garden and orchard recommends locating these resources at the site of the relict cherry orchard in Minto-Brown Island Park. This would bring diversity to the range of experiences at the park and keep the history of the island's agricultural past alive for Salem's residents.
- Biodiesel fuel is a growing alternative to traditional fuel, and many of the crops used as feedstock for biodiesel are quite beautiful to the eye. The existing agricultural fields at Minto-Brown would be ideal for the growing these aesthetically pleasing and economically beneficial crops. In addition, the production of biodiesel feedstock crops has great educational value for the community as we move into a future where traditional sources of energy are becoming scarcer and less viable.

Figure 23. Community gardens.

Design Recommendations: Habitat

Western Pond Turtle

The students focused on habitat developed several designs that would improve habitat quality and allow the public to experience natural processes. To improve habitat quality, students suggested leveling the cliffs along the slough to create a gradual slope. The placement of fill around the sloughs to stop flooding has destroyed habitat for the Western Pond Turtle, a native turtle species listed as a sensitive species by the Oregon Department of Fish and Wildlife and which inhabits Minto-Brown Park. Western Pond Turtles need still water and a gradual slope to bask on and lay their eggs. Changing the bank slope would create the habitat needed by the Western Pond Turtle. Figures 24 and 25 illustrate existing conditions and one possible solution.

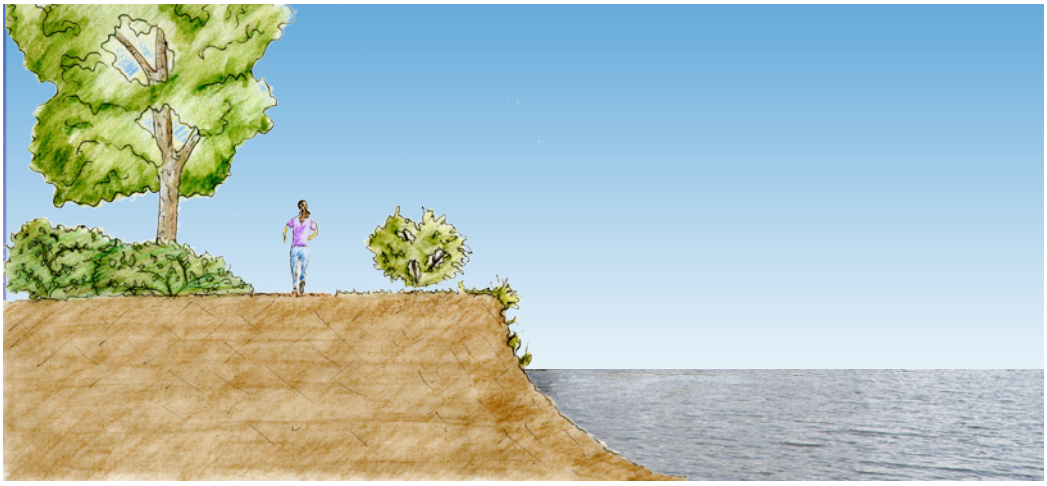


Figure 24. Existing slough bank.

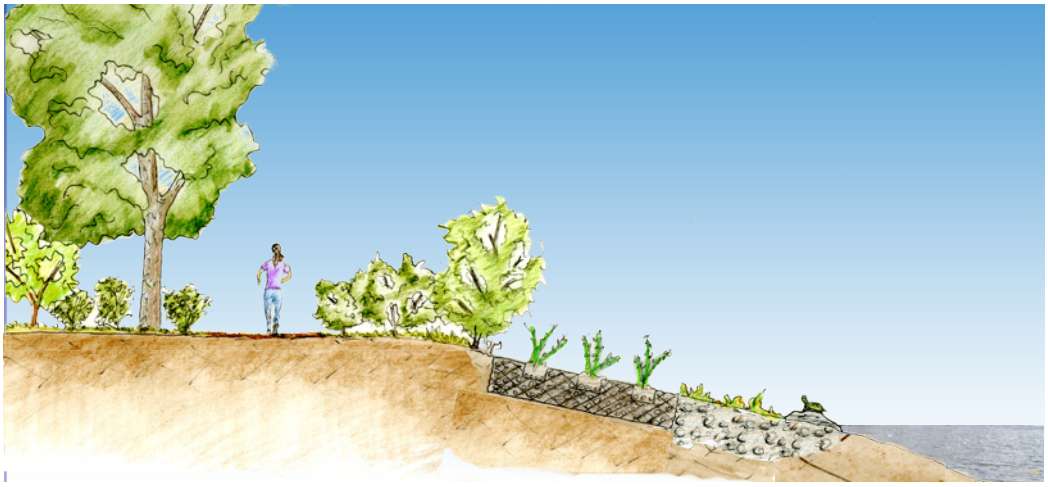


Figure 25. Proposed restoration: gabion-modified slough bank.

Minto-Brown Patches and Corridors

We would like to see greater connectivity between current habitat patches at Minto-Brown Park to expand wildlife habitat. Currently, a large habitat patch exists along the slough and river. Two habitat patches also exist on the park's eastern side. However, farm fields separate these patches from each other and limit the ability of wildlife to access habitat. By connecting these patches, we would expand wildlife habitat in Minto-Brown and improve the park's ecological health.

Edges

We would also like to see improved transitions between human and wildlife areas. Currently, wildlife habitat ends abruptly at the farm fields. This limits species diversity by destroying edge habitat need by certain birds and mammals. Such an abrupt transition also limits wildlife movement along habitat edges because it provides little cover for wildlife. Finally, abrupt transitions allow pesticides and fertilizers to escape into the environment instead of being trapped in a transition zone. We suggest planting small trees and shrubs along

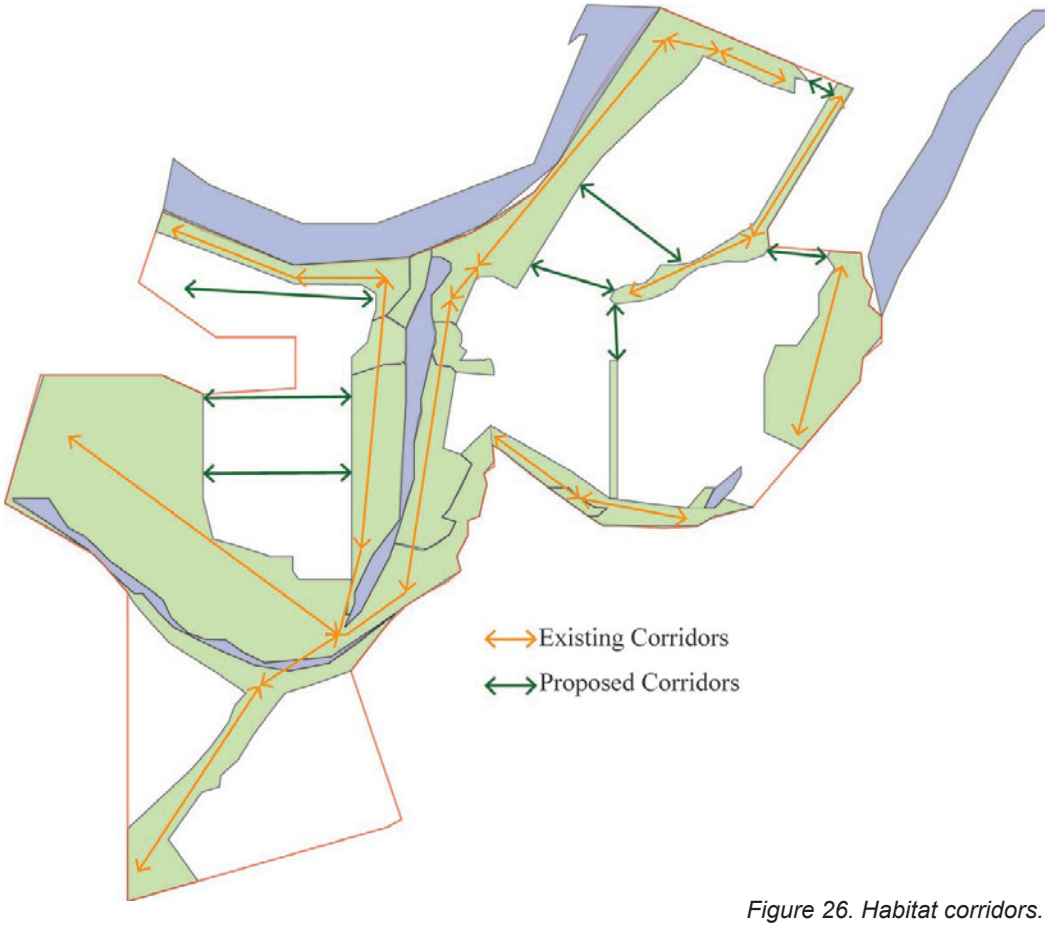


Figure 26. Habitat corridors.

farm fields and habitat edges to create a gradual transition in height from farm fields to mature Cottonwood forests.

Besides improving ecological health, the students' design suggestions will also contribute to the overall Minto-Brown Park experience. The creation of a new bridge across the slough to replace the culvert currently blocking the slough mouth will improve the health of the slough and educate park visitors about the dynamic nature of riparian ecosystems. Large wood debris placed near

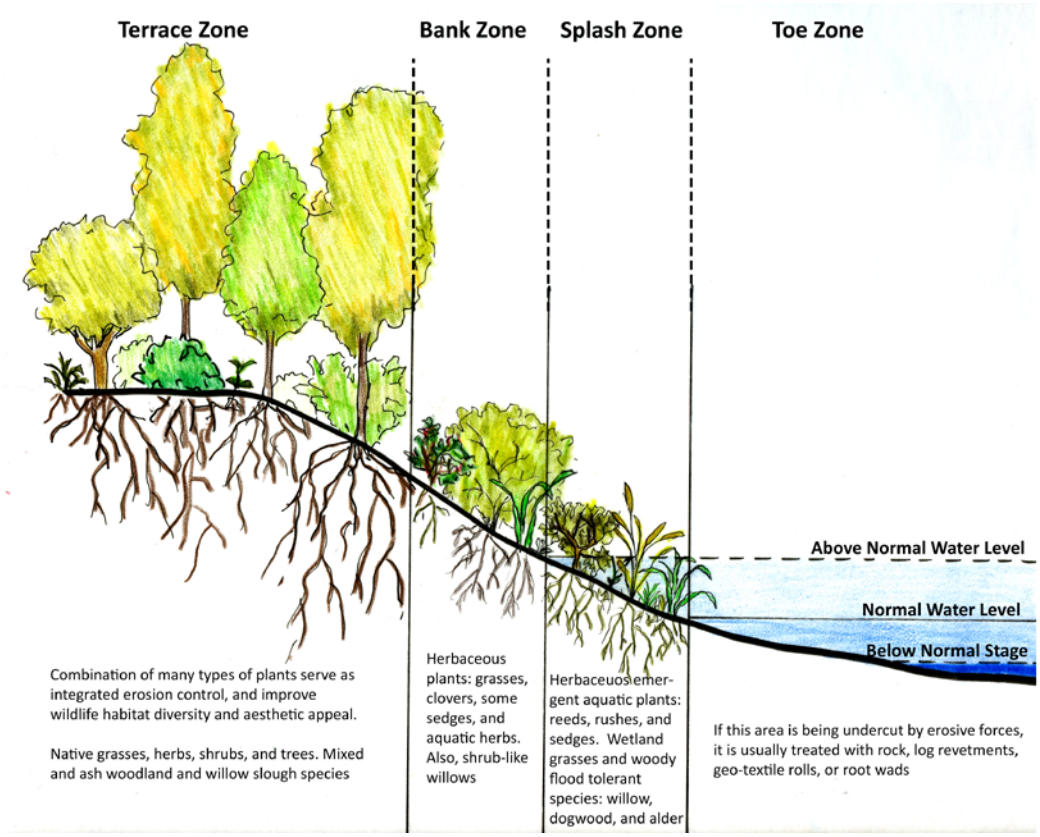


Figure 27. Proposed restoration of slough bank vegetation.

