The Trail

The trail has taught me much.
I know the varied voices of the coyote - the wizard
of the mesa.
I know the solemn call of herons and the mocking
cry of the loon.
I remember a hundred lovely lakes and recall the
fragrant breath
of pine and fir and cedar and poplar trees.

It has given me blessed release from care and
worry and
the troubled thinking of our modern day.
It has been a return to the primitive and the
peaceful.

Whenever the pressure of our complex city life thins
my blood and
numbs my brain, I seek relief on the trail.
And when I hear the coyote wailing to the yellow
dawn,
My cares fall from me - I am happy.

by Hamlin Garland, 1899
American novelist, poet, essayist, and short story writer
(September 14, 1860 – March 4, 1940)
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<td>American Association of State Highway and Transportation Officials</td>
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<td>American Disabilities Act</td>
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<td>B2B</td>
<td>Border-to-Border Trail</td>
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<td>Diagnostic Safety Team Review</td>
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<td>Michigan Department of Environmental Quality</td>
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<td>Michigan Natural Features Inventory</td>
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<td>Right-Of-Way</td>
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<td>Transportation Alternatives Program</td>
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<td>Office of the Washtenaw County Water Resources Commissioner</td>
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Plan Adopted by the Washtenaw County Parks & Recreation June 14, 2016
Executive Summary
FORWARD

By Robert Tetens, Director
Washtenaw County Parks & Recreation Commission

The scenic Huron River Valley is a special place in Washtenaw County, deeply cherished by residents and visitors alike. The river is the most prominent natural feature in the County and is an important resource from ecological, cultural, recreational and transportation perspectives. There is no section of the Huron River where these aspects are more dramatically displayed than the eight-mile stretch between the cities of Dexter and Ann Arbor. A long standing vision held by the residents of Washtenaw County is to preserve and enhance this delicate riverine environment through the establishment of a greenway system of protected public lands tied together by a multi-use trail, the Border-to-Border Trail (B2B). This plan represents the embodiment of that public vision.

The B2B represents an ongoing collaboration of communities and organizations to implement a shared-use path that will link the open spaces of the Huron River Greenway. Once complete, the 35-mile trail will enhance the livability of the County’s main urbanized areas where approximately 70% of our residents live in river-linked communities. Over 24 miles of paved trail exist as part of the B2B today. It was recently incorporated into the Iron Belle Trail, a statewide trail network, further raising the profile of the B2B from an important local amenity to one with regional reach.

The B2B is much more than a physical connection of communities – it is about placemaking. Placemaking is an approach to the planning, design and management of public spaces that capitalizes on a community’s assets, inspiration, and potential, with the intention of creating public spaces that promote people’s health, happiness, and well-being. Educated young people, creative individuals, and well-financed entrepreneurs choose to live in places that are engaging, welcoming, diverse and offer a wide range of cultural and natural amenities. From this perspective, economic development today requires a focus on creating vibrant communities that are amenity-rich and attractive places. Several recent studies support the idea that the most attractive communities are those with generous park systems, easy access to natural areas, heritage landscapes, and extensive trail networks. The Huron River Greenway features all of these valued public placemaking amenities.

Over 30 years ago, the Ann Arbor-Ypsilanti Urban Area Transportation Study (UATS) led a planning effort to promote the concept of developing a multi-use trail system between Dexter and Ann Arbor. The final report, titled the Huron River Bikeway Study, was adopted in October of 1984. In 2004, the Washtenaw County Parks & Recreation Commission adopted the Segment D B2B Non-motorized Trail Summary Report that focused on the implementation of the first segment of the trail from the City of Dexter to Delhi Metropark. In 2013 the first phase was constructed, a trail connecting the City of Dexter to Dexter-Huron Metropark. This wildly popular new trail segment, the River Terrace Trail, has helped to raise public support for continued development of the B2B between Dexter and Ann Arbor.

A common thread tying these planning efforts together is the vision and leadership of Peter Pollack, the lead author on both reports. Peter, a nationally renowned Landscape Architect, established Pollack Design Associates in Ann Arbor in the early 1980’s. The firm grew out of Peter’s passion for creating places for people. He enjoyed the design process, from walking a site to understanding how the land wanted to be used. He believed that good design would create places that people were drawn to use. Peter often said that the hand of the designer should not be felt, that once designed and built, a place for people should seem as if it had always been there. Peter’s inspirational words have guided the authors of this report. It is our sincere hope that his unique creative vision will be reflected in the continued development of the B2B trail through the Huron River Valley.

Remembering Peter Pollack, FASLA, 1939-2010
Acknowledgements
ACKNOWLEDGEMENTS

The participation and cooperation of stakeholders, municipalities and organizations in the preparation of this Summary Report for the Border-to-Border ~ Segments D2 - G is greatly appreciated. In particular, we acknowledge the efforts of the following:

WASHTENAW COUNTY PARKS AND RECREATION COMMISSION

Commission Members
Janice Anschuetz, Commission Secretary/Treasurer
Janis Bobrin
Dan Ezeckiel
Barbara Fuller (WCRC)
Robert W. Marans, Commission President
Evan Pratt, (WCWRC)
Patricia Scribner, Commission Vice-President
Rolland Sizemore Jr.
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Stantec
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Stuart Lerner, PE, Sr. Vice President - Transportation
Peter Josefchak, Freight Rail Leader

AnLaan Construction
Derrick Arens
Steve Lewis

SPECIAL THANKS:

Michigan Department of Transportation, Rail Division
Michigan Department of Natural Resources, Natural Rivers Program
Washtenaw County Road Commission
Washtenaw Area Transportation Study
Washtenaw County Office of the Water Resources Commissioner
City of Ann Arbor
City of Dexter
Scio Township
Ann Arbor Township
Barton Hills Village
Huron River Watershed Council
RiverUp!

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City of Dexter
Scio Township
Ann Arbor Township
Barton Hills Village
Huron River Watershed Council
RiverUp!
Introduction
The purpose of this study is to develop and evaluate the various alignment options for the Border-to-Border Trail (B2B) between the cities of Ann Arbor and Dexter along the Huron River. The study area roughly follows the Huron River corridor between existing segments of the B2B in Bandemer Park (Ann Arbor) and Dexter-Huron Metropark (east of Dexter) for a total distance of approximately 7.25 miles. Once this project is fully constructed, the B2B will be nearly 90% complete (31 of 35 total miles) - refer to Figure 1. For design, funding, and implementation purposes, the B2B has been divided into segments A-M; this study covers:

**“The River Terrace Trail”**
- Segment D2: Dexter-Huron Metropark to Delhi Metropark

**PROJECT OVERVIEW**

The Border-to-Border Trail (B2B) in Washtenaw County is the result of the Washtenaw County Parks and Recreation Commission (WCPARC) leading a multi-agency effort to implement a non-motorized, multi-use trail through the scenic Huron River valley, to link the open spaces of the Huron River Greenway. The B2B Trail generally follows the river for 35 miles from the border of Livingston County to Wayne County. In January 2015, the B2B was incorporated into the Iron Belle Trail, a statewide trail network that extends from Belle Isle (Detroit) to Ironwood (on the Wisconsin border of the Upper Peninsula). Although Washtenaw County is on the “hiking route” of the Iron Belle Trail, the B2B’s goals remain unchanged:

- Completion of +/- 35 miles of a universally accessible, paved, shared-use pathway across Washtenaw County
- Conservation of the Huron River corridor
- Provide opportunities for non-motorized transportation, recreation, river access, environmental and local cultural education, and links to neighboring counties
- To the maximum extent possible, the trail is routed off-road (away from roads) to create a safe and fun experience for a wide range of users

A vision for this section of trail has been in the minds of many people and agencies in the community for a very long time. One of the earlier studies was completed in 1984: The Huron River Bikeway Study, Ann Arbor-Dexter, undertaken by the Washtenaw Area Transportation Study (then known as Ann Arbor-Ypsilanti Urban Area Transportation Study). Additionally, over 60% of County residents have identified non-motorized trails as their “highest priority” for recreation according to WCPARC’s recent Parks and Recreation Master Plan survey (2015). This continues to reinforce the results of previous surveys which indicate that trails are a top priority for county residents. Natural areas preservation and environmental conservation are the second highest priority.

**“Barton Pond Trail”**
- Segment E: Delhi Metropark to Wagner Road
- Segment F: Wagner Road to Maple Road
- Segment G: Maple Road to Bandemer Park

This Master Plan details a preferred route for the B2B between Dexter and Ann Arbor (Segments D2 through G), a distance of approximately 7.25 miles or 21% of the total B2B - refer to Figure 2. It also outlines the process that was used to derive these conclusions (stakeholder engagement, alternative route analysis, public meetings, etc.). Once completed, this trail segment will link two large, finished sections of B2B, completing nearly 90% of the total trail within the county. The project area is the largest remaining gap in the B2B and is also the most complex to construct. Some of the challenges faced by these trail segments include: The Huron River, MDOT/Amtrak’s Wolverine Line (Dearborn to Chicago), Huron River Drive, The Natural Rivers Act (MDNR), steep topography, wetlands, floodplains, necessity for multiple bridges, and avoidance of private property. Many of the challenges in this corridor also present the opportunity to make this part of the B2B the most beautiful on the entire trail.

Historically, Huron River Drive has served as a shared vehicular and recreational bicyclist corridor between the City of Dexter, Dexter-Huron Metropark, Delhi Metropark and Ann Arbor. Currently there are no designated bike lanes or sidewalks, but it remains one of the most popular routes for road bicyclists. According to recent traffic counts, bikes accounted for up to 13% of total average daily traffic.

Ultimately, the plan is to link all of the B2B’s segments together to form a non-motorized “spine” through Washtenaw County. This spine will form the basis to a larger network of pathways. As part of the Iron Belle Trail, the B2B will eventually connect to the Lakelands Trail to the north and to the Downriver Linked Greenways Initiative to the southeast—making the B2B a local trail with regional reach.

There are numerous public benefits to the B2B; one of the most significant being greater access to Washtenaw County’s most distinctive natural feature; the Huron River. The Huron River offers exceptional opportunities for education/interpretation, resource conservation, non-motorized...
**INTRODUCTION | Project Overview**

**TOTAL DISTANCE**
8.54 miles

**MASTER PLAN**
7.17 miles

"RIVER TERRACE TRAIL"

"BARTON POND TRAIL"

---

**LEGEND**
- **Completed Trail**
- **Planned Trail (Current Project)**
- **City**
- **Park**
- **Road Junction**

**DISTANCES ARE APPROXIMATE AND WILL BE ADJUSTED DURING DETAILED DESIGN AND ENGINEERING**

---

Figure 2: Master Planning of Segments - Source: WCPARC

---

Visit b2b.ewashtenaw.org for the latest project news
transportation, and the individual and community health benefits associated with an active lifestyle. Non-motorized trails have also been shown to stimulate economic development and investment along their alignments. To further support this, MDOT completed a bicycling economic study for FY 2014 which used Ann Arbor as a case study. This case study found the bicycling’s economic impact in Ann Arbor alone was over $25 million for 2014.

Ann Arbor economic breakdown found the following:
- $9.1 million - Household spending on bike related items
- $3.4 million – Event/Tourism spending
- $7.2 million – Avoided healthcare costs
- $5.7 million – Reduced absenteeism

For the State of Michigan the following was identified:
- $175 million - Household spending on bike related items
- $187 million – Event/Tourism spending
- $256 million – Avoided healthcare costs
- $11 million - Manufacturing related

When completed, the B2B Trail will facilitate safe non-motorized travel between green spaces and urban areas; connecting three cities, one village, six townships, two universities, two colleges, and eighteen parks along the Huron River within Washtenaw County alone. This segment of trail is also located within Michigan’s population center and will see a great deal of use. The B2B has over 120,000 residents living within two miles of the trail; over 240,000 residents in the municipalities it traverses; and over 4,000,000 Michigan residents within a one hour drive. Approximately 24 miles, or 68%, of paved and shared-use pathways exist as a part of the B2B today.

OBJECTIVES
As stated by WCPARC, the purpose of this study is to gather and further detail information regarding a preferred location of a non-motorized trail along the Huron River corridor between Dexter-Huron Metropark and Delhi Metropark (Segment D2); continuing from Delhi Metropark to Wagner Road (Segment E); then from Wagner Road to Maple Road (Segment F); and finally from Maple Road connecting to the existing B2B Trail at Bandemer Park in Ann Arbor (Segment G).

In order to achieve the broader goals outlined in the previous section, the following objectives have been identified:
- Create a general consensus between stakeholder groups regarding the preferred trail alignment
- Explore all potential route alternatives
- Seek public input on the preferred alignment

Due to the multi-jurisdictional and complex nature of the study corridor, one of the most important objectives of this report is to represent the general consensus amongst stakeholders regarding the approximate trail alignment. The “Preferred Alignment” will guide detailed design, eventually leading to implementation. Additionally, this report will be used to support grant applications that assist with construction funding.

PROJECT TEAM
The Segment D2 through G Non-motorized Trail Study is an effort initiated by the Washtenaw County Parks and Recreation Commission. It is supported in partnership by the Huron-Clinton Metropolitan Authority and RiverUp!, the administration and staff of these two agencies and representatives of RiverUp!, along with Conservation Design Forum and Stantec Consulting Michigan, form the working group and are the primary authors of this study.

Washtenaw County Parks and Recreation Commission
The Washtenaw County Parks and Recreation Commission (WCPARC) was formed in 1973 under Michigan Public Act 261 of 1965; with the mission:
...to enhance the quality of life in the County by promoting a healthy lifestyle, efficiently providing high quality facilities and programs reflective of current and anticipated recreational needs of County residents and visitors—with particular emphasis on preserving fragile lands, water quality, wildlife habitat, creating pedestrian and greenway connections, and providing high quality services to those of all backgrounds.

Since its inception, the WCPARC has provided public access to 7,426 acres of active parks and passive nature preserves containing rivers, lakes,
and biologically rich ecosystems. WCPARC has strategically planned, developed and enhanced a park system that consists of 2,094 acres of parkland and 4,626 acres of unique natural areas. WCPARC has also worked in partnership with many other organizations and communities to protect an additional 706 acres of land, and develop many miles of non-motorized trails through the “Connecting Communities” grant program.

The Commission consists of 10 members, including a representative from the County Road Commission, the County Water Resources Commissioner, and other members appointed by the elected County Board of Commissioners, of which at least one but not more than three are members of the County Board of Commissioners. The Washtenaw County Parks system is headed by a Director, Robert Tetens and assisted by a Deputy Director, Coy Vaughn.

WCPARC is committed to providing high-quality non-motorized trails throughout the County. This commitment is reflected by the B2B trail which was initiated by WCPARC in direct response to a county-wide recreation survey in the late 1990s. This preference for non-motorized facilities has been consistently reinforced through additional surveys of County residents every five years.

Huron-Clinton Metropolitan Authority

The Huron-Clinton Metropolitan Authority (HCMA) is governed by a seven-member Board of Commissioners that administers the Huron-Clinton Metroparks system and is supported by staff to carry out the mission. Two members are selected by the State governor and the other five members are selected by location, one from each of the five member counties.

The Huron-Clinton Metroparks are a regional park system in Metro Detroit Michigan located along the Huron and Clinton rivers. The Metropark system exists independent from other park systems in Southeast Michigan which include city, township, county and state parks.

The Metroparks consist of 13 parks covering 25,000 acres in Southeast Michigan forming, a partial ring around the metro area. The parks encompassing Wayne, Oakland, Macomb, Washtenaw and Livingston counties are in the planning stages for development to finish the ring by building hike/bike trails to connect all the parks. Within Washtenaw County, HCMA manages three Metroparks along the Huron River totaling more than 1,600 acres: Hudson Mills, Dexter-Huron, and Delhi. To date, two of the Metroparks, Hudson Mills and Dexter-Huron, are connected by the Border-to-Border Trail. This study provides a plan to connect to the third Metropark: Delhi.

RiverUp!

RiverUp! is part of a community movement to embrace and celebrate the assets of the Huron River for the benefit of local economies and residents. The group also promotes conservation of our shared natural heritage. It is a partnership between the Huron River Watershed Council (HRWC), the National Wildlife Federation’s Great Lakes Office (NWF), the Michigan League of Conservation Voters and citizen groups to spark a river renaissance. The organization is the foremost placemaking initiative for the Huron River and its communities. Through this effort, they are working to assist communities to maximize the Huron River as a signature community asset to attract residents, visitors, and businesses.

RiverUp! is the answer to former Congressman John D. Dingell’s call for the development and implementation of a substantive plan for the Huron River’s future. HRWC, along with a core group of community and business leaders recently began to formulate a strategy to realize the goal of a vibrant, robust and fully restored river – a destination for residents and tourists. Additionally, they have the benefit of partnering with action-oriented, outcome-focused groups and individuals to advance the considerable work that’s already being done for the Huron River.

RiverUp! has three long-term objectives:

- FixUp! by investing in recreation infrastructure
- CleanUp! by improving the ecological health of the river
- BuildUp! by facing our communities toward the river and transform the river corridor into a premier destination

PLANNING PROCESS

This Master plan is intended to build upon the 2004 Segment D Border-to-Border Nonmotorized Trail Summary Report, the Huron River Bikeway Study [1984 - Pollack Design Associates] and other efforts as discussed in the Project Overview section. The planning process was structured to catalogue, document and summarize previous activities and plans, assess current conditions, and identify or re-confirm planning priorities and objectives through an open, inclusive stakeholder and community engagement process. The process benefited from the passionate involvement of a wide range of recreation enthusiasts, local and state officials, non-profit organizations, and the public. This provided a comprehensive foundation upon which a series of recommended strategies are articulated in this document.

The master plan includes a site plan of the preferred trail alignment and design standard details that illustrate a series of physical improvements to achieve the planning priorities. It also includes a set of long-term management strategies informed by, and supportive of, ongoing landscape restoration and stewardship activities. The plan uses trail segments (D2-G) to make recommendations on strategies for implementation and phasing of the project. These recommendations include construction cost estimates, material’s lifecycle costs and maintenance, and potential construction funding sources.

From the beginning of the project it was clear that broad stakeholder and public support would be vital to the success of these segments of the B2B. In order to achieve this, the Washtenaw County Parks and Recreation Commission and the consultant team:

1. Hosted bi-weekly meetings with a working group composed of staff from WCPARC, HCMA and representatives from RiverUp!
2. Facilitated initial discovery meetings (and update meetings, thereafter) with the following stakeholders;
   - Michigan Department of Transportation [Rail Division and Non-Motorized Division]
   - Michigan Department of Natural Resources [Natural Rivers Program and Recreational Trails Program]
   - Washtenaw County Road Commission
   - Washtenaw County Water Resources Commissioner
   - Huron River Watershed Council
   - City of Ann Arbor
   - City of Dexter
   - Scio Township
   - Ann Arbor Township
   - Barton Hills Village
   - Southeast Michigan Council of Governments (SEMCOG)
   - Washtenaw County’s Greenway Advisory Committee (which includes members of local bicycling and transportation groups)
   - Michigan Trails and Greenway Alliance
   - Friends of the Border-to-Border Trail
3. Engaged the public at three workshops.