Figure 28. Proposed restoration of field edge vegetation.

the bridge will allow park visitors to observe the ecological benefits of large wood debris in river ecosystems. The bridge will also respond to water levels in the slough, allowing visitors to experience the yearly flood cycles at Minto Brown. Finally, the new Oxbow Slough Bridge will tie into the boardwalk system, allowing visitors to experience the variety of ecosystems at Minto-Brown Park.

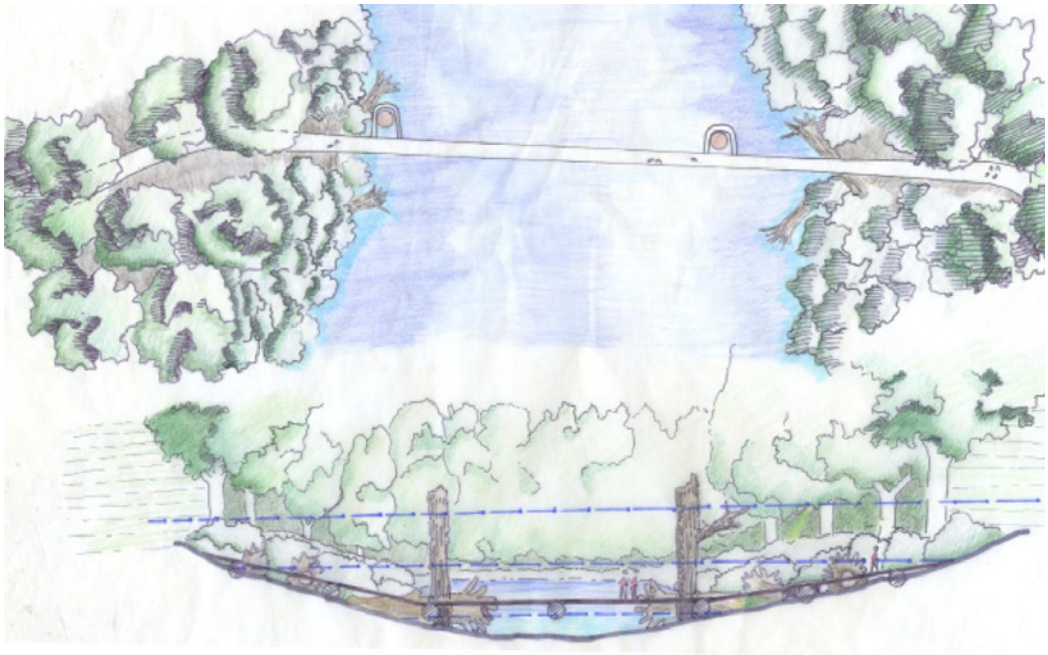


Figure 29. New slough bridge.

Flooding

This diagram shows the inundation of Minto-Brown Park at different river levels. We used USGS topographic maps and river flow data from the Salem tracking station to determine flooding. Brown represents annual flooding. Annual flooding maintains slough health by flushing the slough system of debris and renewing habitats along the slough important to fish, amphibians, and other aquatic animals. Red represents occasional flood events. These floods close the main entrance to Minto-Brown and several paths. Finally, green represents infrequent flood events. These floods submerge Minto-Brown and could cause major damage to the park's facilities. Larger flood events do occur on the Willamette River. However, these events, the most recent of which occurred in 1996, are rare.

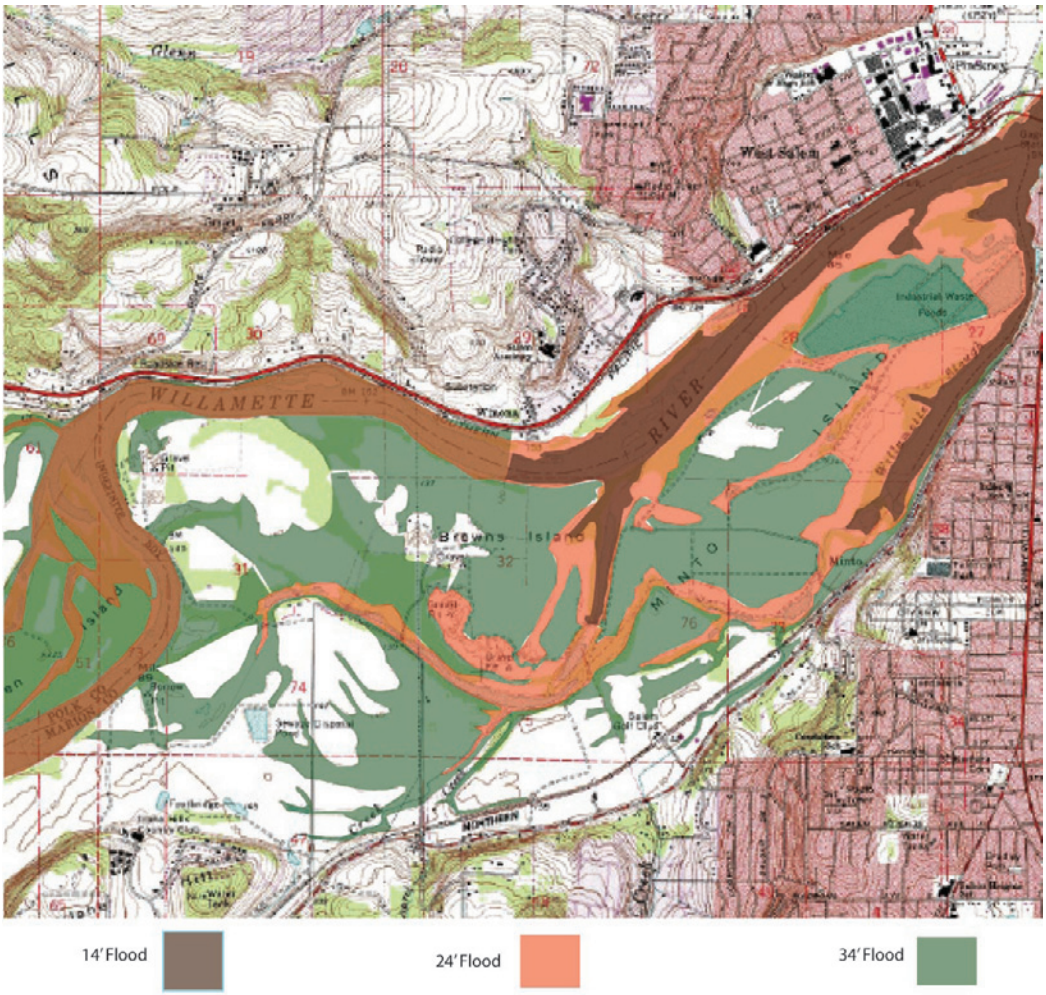


Figure 30. Flood patterns.

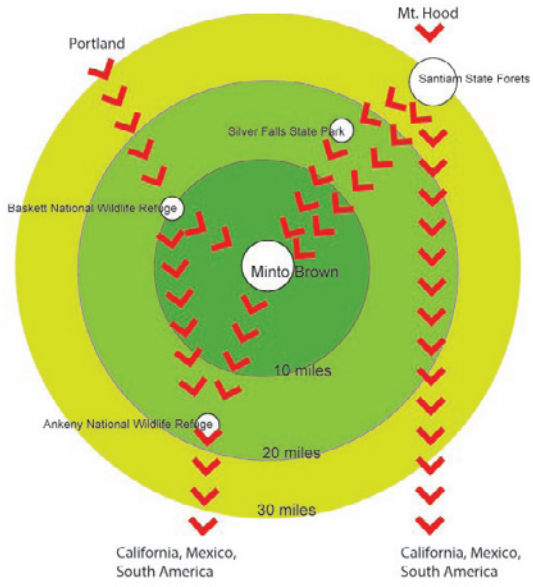
Bird Species and Migration Routes

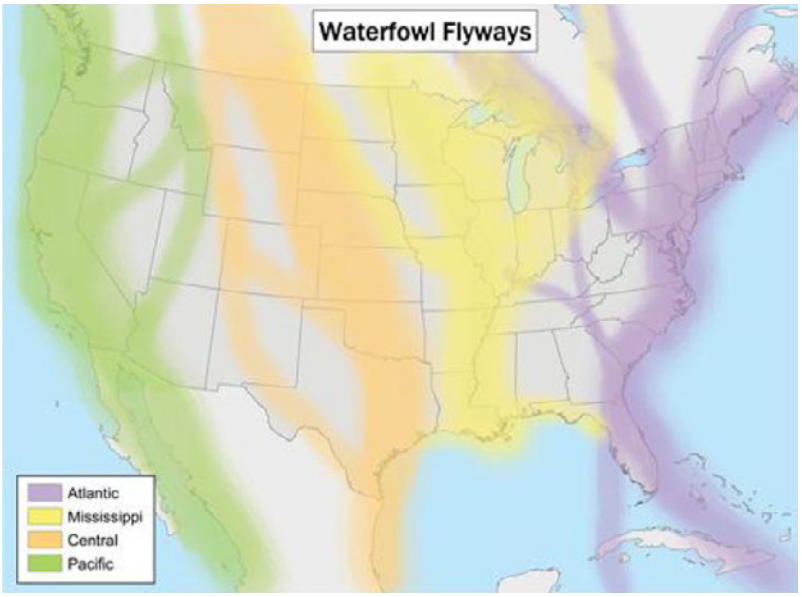
We would like to improve habitat in Minto-Brown for birds using the Pacific Flyway. The Pacific Flyway is a bird migration corridor that runs along the Pacific coast from Alaska to South America. A wide range of birds use this corridor, from Dusky Canada Geese to a variety of Swallow species. The rich Willamette Valley river bottom provides an abundance of food and shelter along this migration route. However, human development and agriculture threatens the habitat of migratory birds. Minto-Brown and other habitat preserves with 30 miles of Salem form an important habitat reserve system to support migratory birds. Using lists of birds spotted in the Baskett Slough National Wildlife Refuge and Ankeny National Wildlife Refuge, we composed a list of bird species that are likely to visit Minto-Brown. We suggest that a new and improved Minto-Brown Park vision would need to provide for the habitat needs of these birds. This will allow Minto-Brown to continue to be an important part of habitat preservation in the Willamette Valley.