The working group and stakeholder meetings guided the development of the master plan. They provided input on issues and concerns, as related to the development of the trail, which needed to be addressed along the study corridor, such as: visual and ecological impacts, public safety, types of users and activities, regulations and permit requirements, identifying additional stakeholders, and the desired final product. The working group re-affirmed the previous set of Planning Principles from the 2004 Summary Report to continue guiding the planning process and reviewed drafts of the master plan as it evolved.
PUBLIC PARTICIPATION

Three public meetings were held to inform citizens that the plan was being developed, to discuss the planning process, to describe the rationale behind the preferred trail alignment and to solicit feedback. A draft of the plan was also posted on WCPARC’s website for over one month to gather additional feedback. WCPARC advertised these meetings through various standard channels, including sending letters sent to all landowners whose property is near one of the alternative trail alignments. The letter also provided them with contact information of the project manager if they were unable to make the meeting or had questions. At the first public meeting on February 24th, 2016 at the Ann Arbor Senior Center in Ann Arbor, 16 participants provided feedback on the preferred route alignment, expressed desires, priorities and voiced concerns that could be addressed in the master plan. At the second public meeting on March 2, 2016, held at the Dexter District Library, 38 participants provided additional feedback on the project. Based on feedback received during the on-line comment period, a third meeting was held on April 20th at Scio Township Hall which had 43 attendees and constructive dialogue focused around Segment “F”.

Comments and feedback received at the public meetings or on-line can be found in Appendix C. Stakeholder feedback was also a critical component of public input (as described in the planning process). Appendix A contains the meeting minutes from the working groups and stakeholder meetings; it summarizes changes that were made to the master plan based on comments from stakeholders.

PLANNING PRINCIPLES

The following planning principles are presented to guide the design, engineering, implementation, and management/operations of the Border-to-Border Trail over time; to ensure respect for the characteristics and qualities of the Huron River; and to foster and heighten environmental stewardship through access, education, and interpretation.

These principles helped to guide the working committee comprised of staff from WCPARC, RiverUp!, HCMA, WCRC, MDOT, DNR and the CDF/Stantec Team to make informed decisions about Segment D2 through Segment G’s design, engineering and implementation. Ultimately, WCPARC, with support from the broadest possible coalition of individuals, groups and agencies, has taken the responsibility of implementing these four Segments of the Border-to-Border Trail.

Environmental Considerations

There is a desire to maintain, restore, steward, and where possible, to enhance the condition of the diverse landscape within this river valley. This must be undertaken with the recognition that the trail is a major recreation arterial. Planning, design, engineering and management affecting the adjacent landscapes must seek to achieve a balance between the functioning of ecological systems and the human activities necessary to achieve the mission of the County by;

1. preservation, protection and management/stewardship of existing natural systems and open space along the river through state and inter-agency cooperation among municipal authorities;
2. planning for and managing ecosystems consistent with the Natural Rivers Plan, i.e., maintain vegetation buffer along river, removal of invasive plant species, fire management, etc.;
3. protecting rare, threatened and endangered plant and animal species including the fisheries, and;
4. whether site planning or managing viewsheets for trail users, canoeists, kayakers, and drivers— retaining the scenic beauty of the corridor is paramount. The visual quality of the river corridor is a cherished community asset which requires careful attention to detail.

Interpretation and Education Opportunities

The importance of interpretation and education has risen as user and visitor demand has increasingly focused on experiences rather than products. The interpretation of attractions, stories, and history is an important part of providing a positive experience as well as an education tool. Interpretation and education can be achieved through a range of methods including informative brochures, guided or self-guided tours, interactive displays, signage, media displays, audio information or interpretive information boards. Education and interpretation programs can highlight;

1. the Huron River’s Natural Rivers designation;
2. ecosystems including prairie remnants, floodplains, wet meadows, and oak barrens in settings that range from the high bluffs to lowlands, and in urban areas and villages to parkland and natural areas;
3. historical and cultural features including past Native American and European settlements, villages, the railroad, river commerce, mill sites, glaciation/geology of the region; and,
4. river corridor protection, stewardship and management.

Recreational Considerations
INTRODUCTION | Project Overview

Changing lifestyles and the desire for increased leisure activities from younger generations, together with a growing retirement-age population, have placed increased demands on existing parks, recreational lands, and open spaces. These trends are both local and national. By developing integrated greenway and trail system as a part of the fabric of the community, people have convenient access to recreation, nature, commercial areas, and other destinations at their doorstep:

1. **Create trail connections and link existing parks:** Completion of the B2B will eventually link the Lakelands Trail in Livingston County to the north and the Downriver Linked Greenways Initiative in Wayne County to the southeast. In Washtenaw County, the B2B will connect to many existing local trails, parks and nature areas.

2. **Connect communities and provide access to the greatest number of county residents:** Completion of this section of the B2B will realize the connection between three cities, one village, and six townships in the heart of Washtenaw County’s population center. The combine total population of all of these municipalities is over 240,000 with approximately 120,000 living within two miles of the trail. There are approximately 354,000 people in Washtenaw County;

3. **Facilitate access to all residents:** Provide a safe, off-road alternative to Huron River Drive and accommodate a broad range of recreation users with varying skills and physical capabilities.

4. **Identify and meet local recreational needs:** Accommodate active and passive activities in locations appropriate for such uses. Provide a non-motorized recreational corridor which facilitates access to the river and that addresses the public’s desire for a quality environment in which to exercise, relax, enjoy scenic beauty, fish, canoe/kayak, and experience the ecological characteristics of the riverine environment.

**Trail Design Criteria**

1. **Provide a multi-use non-motorized trail that respects the natural environment by minimizing the impact from its permanent position on the landscape and during construction activities.** Account for plant and animal species throughout the process.
2. **Meet or exceed AASHTO and ADA Design standards.**
3. **Design using local materials to “fit” the trail into its setting, i.e., native stone walls, native plant materials from local sources.**
4. **Design and locate river and wetland crossings to limit the natural sight line disruption from the trail, roads and river.**
5. **Design river and wetland crossing structures that minimize environmental impacts.**
6. **Provide opportunities for emergency vehicle access.**
7. **Utilize design and engineering standards able to withstand the long term effects of the riverine setting as the best approach to the use of public funds, and to minimize the need for continued maintenance over time.**
8. **Consider life-cycle costs for durable and eco-friendly products and materials to reduce environmental impacts and operations and maintenance expenses over a life span.**
**Schedule**

**Phase One – Site Evaluation**
- Project Initiation (June 30th)
- Review Available Data
- Working Group Meetings (Active through Project ~ 7 Meetings)
- Stakeholder Meetings (Active through Project ~ 23 Meetings)
- On-site Evaluation
- Final Summary Report

**Phase Two – Master Plan Development**
- Working Group Meetings (Active through Project ~ 4 Meetings)
- On-line Comment and Feedback (February 24th - May 5th)
- Public Meetings #1 (February 24th)
- Public Meetings #2 (March 2nd)
- Public Meetings #3 (April 20th)
- Final Summary Report and WCPARC Adoption (June 14)

Refer to Appendix A for working group minutes, information on stakeholder input, feedback public involvement, and correspondence from local and state agencies.

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*Figure 4: Master Planning Tasks and Schedule*
Existing Conditions
EXISTING CONDITIONS

Geographic Information Systems (GIS) data, reports from major landowners (WCPARC, HCMA, MDOT, etc.), aerial/satellite photography and over ten years of on-site visits were used to inventory and analyze the study corridor. The data, and subsequent analysis of the river corridor, can be divided into two main categories: human/built conditions, or natural features/resources. The following is a brief summary of each.

HUMAN/BUILT CONDITIONS

Natural Rivers Program

The Natural Rivers Act, administered by the MDNR, authorized the Natural Resources Commission to establish a system of “natural rivers” in the state to provide for their preservation, protection and enhancement. Since 1970, Michigan’s Natural River System has designated 2,091 miles on sixteen rivers or segments of rivers. Section 30502 of the Natural Rivers Act states, in part, that:

“The Commission, in the interests of the people of the State and future generations, may designate a river or portion thereof, as a natural river area for the purpose of preserving and enhancing its values for water conservation, its free flowing condition and its fish, wildlife, boating, aesthetic, floodplain, ecologic, historic and recreational values and uses.”

The Huron River, from Kent Lake in Livingston County to Barton Pond [Fosters Bridge at Maple Road] in Washtenaw County, is the only river in southeast Michigan designated as a “country-scenic river” under The Natural Rivers Act. The Huron River was designated under this act for the purpose of “preserving and enhancing its values for water conservation, its free flowing condition and its fish, wildlife, boating, aesthetic, flood plain, ecologic, historic and recreational values and uses” (Huron River Plan, 2002, p. 1).

The Huron River Watershed Council (HRWC) works closely with the MDNR and local government jurisdictions to develop the Huron River’s Natural Rivers Plan and Guidelines to further help protect the river, promote education initiatives, and support recreation. The Huron River Natural Rivers District includes an area 400 feet wide on each side of, and parallel to, the designated portion of the river. Within the 400 foot district is a 125 foot structure setback (with some exceptions - WCPARC falls into the Publicly Provided Facilities and Utilities permit category which allows some flexibility on development projects while maintaining a 100 foot wide minimum vegetation strip along the river). The MDNR Huron River Plan states:

“The use of non-motorized modes of transportation as a means of reaching and enjoying the Huron River is strongly encouraged. Developed trails for non-motorized traffic within the Natural Rivers District should be planned and constructed in a manner which preserves the natural character of the district to the greatest extent possible” (Huron River Plan, 2002, p. 31).

An on-site meeting in early September, 2015 with the MDNR Natural River Program Coordinator indicated a willingness to work with getting the trail developed. The B2B would increase recreational value and the public’s ecological awareness in a beautiful river valley environment.

Huron–Clinton Metroparks

As part of the previously mentioned Metroparks’ trail development and the State’s Iron Belle Trail, the completion of Segment D of the Border-to-Border Trail will connect two Metroparks: Delhi Metropark and Dexter-Huron Metropark, which are located nearly four miles apart. Dexter-Huron Metropark is already connected to the City of Dexter by the completed first phase Segment D (also known as the River Terrace Trail). The B2B winds through the city for a short distance to Mill Creek Park where it connects to...
**EXISTING CONDITIONS | Human / Built Conditions**

4.9 miles of existing B2B along Mill Creek and the Huron River to Hudson Mills Metropark. The completion of the second portion of segment D will result in all three Metroparks in Washtenaw County being linked by the B2B.

**Huron River Drive**

Considered one of the most scenic roads in Washtenaw County, if not in southeast Michigan, Huron River Drive is very popular with many motorists, road bicyclists and joggers. It is used for commuting, recreation, access for fishing, kayaking and canoeing. The recreational value of the road is well known to locals; in fact, the road is closed for the annual Dexter-Ann Arbor Run. The event takes runners on a course, as its name suggests, from the town of Dexter via an eastward route along the Huron River to the finish in downtown Ann Arbor.

As a county road maintained by the Washtenaw County Road Commission, there are safety considerations that need to be addressed and design engineered to alleviate vehicle and non-motorized user conflicts. Currently, there are no designated bike lanes, sidewalks, or other non-motorized infrastructure on this meandering roadway from Ann Arbor to Dexter. Some sections are very close to the river bank, the shoulders are very narrow, making it infeasible to simply add designated bike lanes along the entire road.

**MDOT Rail & Amtrak/Norfolk Southern**

The Michigan Department of Transportation (MDOT) is the designated track owner of the railroad corridor from the state line at Portage to Pontiac under the current agreements with Amtrak and Norfolk Southern Railroad. In 2011, the MDOT used a $140 million grant from the Federal Railway Administration (FRA) to purchase 135 miles of Norfolk Southern (NS) rail. As a result of the purchase, nearly 80 percent of the Amtrak route between Detroit and Chicago is now publicly owned, allowing MDOT to maintain the tracks for high-speed passenger rail. Since 2013, MDOT has been making track improvements along this line in preparation for increased train speeds and frequency. The portion of the rail in this corridor is used by Amtrak's Wolverine service line originating out of Pontiac and ending in Chicago.

Because safety is of the utmost importance to MDOT, Amtrak, and WCPARC, any proposed trail alignment along this rail line has been scrutinized very carefully. The proposed B2B Trail minimizes direct interface with the railroad. However, where a crossing is required, MDOT will perform a Diagnostic Safety Team Review (DSTR) prior to construction. Because of the corridor’s Federal High-Speed Rail designation, no new at-grade crossings are allowed. In certain locations, even though there is an existing at-grade crossing for the road, the lack of existing pedestrian infrastructure may make the trail crossing classified as an entirely new, separate crossing.

Ultimately, MDOT thinks that a mutually agreeable solution could be achieved through the permitting process. MDOT, while working with Amtrak, will make the final decision on how the pathway is constructed in their ROW; although the FRA will be consulted as needed.

**CenturyLink Fiber Optic Line**

CenturyLink is a worldwide communications company headquartered in Monroe, Louisiana. It provides communications and data services to residential, business, governmental and wholesale customers in 36 states. It is the third-largest telecommunications company in the United States, behind AT&T and Verizon, and operates as a local exchange carrier and Internet Service Provider in 36 states.

CenturyLink owns the fiber optic line that runs parallel to the railroad within the rail bed or ballast stone, mainly routed on the north side of the tracks. The fiber optic line is their Core Network through Michigan connecting Detroit and Chicago. Since the preferred trail alignment from the start of Segment D2 through the end of Segment E is proposed on the north side of the tracks, the pathway will not be built over or near this fiber optic line. Additionally, extra precautionary construction practices will respect this sensitive utility.

**DTE Energy Company**

DTE Energy Company is a Detroit, Michigan-based utility, incorporated in 1995, providing electric utility to serve 2.1 million customers in Southeast Michigan; and a natural gas utility serving 1.2 million customers in Michigan. The company currently operates and maintains both electrical transmission and natural gas pipelines through the project area. An overhead electrical transmission line crosses perpendicular to West Huron River Drive at Loch Alpine residential neighborhood. Two natural gas lines cross also perpendicular to West Huron River Drive; one just off Dexter-Huron Metropark’s southeastern-most boundary, while the second line bisects privately owned property east of Delhi Metropark heading northeast across West Huron River Drive. All three crossings will require a permit and may require an easement agreement with DTE prior to the construction of the B2B Trail.
EXISTING CONDITIONS | Existing River and Road Crossings

BORDER TO BORDER TRAIL ALIGNMENT STUDY
SEGMENTS D2-G

EXISTING RIVER AND ROAD CROSSINGS

LEGEND

- Huron River
- Park/Natural Area
- Natural Rivers Zone
- Jurisdictional Boundary
- Railroad
- Major Road

Existing Railroad Crossing River RR#, Refer to photos on following page
Existing Railroad and Road Crossing RX#, Refer to photos on following page
Existing Road Crossing River RC#, Refer to photos on following page
Existing Pedestrian Bridge Crossing River PB#, Refer to photos on following page

Referenced from Michigan Line track charts with the mile posts from Dexter to Ann Arbor

Figure 5: Existing River and Road Crossings
Existing River and Road Crossings

During the early settlement of the area in the late 1800s and early 1900s, transportation infrastructure followed the route of least resistance to keep railroad and roadway grades at a minimum reducing construction costs. This included utilizing the naturally level topography of the river terrace and avoiding the floodplain, wet soils, and steep glacial landforms. The result was a route that required many river crossings, but was the most practical and cost effective.

In the study area there are fifteen existing bridges over the Huron River; eight railroad, five road, and two pedestrian. Additionally, there are six road intersections and four at-grade road/railroad crossings. The study worked to find the path of least resistance for the trail by considering use of existing infrastructure, rehabilitating un-used infrastructure, following level topography and avoiding floodplains, wetlands, and steep slopes. Doing this minimizes environmental disturbances, limits visual impacts, and keeps implementation costs reasonable.
EXISTING CONDITIONS | Historic Findings - The First Non-Motorized Trails

General Land Office Plat Maps from 1819

Source: Archives of Michigan, Michigan Historical Center

Figure 6: General Land Office Plat Maps
Archaeological Sites & Early Land Surveys

There are several possible Native American sites, mainly mounds, nearby the Huron River or its tributaries according to the Archaeological Atlas of Michigan [1851-1944] by Wilbert B. Hinsdale. Their exact locations are not known, but appear far enough from the project area to be out of the zone of influence. According to the atlas, “Indian” trails were located along and crossing the Huron River within the project area; the General Land Office survey notes from 1819 further support this.

The surveyor Joseph Wampler, recorded an “Indian Field” located in the oxbow prairie of Dexter-Huron Metropark as he surveyed east on the section line between sections 9 and 4 in Scio Township. Additionally, the surveyor observed several “Indian Paths” throughout the area.

Joseph Wampler (1783-1842) conducted early land surveys of Washtenaw County and other counties in southern Michigan while working out of the survey office in Chillicothe, Ohio. His work was known to be appreciably more accurate than some of his contemporaries, and in some cases he was sent out to resurvey land which the original surveyor had miscalculated. He surveyed Scio and Ann Arbor Townships in 1819 and Edward Tiffin, Surveyor General, approved and certified the work later that year.

The surveyor’s notes on the two townships indicate the quality of the land along survey lines bisecting the Huron River valley as, “Rolling W[hit]e O[ak] Land” along the section line between sections 4 and 9 in Scio Township, and, “First 1½ mile level good land. no timber. W[hit]e & B[lack] Oak the whole. Hickory with undergrowth hazel vegetation” describes the section line between sections 7 and 18 near Huron River Drive in Ann Arbor Township from Fosters Bridge to Fosters Prairie.

Trail Tree

During the site investigation, it was noted that a deformed tree along the south side of Huron River Drive just west of Maple had the characteristic form of a Native American Trail Tree. Throughout the Great Lakes region, Native Americans would intentionally shape hardwood trees along known trails. The shapes were to convey that the tree was shaped by man rather than deformed by nature or disease.

The oak tree itself, is located south of the Huron River where early pioneers reported a Native American village and “planting field” located nearly opposite the mouth of the Honey Creek. Additionally, European surveyors have recorded four trails converging at this point in Scio Township. The village and planting field are beneath Barton Pond because they were flooded by the construction of the Barton Dam. The size of the tree suggests that it would be younger than most other documented trail trees, therefore further investigation needs to be conducted to validate its authenticity.

Source: Archaeological Atlas of Michigan (Southeast Michigan) - Wilbert B. Hinsdale
EXISTING CONDITIONS | Human / Built Conditions - Historic Findings

Historic Marker for Delhi Bridge Photo Credit: CDF

Grave Marker at Soo Cemetery - Photo Credit: CDF

BURNS - STOKES PRESERVE

DEXTER-HURON METROPARK

DELHI METROPARK

OSBORNE MILL PRESERVE
Human / Built Conditions - Historic Findings

EXISTING CONDITIONS

Foster Bridge - Photo Credit: CDF

Construction of Barton Dam in 1912 - Source: Ann Arbor News

Figure: 9 Gardener S. Williams’ Huron River Survey Maps circa 1905-1908 - Source: Stantec
EXISTING CONDITIONS | Natural Features/Resources

NATURAL FEATURES/RESOURCES

It is WCPRC’s intent to minimize impacts and disturbances to sensitive species and communities in the construction of these B2B segments. The following pages detail the communities and features that may be found in the study area so that impacts can be properly considered during final planning design and engineering. Natural features are briefly summarized as geology, topography, hydrology and surface drainage, soils, plant communities, and animal life.

Geology

The region is generally comprised of end moraines, with associated till plains and outwash deposits formed during the recession of the glaciers during the last Ice Age. In the upper Huron River watershed, moraines were formed by the Wisconsin Glacier being pushed forward while, at the same time its front was melting resulting in the buildup of deposits into ridges or moraines. This occurred during the period of the glacier’s final retreat approximately 10,000 years ago which today is now Michigan. The Huron River formerly drained to the Mississippi and eventually to the Gulf of Mexico, but as the glaciers melted during this final retreat, its drainage patterns changed and began flowing east toward Lake Erie; essentially to its present day alignment. Outwash plains formed during this same time with the deposition of coarse sand and gravel materials from water originating from the melting glacier. The area today contains extensive permeable deposits of this type capable of retaining large amounts of water. Refer to Figure 11.