Bird Species

Great Blue Heron

Numerous Great Blue Herons once resided at Minto-Brown Park and the Audubon Society-owned Conservation Area at the northeastern tip of Minto-Brown Island. However, in recent years, the Great Blue Heron population has dropped off and the rookery on the Audubon site has disappeared. Some possible reasons for this include more off-leash dogs, habitat degradation, and more appropriate habitat in other wildlife refuges in the area. To address





Figures 31 and 32. Flyways; Bird migration routes.

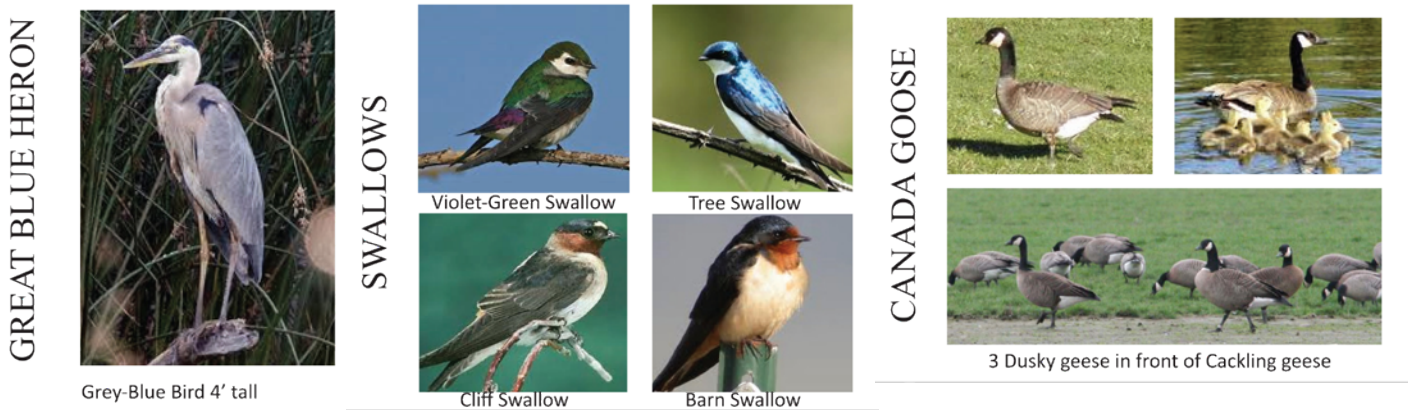


Figure 33. Highlighted native bird species of Minto-Brown Island Park.

this issue, the City of Salem and the Audobon Society could install nesting platforms, improve the health of the slough, and limit human disturbances in potential Blue Heron habitat along the sloughs.

Swallows

A variety of swallow species including Barn Swallows, Tree Swallows, Violet-Green Swallows and Cliff Swallows once passed through Minto-Brown every spring and fall. In recent years, these aerial acrobats have disappeared from Minto-Brown. Some possible reasons for this include increased off-leash dog activity, loss of nesting sites, and inadequate insect populations to support these birds. To attract Swallows to Minto-Brown Park, the City of Salem should install bird boxes, improve the riparian habitat in Minto-Brown, and minimize human disturbance in Swallow habitat.

Dusky and Cackling Canada Goose

While these birds are common, the Willamette Valley and Minto-Brown Park are critical stop over spots for these birds as they migrate each spring and fall. To

Figure 34. Highlighted native bird species of Minto-Brown Island Park.

allow these species to continue to prosper we would suggest that farm fields at Minto-Brown by planted with grain cover crops such as rye, fescue and barley. This will not only provide these birds with a food source but will draw them away from fields where they could cause damage. We would also suggest that the City of Salem minimize off-lease dogs in farm fields and keep people from feeding geese.

Nutria

Invasive Species and Management

A variety of invasive species plagues Minto-Brown. The matrix below shows four of the major invasive species in Minto-Brown. We recommend that the City of Salem work to manage these species for several reasons. These invasive species force native species out of their habitats instead of coexisting with natives. This endangers the native habitat restorations underway at Minto-Brown Park. In addition, Nutria carry diseases and parasites that can endanger human health. We recommend the use of management solutions to keep these invasive species from spreading.

Rubus discolor; Himalayan Blackberry

Hedera helix; English Ivy

Cytisus scoparius; Scotch Broom

Figure 35. Invasive species.

Nutria

Nutria are a rodent that has the appearance of a beaver with a rat-like tail. They are a non-native species to North America and have grown rapidly to dominate ecosystems across North America. Nutria poses several threats to Minto-Brown Park. They eat the tender shoots of forbs, endangering the NRCS restoration areas at Minto-Brown. Nutria also speed erosion by burrowing into riverbanks. This could increase the erosion issues facing Minto-Brown along the Willamette River. Finally, Nutria carry diseases that could pose a serious risk to human health.

Himalayan Blackberry

Himalayan Blackberry can grow up to twenty feet in a season and produce tasty berries that birds and other wildlife spread everywhere. This vigor makes it a serious threat to native species and a nuisance to landowners who must clear it from their land.

English Ivy

English Ivy is a fast growing evergreen vine that can cover and kill a tree in a matter of years. The vigor of English Ivy, combined with the ease with which

Figure 36. Invasive species management techniques.

it spreads, makes it a menace to native plant species and threatens valuable trees. In addition, English Ivy is poisonous to dogs and other domestic animals.

Scotch Broom

Scotch Broom is a fast growing evergreen shrub that can reach up to ten feet in height and is a prolific seed producer. Its vigor and prolific seed production make Scotch Broom an obnoxious weed that chokes out native plants. This not only endangers native species but also costs the state and businesses money in lost productivity and cleanup costs. It is estimated that forty-five million dollars a year in timber production is lost to Scotch Broom.

Management Methods

Nutria Management

Shooting, trapping and poisoning are the main methods used to manage Nutria. Since Minto-Brown is a public park, the use of poisons and firearms is to be discouraged. Consistent trapping programs have been highly effective against nutria. Another strategy would be to encourage Minto-Brown's neighbors to manage nutria on their property. In Great Britain, bounty systems have lead to a nearly complete eradication of nutria from the country.

Traditional Vegetation Management

Traditional management techniques use a combination of herbicides and motorized lawn mowers. Herbicides are first applied to kill off all plants in an area. The area is then replanted with the desired native plants. Regular mowing suppresses non-native plants and encourages native plants. Herbicide may be used strategically to suppress major outbreaks of invasive plants.

Goat Herds for Vegetation Management

There has been a move in recent years to use goats to clear brush from sites. There are several advantages to using goats. Goats do not compact the soil on a site like large removal equipment. This eliminates the need for soil amendments after the brush is cleared and preserves the native soil ecosystem. Goats also improve soil conditions by trampling brush into a dense mat that protects the soil and excreting stool that acts as a fertilizer. Goats could be used temporarily at Minto-Brown to clear brush. There

could also be a permanent herd at Minto-Brown that would be rotated around the park regularly to manage invasive plant species.

The Bradley Method

The Bradley Method is an invasive management technique that has been used around the world to manage invasive plants. Invasive plants are first removed from areas dominated by native plants. Once these areas are cleared, the effort can be extended to other areas. Cleanup efforts should always begin in the areas that were cleared first and move outward. This allows areas previously cleared to remain free of non-natives and for cleanup efforts to whittle away at areas dominated by invasive species. This process can take many years of consistent application to free an area of invasive species but has been shown to be effective at eradicating non-native plants.

Figures 37 and 38. Proposed Willamette Slough Esplanade; Portland East Bank Esplanade.

Design Recommendations: City Access

The city access group considered possible connections between Minto-Brown Park and the City of Salem. Currently, there is one main access point on the east side of the park and a small parking lot on the south side of the park. The City of Salem is planning to build a bridge between the Riverfront Park and the Boise-Cascade site north of Minto-Brown. A path through the Boise-Cascade site would connect Minto-Brown to downtown Salem, increasing access to the park.

In addition to the planned bridge between Minto-Brown and downtown, the city access group also proposed a floating esplanade system running along the Willamette Slough between downtown and Minto-Brown. This trail would offer unique views of Minto-Brown and tie the communities along the slough to Minto-

Brown. It would also provide an alternative, off-street bike trail running from downtown Salem to south Salem in place of poorly marked surface streets.

Bridge

The City of Salem has proposed a new bridge that will connect the Riverfront Park to Minto-Brown Island Park via the Boise Cascade site, to the east of the park. This will tie Minto-Brown Park into a system of Salem City Parks along the

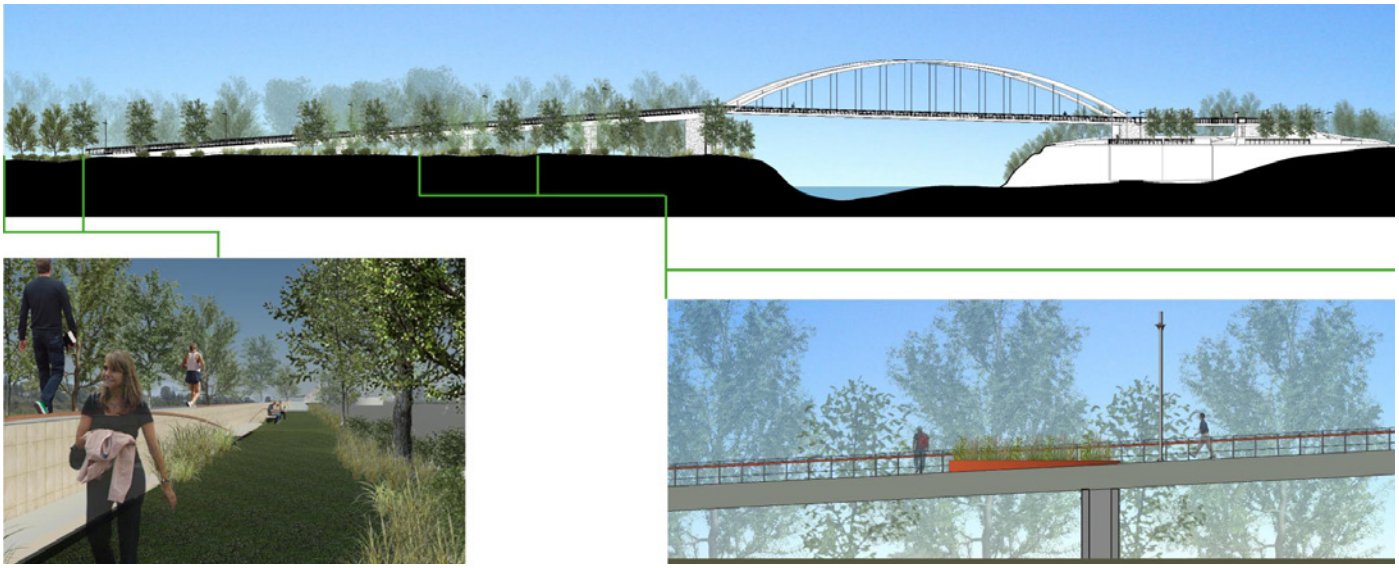


Figure 39. New Boise Cascade bridge cross-section.