Figure 10: Sequence of Terracing on a River, Source: Terranova 274

Figure 11: Glacial Geology of Washtenaw County, Source: MSU Extension, MNFI

Figure 12: Topography Map of the Study Area - Source: Google
Topography

Typified by these large, distinct weather-worn end-moraine ridges and rolling ground moraines, the Huron River was one of the major outwash channels that carved the adjacent land, forming the bluffs and terraces seen today. Refer to Figure 10 & 12. Steep slopes are typical of these bluffs adjacent to the floodplains and upland terraces of the river valley between Dexter and Ann Arbor. The remaining dominant landform is the floodplain at the foot of the steep banks along both sides of the Huron River. Some upland terrace areas could support the trail minimizing the amount of boardwalk required through the floodplain, but much of these areas are occupied by either private property, West Huron River Drive and/or the rail line, limiting the number of alternate off-road trail routes.

Hydrology, Floodplain and Surface Drainage

The floodplains of the Huron River collect overflow after rain events and then slowly releases water back to the river or infiltrates to groundwater aquifers. These natural cycles create areas that are critical to plant, animal and aquatic life. They serve as feeding, breeding and living grounds with nutrient rich soils populated by many microorganisms. Over the life of the river, deposition of sediments and decomposition of organic matter have created deep soft soils supporting a variety of palustrine ecosystems requiring careful design engineering to support trail construction to experience these beautiful ecosystems.

Feeding into the Huron River in this project area there are several smaller streams and numerous seeps at the base of the surrounding bluffs along with a few stormwater discharge outlets.

Huron River – The HRWC describes this section of the Huron River in Washtenaw County from Portage Lake Dam to Superior Road Bridge (Ypsilanti) having a length of 26.7 miles, drains approximately 277 square miles, and descends from 869 to 711 feet (158 vertical feet) above sea level. The northern stretches include woodlots, farms, pastures, and steeply wooded slopes. The southern stretches are intensely commercial and residential in their development, and increasingly urban in character. This portion of the river is renowned for recreational opportunities. It is a destination for world class fishing (Blue Ribbon Bass fishery), canoeing, and kayaking, with notable rapids at Hudson Mills and Delhi Metroparks. In the study area, the river is wider and deeper, with major impoundments at Barton, Argo, and Geddes Ponds.

Boyden Creek – The Boyden Creek watershed receives rainwater from approximately eight square miles of land which is comprised mostly of agriculture followed by urban development, wetlands and forest. Boyden Creek headwaters begin in Ann Arbor Township and flow west through Webster Township, before it heads south through Scio Township where it empties into the Huron River at Delhi Metropark. Slightly upstream of the Creek’s confluence, a dam was built above Huron River Drive, creating two impoundments lakes as an amenity for the Loch Alpine subdivision.

Barton Pond - Barton Pond is a 315 acre impoundment pond behind Barton Dam provides many active and passive recreational opportunities. It is habitat to a diverse population of species of plants and animals, and serves as flood control along the Huron River. The dam was built in 1912-13 as part of the development of hydroelectric power and a source of drinking water on the Huron River. It was designed by engineer Gardner Stewart Williams and architect Emil Lorck, a former University of Michigan dean.

Honey Creek - Honey Creek flows through Scio and Lodi Townships and the northwestern edge of the City of Ann Arbor. The creekshed is comprised of 26 miles of branching stream channels, and drains 23 square miles of land. The creek’s average slope is 30 feet per mile, which is steep for a system in the Huron River Watershed. There are a series of mini-rapids in the section of the creek from Miller Road to the Huron River due to the rapid drop in elevation. Typically, an undisturbed stream of this morphology with a high gradient will have well established riffle-pool sequences and excellent diversity in fish habitat. However, channelization and urbanization have reduced this habitat diversity.

Boyden Creek - The Boyden Creek watershed receives rainwater from approximately eight square miles of land which is comprised mostly of agriculture followed by urban development, wetlands and forest. Boyden Creek headwaters begin in Ann Arbor Township and flow west through Webster Township, before it heads south through Scio Township where it empties into the Huron River at Delhi Metropark. Slightly upstream of the Creek’s confluence, a dam was built above Huron River Drive, creating two impoundments lakes as an amenity for the Loch Alpine subdivision.

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Boyden Creek – The Boyden Creek watershed receives rainwater from approximately eight square miles of land which is comprised mostly of agriculture followed by urban development, wetlands and forest. Boyden Creek headwaters begin in Ann Arbor Township and flow west through Webster Township, before it heads south through Scio Township where it empties into the Huron River at Delhi Metropark. Slightly upstream of the Creek’s confluence, a dam was built above Huron River Drive, creating two impoundments lakes as an amenity for the Loch Alpine subdivision.

Barton Pond - Barton Pond is a 315 acre impoundment pond behind Barton Dam provides many active and passive recreational opportunities. It is habitat to a diverse population of species of plants and animals, and serves as flood control along the Huron River. The dam was built in 1912-13 as part of the development of hydroelectric power and a source of drinking water on the Huron River. It was designed by engineer Gardner Stewart Williams and architect Emil Lorck, a former University of Michigan dean.
Soils
The majority of the soils within the study area are indicative of a river valley formed from meltwaters and deposition following the Wisconsin glacial period. The majority of soils are generally sandy loams of the Spinks-Boyer-Wasepi association typical of outwash plains, terraces, lake plains, and deltas.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>NAME</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>MAJOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fsm, Fsb, FsC</td>
<td>Fox Sandy Loam (2-6% Slopes)</td>
<td>Fox series consists of very deep, well drained soils which are moderately deep to stratified calcareous sandy outwash. Native vegetation is hardwood forest. Common trees are northern red oak, white oak, sugar maple, black cherry, and white ash.</td>
</tr>
<tr>
<td>Fv</td>
<td>Fox Valley Loam (2-6% Slopes)</td>
<td>Fox series consists of very deep, well drained soils which are moderately deep to stratified calcareous sandy outwash. Native vegetation is hardwood forest. Common trees are northern red oak, white oak, sugar maple, black cherry, and white ash.</td>
</tr>
<tr>
<td>Mbl, Mbk, Mbk</td>
<td>Blount Loam (2-6% Slopes)</td>
<td>Blount series consists of very deep, poorly drained soils that are moderately deep to deep till. Native vegetation is hardwood forest.</td>
</tr>
<tr>
<td>Gf</td>
<td>Gifford Sandy Loam</td>
<td>Gifford series consists of very deep, poorly drained or very poorly drained soils formed in loamy over sandy sediments on outwash plains, near-shore zones (salt), and flood-plain slopes. A few areas are forested. Native vegetation is dominantly herbaceous wetland.</td>
</tr>
</tbody>
</table>

| MODERATE |     |             |
| WI | Wasepi Sandy Loam (5%-10% Slopes) | Wasepi series consists of very deep, moderately well drained soils that are moderately deep to deep till. Much of the more sloping part is in permanent pasture or forest. Native vegetation is deciduous forest. |
| MmB | Miami Loam (18%-35% Slopes) | Miami series consists of very deep, somewhat poorly drained soils formed in loamy and sandy glaciofluvial deposits underlain by sand at 51 to 102 cm (20 to 40 inches). Miami soils are on outwash plains, terraces, valley trains, glacial drainage ways, and lake plains. Slope ranges from 0 to 6 percent. Native vegetation is hardwoods, principally American elm, white ash, hickory, and swamp white oak. |
| Cc | Cohoctah Fine Sandy Loam, Frequently Flooded | Cohoctah series consists of very deep, poorly drained or very poorly drained soils formed in loamy alluvial deposits on flood plains. Native vegetation is red maple, white ash, swamp white oak, American elm, sycamore, and willow. |

| MINOR |     |             |
| Hn | Houghton Muck | Houghton series consists of very deep, very poorly drained soils formed in herbaceous organic materials more than 130 cm (51 inches) thick in depressions on lake plains, outwash plains, ground moraines, end moraines, and floodplains. Native vegetation is primarily marsh grasses, sedges, and sedge marshes in shallow water. Some water-tolerant trees near the margins of the lake. |
| So | Sloan Silt Loam, Wet | The Sloan series consists of very deep, very poorly drained soils formed in loamy alluvium on flood plains. Native vegetation is deciduous forest, chiefly elm, ash, sycamore, silver maple, and willow. |

Figure 13: Soil Groups, Source: USDA, Natural Resources Conservation Services

Figure 14: Soil Map of Study Area, Source: USDA, Natural Resources Conservation Services
Pre-European Settlement Vegetation circa 1800

Between 1816 and 1856, Michigan was systematically surveyed by the General Land Office (GLO), which had been established by the federal government in 1785. The detailed notes taken by the land surveyors have proven to be a useful source of information on Michigan's landscape as it appeared prior to wide-spread European settlement. Surveyors took detailed notes on the location, species, and diameter of each tree used to mark section lines and section corners. They commented on the locations of rivers, lakes, wetlands, the agricultural potential of soils and the general quality of timber along each section line as they were measured out. Biologists from the Michigan Natural Features Inventory developed a methodology to translate the notes of the GLO surveys into a digital map that can be used by researchers, land managers, and the general public.

Four major landscape communities occur within the project area, Beech-Sugar Maple Forest, Black Oak Barren, Mixed Hardwood Swamp, and Wet Prairies which were interpolated from the GLO survey notes and digitally recorded by the MNFI program. The history of what our local landscape was prior to agricultural and town development may help current and future generations understand the importance of protecting and stewarding our native landscapes in decision-making. The following are MNFI’s description of the natural communities which occur within the study area.

**BEECH-SUGAR MAPLE FOREST**
Mesic southern forests are beech and sugar maple dominated communities found on flat to rolling topography with predominantly silty clay loam soils. The natural disturbance regime of these mesophytic hardwood forests is characterized by gap phase dynamics: frequent, small windthrow gaps allow for the regeneration of the shade-tolerant canopy dominants.

**BLACK OAK BARREN**
Oak barrens are a fire-dependent, savanna type dominated by oaks, having between 5 and 60 percent canopy with or without a shrub layer. The predominantly graminoid (grasses, rushes and sedges) ground layer is composed of species associated with both prairie and forest communities. Oak barrens are found on droughty soils and occur typically on nearly level to slightly undulating sandy, loamy outwash and less often on sandy moraines or ice-contact features.

**MIXED HARDWOOD SWAMP**
Southern hardwood swamp is a minerotrophic forested wetland dominated by variety of lowland hardwoods that occurs on poorly drained mineral or organic soils throughout southern Lower Michigan. The community develops on a variety of landforms, including glacial lakeplains, outwash channels, and outwash plains, and in depressions on ground moraines, and ice-contact features. Fluctuating water levels are important natural processes that influence community structure, species composition, and succcession.

**WET PRAIRIE**
Wet prairie is a native wetland grassland that occurs on frequently saturated, occasionally inundated soils on outwash plains and outwash channels and in depressions on ground moraines, and ice-contact features. Soils range from coarse loams to loamy sands and sandy clays, typically with neutral pH and high organic content. Cordgrass (Spartina pectinata) and bluejoint grass (Calamagrostis canadensis) are the dominant or subdominant grasses, often associated with several sedges (Carex spp.). Fluctuating water levels and fire are important natural disturbances.

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**Figure 15:** Vegetation circa 1800 of Washtenaw County, Source: MSU Extension, MNFI

**Figure 16:** Vegetation circa 1800 of Study Area, Source: MSU Extension, MNFI
EXISTING CONDITIONS | Natural Features/Resources

Present-Day Plant Communities

From field inventories, site visits and documentation from various sources including the Michigan Natural Features Inventory operating under the Michigan State University Extension services, the team was able to collect valuable abstracts, reports and publications of the known plant communities that may occur in the project area. General descriptions of the broader communities within this river valley environment are listed in the following pages.

Huron-Clinton Metroparks – HCMA botanists have performed vegetation inventories at Dexter-Huron and Delhi Metroparks to understand the plant communities and relevant management issues. The vegetation inventory was assessed using Floristic Quality Assessment (FQA) methods. Refer to the field report included in Appendix F for a list of the plant species recorded from the parks. Well over 230 plant species have been recorded from the site, nearly 154 of which are native to the region. A brief summary of the landscapes that comprise the Metroparks is presented in the following pages.

Of special interest is the remnant prairie at the Dexter-Huron Metropark’s Oxbow Prairie east of the main park and south of the Huron River. Currently, this relatively untouched Michigan native landscape can only be accessed by wading or boating the river, or trespassing on railroad property which is illegal and highly discouraged. This important natural resource could be accessed from Dexter-Huron Metropark via a proposed new pedestrian bridge allowing opportunities for interpretation, education and long term management.

Emergent Marsh

Overview: Emergent marsh is a shallow-water wetland along the shores of lakes and streams characterized by emergent narrow and broad-leaved herbs and grass-like plants as well as floating-leaved herbs. Common plants include water plantain (*Alisma plantago-aquatica*), sedges (*Carex spp.*), spike-rushes (*Eleocharis spp.*), pond-lilies (*Nuphar spp.*), pickerel weed (*Pontederia cordata*), arrowheads (*Sagittaria spp.*), bulrushes (*Schoenoplectus spp.*), and cat-tails (*Typha spp.*). The community occurs on both mineral and organic soils.

Current Conditions, Conservation and Biodiversity Management: The decline of Michigan’s wetland function and diversity are due to many factors influenced by human activity. The trail passing near these wetlands can provide opportunities for education and stewardship of these critical habitats. Source: *Michigan Natural Features Inventory (MNFI)*

Southern Wet Meadow

Overview: Southern wet meadow is an open, groundwater-influenced (minerotrophic), sedge dominated wetland that occurs in mid and southern Lower Michigan. Sedges in the genus *Carex*, in particular *Carex stricta*, dominate the community.

Current Conditions, Conservation and Biodiversity Management: Southern wet meadows contribute significantly to the overall biodiversity of southern Michigan by providing habitat to a wide variety of plant and animal species including many rare species.

Protecting the hydrology of southern wet meadows is imperative for the community’s continued existence. This may include avoiding surface water inputs to the meadow from drainage ditches and agricultural fields, and protecting groundwater recharge areas by maintaining native vegetation types in the uplands around the community.

Management for southern wet meadow should include the use of prescribed fire (Curtis 1959). Prescribed fire can help reduce plant litter, stimulate seed germination, promote seedling establishment, and bolster grass, sedge, and perennial and annual forb cover (Bowles et al. 1996, Warners 1997, Kost and De Steven 2000). Source: *Michigan Natural Features Inventory (MNFI)*

The wet prairies found in the two Metroparks and County preserves are actively managed and stewarded though invasive species removal and prescription burning. A few of the remaining wet prairies nearby are on private land, but beyond the influences of the trail’s development. Should the private owners allow public access to these rare plant communities, active management and stewardship could be aided by volunteers working closely with the landowner’s site supervisors.
Natural Features/Resources | EXISTING CONDITIONS

Floodplain Forest [Southern Lower Michigan]
Overview: Floodplain forests occupy the low-lying areas adjacent to streams and rivers which are third order or greater and subject to periodic over-the-bank flooding and cycles of erosion and deposition. The floodplain forest is a broadly defined community type, where species composition and community structure vary regionally along with changing flooding frequency and duration. Silver Maple (Acer saccharinum) and Red Ash (Fraxinus pensylvanica) are the major overstory dominants. These dynamic forested systems represent an interface between terrestrial and aquatic ecosystems.

Current Conditions, Conservation and Biodiversity Management: Floodplain forests are unusually susceptible to invasions by exotic species (Planty-Tabbachi, et al. 1996). Because of their linear shape and location between aquatic and terrestrial environments, floodplain forests have a high ratio of edge to interior that may facilitate the movement of opportunistic species. Rivers and streams provide a route of transport that may encourage the spread of species across the landscape. Floodplain forests are highly and frequently disturbed systems that contain extensive areas of exposed mineral soil and have high nutrient availability; these are characteristics that also facilitate invasion by exotics.

Source: Michigan Natural Features Inventory (MNFI)

Dry-mesic Prairie
Overview: Dry-mesic prairie is a native grassland community dominated by big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparius), and Indian grass (Sorghastrum nutans) that occurs on sandy loam or loamy sand on level to slightly sloping sites of glacial outwash, coarse textured end moraines, and glaciated till plain. The community represents the stands of open grassland that occurred within the historic oak openings. Areas dominated by native grasses with less than one mature tree per acre (0.4 ha) are considered prairie (Curtis 1959). This natural community type was known as woodland prairie in previous versions of the natural community classification (see Kost et al. 2007).

Current Conditions, Conservation and Biodiversity Management: Efforts should be made to identify, protect, and manage remnants of dry-mesic prairie where they occur. Several studies to identify prairie remnants in Michigan have been undertaken and most remnants are very small and/or occur as narrow strips adjacent to railroads (Scharrer 1972, Thompson 1970, 1975 and 1983, Chapman 1984). The small size and poor landscape context of most remnant dry-mesic prairies makes large-scale restoration of existing prairies nearly impossible. Prairie plantings located in areas of former dry-mesic prairie in southwestern Lower Michigan are particularly needed to increase native pollinator populations, which have experienced a sharp decline.

Source: Michigan Natural Features Inventory (MNFI)

Managing dry-mesic prairie requires frequent burning, from annual to every two to three years. Longer burn intervals will result in tree and tall shrub encroachment. Prescribed burning is required to protect and enhance plant species diversity and prevent encroachment of trees and tall shrubs, which out-compete light-demanding prairie plants. In prairie remnants where fire has been excluded for long periods (i.e., decades), local extinctions of plant species are common (Leach and Givnish 1996).

Source: Michigan Natural Features Inventory (MNFI)

There are remnant dry-mesic prairies in Dexter-Huron Metropark and along the railroad, but because of maintenance practices for safety of train operations, most of those areas lack diversity and abundance. The Oxbow Prairie at Dexter-Huron Metropark has greater diversity and stability due in part to regular prescription burns. Past agricultural land practices in this prairie, though limited, and channelization of natural swales affecting the hydrology have likely impacted plant diversity over time. Of interest, the General Land Survey Field Notes from 1891 describes an “Indian Field” at this location.
There are historical occurrences of a variety of plant and animal species, and communities along the proposed trail alignment that are listed by Federal or State agencies as Threatened and Endangered (T&E). WCPARC is responsible for determining if T&E, and species of special concern (SC) will be impacted by the trail. Therefore, the intent is to avoid and minimize disturbance to these species and habitats. WCPARC intends to address this by having a biological inventory completed along the proposed alignment prior to beginning construction and working with the appropriate authorities to comply with all requirements of permits.

There is also potential habitat for T&E vertebrate mammals. WCPARC will work closely with MDEQ/MDNR to determine the best course of action, which will likely involve ensuring that construction does not occur during specific times. The work is not anticipated to impact invertebrate animals because of limited direct impacts within the river itself. However, WCPARC will work closely with MDEQ and MDNR to ensure compliance with all requirements. Refer to Appendix F for MNFI’s lists of sensitive species that might occur in or near the project corridor.

Updated plant inventories provided by HCMA in 2015 for both Metroparks include threatened and endangered plant species. A review of the documentation provided by their botanist indicated the location of known T&E plant species. It was determined that the preferred trail alignment would not impact sensitive areas.