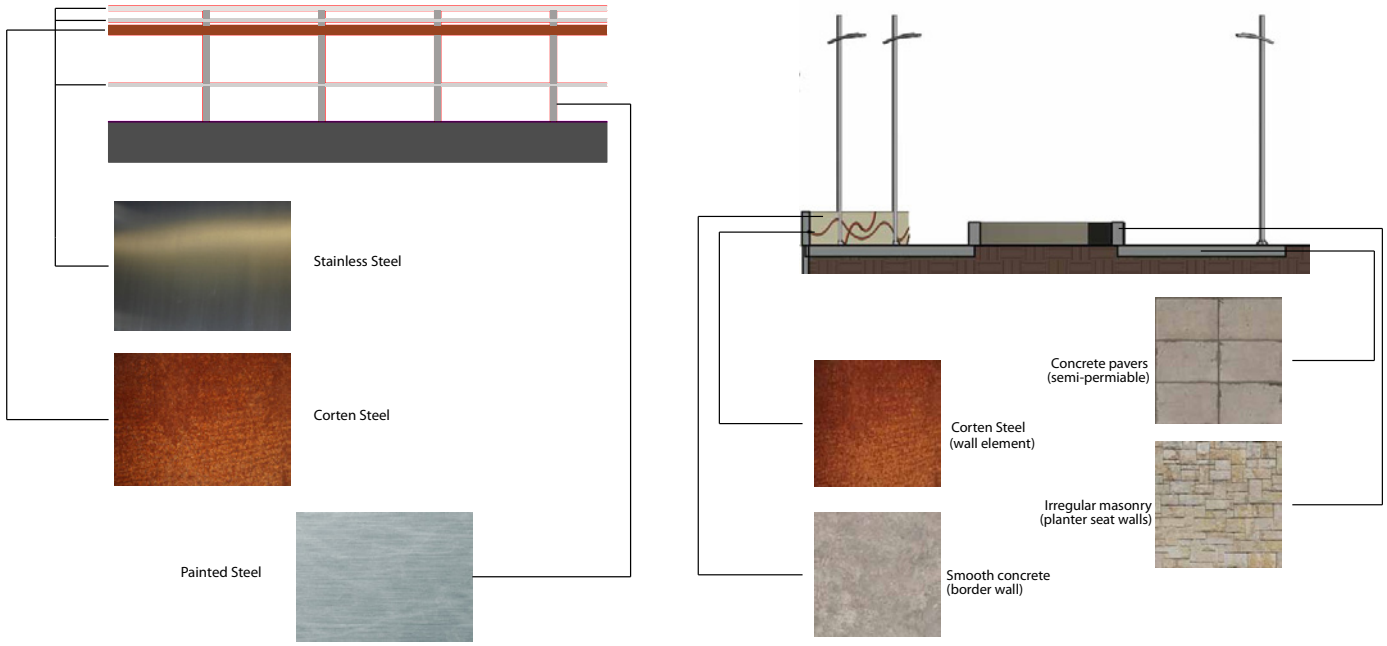


Figure 40. Boise Cascade bridge material palette.

Willamette. Since this feature is already decided upon by the City of Salem, the city access group worked to suggest ways that this bridge might be tied into the pedestrian and bicycle circulation systems in Salem. They also proposed the construction of a floating esplanade along the Willamette Slough to provide a second circulation route and access point to Minto-Brown.

Esplanade

We propose a new esplanade trail along the Willamette Slough to enhance connectivity between Downtown Salem, Minto-Brown Park and South Salem. The esplanade consists of a series of floating decks inspired by Portland's East Bank Esplanade. This allows the esplanade to respond to flood conditions and remain open year-round as show in Figure 41. The decks also allow visitors to experience the river's seasonal flooding and riparian habitat. Benches and signs could be placed along the esplanade to provide places for people to enjoy views of the slough, educate visitors about the slough ecosystem, and inform visitors about activities in Minto-Brown.

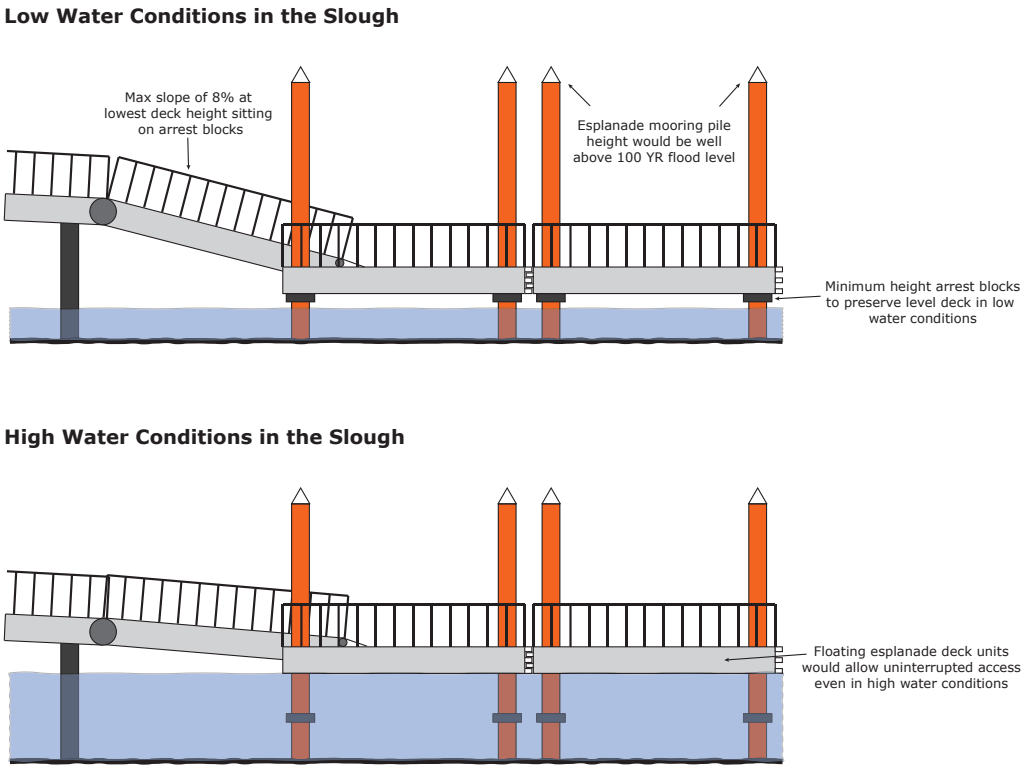
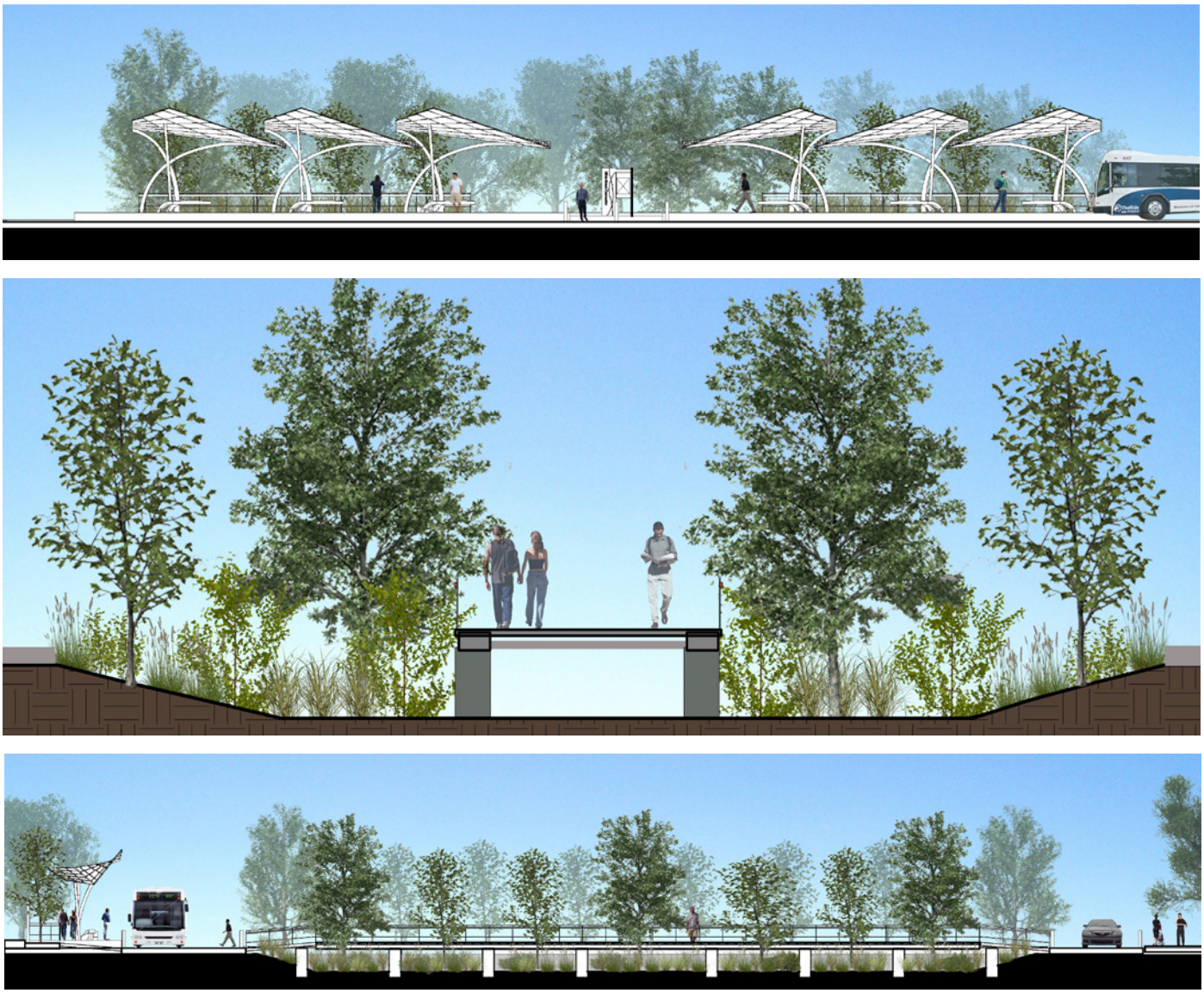


Figure 41. Esplanade cross-section.