Additionally, during the acquisition period of the Norfolk Southern Railroad, MDOT botanists performed a field survey of T&E plant species for the Kalamazoo to Dearborn high-speed rail corridor in 2011. Approximate locations of each species’ sighting was recorded with a GPS coordinate and in detailed field notes, which included: the plant’s common and scientific name, listing status, number of individuals, typical habitat where they are found, and location with respect to the railroad. Included in the report were recommendations to avoid impacts to the plants as the tracks are upgraded. Of the twelve (12) sightings recorded, only one (Site 8 in the report) was located just beyond the west end of our study area in the River Terrace Trail Segment (D1).
Findings and Recommendations
Because this report is an update to the 2004 Segment D Border-to-Border Non-motorized Trail Summary Report, the context of the Planning Principles endure, but are updated to reflect recent public attitudes toward healthy living and recreation; deeper concerns for protecting and stewarding the local ecology; protection of water quality; and advancement in technologies, materials, and construction methods.

FINDINGS AND RECOMMENDATIONS

Planning Principles

As stated in the introduction, this non-motorized trail system must respect the riverine environment, lay lightly on the land, and create recreational opportunities that allow trail users to learn about our natural and cultural resources by experiencing them.

Overview

The synthesis of findings about the river corridor’s built and natural features along with the principles guiding design of the trail has led to a specific preferred alignment for Segments D2 through Segment G of the proposed Border-to-Border Trail. Environmental and safety considerations dominate the list of key placement factors and the riverine environment presents pragmatic challenges for how construction should occur in a sensitive setting with limited access. Design standards should also reflect permit requirements and the trail’s durability, stability and maintenance considerations over time.

The following pages outline the key considerations that drove the alternative alignments that were explored. The alignments and considerations were synthesized through discussions with stakeholder groups and the project team.

- D2 Phase 1 begins in Dexter-Huron Metropark, where D1 was completed in 2013, to Zeeb Road for approximately 1.21 miles.
- D2 Phase 2 picks up from Zeeb Road heading east to Delhi Metropark, a distance of 1.80 miles.
- E picks up the eastern most edge of Delhi Metropark and continues southeasterly to Wagner Road, a distance of 1.11 miles.
- F from Wagner Road travels east, crossing the river twice to Maple Road for another 1.01 miles.
- G1 is the 1.23 mile leg from Maple Road through to Barton Nature Park.
- G2 ends in Bandemer Park, a distance of 0.81 miles.

In total, these Segments make up a length of 7.17 miles of the 35 miles of the Border-to-Border Trail which is over 21% of the entire length.

Opportunities and Constraints

Completing this section of the B2B is critical to the support of leisure pursuits by engaging users in the outdoors, in natural or semi-natural settings, through recreational activities outside the Cities of Ann Arbor and Dexter and the surrounding communities. Outdoor recreation for beneficial use and pleasurable appreciation are two main purposes of a successful project. Beneficial use is related to goal-directed activities that encourage an individual or groups toward physical and social rewards. Pleasurable appreciation encourages experiences of life’s existence.

Some physical activities that the trail will support and expand opportunities are: walking, running, hiking, bicycling; access to fishing, canoeing, kayaking, and rafting. Emotional or spiritual reward may be experienced through: nature study, bird watching, meditation, painting, photography, and archaeological or historical research. These activities may also be physically rewarding.

The B2B Trail as a physical and social setting will meet the needs of many physical, mental, emotional, and spiritual health attributes. The outdoor activities connected to this trail are mostly physical, but also contribute to well-being through a rewarding experience.

To meet and expand many of these recreational activities, the project team solicited the input and advice of several local, regional and state agencies. The result is a collaborative solution for a preferred trail alignment that is safe and meets state and federal guidelines, while being exciting, at a practical cost to implement and maintain.
SUMMARY OF PUBLIC WORKSHOPS

To solicit public feedback on the plan, two initial public workshops were conducted where 54 citizens participated in the planning process and 23 comment sheets were submitted (refer to Appendix C for results). Overall, there was broad support and enthusiasm for the project, coupled with the desire to implement it soon. An area of minor disagreement from the public was with regards to the specific connection through Barton Nature Area into Bandemer Park. The public desires a crossing near the existing illegal railroad crossing, which would likely take the form of a pedestrian tunnel underneath the railroad berm (see description in Preferred Alignment section). WCPARC is supportive of this idea but it is estimated to be approximately three times as expensive as the proposed, preferred alignment. The project team recommends that a more detailed, engineering study be completed to compare the two leading alternative routes for the connection into Ann Arbor (Segment G).

Additionally, a draft of the plan was posted to WCPARC’s website for over one month to acquire additional feedback from those who were unable to attend the public meetings. During the on-line feedback period, 22 comment sheets and 7 letters were received. Much of the feedback was concerned with the most challenging part of the trail: Segment F. Many commenters were supportive of the overall project but disagreed with the preferred alignment for Segment F, expressing desire to route the trail adjacent to Huron River Drive (refer to Appendix C for results). Based on feedback, WCPARC scheduled a third public meeting, specifically focused on Segment F, to ensure that all interested persons understood the planning process, regulatory requirements, construction challenges, and other reasons behind the selection of the Preferred Alignment. Two alternative route options were suggested by members of the public, which were then explored by the project team (see Alternative Alignments Section). At the final public meeting, which was attended by 43 people, five comment sheets were received.

PEDESTRIAN NEEDS

The B2B trail will provide a safe and secure route for the casual walker and for those looking for fitness activities and training such as joggers, runners, and walkers that is separated from vehicle traffic to avoid conflicts. The trail should also provide observation and seating areas for experiential learning and/or rest in the riverine setting. Inclement weather shelters should be considered and placed along the trail between the parks to provide a safe and secure place during storm events.

BICYCLIST NEEDS

In every community there are several types of bicycle users with each having a varying degree of needs and conditions. A successful trail takes all user groups needs into consideration. The city of Portland, Oregon, breaks down the general population into four categories of bicyclist - Figure: 17. 
- < 1% “Strong & Fearless”
- 7% “Enthused & Confident”
- 60% “Interested but Concerned”
- 33% “No Way No How” (Physically can’t ride or no interest)

Bicyclists who ride for recreation or commuter transportation can be further grouped into the following:

- **Advanced or experienced riders (Strong & Fearless):** These riders generally ride for speed, ease of movement and want direct access to destinations with minimum delay or conflict. Typically, these users are comfortable sharing the roadway with motor vehicle traffic, but desire sufficient operating space on the drive lanes or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.
- **Basic or novice riders (Enthused & Confident/Interested but Concerned):** These bicyclists ride on a more casual basis, such as for occasional exercise, trips to parks, stores and markets, but prefer to avoid roads with motor vehicle traffic. Novice riders are comfortable riding on shared use paths or neighborhood streets and prefer designated accommodations such as bike lanes, wide shoulder lanes on busier streets, or non-motorized trails.
- **Children (Enthused & Confident/Interested but Concerned):** Riding on their own or with their parents, children may not travel as fast as their adult counterparts, but still require access to key destinations in their community, especially schools, playgrounds, and other recreational facilities. 
  - Off-street paths and residential streets with low motor vehicle speeds are ideal for children. Busier streets with well-defined pavement markings between bicycles and motor vehicles can accommodate children without encouraging them to ride in the travel lane of major arterials.

**Four Types of Transportation Cyclists in Portland**

By Proportion of Population

As identified in MDOT’s Bicycling Economic Impact Study (2014), safety, weather, and lack of bicycling infrastructure are the key limiting factors to increased bicycling among the general population.

This project will add safe, non-motorized infrastructure, decreasing barriers to bicycling amongst the potential 60% of the population categorized as “Interested but Concerned”. It also provides an inter-city connection for commuting.

**Figure 17:** Types of Cyclists, Source: City of Portland
BICYCLE AND PEDESTRIAN SAFETY AND ACCIDENT ANALYSIS

Several bicycle/vehicle incidents have occurred along Huron River Drive over the past few years, some causing minor to major injuries to the person on the bicycle, but no deaths have been reported. Incidents accounts were from police reports dating back to 2005.

The Washtenaw Area Transportation Study (WATS) and the WCRC set up two counters for bikes for two one week periods at the same locations as the 2011 study. One week covered the Labor Day weekend and the week prior. The intent was to understand the number of bicyclist along Huron River Drive between Mast Road in Dexter and Wagner Road near Delhi Metropark. Unfortunately, data over the Labor Day weekend didn’t register due to equipment being damaged. The usable count data indicated that bicyclists compose up to 13% of all traffic on the road. This data and future data counts will help to support the anecdotal evidence of Huron River Drive as a major cyclist corridor. This could also help to statistically inform about potential vehicle and bicyclist conflicts.

RAILROAD and ROAD CROSSINGS SAFETY

Safety is the most important measure when developing any trail along a railroad, whether along an active railroad or not. Across the country, thousands of people safely use existing rails-with-trails every day. Many surveys, studies and supporting documents of rails-with-trails have been shown to be just as safe as other types of trails. Much of this documentation has shown that concerns of more trail users being severely injured due to proximity to moving trains is unfounded.

Safety is of utmost importance to the MDOT, Amtrak, and the County within their respective R.O.W.s. There are two required “at-grade” crossings of the railroad for this trail project -- both are adjacent to existing road crossings. The first is along Huron River Drive, west of Wagner Road. The second is on Zeeb Road just north of Burns-Stokes Preserve where a non-motorized trail project, driven by Scio Township, is headed north on Zeeb Road with the intent of connecting to the B2B. After several meetings and conversations with the MDOT Rail team, the department is supportive of this trail project.

MDOT will be conducting a review of the existing rail alignment along this corridor starting in the spring of 2016 to assess its compliance for High Speed traffic. This review will determine if some sections of the track need shifting to meet the High-Speed Rail guidelines, which may affect where the B2B Trail alignment is located within some R.O.W. locations. The final results of this may not be known until spring 2017 when the corridor review is completed. However, MDOT has indicated that preliminary findings may be available sooner.

The following are some broad recommendations from MDOT for the two proposed crossings. A Diagnostic Safety Team Review (DSTR) study at the Zeeb Road railroad crossings and at the Huron River Road railroad crossing will need to be completed prior to the final design. However, MDOT will assist the County in the design engineering of the crossings to ensure safety compliance. MDOT will likely recommend a “maze” configuration and require fencing to extend approximately 50’ – 100’ parallel to the tracks at each crossing location to “channel” people to the intended crossing. This will reduce instances of trespassing and provide a safe environment for trail users.

In cases where the trail enters the railroad R.O.W., MDOT and Amtrak require a minimum 16’ separation from center of rail to a structure or, in this case, the trail edge and an 8’ height fence regardless of distance from the track. This is intended to keep a clear delineation between railway corridor and trail use. MDOT suggested that since a second future rail location isn’t yet determined, but is likely, anticipating the second track should be accounted for in the design. MDOT is also developing guidelines for trail design and maintenance within an active railroad R.O.W. which are anticipated to be completed in 2016.

Key safety and design factors include:
- Provide adequate distance between track and trail with a minimum of 16’ from the centerline of the track (anticipated future track) to the nearest edge of the trail. The separation between track and trail within the ROW varied widely, but averaged 35 feet. To the maximum extent possible, the trail planners maximized the distance between the trail and the track, but in some cases topography and Huron River Drive limited the available space.
- Provide safety fencing along the entire trail length within the railroad ROW. Additional barriers between track and trail include vegetation, grade separation, drainage ditches, retaining walls and railing on proposed boardwalks.
- Design safe at-grade crossings at existing road crossings.
- Install safety fencing to channel trail users by directing them to appropriate crossing locations.
- Installing adequate trail-user warning signs and pavement markings.

MDOT will require a lease for use of the ROW. Leases are typically a 25 – 50 year agreements. Easements or agreements in perpetuity are not permissible.

The five road/trail crossings will require additional non-motorized signage and pavement markings in accordance with the Michigan Manual of Uniform Traffic Control Devices to clearly delineate the trail location for added safety from vehicles. Of the five, there are two mid-road crossings (not at an intersection) on Huron River Drive. One is located just east of Loch Alpine Drive and the other is slightly south of Wagner Road. Coordination with the WCRC will determine the exact location of each.

WATER RECREATION NEEDS

Every year over 103,000 visitors come to the Ann Arbor area to paddle, float, and fish. Last year, the Huron River was one of only 18 designated National Water Trails across the country. Currently, there are 32 access sites along the 104-mile water trail with several in the Metroparks. The Huron River is also considered a Blue-Ribbon Small-mouth bass fishery with some of the finest fishing occurring from Bell Road just north of Hudson Mills Metropark downriver to Barton Pond.

With some of these most scenic and pleasurable stretches along the Huron River, additional safe access points from the trail would alleviate trespassing on railroad property. Currently, people use the informal turn-outs created along Huron River Drive, and walk across the railroad tracks to get to the river.
CRITICAL FOCUS AREAS

Several areas were identified and explored in greater detail in coordination with MDOT and WCRC. Routing through these areas required careful analysis to find the safest alternatives. The Critical Focus Area documents (Figure 18) identifies locations along the potential route where the trail may enter MDOT R.O.W.s, pass over gas lines, within utility easements or under utility lines/poles, proposed bridge crossings over the river adjacent to existing railroad bridges, potential conflict with fiber optic lines, and areas within the Natural Rivers designation. Resolving these issues and concerns early in the process resulted in a preferred alignment that satisfied the conditions of all stakeholders involved. Additional cross sections were studied to better understand relationships of existing conditions to the trail - refer to Appendix D.

Figure 18: Critical Focus Areas
Figure 18: Critical Focus Areas continued
FINDINGS AND RECOMMENDATIONS | Critical Focus Areas

Figure 18: Critical Focus Areas continued
TRAIL ALIGNMENT STUDY

The realization of the Dexter to Ann Arborconnection will complete nearly 90% of the B2B, connect all three Metroparks within Washtenaw County, and further support the “Trail Town” designations of Dexter, Ann Arbor, and Ypsilanti. These cities and the parks between them are nodes of economic and recreational activity, which will be connected by an arterial non-motorized trail along a natural river. This trail will be easily accessed from densely populated areas, desirable destinations, natural spaces, and minor trails in other communities, promoting connectivity and creating a piece of infrastructure that is a community asset and regional amenity that can generate tourism, facilitate economic growth, and make Washtenaw County a more desirable place to live.

ALTERNATIVE ALIGNMENTS

A series of alternative route options for the trail were developed in coordination with stakeholder groups (HCMA, WCRC, MDOT, etc.). Because of the complex nature of the trail corridor, the project team identified and explored as many alternative alignments as possible. Each option was then critically analyzed based on the goals, objectives, and criteria as previously described in this document. These alternative alignments form the basis for the “preferred alignment” which is described in the next section of this document.

In general, there were a number of primary factors that were used to develop the preferred alignment. Alternative routes were eliminated if they did not meet the majority of the following considerations (this is not a prioritized or all-inclusive list). The trail should:

• have direct access to Dexter-Huron Metropark, Delhi Metropark, Barton Nature Area, and Bandemer Park. They could be considered “trailheads” because these locations contain existing parking and restroom facilities. The Metroparks also offer general recreation amenities such as fishing, picnicning and open areas for play.
• pass as close as possible to nature preserves such as Osborne Mill, Burns-Stokes, and Bird Hills. Each of these facilities has existing bike racks and provides additional public access to natural areas.
• maximize the use of available public land (parks and nature areas). To connect areas of available public land, it should maximize the use of existing Rights-of-Way (ROWs) and minimize the necessity to purchase easements on private property.
• minimize placement in which residents may feel that trail users are “in their yard”, even if the trail is placed within a ROW.
• conform to the Natural Rivers Act. Any new pedestrian bridges should be placed parallel and adjacent to other existing bridges if possible. If not possible to be near an existing bridge, minimize the visual and ecological impacts on the landscape.
• avoid extensive boardwalks on the steep slopes between Huron River Drive and the Huron River, which would require extensive vegetation clearing, resulting in larger ecological and aesthetic impacts than a new pedestrian bridge. Having a boardwalk adjacent to the road also means that it will have a reduced life span from road salt spray and it increases potential repair costs in the event of a car damaging the structure (whereas a bridge is too far away from the road to be damaged by a car). In addition, the costs associated with such substantial lengths of boardwalk (for both initial construction and maintenance) will likely make the boardwalk option more expensive than a new bridge.
• avoid placement between the road and the steep slopes that lead to higher, drier ground because these areas typically require large retaining walls. The extent of these walls would require significant vegetation and soil removal, which would drastically alter the aesthetic qualities of these areas. Maintaining existing stormwater drainage patterns is also a large challenge for implementing retaining walls. Additionally, the scope of these walls in certain locations (i.e., the alternatives in Segment F) makes their construction costs comparable to or greater than to new pedestrian bridges.
• re-use existing infrastructure, if possible.
• Minimize crossings of the railroad and surface roads; however, where they are necessary, create safe and formalized crossings.
• Minimize required earthwork, vegetation removal, and the amount of trail structures.

Segment F Alternatives: Wagner Road to Maple Road

Segment F is the most challenging section of trail to construct because of narrow corridors, steep slopes, the road and the river; maintaining existing hydrology in drainage ditches and ground seeps; and the regulatory requirements of the Natural Rivers Act, WCRC and MDOT/Amtrak. The preferred alignment is described in a later section of this document. Starting at, or prior to, reaching Wagner Road, several alternative routes were reviewed and eliminated:

Option 1: Follow the railroad ROW on the south side, directly over the mouth of Honey Creek, and cross the river twice (Bridges 5 and 6). This option is similar to the preferred alignment.

Justification for Elimination: To avoid direct impacts to the high quality creek.

Option 2: Similar to Option 1 but instead, follow the railroad ROW on the north side of the tracks, through the wetland to Bridge #5, where the trail would have to be placed very close to, and in direct view of, multiple homes and crossing the river at Bridge #6. After that bridge, there is no land on which to build the trail so it would end into 1,600 foot long boardwalk to the Foster Bridge.

Justification for Elimination: To avoid direct impacts to private property, greater distances of trail in wetlands and the river, and increased costs from extra boardwalk.

Option 3: Construct a boardwalk on the north side of Huron River Drive in between the road and the river. This option requires approximately 5,000 linear feet (0.95 miles) of boardwalk and would remove all vegetation along the river bank.

Justification for Elimination: It would not be permitted by the Natural Rivers Act. Removal of all vegetation along the cut-bank of the river could also expedite the river’s undercutting of the road and destabilize the bank. Additionally, initial construction costs would be high and so would the long-term maintenance costs: salt spray from the road deteriorates wood and hardware at an accelerated rate.

Option 4: Construct the trail parallel and adjacent to the south side of Huron River Drive using a combination of asphalt and boardwalk. This option would require a substantial cut into the steep slopes of the bluffs and a retaining wall that is approximately 4,800 linear feet long (0.9 miles) ranging between 2 and 14 feet tall.

Justification for Elimination: Construction of such a large retaining wall (approximately 48,000 face feet) drastically alter the visual character and quality of the road, substantially increases project costs, and would require the removal of nearly 20,000 cubic yards of soil and 300-400 trees (going against the intent of the Natural Rivers Act). It is also likely that due to
the extent of the wall, construction and permanent easements would be required from many property owners on the top of the bluffs. Additionally, maintaining the natural ground seeps and drainages that occur on the bluff and along the roadway would add significant engineering, construction, and maintenance costs.

Option 5 (suggested by the public during the on-line comment period): In a similar location to Option 4, on south of Huron River Drive, construct an elevated boardwalk/bikeway to minimize the need for extensive grading, retaining walls, and to maintain drainage patterns.

Justification for Elimination: Analysis reveals that the rapid changes in elevation and undulations of the bluffs (often in excess of 50% grade) would still require significant retaining walls and grading in order to comply with ADA and AASHTO requirements. In order to eliminate the need for grading and walls, much of elevated structure would likely greater than 15 feet tall. Additionally, this option would still require the removal of 300-400 trees and necessitate easements from many property owners on the top of the bluffs.

Option 6 (suggested by the public during the third public meeting): In a similar location to Option 3, on the north side of Huron River Drive, use a combination of rip-rap and fill to permanently stabilize the road and simultaneously create land on which to pave the trail with asphalt. The new bank could then be re-vegetated since this would necessitate removal of all existing plant material on the existing bank.

Justification for Elimination: It is cost prohibitive and very unlikely to be permitted by the Natural Rivers Act and the MDEQ. Preliminary analysis indicates that Barton Pond is between 8 and 14 feet deep in this location and would require more than 1.5 million cubic feet of fill to create the nearly 3 acres of new land in Barton Pond. For perspective, this is an equivalent volume to a 20 story building with a footprint the size of a football field. Additionally, according to a City of Ann Arbor Floodplain Manager, this volume would have to be mitigated in vicinity of the project (at a greater than 1:1 ratio), which would cause significant impacts to private landowners and property values.

Preliminary Estimated Costs for Segment F:

- Preferred Alignment: $4.5 million
- Option 1: $4.5 million
- Option 2: $5.7 million
- Option 3: $4.6 million
- Option 4: $6 million
- Option 5: $7-10 million
- Option 6: Cost prohibitive

The following series of map graphics show the alternative alignments that were explored in greater detail.
FINDINGS AND RECOMMENDATIONS | Alternative Alignments
FINDINGS AND RECOMMENDATIONS | Alternative Alignments
FINDINGS AND RECOMMENDATIONS | Alternative Alignments
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The preferred alignment was developed in coordination with stakeholder groups (HCMA, WCRC, MDOT, etc.) and includes public feedback from three meetings. It represents the general consensus regarding the approximate location of the trail, which should guide detailed design and engineering. This alignment was developed through in-depth investigation of the alternative route options, which were systematically eliminated or combined to form a single route. The preferred alignment meets the maximum number of the goals, objectives, and criteria as previously described in this document. The following is a written description of the general location of the preferred alignment, critical considerations, and some of the required structures. Following the written description are a series of map graphics that show the alignment in detail, generally from west to east.

This section of the Border-to-Border Trail is composed of Segments ‘D’ through ‘G’ and will be commonly known as “The River Terrace Trail” (Segment D), and the “Barton Pond Trail” (Segments E, F, & G).

“RIVER TERRACE TRAIL” – City of Dexter to Delhi Metropark

Segment D

Segment D1 (1.37 miles) has already been constructed. It begins in the City of Dexter and travels east into Dexter-Huron Metropark where this plan begins its description of the preferred alignment.

Segment D2, Phase 1, begins in Dexter-Huron Metropark, which will serve as a trailhead. On the southeast side of the main park, the preferred alignment begins with a pedestrian bridge (#1), in order to access additional HCMA property that is landlocked by the river and the railroad. Bridge #1 will span the Huron River at a narrow point (120’ across) north of the beach where it angles up the slope on the opposite side to parallel the edge of the woods and prairie. Approximately, 120’ boardwalk is required at both ends of the bridge to achieve the required clearance. These approaches will be effectively screened with vegetation and the bridge itself will only be visible for a short time to paddlers. Bridge #1 is the only bridge that is parallel and adjacent to an existing bridge and therefore may be a potential conflict with the Natural Rivers Act. This option was selected as the preferred alignment because the alternative (900 linear feet of boardwalk in the floodplain between the road and the river) would necessitate the removal of dozens of trees and could result in increased erosion of the riverbank, resulting in significant visual and ecological impacts, while presenting comparable construction costs (equal to Bridge #1 and Bridge #2 combined) and requiring greater long-term maintenance costs.

The currently inaccessible HCMA property is referred to as the “Oxbow Prairie,” which contains several different types of habitat, including: a large area of dry-mesic prairie, a small patch of wet-mesic prairie in the northern portion of the site, floodplain forest, and a small area of oak savanna in the southwestern corner near the railroad tracks. This prairie is an example of pre-European settlement vegetation and presents a significant opportunity for education, interpretation and management of this natural and cultural asset.

The majority of the trail within the Oxbow Prairie is within upland areas suitable for bituminous trail construction. At the eastern end of the Oxbow Prairie, proposed Bridge #2 is north of, and parallel to, the existing railroad bridge. This bridge crosses back over the river, landing on the edge of HCMA property. Then the trail continues into a combination of the Huron River Drive and MDOT railroad Rights-of-Way (ROW), which about one another and should provide the flexibility to avoid the removal of many trees. As one continues eastward and the road and railroad diverge, the trail is proposed to follow the Huron River Drive ROW to Zeeb Road.

Segment D2, Phase 2, of the trail begins at the intersection of Huron River Drive and Zeeb Road and it is proposed on the north side of the road within the ROW, separated by a minimum of 5-7 feet from the edge of the road. The intersection of Huron River Drive and Zeeb Road is important because it will soon be a connection to a Scio Township-lead initiative to develop a non-motorized trail that runs north-south on Zeeb Road, eventually connecting to existing bike lanes on Jackson Road. Additionally, with the recent addition of a four-way stop sign, the preferred alignment for the trail is able to safely cross to the north side of Huron River Drive. The north side of the road was selected to avoid trail placement in very close proximity to a few homes and to avoid a steep road/railroad drainage swale further to the east on the south side of the road. The trail within the road ROW does pass near the backyards of several of homes; however, many of these homes have existing vegetation screens in place to visually obstruct the road from their properties. WCPARC would be willing to provide fencing to create a barrier between the trail and private property if requested by the homeowners.

Prior to Boyden Creek, near the entrance to the Loch Alpine subdivision, the trail will need to cross back across Huron River Drive to the south. WCPARC will work with the WCR to determine the exact location of the crossing. The trail will then pass through a wetland, requiring boardwalk, on the approach to a river crossing at Bridge #3. MDOT owns the old railroad piers and abutments that have been decommissioned at Bridge 3’s location; they have indicated that re-use of this existing infrastructure might be an option. If this option is feasible (determination will require a structural engineer’s evaluation), it could potentially reduce project costs and re-use existing, historic infrastructure. Once across the river (to the southeast), existing conditions support bituminous trail construction through the railroad ROW along the historic alignment of the tracks (north side of ROW). This is an expanded area of ROW where the tracks have been steadily getting moved south (increasing the radius of the curve) as train speeds have increased over the past 100 years. The trail stays in this expanded ROW until it crosses East Delhi Road, parallel with the tracks. From there, the trail would enter the eastern portion of Delhi Metropark from the south.

“BARTON POND TRAIL” – Delhi Metropark to Bandemer Park

Segments E - G

The Barton Pond Trail begins with Segment E in Delhi Metropark, another trailhead for the B2B. The trail is proposed just south of an existing baseball diamond and heads east to cross over the Huron River with a 200’ span pedestrian bridge (#4), which lands on HCMA property on the east side of the river. Bridge #4’s alignment with regards to its compliance with the Natural Rivers Act has not been officially determined; new bridges that are parallel and adjacent to existing bridges are preferred. There is a possibility to adjust the alignment of Bridge #4 to be in greater compliance with the Natural Rivers Act if an agreement with the owner of the agricultural parcel to the southeast can be reached (PIN H-08-11-100-018).

From the landing of Bridge #4, the preferred trail alignment merges into the Huron River Drive ROW on the south side of the road, where it remains until the next point where the road crosses the river. Here, the trail is proposed to go “on-road” for a few hundred feet in order to share a road bridge that has extra wide shoulders. The WCRC has indicated that it is likely that this bridge could accommodate the trail with some re-striping of the vehicle lanes and additional signage. Normal road separation (5-7 feet) from the bridge) will be regained after crossing this bridge. The trail remains in the road ROW and is proposed to cross the railroad adjacent to the existing, signalized road crossing. Safety is a priority at this location, and all necessary measures, as determined by MDOT and Amtrak, will be met, or exceeded, to ensure a safe crossing and reduce a locomotive operator’s concerns in this high-speed rail corridor.

Segment F begins when the trail reaches Wagner Road, still in the road ROW. Even though Segment F is the shortest segment, it is the most difficult to find the best alignment (see discussion in the Alternative Alignments section). Ultimately, the primary factors behind the preferred alignment for Segment F are: initial construction cost, long term maintenance costs, compliance with regulatory and permit requirements, and aesthetic and ecological impacts.

After careful analysis of the available information, the preferred alignment takes the trail about 500’ south of Wagner Road where it will cross Huron
River Drive and head northeasterly into a wetland complex that is part of the Brokaw Nature Preserve owned by the City of Ann Arbor. The portion through the wetland will be boardwalk and the effort will be made to keep it to a low visual profile. At the confluence of Honey Creek, a 130’ span boardwalk or bridge will cross over before spanning a 160’ bridge (#5) over the Huron River. The trail will continue across the peninsula (PIN H -08-12-400-001) south and parallel to the railroad, either in the ROW or on private property. Prior to the next river crossing, there will be 600 linear feet of elevated boardwalk adjacent to the steep railroad bed, before reaching the next bridge (#6). Bridge #6’s 210’ single span will terminate on the land between the road and railroad. A small portion of asphalt trail makes up the last leg of Segment F, ending at Maple Road.

Segment G of the Barton Pond Trail had fewer challenging alternative routes than Segment F. An alternate option was explored to cross to the north side of the railroad at the Foster Bridge; however, this option would require at least 1,700 linear feet of additional boardwalk and requires a direct interface with the Barton Dam embankment. Acceptance of this alternative by Federal Energy Regulatory Commission (FERC) is unlikely and would be costly; it would also require an extensive engineering study and a lengthy permitting review from federal and state agencies (see Appendix A). Ultimately, the least disruptive alignment for Segment G1 is to route the trail between the railroad and Huron River Drive until entering into Barton Nature Area at the parking lot. This option avoids disturbance to the high quality ecology on the north side of the railroad.

The last part of the trail, Segment G2, begins in the Barton Nature Area parking lot and will serve as a “gateway” into the City of Ann Arbor. Currently, this area receives heavy non-motorized traffic, which is likely to increase with the completion of this project. Additionally, there are multiple existing, informal (illegal) crossings of the railroad, which are substantial safety concerns to MDOT and Amtrak. MDOT has indicated that it will be pursuing more aggressive deterrents to these illegal, at-grade crossings in the near future. Facilitating one or more safe, formalized railroad crossings is imperative, especially because of anticipated increases in train speed and frequency.

There are two locations on Segment G2 that currently receive the highest volumes of illegal pedestrian and non-motorized crossings of the railroad: the first is on the southeast side of Barton Dam and the second is at MDOT’s access road in Bandemer Park. Based on demonstrated public demand for crossings in these locations, which was supported by feedback at public meetings and stakeholder working groups (including MDOT and the City of Ann Arbor), the project team has come to the conclusion that both of these places should eventually have safe, formalized crossings. The project team recommends commissioning an engineering-level “alternatives analysis” to compare the two options in a detailed study. However, for the purposes of this report, a single, preferred alignment is described.

The selected preferred route to connect from Barton Nature Area’s parking lot to the existing B2B in Bandemer Park is currently the most heavily used of the two locations. It is proposed to use the existing pedestrian bridge (#7) downriver of Barton Dam to cross the river to the southeast. From the pedestrian bridge, the trail would convert an existing natural surface trail in Barton Nature Area to an asphalt trail, which ends at another existing pedestrian bridge (#8). If federal funding is used, then it is possible that the existing bridges (#7 & #8) would have to be replaced to meet current AASHTO standards. From bridge 8, the trail would curve east towards Bandemer Park where it would cross under the railroad tracks and join with the existing B2B Trail (underpass #1). In 2005, The City of Ann Arbor completed an engineering study to determine the best way to formalize a pedestrian crossing of the railroad in this location. According to MDOT, the existing, informal crossing generates hundreds of illegal trips per day. It would be safe to assume that this number would increase upon completion of additional, contiguous B2B trail segments to the west. The 2005 study indicated that a pedestrian tunnel under the railroad berm, although very expensive, is the most cost effective, direct and safest method for crossing the railroad in this location that would be accepted by the railroad engineers. WCPARC is supportive of the pedestrian tunnel option and may be willing to partner with the City of Ann Arbor and other organizations to complete this project.

The following series of map graphics show the alternative alignments that were explored in greater detail. The best alternative to the tunnel option is to cross underneath the railroad near Barton Dam, just north of Bridge 7 (see alternative alignments sheets 31-34). A major challenge here are the unknown issues that could surface when working around the dam and meeting ADA requirements to traverse the steep hill next to the dam. The trail would align with an access road within the railroad ROW, or ideally in the field to the north if an agreement can be reached with the landowner. Then, the trail continues along the railroad ROW to the final river crossing which would be a 150’ single span bridge between the existing Bandemer entrance and the railroad bridge. The need to build the final pedestrian bridge would be avoided by routing the trail east-northeast through a woodlot where it could cross over the river.
Preferred Alignment | FINDINGS AND RECOMMENDATIONS

The best alternative to the tunnel option is to cross underneath the railroad tracks near Barton Dam, just north of Bridge 7 (see alternative alignments, sheets 31-34). A major challenge here are the unknown issues that could surface when working around the dam and meeting ADA requirements to traverse the steep hill next to the dam. The trail would align parallel and north of the railroad, still within the railroad ROW, or ideally in the field to the north if an agreement can be reached with the land owner. Then, the trail continues along the railroad ROW to the final river crossing, which would be a 150' single span bridge between the existing Bandemer Park entrance and the railroad bridge. The need to build the final pedestrian bridge could be avoided by routing the trail east-northeast through a woodlot where it could use Bandemer's existing entrance. Using Bandemer's existing entrance will require an agreement with the owner of PIN IB-09-17-430-006.
FINDINGS AND RECOMMENDATIONS | Preferred Alignment
FINDINGS AND RECOMMENDATIONS | Preferred Alignment
FINDINGS AND RECOMMENDATIONS | Preferred Alignment
The preferred option for the final connection into the City of Ann Arbor at Bandemer Park is to use a tunnel under the railroad tracks. A well-worn footpath and visual observations demonstrate a great deal of existing demand for a crossing in this location. The primary advantage of the tunnel option, although more expensive than the alternative, is that it is a direct connection between destinations. Additionally, it is very close to the current, illegal crossing, making it convenient to use without going out of one’s way. Finally, from MDOT and Amtrak’s point of view, this area is a major safety concern that should be addressed.

The best alternative to the tunnel option is to cross underneath the railroad tracks near Barton Dam, just north of Bridge 7 (see alternative alignments, sheets 31-34). A major challenge here are the unknown issues that could surface when working around the dam and meeting ADA requirements to traverse the steep hill next to the dam. After crossing under the railroad, the trail would align parallel and north of the railroad, still within the railroad ROW, or ideally in the field to the north if an agreement can be reached with the land owner. Then, the trail continues along the railroad ROW to the final river crossing, which would be a 150’ single span bridge between the existing Bandemer Park entrance and the railroad bridge. The need to build the final pedestrian bridge could be avoided by routing the trail east-northeast through a woodlot where it could use the existing shared vehicle/pedestrian bridge at the entrance to Bandemer Park. Using Bandemer’s existing entrance will require an agreement with the owner of PIN IB-09-17-430-006.

FINDINGS AND RECOMMENDATIONS | Preferred Alignment
PROPOSED TRAIL CROSS SECTIONS - TYPICALS

Trail cross sections have evolved in response to both contextual and site specific conditions. Providing critical guidance to the design are: respect for the riverine environment, principles of universal access (ADA), AASHTO standards, eligibility for state grant funding, and creating opportunities for interpretation of natural systems, and multi-use non-motorized trail recreation. Detailed site conditions that drive the design include: soil types, slopes, water resources, existing vegetation, methods of construction and continued maintenance of the trail. “Typical” trail cross sections have been developed using the site specific criteria for some of the common trail profiles along the alignment. They are generally representative of the site conditions and will guide construction documentation, but will require further investigation in the field for precise engineering. AASHTO compliance is necessary for grant funding eligibility.

The following pages illustrate some of the "typical" configurations for the trail fitted to the variety of environments through which the proposed alignment passes.

TRAIL PAVING - TYPE A

This paving section is the dominant recommendation for establishing a new trail in these segments of the B2B Trail. Its use is in locations where soil and water conditions are relatively stable, but exact depths will be determined with full detailed geotechnical analysis/soil borings during the design and engineering process. An open grade aggregate base provides for a longer lasting, stronger surface by allowing quicker infiltration of rainwater and seasonal melt waters.

TRAIL PAVING - TYPE B

This paving section is proposed in non-wetland or floodplain locations with unstable soils but yet not requiring use of a boardwalk, i.e., where soils may be either organic or very silty. The goal to construct a stable path is accomplished with structural depth of [open grade] aggregate base so as to minimize the frequency of needed repair and repaving.

TRAIL PAVING - TYPE C

Where the path is placed on top of an existing gravel surface (ex. path or service drive in Dexter-Huron Metropark), additional granular base and bituminous paving are both cost effective and minimally disruptive.

TYPICAL TRAIL CROSS SECTION

Typical cross section with 10’ wide path and 2’ minimum shoulders (AASHTO Standard), blending into existing topography with the least distribution to adjacent native vegetation.
MAXIMUM GRADIENT ALONG TRAIL
The trail will have a recommended 1.0% cross slope; 2% maximum, 1:6 maximum cross slope on shoulder. Centerline gradient of 5% to meet requirements of the Americans with Disabilities Act (ADA) and AASHTO, and to meet the goals of the trail to be universally designed. 8.3% maximum centerline gradient is allowable up to 200 feet, however, anything over 5% has additional requirements that includes railings, landings, etc.

BITUMINOUS TRAIL AT GRADE WITH CLEARANCE ZONE
Typical cross section where trail is placed at grade with only minimal grading required to achieve a maximum cross slope of 2% and maximum trail gradient of 5%. For the length of the trail, selective pruning and removal will be used to maintain a clearance zone which is 10’ high and extends 3’ within the Metroparks and 2’ elsewhere beyond the edge of pavement on both sides of the trail.
TRAIL SEPARATION WITHIN MDOT R.O.W.

Typical cross section of the required safety separation distances and barriers when the trail parallels the active rail line. This section accommodates a future second set of tracks.
BITUMINOUS TRAIL ALONG HURON RIVER DRIVE
The bituminous trail will be placed on slight to moderate cross slopes adjacent to Huron River Drive through a combination of shoulder grading and use of fieldstone walls where the maximum side slope is greater than 3:1. Although the trail will be separated from Huron River Drive to the maximum degree possible, a minimum 7’ separation is required by WCRC while AASHTO only requires 5’ and as a literal and perceptual measure of safety.

BOARDWALK ALONG HURON RIVER DRIVE
The trail will take the form of a raised boardwalk in areas where the existing grade slopes severely from the edge of Huron River Drive down to the river or railroad. A 42’ minimum bicycle guardrail will be provided on the raised (river) side of the boardwalk along with a minimum 7’ (5’ is minimum allowed by AASHTO) shoulder, required by the WCRC, between the boardwalk and Huron River Drive.
BOARDWALK THROUGH WETLANDS WITH RAILING
14’ width is required by AASHTO to maintain the same trail dimensions as the paved portions plus each shoulder (2’ shoulder + 10’ trail + 2’ shoulder = 14’). Trail surface heights greater than 30” above existing grade will require a minimum 42” handrail to meet AASHTO requirements; if adjacent slopes are too steep, the condition may require a 48” height. At designated points along the trail (25% of the railing), the handrail will be lowered to 34” to allow better unobstructed viewing from wheelchairs and for children.