Bus Stop and Parking

We propose several improvements to the current parking and park access to lower Minto-Brown's environmental impact and improve visitor experience. First, we suggest the creation of a bus terminal at Parking Lot 1. Currently, the main way to access Minto-Brown is by car. Placing a bus terminal in the park will expand the number of potential visitors by making the park accessible to Salem residents who do not own a car. The provision of a bus terminal will also lower the number of cars visiting the site and promote walkability. We also suggest the creation of a new parking lot at the end of the Willamette Slough, with a boat launch for human-powered craft. This will improve recreation opportunities along the Willamette Slough. Finally, the creation of bioswales around all parking



Figures 42 - 44. Cross-sections: Bus station; Bioswale boardwalk; Bioswale.

lots will allow for the management of stormwater runoff and the capturing of pollutants, and will educate the public about the benefits of on-site stormwater and pollution management.

Planting Palette

Our planting scheme uses mostly native plants with a few ornamentals. Native plantings will create a sense of connection to Oregon, although use of non-natives may be required to help filter pollutants from the bioswales and to soften the hard edges of parking lots.

Figure 45. Planting palette.

Design Recommendations: Trails, Signage, and Wayfinding

Introduction

Currently, visitors to Minto-Brown Park often feel disoriented. Park patrol volunteers frequently have to orient visitors on park maps and give them directions. This leads to a feeling of entrapment that spoils the experience of Minto-Brown.

We propose several techniques to improve wayfinding in Minto-Brown. We recommend that trails be organized in loops, which will orient park visitors and help them manage their visit by giving distance and travel time estimates for each loop. In conjunction with the trail loops, we also suggest the establishment of a consistent hierarchy of trails at Minto-Brown. This trail hierarchy will help park visitors orient themselves by providing clear visual categories for trails. In addition, we suggest that art installations and park structures, such as bat towers, be used as visual references to orient park visitors. To support the trail loops and visual orientation features, we suggest the installation of maps and north arrows at trail intersections. These will help visitors interpret the visual and landscape navigation cues and enjoy their time at Minto-Brown Park.

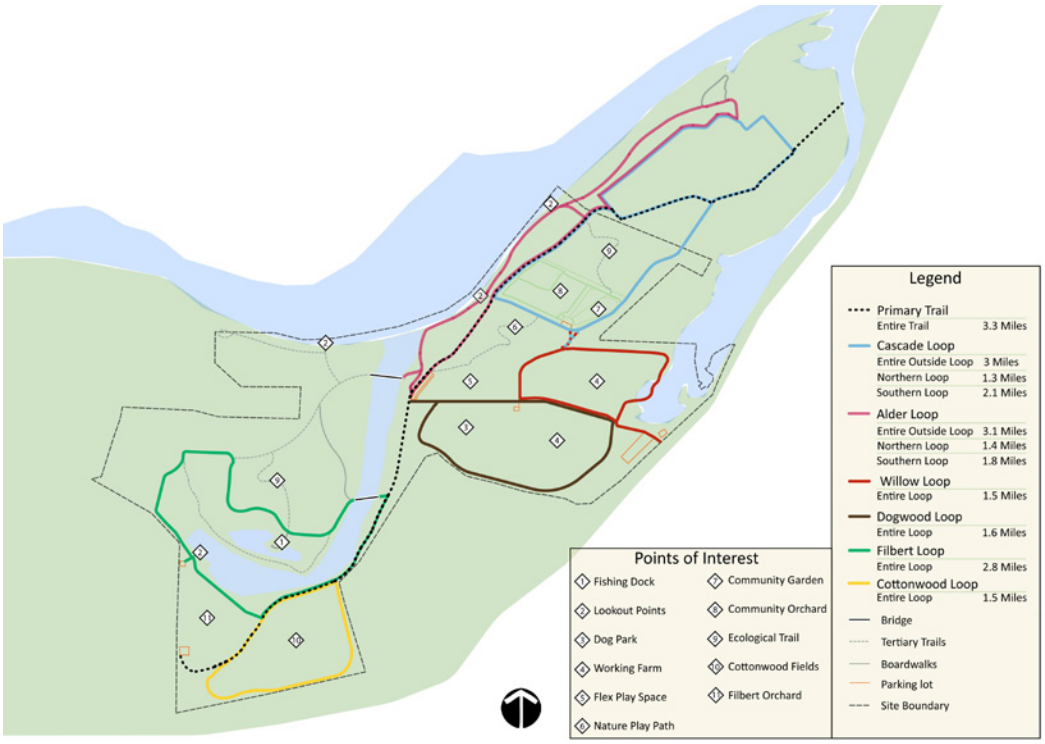


Figure 47. Trail loop map.

The Primary Trail

The primary trail serves a dual function of providing easy access to park activities and a connection between downtown Salem and south Salem. It sits at the highest elevation on the site and is the widest trail in the park, serving both pedestrians and bicyclists. The primary trail's position at the highest elevation at Minto-Brown makes it a major landmark, allowing visitors to survey the park landscape and enjoy views of downtown Salem. Smaller trails diverge from the primary trail, providing access to park activities such as the dog park, art rooms, and community garden. In addition, the trail serves as a bike route connecting south Salem to downtown.

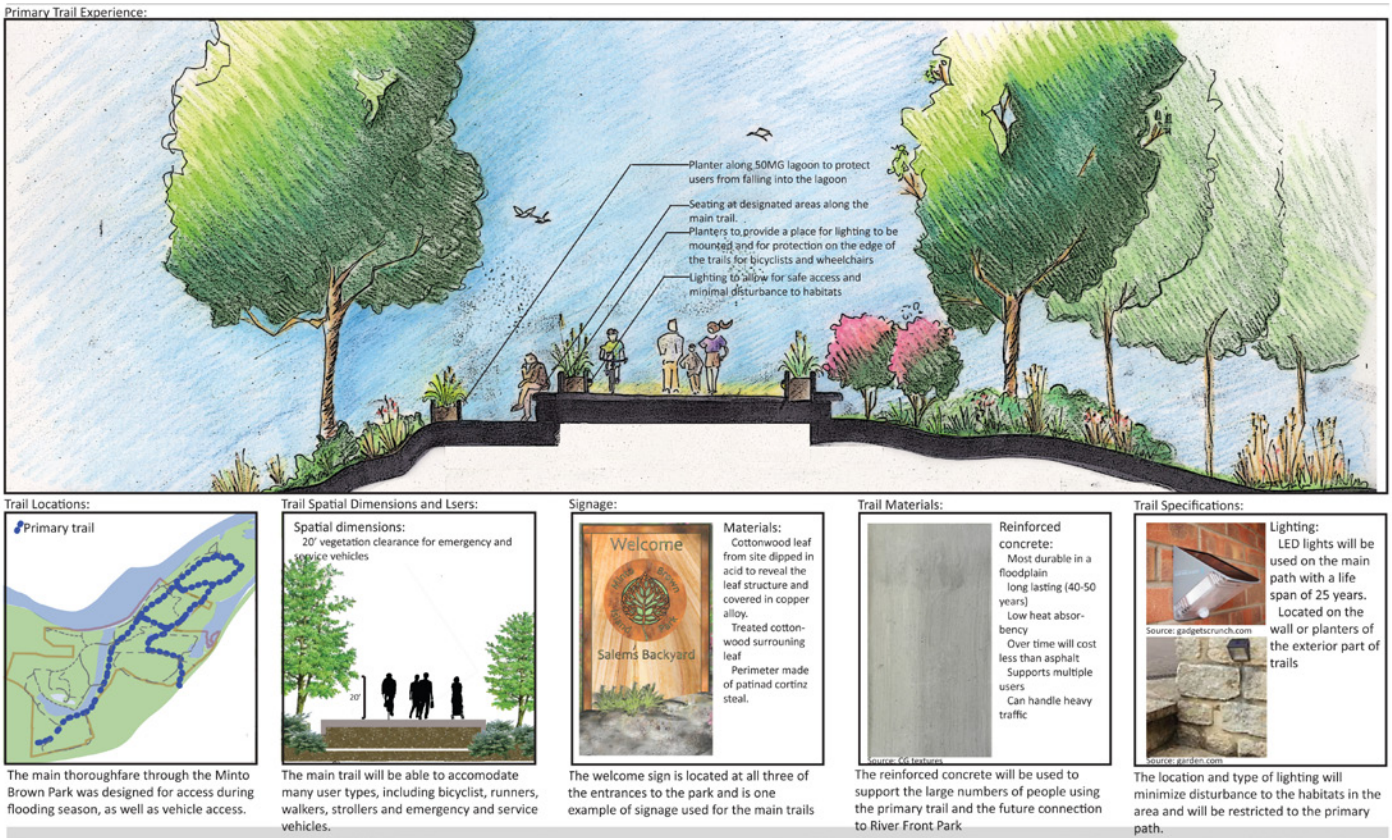


Figure 48. Primary trail cross-section.

Secondary Trails

The secondary trails provide access to park activities and are a transition zone between the human dominated primary trail and the wilderness of Minto-Brown Park. They invite park visitors to experience Minto-Brown Park in all its diversity and complexity. They facilitate activities such as dog walking, habitat viewing, and visiting the community garden. Because they are narrower than the primary trail, the secondary trails provide park visitors with a more intimate experience of Minto-Brown and bring them into direct contact with park activities. In this way, the secondary trails are not only functional, but mark a transition in the park from dominant primary trails to the intimate tertiary trails.

Tertiary Trails

The tertiary trails move the visitor into the heart of the Minto-Brown experience. These paths are narrow with a bark mulch cover. They allow observation of Minto-Brown's wildlife and provide opportunities for running and walking surrounded by the beauty of Oregon's riparian forests. These trails also allow park visitors to escape into the solitude that exists away from the major park activities.