BOARDWALK THROUGH WETLANDS WITH KICK RAIL
A boardwalk will be used in selected locations in order to allow surface drainage to continue unimpeded under the structure and in locations where soils do not provide the stability needed for a bituminous trail. They will also be used in wetland and floodplain locations to minimize the environmental impact. The height of the boardwalk will vary between 0” and 30” from existing grade in order to eliminate railing where possible. A kick rail is recommended to provide a safety barrier for young bicyclists and wheelchair users.
BITUMINOUS TRAIL WITH RETAINING WALLS

Cross sections for use on existing grades with moderate to severe cross slopes. The trail will be placed into the slope by grading 2' shoulders to a maximum 3:1 slope as required by AASHTO and then can grade 6:1 beyond to meet existing grade. On more severe slopes, fieldstone walls (24" maximum height above grade) will be used above and/or below the trail as needed to provide adequate soil retainage and trail shoulders.

ART AND DESIGN

Where possible, art should be integrated into trail elements and features. Art could also be strategically placed within the context of the cultural and/or ecological surroundings to highlight certain features. The trail itself can also be art. Site amenities such as benches, shade shelters or sculptures should be encouraged as element of art. Designing the trail alignment to lay lightly on the landscape by following the natural topography and features is one of the best ways to achieve this. Events such as the Dexter Plein Air Festival held in August, should be promoted through a collaboration with the City of Dexter and the WCPARC.
Proposed Materials | FINDINGS AND RECOMMENDATIONS

Path
Hot Mix Asphalt – This surface material should consider a low-energy, low-emission and low-environmental impact asphalt. This class of asphalt uses sustainable practices during the manufacturing process and materials supply chain.
Concrete – As the trail approaches a road crossing, the surface material should change from the asphalt to concrete which further reinforces and signifies to be alert to the crossing.

Boardwalks
Railing/Kick-rail - The use of a composite lumber provides a durable, weather resistant and long-life material that is composed of post-consumer recycled plastics.
Incorporating a black vinyl coated woven wire mesh as the panels between rail posts provides opacity which minimizes visual impacts on the landscape viewed from off the trail, but allows the landscape to come through when on the trail.

Bridges
Bridge Structure – Using a weathering steel or corten provides a durable material with less maintenance than paint. The darker color tones also blend well into the surrounding landscape.
Deck/Railing Material – Wood is a durable material with a moderate lifespan and is easier to maintain than other materials such as metal or concrete, especially when it’s over water.

Boardwalk Deck Material – Use of either thick dimensional wood or pre-cast concrete as planks will provide a long lasting durable material. The pre-cast concrete planks are a relatively new product so the lifespan cannot be verified

Helical Piers – This technology uses an installation process that lessens the impact to the environment within the project area due to smaller construction equipment, a smaller footprint in ground disturbance, resulting in short re-establishment time for vegetation.

Retaining Walls
Natural Granite Boulders – This material is a remnant of the post-glacial melt. It is a local product giving context to geological history and readily available.
Massive Wall Units – Prefabricated concrete retaining wall units are an alternative to poured-in-place concrete where site conditions create difficult access.
**BORDER TO BORDER TRAIL ALIGNMENT STUDY**

**SEGMENTS D2-G**

**PROPOSED PEDESTRIAN BRIDGES**

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**LEGEND**

- **Huron River**
- **Park/Natural Area/Preserve**
- **Natural Rivers Zone**
- **Jurisdictional Boundary**
- **Railroad**
- **Major Road**
- **Proposed Pedestrian Bridge Crossing River**
- **Proposed Pedestrian Bridge near Existing Railroad Bridge**
- **Existing Pedestrian Bridge Crossing River**
- **Proposed Trail at Existing Road Bridge (Shared)**
- **Proposed Pedestrian Crossing at Existing Railroad / Road Crossing**

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**Figure 21**: Proposed Pedestrian Bridge Locations
PROPOSED BRIDGES – TYPICALS

Prefabricated truss bridges of single spans from 160’ to 250’ will be used in up to eight (8) proposed locations where crossing the Huron River is required. The bridge superstructures are to set on cast-in-place concrete abutments. The bridges will meet AASHTO standards.

Bridge #1 (±200’ span) - Only new bridge not adjacent to an existing bridge, but sighted on a short stretch of the Huron River to minimize viewing time from watercraft.

Bridge #2 (±250’ span) - New pedestrian bridge parallel and adjacent to existing railroad bridges.

Bridge #3 (±250’ span) - Presents the opportunity to reuse the existing decommissioned historic railroad piers and abutments. Additionally, there is the potential to reuse the historic Bell Road truss bridge at this location.
Shared Bridge #4 - Re-stripe existing Huron River Drive in coordination with WCRC. Existing 8.5’ shoulders on each side.

Bridge #5 (±160’ span) - New pedestrian bridges parallel and adjacent to existing railroad bridge.

Bridge #6 (±210’ span) - New pedestrian bridges parallel and adjacent to existing railroad bridge.

FINDINGS AND RECOMMENDATIONS | Proposed Pedestrian Bridges

Existing

Proposed

Existing

Existing

Existing

Proposed

Proposed
Proposed Pedestrian Bridges | FINDINGS AND RECOMMENDATIONS

A full hydraulic analysis has not been completed at this phase of the planning process. But, during final design engineering, scour and geotechnical investigations shall be performed to determine sizing of substructures and scour protection.

Bridger #7 (±200’ span) - Existing pedestrian bridge may have to be replaced to meet current AASHTO standards depending on funding source.

Underpass #1 - Proposed pedestrian underpass safely crosses underneath the existing railroad bridge - similar to what exists on the opposite side of the river.

Bridge #8 (±210’ span) - New pedestrian bridge parallel and adjacent to existing railroad bridge.
Construction Access & Constructibility

Construction access along the railroad right-of-way, Huron River Drive and from parkland is essential to build the Segments from Dexter-Huron Metropark to Ann Arbor. It is imperative to work with the contractors very early in the process prior to groundbreaking to establish construction operations and logistics that will not damage or impair adjacent natural systems. This includes operations such as designating staging areas, work zones, restricted areas (from construction equipment), turn-arounds and temporary crossings for haul and delivery trucks, and temporary bridges and/or barges for installing the permanent pedestrian bridges. If not planned early and properly it will increase costs and may damage the adjacent environment.

The area around Barton Dam is a significant concern due to both access constraints and the stability of the embankment, which is part of the dam. The dam is under the ownership of the City of Ann Arbor and is regulated by the Federal Energy Regulatory Commission (FERC).

Safety & Security

Trail System:
The trail shall be designed and engineered to facilitate security inspection/patrol and to allow an effective response to emergencies. The pathway (including boardwalks and bridges) will be designed to accommodate emergency vehicle loads of 5 - 10 tons.

Fencing:
The fencing, required by MDOT Rail, will provide a physical separation barrier from the high-speed rail corridor. This barrier will block errant debris from passing trains, prevent illegal dumping and vandalism, reduce illegal track crossings, and improve safety by channelizing trail users to designated crossings. An 8’ high black vinyl-coated chain-link fence is recommended. The coating provides added durability and the black color diminishes the presence of the fence within the surrounding landscape.

Signage:
The B2B already has a distinctive signage system in place throughout other completed sections of the trail—this signage package will be implemented on all new construction. Typically B2B signage is for wayfinding purposes; however, rules signs can be incorporated into trailheads when the trail passes through parks and nature areas. At trailheads, B2B trail maps will be placed to show one’s current location on a detailed, localized map, and also the position on the entire B2B trail system. Once on the trail, wayfinding blazes reassure trail users that they are on the B2B and help to navigate at intersections.

Emergency Response Coordination:
It is recommended to establish a district-wide system of maps, markers, and coordinates that will make it much easier to pinpoint locations when emergencies or issues occur.

Rule Enforcement & Trail Guidelines:
WCParc, the Washtenaw County Sheriff, HCMA, Ann Arbor City Police should coordinate regular security patrols along the trail. The Friends of the B2B group, volunteer site stewards, contractors, and regular trail users will be encouraged to alert the appropriate authorities about any observed inappropriate or illegal activities. Since the B2B does not have a formal set of rules, the following is a list of potential guidelines that could be incorporated into signs:

- Use safe speeds: be courteous to all trail users.
- Keep right, pass left: yield to slower and on-coming traffic. Use hand signals to alert those behind you of your moves. Look ahead and back to make sure the lane is clear before you pull out and pass. Pass with ample separation and do not move back to the right until safely past. REMEMBER: KIDS AND PETS CAN BE UNPREDICTABLE.
- Be predictable and aware of your surroundings: travel in a consistent and predictable manner and be aware of other user’s on the trail.
- Take breaks off the trail: when stopping, ensure that you are not obstructing the path.
- Pets must be on leash and under control. Please clean up after them.
- Leave no trace: respect wildlife, stay on the trail, leave no trash.
- Know and follow the rules: rules may vary because the trail traverses many parks and jurisdictions.
- Obey all signs and traffic signals.

Landscape Character:
As described in the operations & maintenance section later in this master plan, certain (non-native/invasive/aggressive) trees, shrubs, and other plants will be selectively thinned and cleared within 3’ of the path edge and a 10’ minimum above with overhanging branches. The optimal tree/shrub structure will be replaced with non-invasive native plants that are part of the natural ecology and are better suited for long-term site stability and improved biodiversity/habitat quality. This management practice will result in improved visibility through portions of the corridor. An added ecological benefit of managing trees and shrubs, is that it allows more sunlight to reach the ground’s surface, helping to foster a healthy vegetative ground-layer that enhances habitat quality and a natural aesthetic along the trail.
WASHTENAW COUNTY PARKS & RECREATION COMMISSION

BORDER-TO-BORDER TRAIL ~ SEGMENTS D2-G

IRON BELLE TRAIL

75

APPORACH TO STORMWATER MANAGEMENT

A non-motorized trail in an ecologically sensitive setting brings with it the responsibility to manage and mitigate any potential short and long-term environmental impacts stemming from adding the path in close proximity to the river. Soil erosion and sedimentation control and stormwater management are some of the primary considerations for mitigating these impacts. They are also required because of the added impervious surface and soil disturbance from new construction where none now exists.

The B2B Trail is designed as a paved surface to facilitate a wide variety of activities by people of all abilities, i.e., recreational activities, commuting, and interpretive/educational uses. The use of a hard surface pavement, although impervious to water, provides the best level of service for wheeled vehicles, whether for recreation, mobility, trail maintenance or emergencies. Although impervious to water, paved surfaces do not provide the best level of service for wheeled vehicles, whether for recreation, mobility, trail maintenance or emergencies.

The negative, in this instance, is that the rain that lands on the trail will “run off” the pavement and into the adjacent landscape. Managing that runoff effectively, in this instance, is to drain the trail into shallow swales that can direct runoff across lawns, open fields, or into nearby woods. Another option if conditions require, is to use pre-treatment basins in the form of long and narrow infiltration swales or trenches in the area available between the road and the trail. This setting occurs throughout each segment and during the design engineering of the trail. Opportunities can be explored to refine these approaches in coordination with the Washtenaw County Road Commission and Washtenaw County Office of the Water Resources Commissioner.

Soil Erosion and Sedimentation Control

Soil erosion and sedimentation control during construction begin with the trail being out of the floodplain and away from the river’s edge. Existing vegetation will remain undisturbed to the maximum extent possible and planning, design, and construction will comply with the Natural Rivers District guidelines. Vegetation will only be removed where necessary within the 16'-18' wide trail construction zone and along limited construction access points. Silt fencing will parallel all zones of work on the downhill sides of the required construction activity.

In summary, these suggestions for stormwater management have evolved from an analysis of the relationship between various existing conditions of this portion of the Huron River, the carefully planned addition of the new trail, and evaluation of the likely long term land and water management practices in a riverine environment. The proposed approach is guided by the mindset of stepping lightly and less frequently, and limiting disturbance to the smallest area possible.

These different landscape settings all have one item in common: because this is a non-motorized trail, stormwater runoff will be unburdened by typical urban contaminants such as “vehicle droppings” (oils, coolants, rubber, etc.). Stormwater should not require an extensive pre-treatment in this situation. There is the slow degradation or wearing of the pavements or surfaces and depending on the material (asphalt, concrete, wood, etc.), there will still be trace amounts of residue in the runoff which has negligible toxicity to the landscape.

Wooded Setting

A tree-covered, wooded environment minimizes the amount of rain that actually reaches the ground. The canopy, even in a dormant state, dissipates and absorbs much of the rainfall. Research (Zinke, 1967) has shown that a natural forest canopy will intercept between 10% and 40% of annual precipitation. Healthier woodlands, (meaning greater plant diversity at the ground-layer due to healthy active soils), have more efficient absorption, infiltration and evaportranspiration occurring. As a result, stormwater basins are not being recommended in the trail’s wooded settings because of effective, existing natural processes and to maximize protection of existing vegetation by minimizing earthwork in the woods.

Open Field/Prairie Remnants

Similar to a wooded setting, healthy systems with high plant diversity have more efficient absorption, infiltration and evaportranspiration supported by healthy active soils. Therefore, basins are also not recommended in these settings to minimize disturbance to effective natural processes.

Park Setting

The two Metroparks in the project area are primarily composed of pervious surfaces. The trail’s location allows for runoff to slowly migrate across existing vegetation and infiltrate as soil conditions allow. In addition, HCMA typically does not apply salt or other deicing agents on paths in the parks. The recommended stormwater approach is to gently shape areas adjacent to the path into shallow swales that can direct runoff across lawns, open fields, or into nearby woods. Another option if conditions require, is to use pre-aggregate trench drains adjacent to, and running parallel with, the trail to increase infiltration. Given the small amount of runoff generated by the trail in proportion to the park’s naturally vegetated areas, the impact of the added stormwater should be negligible.

Roadside Setting

In this setting, stormwater runoff from the non-motorized path, while relatively “clean” as previously discussed, will likely be infused with contaminants that were splashed or wind-blow from the adjacent Huron River Drive pavement. In response, the suggested approach is to develop pre-treatment basins in the form of long and narrow infiltration swales or trenches in the area available between the road and the trail. This setting occurs throughout each segment and during the design engineering of the trail. Opportunities can be explored to refine these approaches in coordination with the Washtenaw County Road Commission and Washtenaw County Office of the Water Resources Commissioner.

In summary, these suggestions for stormwater management have evolved from an analysis of the relationship between various existing conditions of this portion of the Huron River, the carefully planned addition of the new trail, and evaluation of the likely long term land and water management practices in a riverine environment. The proposed approach is guided by the mindset of stepping lightly and less frequently, and limiting disturbance to the smallest area possible.

Stormwater Management | FINDINGS AND RECOMMENDATIONS

Heavy sediment build-up along Huron River Drive - Photo Credit: CDF

Rip Rap and Silt Fence In Place Prior to Construction - Photo Credit: CDF
### Summary of Engineer’s Opinion of Construction Costs

The following is a summary of Engineer’s opinion of construction costs for each of the five segments with Segment D2 broken into two phases. These include construction costs, contingencies, design/engineering, survey, geotechnical investigation, and project administration during construction. Actual implementation may be different due to new funding opportunities, scheduling, discovery of new conditions during detailed site investigation, construction bids, permitting, and/or plan goals within the trail itself which may change over time.

#### River Terrace Trail

<table>
<thead>
<tr>
<th>Segment D2 – PHASE 1</th>
<th>[1.21 Miles]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Preparation</td>
<td>$286,580</td>
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<tr>
<td>Trail Construction</td>
<td>$810,854</td>
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<tr>
<td>Bridges #1 &amp; #2</td>
<td>$2,530,000</td>
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<tr>
<td>Trail Amenities</td>
<td>$10,000</td>
</tr>
<tr>
<td>Restoration</td>
<td>$110,496</td>
</tr>
<tr>
<td>Construction Costs</td>
<td>$3,747,930</td>
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<tr>
<td>Contingencies (10%)</td>
<td>$374,793</td>
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<tr>
<td><strong>Project Construction Subtotal</strong></td>
<td><strong>$4,122,723</strong></td>
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<tr>
<td>Design &amp; Engineering (10%)</td>
<td>$412,272</td>
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<tr>
<td>Survey/Geotechnical</td>
<td>$19,260</td>
</tr>
<tr>
<td>Construction Administration (15%)</td>
<td>$618,408</td>
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<tr>
<td><strong>Construction Support Subtotal</strong></td>
<td><strong>$1,049,940</strong></td>
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<tr>
<td><strong>CONSTRUCTION/SUPPORT TOTAL</strong></td>
<td><strong>$5,172,663</strong></td>
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<table>
<thead>
<tr>
<th>Segment D2 – PHASE 2</th>
<th>[1.80 Miles]</th>
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<tr>
<td>Site Preparation</td>
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<td>Trail Construction</td>
<td>$1,281,775</td>
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<td>Bridge #3</td>
<td>$1,425,000</td>
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<td>Trail Amenities</td>
<td>$20,000</td>
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<td>Restoration</td>
<td>$184,512</td>
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<td><strong>Project Construction Subtotal</strong></td>
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<td>Design &amp; Engineering (10%)</td>
<td>$355,763</td>
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<tr>
<td>Survey/Geotechnical</td>
<td>$32,795</td>
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<tr>
<td>Construction Administration (15%)</td>
<td>$533,644</td>
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<td><strong>Construction Support Subtotal</strong></td>
<td><strong>$922,202</strong></td>
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<td><strong>CONSTRUCTION/SUPPORT TOTAL</strong></td>
<td><strong>$4,479,835</strong></td>
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#### Barton Pond Trail

<table>
<thead>
<tr>
<th>Segment E</th>
<th>[1.11 Miles]</th>
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<tbody>
<tr>
<td>Site Preparation</td>
<td>$188,387</td>
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<tr>
<td>Trail Construction</td>
<td>$348,097</td>
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<tr>
<td>Bridge #4</td>
<td>$1,240,000</td>
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<td>Trail Amenities</td>
<td>$8,000</td>
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<td>Restoration</td>
<td>$110,426</td>
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<td>Construction Costs</td>
<td>$1,894,910</td>
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<td>Contingencies (10%)</td>
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<td><strong>Project Construction Subtotal</strong></td>
<td><strong>$2,084,400</strong></td>
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<td>Design &amp; Engineering (10%)</td>
<td>$208,440</td>
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<td>Survey/Geotechnical</td>
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<td>Construction Administration (15%)</td>
<td>$312,660</td>
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<td><strong>Construction Support Subtotal</strong></td>
<td><strong>$550,860</strong></td>
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<table>
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<tr>
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<th>[1.01 Miles]</th>
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<tr>
<td>Site Preparation</td>
<td>$468,978</td>
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<tr>
<td>Trail Construction</td>
<td>$1,432,889</td>
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<td>Bridges #5 &amp; #6</td>
<td>$2,098,000</td>
</tr>
<tr>
<td>Trail Amenities</td>
<td>$8,000</td>
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<tr>
<td>Restoration</td>
<td>$74,112</td>
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<td>Construction Subtotal</td>
<td>$4,081,979</td>
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<tr>
<td>Contingencies (10%)</td>
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<td><strong>Project Construction Subtotal</strong></td>
<td><strong>$4,490,176</strong></td>
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<td>Design &amp; Engineering (10%)</td>
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</tr>
<tr>
<td>Survey/Geotechnical</td>
<td>$28,500</td>
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<td>Construction Administration (15%)</td>
<td>$673,526</td>
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<td><strong>Construction Support Subtotal</strong></td>
<td><strong>$1,151,043</strong></td>
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<tr>
<td><strong>CONSTRUCTION/SUPPORT TOTAL</strong></td>
<td><strong>$5,641,219</strong></td>
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</table>

#### Segment G

<table>
<thead>
<tr>
<th>Segment G</th>
<th>[2.04 Miles]</th>
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</thead>
<tbody>
<tr>
<td>Site Preparation</td>
<td>$353,068</td>
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<tr>
<td>Trail Construction</td>
<td>$694,824</td>
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<td>Bridges #7 &amp; #8</td>
<td>$2,476,000</td>
</tr>
<tr>
<td>Trail Amenities</td>
<td>$10,000</td>
</tr>
<tr>
<td>Restoration</td>
<td>$217,218</td>
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<tr>
<td>Construction Costs</td>
<td>$3,751,110</td>
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<tr>
<td>Contingencies (10%)</td>
<td>$375,110</td>
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<tr>
<td><strong>Project Construction Subtotal</strong></td>
<td><strong>$4,126,221</strong></td>
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<tr>
<td>Design &amp; Engineering (10%)</td>
<td>$412,622</td>
</tr>
<tr>
<td>Survey/Geotechnical</td>
<td>$54,260</td>
</tr>
<tr>
<td>Construction Administration (15%)</td>
<td>$618,933</td>
</tr>
<tr>
<td><strong>Construction Support Subtotal</strong></td>
<td><strong>$1,085,815</strong></td>
</tr>
</tbody>
</table>

**Note:** Bridge #7 will only need replacement if federal funds are used.
Life-cycle Cost Analysis

Life-cycle cost analysis (LCCA) can be defined as the cost to the owner of a product or material over its full life span, including costs to purchase, own, construct, operate, maintain and, finally, dispose. LCCA typically results in higher initial costs of construction, but the costs balance out over time because of the use of more durable, less maintenance intensive materials.