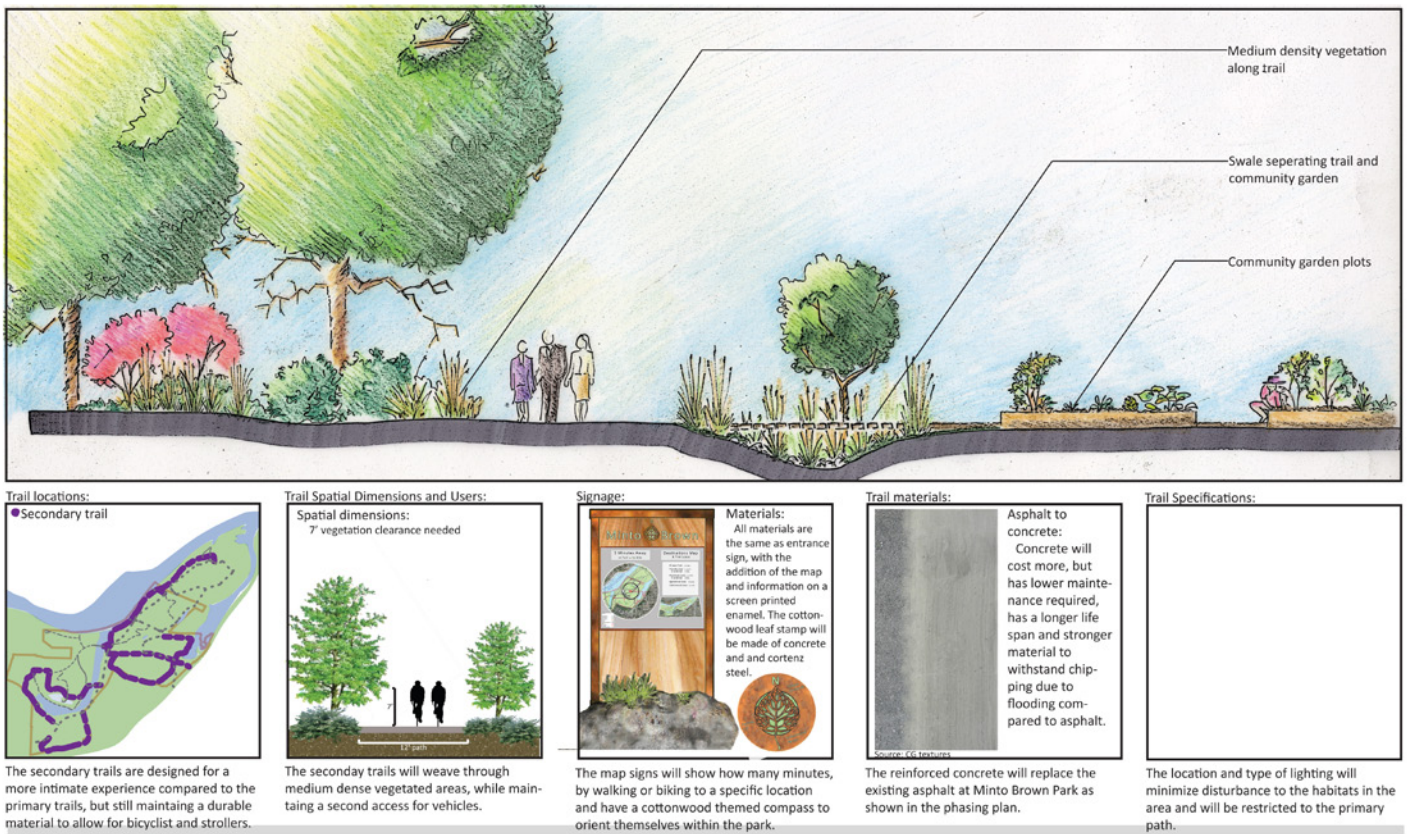


Figure 49. Secondary trail cross-section.

Figure 50. Tertiary trail cross-section.

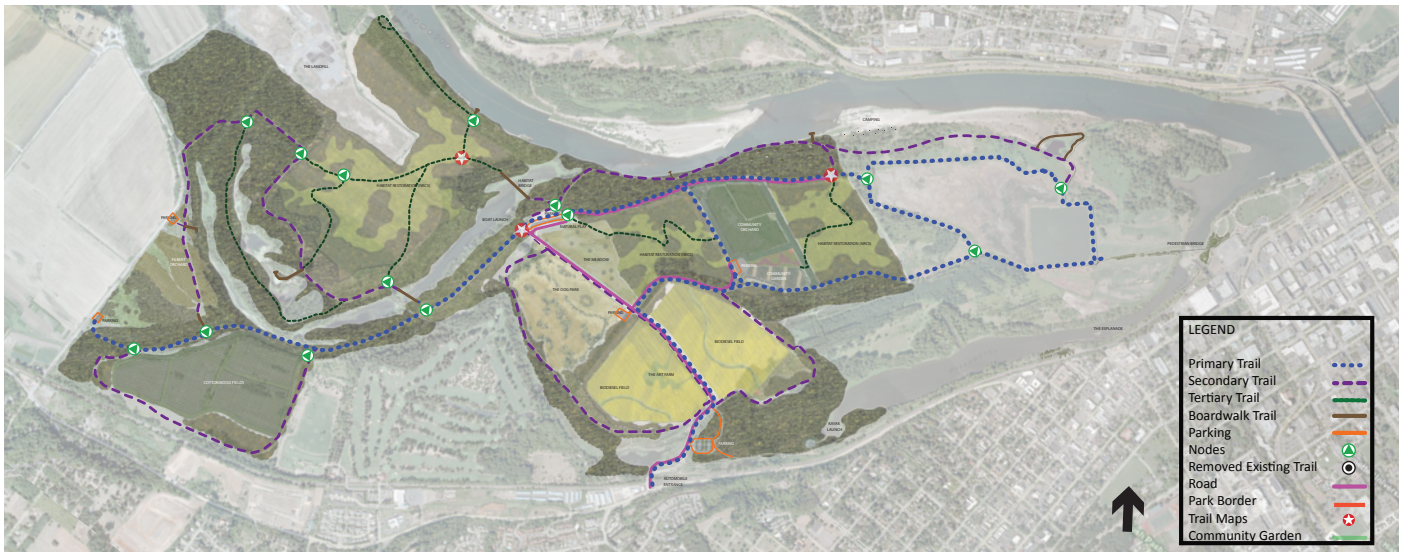


Figure 46. Map of new trails.

Boardwalks

Boardwalks carry trails over water and wet areas. They also act as an important landmark and signal the nearby presence of water. In addition to being functional, the boardwalks allow park visitors to venture discreetly into sensitive habitats. They also serve as educational tools by providing interpretive signs and allowing park visitors to experience natural processes.

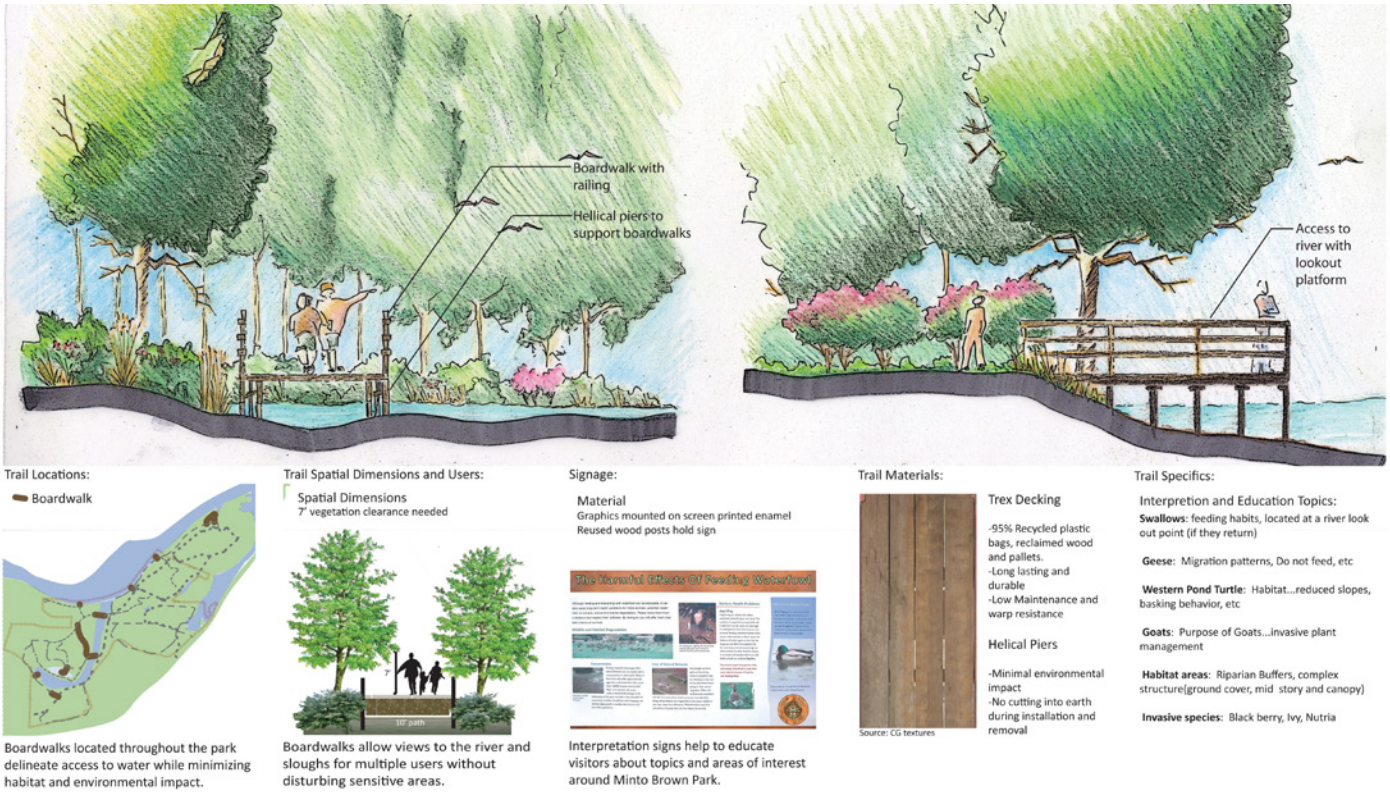
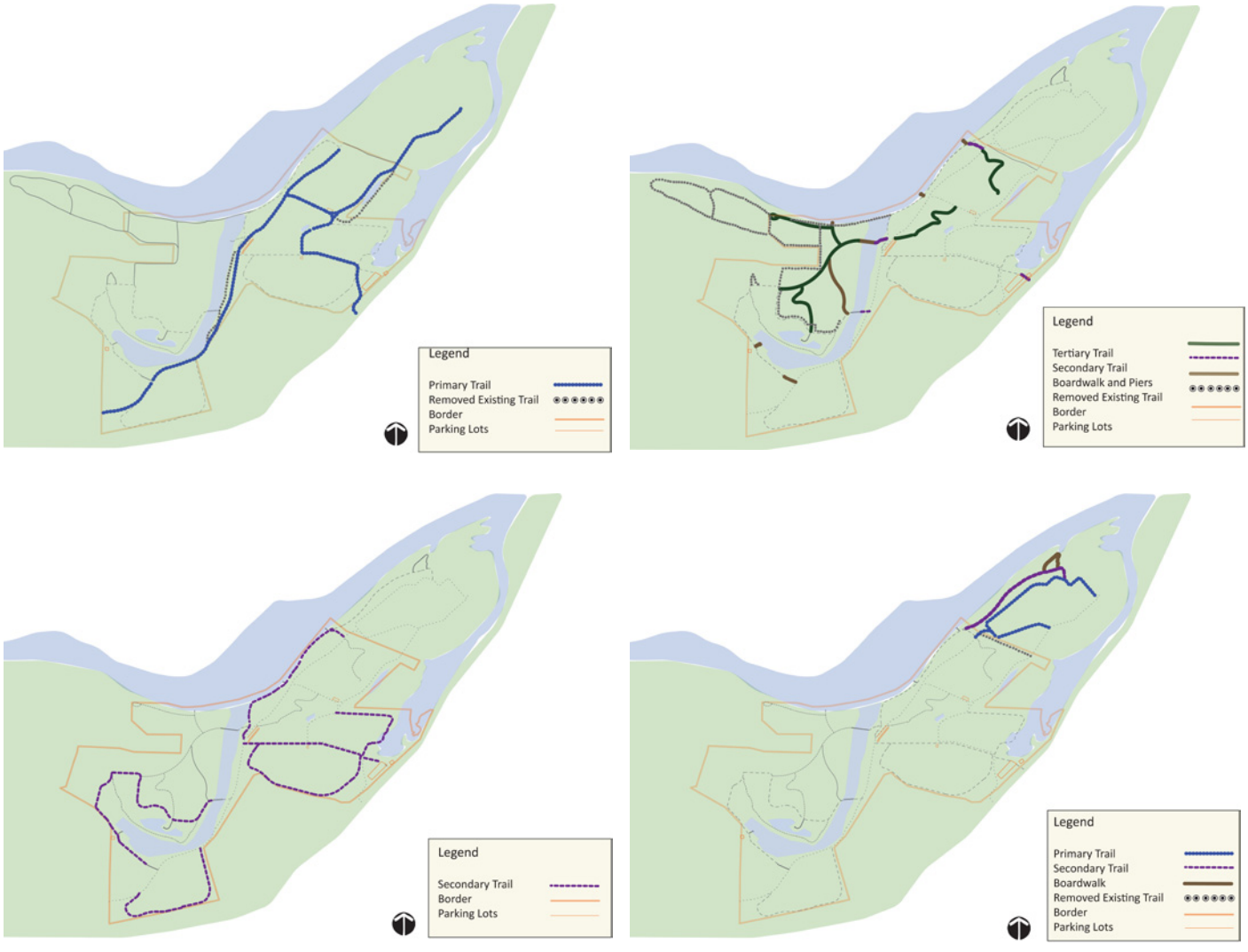


Figure 51. Boardwalk cross-section.

Trail Phasing

We suggest implementing this trail system in phases. In phase one, we envision the installation of the primary trail and the removal of portions of existing roads. In phase two, we suggest removing several existing dirt roads, installing secondary and tertiary trails, and building boardwalks. In phase three, we suggest replacing existing asphalt paths with 12-foot concrete paths. In the final phase, circulation will be extended to the Boise-Cascade site to connect the Audubon Preserve to Minto-Brown Park.

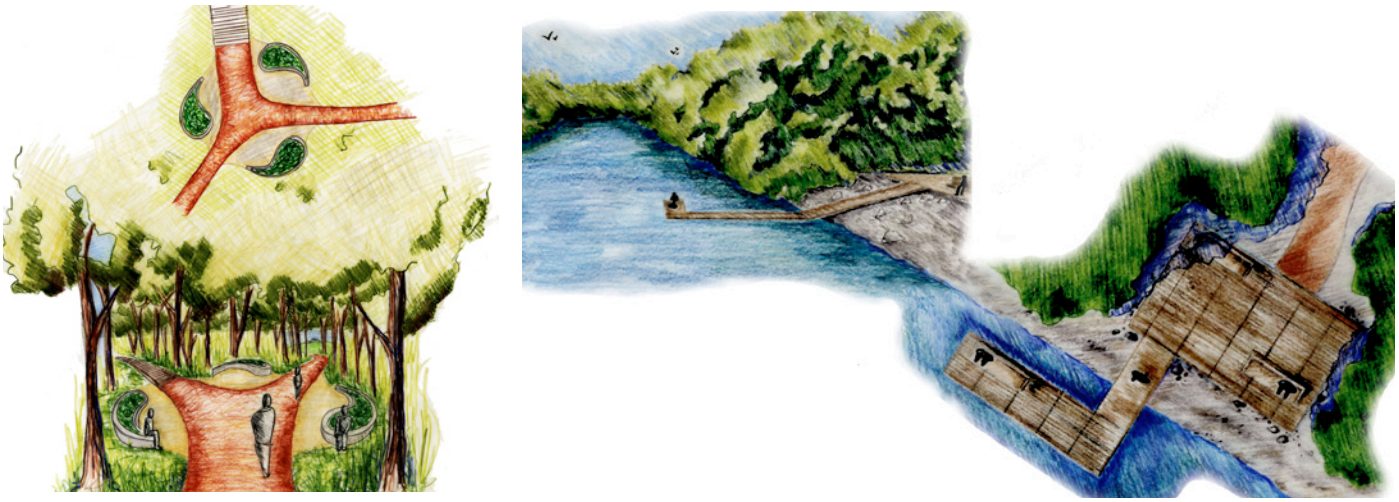


Figures 52 - 55. (left to right, top to bottom) Trail Phase 1; Trail Phase 2; Trail Phase 3; Trail Phase 4.

Design Recommendations: Programmed Activities

Twelve Landscape Rooms

One of the main suggestions generated by this group is the creation of twelve landscape rooms for displaying art, each connected by the park's trail system. Each room has a unique character and art style. For example, the "Mess" is be an open space in Minto-Brown's Cottonwood forest, filled with sculptures made of natural materials. We envision that artists will leave their sculptures open to the elements and allow them to decompose. In contrast, the "Marsh" is a platform floating in the slough used as display for the enjoyment of public art by local artists . The goal is to have enough installations to be able to rotate them regularly.



Figures 56 and 57. The "Mess" Landscape Room plan and perspective; The "Marsh" Landscape Room plan and perspective.

Figure 58. Perspective of dog park savanna.

Dog Park

The improvement of the dog park is the activity group's other major proposal. The current dog park offers few amenities to dog owners. As a result, many dog owners take their dogs off leash outside of the dog park and disturb sensitive ecological areas. To address this, we suggest the creation of a park within a park for dog owners. The first step towards achieving this is the expansion of the dog park to the southern edge of Minto-Brown to provide access to water. We envision that this land would be divided into three areas. Next to Parking Lot 2 is a traditional sports lawn planted with trees and bordered by wavy edges

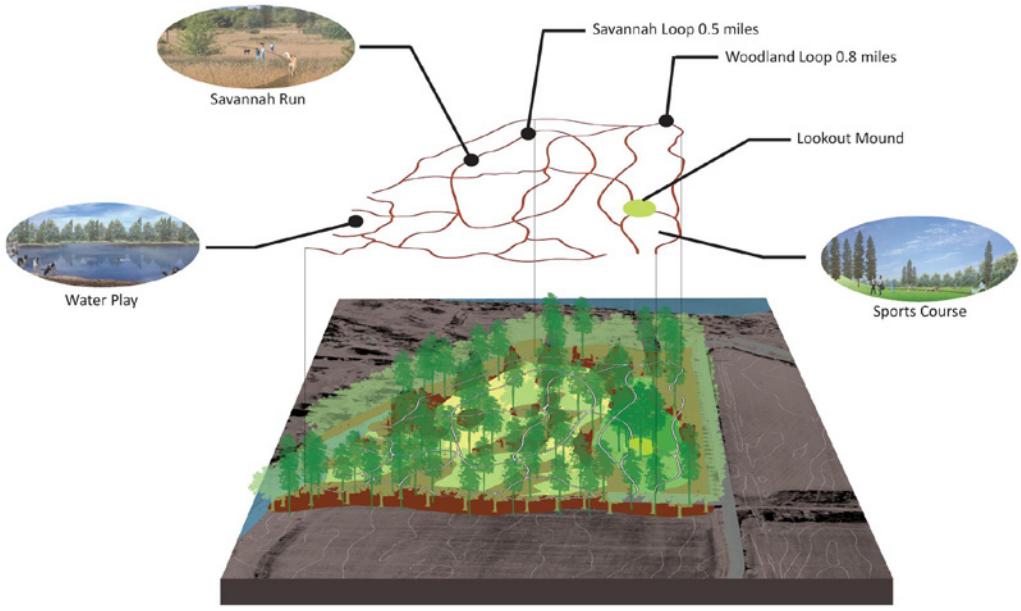


Figure 59. Aerial view of dog park.

to create nooks for dogs and owners to explore. Moving south from Parking Lot 2, dogs and their owners enter a savanna area. Here, tall grasses create interesting spaces for dogs to explore. Dog owners will be able to appreciate the beauty of native savannas without endangering the ecological integrity of more sensitive areas of the park. The final area in the dog park is a water-play area near the ponds, which will likely become a popular play option for dogs and provide an attractive aesthetic feature for human enjoyment. With so many features and interesting areas to explore in the dog park, we hope that dog owners will be able to enjoy all that Minto-Brown has to offer without endangering sensitive ecological areas elsewhere in the park.

Design Recommendations: Sustainable Agriculture

Introduction

Currently, agricultural activities within Minto-Brown Park are limited due to concerns about chemicals used in the farming process. However, we feel that farming is an important part of Minto-Brown. Humans have been farming at Minto-Brown since John Minto and Isaac Brown settled the area in the 1850s and 60s. Farming has also shaped the experience of Minto-Brown Park since its creation in the 1970s. The use of alternative farming will allow farming to continue in Minto Brown, with substantial reductions in chemical use and environmental impact.

We suggest that the City of Salem transition Minto-Brown's fields into biofuel and biodiesel production. This will allow Salem residents to experience where the fuel in their cars comes from and help educate them on the benefits of these fuel sources. We also suggest the creation of community gardens and orchards to help bring fresh food into Salem and educate park visitors on where food comes from. Finally, agriculture will help to highlight the ecological aspects of Minto-Brown by juxtaposing human and natural processes. The alternative management techniques we suggest will also show how farming and ecological processes could work together instead of conflicting.

Figures 60 - 62. Biodiesel field perspective; Community garden precedent: Courthouse Garden, Eugene, Oregon; Community gardens.

Management

We propose the use of four alternative agricultural practices at Minto-Brown Park. The first technique consist of the creation of “conservation” borders, i.e. strips of permanent grass or shrubs around agriculture fields bordering wildlife areas. Conservation borders are known to reduce erosion, slow water run-off, and provide wildlife habitat. The second technique we suggest is field borders. Field borders are permanent strips of herbaceous plants between fields. They reduce erosion, slow water run-off, and provide wildlife habitat. Thirdly, we suggest the creation of contoured grass strips—permanent grass strips planted along contour lines. Contoured grass strips provide wildlife habitat, slow erosion and filter pollutants from water. Finally, we envision the creation of riparian buffers. Riparian buffers are strips of native trees and shrubs left along streams and rivers. Riparian buffers cool water, filter pollutants and provide wildlife habitat. The use of these alternative agriculture techniques at Minto-Brown will allow farming to continue at the park while reducing topsoil erosion, improving water quality and enhancing wildlife habitat.

Figure 63. Conservation border.

Figure 64. Field border.

Figure 65. Contoured grass strips.

Figure 66. Riparian buffer.

Crops

Looking toward the future, Minto-Brown Park could consider investing in biodiesel and ethanol crops. Biodiesel and ethanol are fuels derived from plant matter instead of limited supplies of oil derived from fossil fuels. As supplies of oil disappear and gasoline and diesel become increasingly more expensive, ethanol and biodiesel will be important alternatives. In addition to the economics of biodiesels and ethanol, Oregon is a leader in biodiesel and ethanol production, with refiners located around Salem and Portland.