It is a tool to determine the most cost-effective option among different competing alternatives of a product or process when each is equally appropriate to be implemented on technical grounds. For example, for asphalt pavement, in addition to the initial construction cost, LCCA takes into account all costs related to future activities including periodic maintenance, rehabilitation, and/or replacement. All the costs are usually discounted and totaled to a present day value known as net present value (NPV). This example can be generalized on any type of material, product, or system.

Typical costs for a project may include:
- Design and Engineering
  - Acquisition costs
  - Construction costs
- Operating costs:
  - Cost of failures
  - Cost of repairs
  - Cost for spares
  - Downtime costs
  - Loss of production
- Maintenance costs:
  - Cost of corrective maintenance
  - Cost of preventive maintenance
  - Cost for predictive maintenance
- Disposal costs:
  - Cost of disposal at a landfill

### Materials Comparison Over Time for Boardwalk Structures

<table>
<thead>
<tr>
<th>Material</th>
<th>Cost Per Square Foot</th>
<th>Durability</th>
<th>Life Expectancy</th>
<th>Maintenance Cost per Year</th>
<th>Initial Cost (SF)</th>
<th>Maintenance Cost (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated Lumber (Southern White Pine)</td>
<td>$110/sf</td>
<td>High</td>
<td>75 yrs</td>
<td>$9/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,440/sf/yr</td>
</tr>
<tr>
<td>Lumber (Black Locust)</td>
<td>$120/sf</td>
<td>Medium</td>
<td>50 yrs</td>
<td>$10/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,200/sf/yr</td>
</tr>
<tr>
<td>Structural Recycled Plastic Lumber</td>
<td>$120/sf</td>
<td>Medium</td>
<td>50 yrs</td>
<td>$10/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,200/sf/yr</td>
</tr>
<tr>
<td>Prefabricated Concrete Planks</td>
<td>$120/sf</td>
<td>High</td>
<td>75 yrs</td>
<td>$10/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,200/sf/yr</td>
</tr>
<tr>
<td>Aluminum Planks</td>
<td>$120/sf</td>
<td>High</td>
<td>75 yrs</td>
<td>$10/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,200/sf/yr</td>
</tr>
<tr>
<td>Fiberglass</td>
<td>$120/sf</td>
<td>High</td>
<td>75 yrs</td>
<td>$10/sf/yr</td>
<td>$120/sf/yr</td>
<td>$1,200/sf/yr</td>
</tr>
</tbody>
</table>

Costs based on 10” wide planks for an elevated boardwalk.

Note: Life expectancy costs with usage, weather, installation, maintenance and quality of materials. This list should be used only as a general guide for the owner or programmer and should not replace the performance or life expectancy of the product, system or component.
Next Steps
IMPLEMENTATION STRATEGIES
Implementation Strategies – The following steps are listed in a somewhat sequential order, though some can proceed in parallel.

1. Acquire Easements and/or Lease Agreements
WCPARC will need to obtain easements and/or agreements with local, state and federal agencies along with local utilities where the trail is proposed within a ROW. Additional easements or purchases will be required from private land owners where permission has been granted to build. Title work should be completed on all existing ROWs and proposed easements to ensure full site control. Easements and leases will need to be acquired from:
- MDOT/Amtrak
- FERC [Barton Dam]/City of Ann Arbor
- Barton Hills Maintenance Corporation
- Property H-08-11-100-018 (Scio Township)
- Property H-08-12-400-001 (Scio Township)
- WCRC

2. Funding sources for design engineering and implementation
The recognized benefits of a walkable and bikeable community (economic, health, recreation, mobility, transit, etc.) open up opportunities for cost-sharing with state and local government agencies, thereby reducing the financial burden on one entity. Additionally, financing maintenance and operations of the trail should be considered early on because it is essential to sustaining the system over time. Listed below are several opportunities to fund the development, and if necessary, land acquisition of the B2B Trail. Some sources may be able to allow use of funds for design engineering or maintenance. Consult each program individually for details.

Public Funding
- a. Michigan Natural Resources Trust Fund (MNRTF) [Land Acquisition and Development]
  http://michigan.gov/dnr/0,4570,7-153-58225_58301---,00.html
- b. Transportation Alternatives Program (TAP) [Development]
  http://www.fhwa.dot.gov/environment/transportion alternatives/
- c. U.S. Department of Transportation’s (DOT) Transportation Investment Generating Economic Recovery (TIGER) [Development]
  http://www.transportation.gov/tiger
- d. Congestion Mitigation and Air Quality Improvement (CMAQ) Program [Development]
  http://www.fhwa.dot.gov/environment/air_quality/cmaq/
- e. Surface Transportation Program (STP) [Development]
  http://www.fhwa.dot.gov/map21/guidance/guidestprev.cfm
- f. Highway Safety Improvement Program (HSIP) [Development]
  http://safety.fhwa.dot.gov/hsip/
- g. National Highway Performance Program (NHPP) [Development]
  http://www.fhwa.dot.gov/map21/guidance/guidenhpp.cfm
- f. Federal Transit Administration (FTA) [Development]
  http://www.fta.dot.gov/13747_14399.html

Private Funding Sources
There are many examples of trail projects in other communities which have pursued private funds (Community/Private Foundations, Health and Wellness Organizations, etc.) for trail implementation. It is recommended to make contact early during this planning process with these private sources to pursue partnerships.

Additionally, WCPARC could consider a Public-Private Partnership (P3) model as an alternative to financing the trail project. The use of a P3 financing structure marks a shift away from traditional ways of procuring and financing projects. Under the P3 model, a private partner may participate in some combination of design, construction, financing, operations, and maintenance. Early involvement of the private sector can bring creativity, efficiency, and capital to address complex project development problems facing state and local governments. Refer to the Federal Highway Administration’s website: http://www.fhwa.dot.gov/ipd/p3/

3. Joint Maintenance and Operating Agreement - TBD
Establish cohesive maintenance responsibilities and agreements for all sections of trail. This is an important step because of the multi-jurisdictional nature of the project. Agreements should be established with WCPARC, WCRC, MDOT, HCMA, Scio Township, Ann Arbor Township, City of Ann Arbor.

4. Permit Applications prior to Construction
a. Michigan Department of Natural Resources (Natural River Program – Part 305, Natural Rivers of PA 451 of 1994)
b. Michigan Department of Environmental Quality (Part 303) Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).
   - Wetlands
   - Rivers/Streams
   - Floodplain
c. MDOT Rail/Amtrak Permit to enter R.O.W.
   - Survey work
   - Geotechnical Investigation
d. Washtenaw County
   - Road Right-of-Way permits
   - Stormwater/SESC permit
e. City of Ann Arbor
   - Road Right-of-Way permits
   - Tree/Landmark Tree removal permits
f. Scio Township
   - Tree/Landmark Tree removal permits
g. Ann Arbor Township
   - Tree/Landmark Tree removal permits

8. State Historic Preservation Office
In 1966, in response to growing public interest in historic preservation, Congress passed the National Historic Preservation Act (NHPA of 1966, amended 1980, 1992 [USC Sec. 470-470f]). The act required that each state establish a State Historic Preservation Office (SHPO) and that the governor of each state appoint an officer to oversee preservation activities. Each year, Michigan receives a Historic Preservation Fund grant from the National Park Service to operate its program. The Michigan SHPO identifies, evaluates, registers, interprets and protects the state’s historic properties.

Michigan’s SHPO was established in the late 1960s. Its main function
NEXT STEPS | Funding, Permitting and Phasing

is to provide technical assistance to local communities in their efforts to identify, evaluate, designate, and protect Michigan’s historic above- and below-ground resources. The SHPO also administers an incentives program that includes state and federal tax credits and pass-through grants available to Certified Local Governments. The SHPO’s programs are funded through a Historic Preservation Fund grant, an annual federal matching grant administered by the National Park Service.

Because of the “Indian Field” and Native American “Paths” noted in the General Land Survey notes near the Trail alignment and due to requirements for securing Federal funds provided through the TAP program, a SHPO archaeology survey will likely be required. In the instance of these sites being of Native American origin, the Tribal Historic Preservation Officer (THPO) may be notified.

http://www.michigan.gov/shpoa/0,1607,7-141-54317---,00.html

9. Construction Documents
Finalize design and engineering to prepare bid documents.

10. MDOT Rail & Amtrak requirements for work in Right-of-Way

MDOT Rail Permit
- A temporary permit to enter state-owned accelerated rail property (line between Kalamazoo and Dearborn) is required. A strategy to reduce costs and the permitting process is to install the 8’ high separation fence as the first task of construction. By initially installing the 8’ height separation fence. This reduces the need for certain safety requirements by MDOT and Amtrak such as full time flag crews during trail construction.
- Contractors who require access to railroad property must submit a letter to Amtrak requesting a Temporary Permit to Enter Upon Property. The letter should include the contact name and mailing address of the prime contractor responsible for all work, and outline the location, nature, scope and estimated duration of work. If any subsurface work is required, the letter should clearly specify whether the work is geotechnical or environmental in nature.
- Prior to any work on or access to the Right of Way, the contractor must first execute Amtrak’s Temporary Permit to Enter Upon Amtrak Property. The Temporary Permit will include a force account estimate based on the contractor’s scope of work and projected duration of work. Amtrak will provide engineering, flag protection and/or other protection services at the sole cost and expense of the contractor. Advance payment for these services is required. After Amtrak receives a fully executed permit, payment for applicable fees, approval of the proposed work plans and/or access requirements, and verify that all insurance requirements have been met, Amtrak notifies the appropriate Division Engineer’s representative.

Amtrak Permit
- Requests for Temporary Permits to Enter Upon Amtrak Property (PTEs) must be submitted to Amtrak Engineering Construction Department.
- Temporary Permits for performing any environmental or geotechnical tests or studies (e.g., air, soil or water sampling) may be issued subsequent to completion of Amtrak’s environmental review and approval process. Requests are reviewed on a case-by-case basis. Depending on the site specific circumstances, a separate Site Access Agreement that addresses environmental liability issues may be required prior to any Temporary Permit.
- Requests for Temporary Permits to Enter Upon Amtrak Property, may take up to 30 business days processing time for initial Permit requests.
- All contractor employees who will work on the property are required to complete Amtrak’s Contractor Safety Orientation Training prior to entry. The training is online and takes about one hour to complete.
- Amtrak requires that all contractors and their employees comply with all safety regulations found in “Specifications Regarding Safety and Protection of the Railroad Traffic Property”.
- The contractor must coordinate all access with Amtrak’s Division representative.
- All contractors must notify the Amtrak Project Manager or Engineer assigned to a project before entering onto railroad property and before coming within twenty-five (25) feet of the centerline of the track or energized wire. Amtrak’s Project Manager or Engineer assigned to a project will assist in obtaining a temporary “Permit to Enter upon Property” and will arrange for protection if needed. Safety violations will result in the immediate suspension of work within the railroad’s property limits.
- Contractor will also be required to purchase additional liability insurance.

Note: Fiber Optic rights along the Michigan Line east corridor were retained by Norfolk Southern Railway Corporation (NS). Separate authorization from NS must be obtained prior to Amtrak being able to process PTE requests.

11. Maintenance and Operations

Maintenance, repair and replacement will be an on-going cost throughout the life of the trail and should be planned for accordingly. Proper trail maintenance is just as important as using appropriate design and construction techniques. The trail should be accessible, safe and convenient to all maintenance and emergency personnel, their vehicles and equipment. Additionally, if improper design provisions are used and construction quality is poor, inadequate maintenance may take place due to undesirable conditions along the trail.

WCPARC does not have a routine maintenance program in place for checking and inspecting the B2B Trail on a regular basis. Currently, the local jurisdiction or agency (HCMA/City of Ann Arbor/Ypsilanti/St. Joe’s Hospital) does the maintenance and inspections. The Friends of the B2B, a 501(c)(3) organization, on a volunteer basis, performs basic cleanup of litter and debris, trimming vegetation that obstructs the safety of the trail and notifies the jurisdiction of serious problems such as potholes, down branches and trees, missing signage and vandalism. Volunteers are asked to patrol their adopted trail section at least 2 – 4 times a month.

A trail maintenance program should include a framework of activities and performance tasks such as:
- Perform regular scheduled preventative maintenance and operations activities on a weekly, monthly and yearly basis.
- Frequent inspection of the Trail’s surfaces and structures for hazards and irregularities.
- Response to citizen complaints in a timely manner.
- Vegetation control to prevent encroachment in the Trail’s clear zone.

As mentioned, it is recommended to have a process in place to quickly respond to citizen reports of unsafe conditions, particularly along popular or heavily used routes. Users, especially those with mobility impairments, may seek unsafe alternative routes. It is recommended to establish a single point person at the WCPARC Administrative Offices.

Overgrown vegetation along trails can quickly become a safety issue; having a program in place to prevent it from encroaching into the trail’s clear vision zones will improve safety. There should be adequate clearances and sight distances around turns and at intersections so that bicyclists and pedestrians are visible to each other and approaching motorists. Roots should be controlled to prevent break-up of surfaces. Dead and declining trees adjacent to
the trail should be removed immediately.

To increase safe use during winter months, it is recommended that snow removal and deicing practices be established. For snow removal, a brush attachment to a vehicle is less damaging than a plow, and is a preferred method over deicing agents. However, if a deicing agent is necessary, an ecologically safe one, such as calcium magnesium acetate (CMA) is recommended. CMA is a water-soluble natural acid, similar to vinegar, that has been the most widely tested and used deicer in the acetates category. Alternatively, sugar beet extract, which is less harmful to surrounding land and water may be used and is typically mixed with standard road salt. When mixed for use on roads it can reduce the amount of salt needed by 30 percent.

12. Phasing Plan, Funding, and Schedule

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Cost</th>
<th>Grant Funding $</th>
<th>Local Match $</th>
<th>Submission Date</th>
<th>Notification Date</th>
<th>Project Start Date</th>
<th>Project End Date</th>
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<tbody>
<tr>
<td>River Terrace Trail</td>
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<tr>
<td>Segment D2 Phase 1A</td>
<td>$2,290,723</td>
<td>$1,790,723</td>
<td>$500,000</td>
<td>Spring 2017</td>
<td>Fall 2017</td>
<td>Fall 2019</td>
<td>Fall 2020</td>
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<tr>
<td>Segment D2 Phase 1B</td>
<td>$3,557,653</td>
<td>$2,057,653</td>
<td>$1,500,000</td>
<td>Spring 2018</td>
<td>Fall 2018</td>
<td>Fall 2019</td>
<td>Fall 2020</td>
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<tr>
<td>Barton Pond Trail</td>
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<tr>
<td>Segment E</td>
<td>$2,084,401</td>
<td>$1,759,401</td>
<td>$325,000</td>
<td>Spring 2021</td>
<td>Fall 2021</td>
<td>Fall 2022</td>
<td>Fall 2023</td>
</tr>
<tr>
<td>Segment F</td>
<td>$4,490,177</td>
<td>$2,240,177</td>
<td>$2,250,000</td>
<td>Spring 2020</td>
<td>Fall 2020</td>
<td>Fall 2021</td>
<td>Fall 2022</td>
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<tr>
<td>Segment G</td>
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<td>$2,100,000</td>
<td>Spring 2019</td>
<td>Fall 2019</td>
<td>Fall 2020</td>
<td>Fall 2021</td>
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</table>

See previous pages for potential grant funding sources.

The above sequencing plan and funding schedule is preliminary and is subject to change. The intent is to provide an approximation of sequencing, identify financial goals and strategy for implementation based on some of the traditional grant funding sources available for non-motorized transportation and recreation projects. The costs do not include design, engineering, or construction administration costs. Additionally, the chart does not represent a financial commitment from WCPARC to provide the entire “local match” as identified. In addition to funding from other local units of government and WCPARC, local match could be provided from a variety of sources, such as: non-profit groups, private citizen or business donations, and other sources.
Appendices

Appendix A ~ Meeting Notes & Letters of Support
Appendix B ~ Property Ownership
Appendix C ~ Public Working Sessions
Appendix D ~ MDOT/Amtrak Cross Section Study
Appendix E ~ General Land Survey Notes
Appendix F ~ Engineer’s Opinion of Construction Costs
Appendix G ~ MNFI Species List

Bibliography
**APPENDIX A | Meeting Minutes**

**PROGRESS MEETINGS**

**JUNE 25, 2015**

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**BORDER-TO-BORDER TRAIL ~ SEGMENTS D2-G**

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**C. Minutes**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**Minutes**

- **Date**: June 25, 2015
- **Attendees**:
  - Mark Pascoe: mark.pascoe@stantec.com
  - Patrick Pittman: rbpittman2@aol.com
  - Nina Sanderson: sandersonp@ewashtenaw.org

---

**D. Project Information**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**E. Project Summary**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**F. Project Background**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**G. Project Status**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**H. Project Updates**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)

---

**I. Other**

- **Project Name**: Conservation Design Forum
- **Meeting Date**: June 25, 2015
- **Meeting Time**: 2:00PM to 3:00PM
- **Location**: [Elmhurst, IL 60126](https://www.cdfinc.com)
SEPTEMBER 18, 2015

Meeting Minutes | APPENDIX A

Meeting Date: September 18, 2015
Meeting Time: 9:00 a.m. - 11:30 a.m.
Project Name: N/A
Project Number: N/A
Website: N/A
Minutes: N/A

WASHTENAW COUNTY PARKS & RECREATION COMMISSION
BORDER-TO-BORDER TRAIL – SEGMENTS D2-G
IRON BELLE TRAIL

Participants:

A. Background:

1. CDF: Cardinal Distributors, Inc.
2. HCMA: Heritage Community Media Associates
3. HRWC: Huron River Watershed Council
4. MDOT: Michigan Department of Transportation
5. Natural Resources Conservation League of Greater Ann Arbor
6. P.Judd: Pittman Judd
7. riverview
8. R.O.W.s.: Right-of-Way
9. Sandersonp: Sanderson Pittman
10. WCPARC: Washtenaw County Parks, Recreation, Arts, and Culture

B. Action Items:

1. Pittman Judd:
   - Discussion of the recent meeting with CDF.
   - CDF’s priorities and goals for the project.
   - Action: Review CDF’s priorities and goals.