Figures 67 - 71. Left to right: Canola; Non-opiate Poppies; Camelin; Willows; Cottonwoods.

Biodiesel and ethanol crops are also easy to grow and benefit wildlife. Conditions on Minto-Brown favor the production of Canola, Non-opiate Poppies, Camelin, and Cottonwoods. We suggest that Canola, Non-opiate Poppies, and Camelin production take place by the main entrance to Minto-Brown. The City of Salem could harvest Canola, Non-opiate Poppies, and Camelin annually

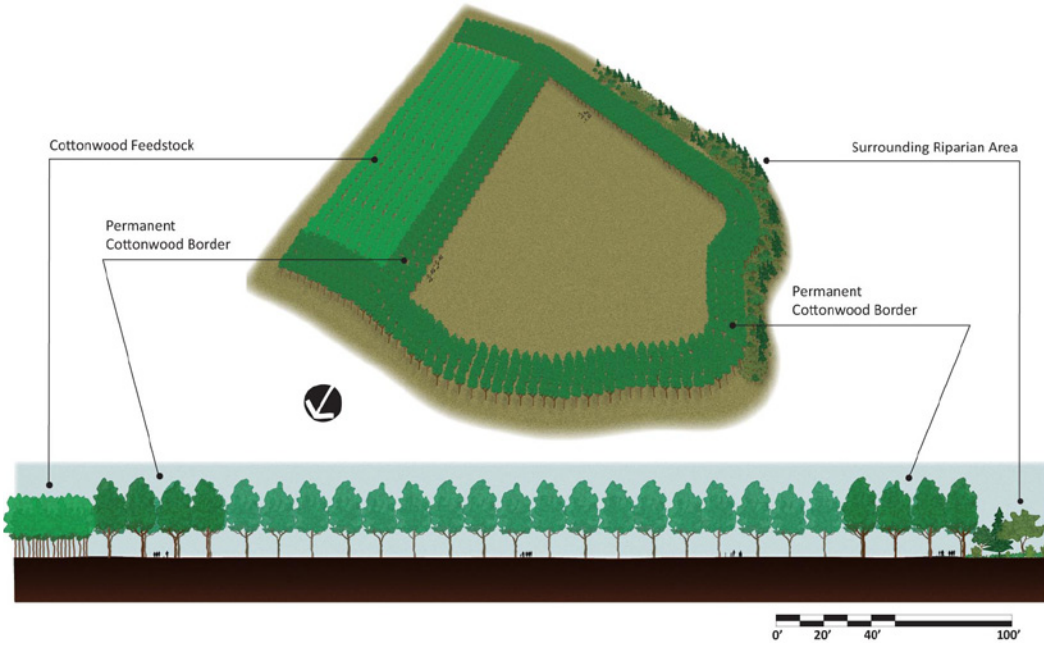


Figure 72. Aerial view and cross-section of Cottonwood field.

and sell them to SeQuential Biofuels, a Salem-based biofuel producer, to be refined. In the southern field, we suggest Cottonwoods. This field cannot grow biodiesel or traditional crops but could support native Cottonwoods. By growing native Cottonwoods, there would be continuity between the farm field and the surrounding forest that would allow wildlife to utilize the farm field in a way not possible with traditional farming. In addition, we propose that Salem leave strips of Cottonwoods in this field to provide habitat islands for wildlife. The City of Salem could harvest the Cottonwoods in ten to twenty years and sell them to an ethanol producer.

Figure 73. Aerial view of community orchard and garden .

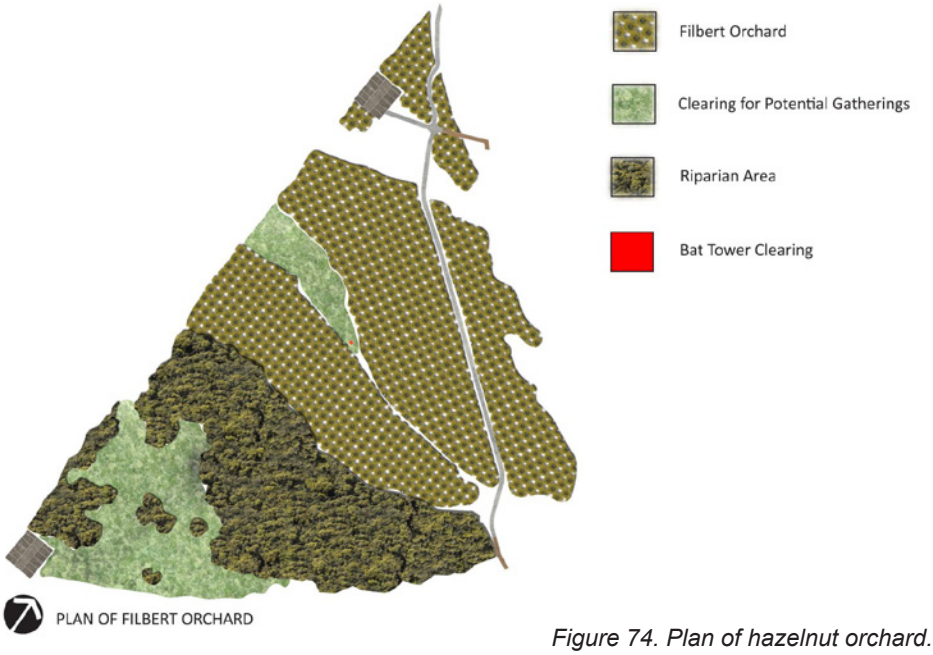


Figure 74. Plan of hazelnut orchard.

Community Orchard and Garden

We suggest restoring the old cherry orchard to create a community orchard and garden. The community orchard could harvest and sell fruit locally, contributing to sustainable food production for Salem and creating income for Minto-Brown Park. The community orchard could also distribute food to food banks and other charities. The community orchard will also provide opportunities for community gatherings. To this end, we have incorporated an event space into the orchard for outdoor gatherings such as concerts, farmer's markets, and harvest parties. These activities will strengthen a sense of community at Minto-Brown and enliven the park experience.

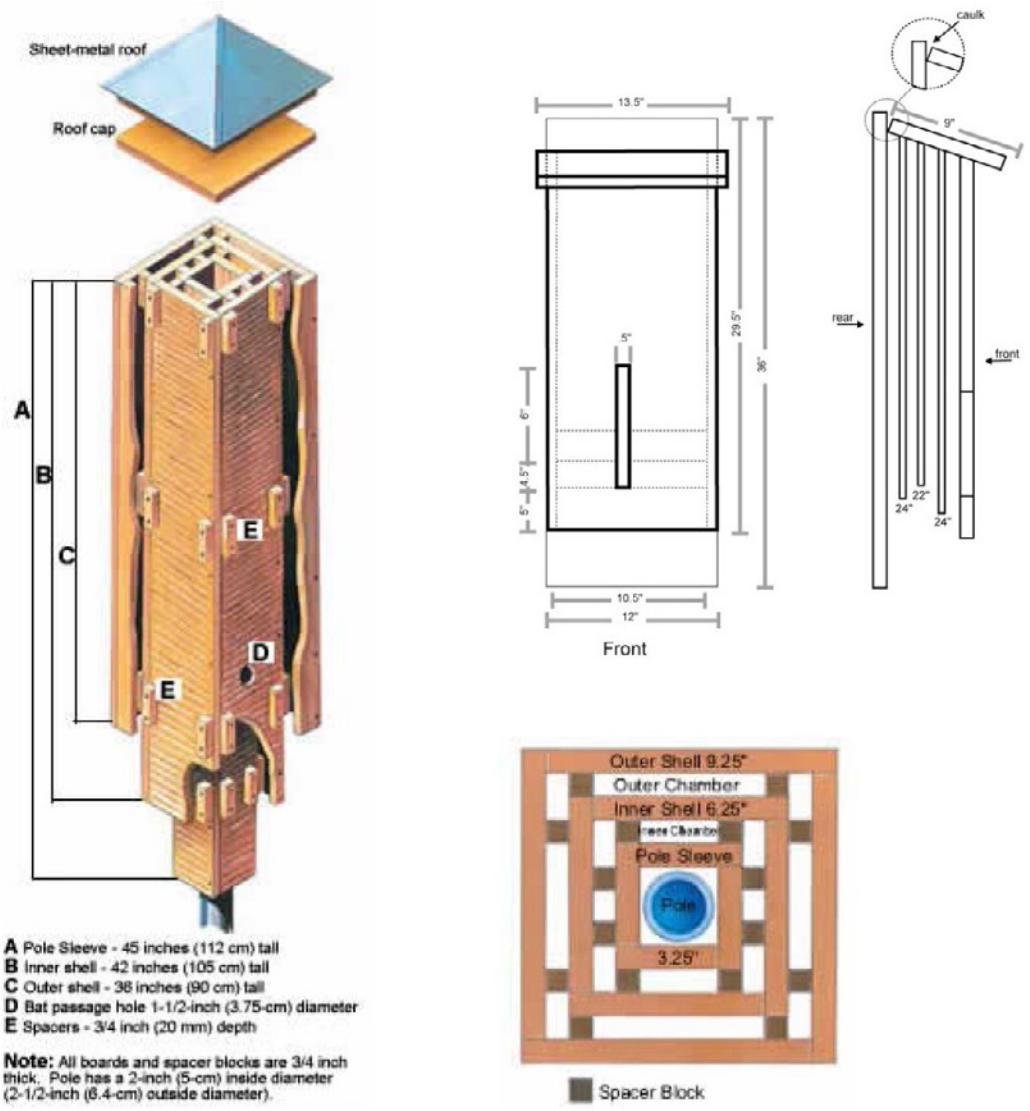


Figure 75. Plans for bat boxes.

Bat Towers

We recommend the installation of bat towers around farm fields at Minto-Brown Park. A colony of 150 bats has the capacity to eat 33 million rootworms in a summer season. Bats are known to be efficient pest controllers, so much so that certain insects will avoid bat habitat. In addition, bat guano is an excellent fertilizer. It has an ideal nutrient mix and does not pollute groundwater. Thus, bats can help reduce the cost of farming and protect the environment by eliminating the need to buy pesticides and fertilizer.

Figure 76. Bat tower perspective.

Conclusion

The City of Salem asked our fall term 2010 Landscape Architecture studio class to develop a trail system for Minto-Brown Island Park. In our exploration of the park, we found that a simple trail project would not serve to breathe life into Minto-Brown. By addressing a wide range of issues, the city can bring Minto-Brown to life as a place for humans and wildlife. While this studio endeavor offers some recommendations, we did not solve all the problems facing Minto-Brown. It is up to the city staff and residents of Salem to take action, as they move into a new master planning process for the park, in order to help this park realize its potential. We conclude this report with the hope that our recommendations will energize the residents of Salem to make Minto-Brown Island Park a center of cultural and ecological renewal into the future.

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