2. Sanderson Pittman:
   - Discussion of the recent meeting with MDOT.
   - MDOT’s priorities and goals for the project.
   - Action: Review MDOT’s priorities and goals.

3. HRWC:
   - Discussion of the recent meeting with HRWC.
   - HRWC’s priorities and goals for the project.
   - Action: Review HRWC’s priorities and goals.

4. HCMA:
   - Discussion of the recent meeting with HCMA.
   - HCMA’s priorities and goals for the project.
   - Action: Review HCMA’s priorities and goals.

5. NRCCL:
   - Discussion of the recent meeting with NRCCL.
   - NRCCL’s priorities and goals for the project.
   - Action: Review NRCCL’s priorities and goals.

C. Current Status:

1. Environmental:
   - Discussion of the recent environmental assessment.
   - Action: Review environmental assessment.

2. Design:
   - Discussion of the recent design progress.
   - Action: Review design progress.

3. Construction:
   - Discussion of the recent construction activities.
   - Action: Review construction activities.

D. Next Steps:

1. CDF:
   - Action: Review CDF’s next steps.

2. MDOT:
   - Action: Review MDOT’s next steps.

3. HRWC:
   - Action: Review HRWC’s next steps.

4. HCMA:
   - Action: Review HCMA’s next steps.

5. NRCCL:
   - Action: Review NRCCL’s next steps.

6. NRC:
   - Action: Review NRC’s next steps.

7. WCPARC:
   - Action: Review WCPARC’s next steps.

E. Conclusion:

1. Pittman Judd:
   - Discussion of the recent meeting with Pittman Judd.
   - Pittman Judd’s priorities and goals for the project.
   - Action: Review Pittman Judd’s priorities and goals.

2. Sanderson Pittman:
   - Discussion of the recent meeting with Sanderson Pittman.
   - Sanderson Pittman’s priorities and goals for the project.
   - Action: Review Sanderson Pittman’s priorities and goals.

3. HRWC:
   - Discussion of the recent meeting with HRWC.
   - HRWC’s priorities and goals for the project.
   - Action: Review HRWC’s priorities and goals.

4. HCMA:
   - Discussion of the recent meeting with HCMA.
   - HCMA’s priorities and goals for the project.
   - Action: Review HCMA’s priorities and goals.

5. NRCCL:
   - Discussion of the recent meeting with NRCCL.
   - NRCCL’s priorities and goals for the project.
   - Action: Review NRCCL’s priorities and goals.

6. NRC:
   - Discussion of the recent meeting with NRC.
   - NRC’s priorities and goals for the project.
   - Action: Review NRC’s priorities and goals.

7. WCPARC:
   - Discussion of the recent meeting with WCPARC.
   - WCPARC’s priorities and goals for the project.
   - Action: Review WCPARC’s priorities and goals.

F. Adjournment:

1. Pittman Judd:
   - Discussion of the recent adjournment.
   - Adjournment review.

2. Sanderson Pittman:
   - Discussion of the recent adjournment.
   - Adjournment review.

3. HRWC:
   - Discussion of the recent adjournment.
   - Adjournment review.

4. HCMA:
   - Discussion of the recent adjournment.
   - Adjournment review.

5. NRCCL:
   - Discussion of the recent adjournment.
   - Adjournment review.

6. NRC:
   - Discussion of the recent adjournment.
   - Adjournment review.

7. WCPARC:
   - Discussion of the recent adjournment.
   - Adjournment review.

Meeting Minutes | APPENDIX A

Meeting Date: August 31, 2015
Meeting Time: 9:00 a.m. - 11:30 a.m.
Project Name: N/A
Project Number: N/A
Website: N/A
Minutes: N/A

WASHTENAW COUNTY PARKS & RECREATION COMMISSION
BORDER-TO-BORDER TRAIL ~ SEGMENTS D2-G
IRON BELLE TRAIL

Participants:

A. Background:

1. CDF: Cardinal Distributors, Inc.
2. HCMA: Heritage Community Media Associates
3. HRWC: Huron River Watershed Council
4. MDOT: Michigan Department of Transportation
5. Natural Resources Conservation League of Greater Ann Arbor
6. Pittman Judd
7. riverview
8. R.O.W.s.: Right-of-Way
9. Sanderson Pittman
10. WCPARC: Washtenaw County Parks, Recreation, Arts, and Culture

B. Action Items:

1. CDF:
   - Action: Review CDF’s action items.

2. MDOT:
   - Action: Review MDOT’s action items.

3. HRWC:
   - Action: Review HRWC’s action items.

4. HCMA:
   - Action: Review HCMA’s action items.

5. NRCCL:
   - Action: Review NRCCL’s action items.

6. NRC:
   - Action: Review NRC’s action items.

7. WCPARC:
   - Action: Review WCPARC’s action items.

C. Current Status:

1. Environmental:
   - Action: Review environmental status.

2. Design:
   - Action: Review design status.

3. Construction:
   - Action: Review construction status.

D. Next Steps:

1. CDF:
   - Action: Review CDF’s next steps.

2. MDOT:
   - Action: Review MDOT’s next steps.

3. HRWC:
   - Action: Review HRWC’s next steps.

4. HCMA:
   - Action: Review HCMA’s next steps.

5. NRCCL:
   - Action: Review NRCCL’s next steps.

6. NRC:
   - Action: Review NRC’s next steps.

7. WCPARC:
   - Action: Review WCPARC’s next steps.

E. Conclusion:

1. Pittman Judd:
   - Action: Review Pittman Judd’s conclusion.

2. Sanderson Pittman:
   - Action: Review Sanderson Pittman’s conclusion.

3. HRWC:
   - Action: Review HRWC’s conclusion.

4. HCMA:
   - Action: Review HCMA’s conclusion.

5. NRCCL:
   - Action: Review NRCCL’s conclusion.

6. NRC:
   - Action: Review NRC’s conclusion.

7. WCPARC:
   - Action: Review WCPARC’s conclusion.

F. Adjournment:

1. Pittman Judd:
   - Action: Review Pittman Judd’s adjournment.

2. Sanderson Pittman:
   - Action: Review Sanderson Pittman’s adjournment.

3. HRWC:
   - Action: Review HRWC’s adjournment.

4. HCMA:
   - Action: Review HCMA’s adjournment.

5. NRCCL:
   - Action: Review NRCCL’s adjournment.

6. NRC:
   - Action: Review NRC’s adjournment.

7. WCPARC:
   - Action: Review WCPARC’s adjournment.
APPENDIX A | Meeting Minutes

OCTOBER 01, 2015

Conservation Design Forum

Agenda

Date: Thursday, May 5

Note: Documenteds are listed in Appendix A.

1. Call to order
2. Names & Quorum
3. Approval of Agenda
4. Change in Agenda
5. Old Business
6. New Business
7. Open Forum
8. Adjourned

Action Items

1. Conservation Design Forum
   a. Next Meeting: June 2

2. Change in Agenda
   a. Add: Discuss B2B Trail

3. New Business
   a. Discuss B2B Trail

4. Open Forum
   a. Alok Judd

5. Adjourned
   a. Motion: Adjourn

Outstanding Items

1. Conservation Design Forum
   a. Item 5c)

2. Change in Agenda
   a. Item 2)

3. New Business
   a. Item 5c)

4. Open Forum
   a. Item 5c)

5. Adjourned
   a. Item 5c)
1. Sanderson and Vaughn described the issue of the current RFP to develop a border-to-border trail between Ann Arbor and Dublin. This project involves the implementation of a proposed segment that follows an existing corridor for its entire length.

2. The task of developing this segment is divided into two main tasks: gathering planning data for the segment and preparing a purchase segment. The gathering planning data task is expected to take about one year to complete.

3. Sanderson and Vaughn described the scope of the current RFP to develop a border-to-border trail between Ann Arbor and Dublin. The RFP is focused on the development of a segment that follows an existing corridor for its entire length.

4. Cooper and Kuras expressed their general support for the project and were glad to see the progress being made.

5. The rail bisects the city and forms a significant barrier to non-motorized traffic.

6. Iowa has the same issue of the rail bisecting the city and requiring a solution.

7. The rail bisects the city and forms a significant barrier to non-motorized traffic.

8. Iowa has the same issue of the rail bisecting the city and requiring a solution.

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60. Iowa has the same issue of the rail bisecting the city and requiring a solution.
Minutes - Meeting with MWMD Natural Rivers Program Coordinator

- The Board members went through the process of selecting a specific project. The selected project was the Dexter to Ann Arbor segment. The meeting was aimed at discussing the potential benefits and challenges of this project.

- The group discussed the importance of preserving natural waterways and maintaining biodiversity. They agreed on the need for coordinated efforts to address the issues related to the project.

- The group also discussed the need for community involvement and stakeholder engagement in the process of project development. They emphasized the importance of transparent and open communication with the public.

- The next steps were outlined, including the need for further research and data collection. The group agreed to continue working towards the implementation of the project.

- The meeting concluded with a call to action for all members to participate actively in the project's development and implementation.

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Minutes - Meeting with MDOT

- The meeting addressed the progress of the project and the latest developments. The group discussed the importance of maintaining momentum and ensuring that the project stays on track.

- The group also discussed the need for continued support from various stakeholders to ensure the success of the project.

- The meeting concluded with a call to action for all members to continue their efforts in supporting the project.

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Minutes - Meeting with Washtenaw County Greenways Advisory Committee

- The meeting addressed the progress of the project and the latest developments. The group discussed the importance of maintaining momentum and ensuring that the project stays on track.

- The group also discussed the need for continued support from various stakeholders to ensure the success of the project.

- The meeting concluded with a call to action for all members to continue their efforts in supporting the project.

---

Minutes - Meeting with Washtenaw Conservation District

- The meeting addressed the progress of the project and the latest developments. The group discussed the importance of maintaining momentum and ensuring that the project stays on track.

- The group also discussed the need for continued support from various stakeholders to ensure the success of the project.

- The meeting concluded with a call to action for all members to continue their efforts in supporting the project.

---

Minutes - Meeting with Washtenaw County Parks and Recreation Commission

- The meeting addressed the progress of the project and the latest developments. The group discussed the importance of maintaining momentum and ensuring that the project stays on track.

- The group also discussed the need for continued support from various stakeholders to ensure the success of the project.

- The meeting concluded with a call to action for all members to continue their efforts in supporting the project.

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Minutes - Meeting with Washtenaw County Parks and Recreation Commission

- The meeting addressed the progress of the project and the latest developments. The group discussed the importance of maintaining momentum and ensuring that the project stays on track.

- The group also discussed the need for continued support from various stakeholders to ensure the success of the project.

- The meeting concluded with a call to action for all members to continue their efforts in supporting the project.
Minutes:

Date: November 13, 2015
Location: NEXTRC Administration Offices
Subject: Border-to-Border Trail – Segments D2-G

Attendees: John Bittner (NEXTRC, President), Kyle Soltes (Washtenaw County Board of Commissioners, Washtenaw County Department of Transportation Planning Consultant)

Minutes:

5. Sanderson and Vaughn described the big picture vision of the B2B including the scope of the current RFP to develop a Master Plan for the Border-to-Border Trail – Dexter to Ann Arbor. The Scope of Work clearly stated that WCPARC would be responsible for the planning, design, and cost estimate for the selected project. It was noted that there would be a detailed analysis of the connection into Ann Arbor which includes the potential options that may or may not be funded.

6. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

7. Sanderson and Vaughn stated that the B2B is for more than groomed snow bikes, walking, and jogging. The community has been growing and the need for a wide variety of trail uses has increased. It was noted that the Master Plan for the Border-to-Border Trail – Dexter to Ann Arbor could potentially result in a resolution from the Township Board which might then incorporate into the agreement with the Township. Sanderson agreed to speak with John Mackrell about the concept.

8. Sanderson and Vaughn described that the B2B Project has not moved forward for funding due to the large amount of unknowns. It is for this reason that Sanderson described that it was CDF that was the lead on Segment D-1 (River Township, Supervisor), Nancy Hedberg (Scio Township, Clerk), Jack Knowles (Barton Hills Village, President), and Jeff Wagoner (Barton Hills Village, Treasurer). It was noted that this was one of the reasons for the selection of the CDF/Stantec design team.

9. Lewan described that the CDF/Stantec design team has been working on the Border-to-Border Trail (BTT) Initiative. This makes it viable to take funding for the BTT. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed that there would be a detailed analysis of the connection into Ann Arbor which includes the potential options that may or may not be funded.

10. Lewan and Scio Township staff discussed that the BTT Initiative is funded by the federal Transportation Alternatives Program (TAP). The project is a new and innovative way to fund trail projects which are often funded through the federal Highway Planning and Transportation Fund (HPTF). Lewan then described that the BTT project will use the TAP funds to develop a trail that will connect the Trace State Park to the Ann Arbor library and provide a connection to Ann Arbor through the Barton Hills and Scio Townships. Lewan then described that this project will allow for the development of a trail that will be funded through the federal TARC program and protected private easements.

11. Lauen described that the CDF/Stantec design team has been working on the Border-to-Border Trail (BTT) Initiative. This makes it viable to take funding for the BTT. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed that there would be a detailed analysis of the connection into Ann Arbor which includes the potential options that may or may not be funded.

12. Lewan stated that the BTT project is a new and innovative way to fund trail projects which are often funded through the federal Highway Planning and Transportation Fund (HPTF). Lewan then described that the BTT project will use the TAP funds to develop a trail that will connect the Trace State Park to the Ann Arbor library and provide a connection to Ann Arbor through the Barton Hills and Scio Townships. Lewan then described that this project will allow for the development of a trail that will be funded through the federal TARC program and protected private easements.

Meeting Minutes:

Date: December 03, 2015
Location: Washtenaw County Parks and Recreation Commission
Subject: Border-to-Border Trail – Segments D2-G

Attendees: John Bittner (NEXTRC, President), Kyle Soltes (Washtenaw County Board of Commissioners, Washtenaw County Department of Transportation Planning Consultant)

Minutes:

1. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

2. Lewan stated that the B2B Project has not moved forward for funding due to the large amount of unknowns. It is for this reason that Sanderson described that it was CDF that was the lead on Segment D-1 (River Township, Supervisor), Nancy Hedberg (Scio Township, Clerk), Jack Knowles (Barton Hills Village, President), and Jeff Wagoner (Barton Hills Village, Treasurer). It was noted that this was one of the reasons for the selection of the CDF/Stantec design team.

3. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

Meeting Minutes:

Date: December 03, 2015
Location: Washtenaw County Parks and Recreation Commission
Subject: Border-to-Border Trail – Segments D2-G

Attendees: John Bittner (NEXTRC, President), Kyle Soltes (Washtenaw County Board of Commissioners, Washtenaw County Department of Transportation Planning Consultant)

Minutes:

1. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

2. Lewan stated that the B2B Project has not moved forward for funding due to the large amount of unknowns. It is for this reason that Sanderson described that it was CDF that was the lead on Segment D-1 (River Township, Supervisor), Nancy Hedberg (Scio Township, Clerk), Jack Knowles (Barton Hills Village, President), and Jeff Wagoner (Barton Hills Village, Treasurer). It was noted that this was one of the reasons for the selection of the CDF/Stantec design team.

3. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

Meeting Minutes:

Date: December 03, 2015
Location: Washtenaw County Parks and Recreation Commission
Subject: Border-to-Border Trail – Segments D2-G

Attendees: John Bittner (NEXTRC, President), Kyle Soltes (Washtenaw County Board of Commissioners, Washtenaw County Department of Transportation Planning Consultant)

Minutes:

1. Lewan and Scio Township staff discussed what, if any, formal review for this project would be required. It was agreed to look into that and said that if it was not, the B2B could be amended into the agreement with WCPARC.

2. Lewan stated that the B2B Project has not moved forward for funding due to the large amount of unknowns. It is for this reason that Sanderson described that it was CDF that was the lead on Segment D-1 (River Township, Supervisor), Nancy Hedberg (Scio Township, Clerk), Jack Knowles (Barton Hills Village, President), and Jeff Wagoner (Barton Hills Village, Treasurer). It was noted that this was one of the reasons for the selection of the CDF/Stantec design team.
APPENDIX A | Letters of Support

DNR NATURAL RIVERS PROGRAM - 2015

MDOT RAIL DIVISION - 2016

SCIO TOWNSHIP - 2016

ANN ARBOR TOWNSHIP - 2016

HURON RIVER WATERSHED COUNCIL - 2016

WASHTENAW COUNTY ROAD COMMISSION - 2016

April 29, 2016
Robert Tetens, Director
Washtenaw County Parks and Recreation Commission
PO Box 8645
Ann Arbor, MI 48107

Re:
Master Plan for the Border-to-Border Trail: Dexter to Ann Arbor

Dear Mr. Tetens:

The Huron River Watershed Council (HRWC) would like to express our hearty support for the plan titled “Segment D2-G Border-to-Border Nonmotorized Trail Summary Report, 2016” that was prepared for the Washtenaw County Parks and Recreation Commission. We support the “preferred alignment” for the Border-to-Border Trail as outlined in the summary report, which details a plan to connect the cities of Dexter and Ann Arbor. This 7.2 mile corridor is a critical connection in the Border-to-Border Trail, and thereby the Iron Belle Trail. It links two population centers in Washtenaw County with safe, non-motorized infrastructure where currently, none exists.

THE HRWC has worked with your staff throughout the planning process to ensure that environmental and aesthetic considerations be placed at the forefront of the project. We feel that these considerations have been thoroughly balanced and accounted for at the planning level and that the same attention to detail should continue as the project moves into the design and engineering phase.

The B2B is more than a recreational amenity that caters to a broad range of users; it is green infrastructure along a commuter corridor and an economic engine that stimulates job growth, redevelopment, and recreational tourism in our local communities. We believe that completion of this trail is important, valuable, and timely. HRWC supports the Washtenaw County Parks and Recreation Commission’s efforts to complete this trail and we look forward to working with you on this exciting opportunity.

Yours sincerely,
Laura Rubin
Executive Director
1100 N. Main Street, Suite 210
Ann Arbor, MI 48104
lrubin@hrwc.org
734.769.5123

HURON RIVER WATERSHED COUNCIL - 2016

WASHTENAW COUNTY ROAD COMMISSION - 2016
### All Private Parcels Near Preferred Alignment

Note that this list does not necessarily mean that the listed property will be impacted by the trail. This list denotes that a portion of the listed parcel is within close proximity to the preferred trail alignment.

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**Parcels continued**

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- **H-08-12-400-001** LSLK ANN ARBOR RESIDENTIAL
- **H-09-07-361-001** NEWPORT RD ANN ARBOR RESIDENTIAL VACANT
- **H-09-07-361-002** 2766 NEWPORT RD ANN ARBOR RESIDENTIAL
- **H-09-07-361-003** 1885 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-361-008** 2277 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-361-010** 2289 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-361-012** 2325 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-361-019** 2385 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-361-021** 2938 NEWPORT RD ANN ARBOR RESIDENTIAL
- **H-09-07-361-022** 2950 NEWPORT RD ANN ARBOR RESIDENTIAL
- **H-09-07-361-023** NEWPORT ROAD ANN ARBOR RESIDENTIAL
- **H-09-07-361-024** 3020 N MAPLE RD ANN ARBOR RESIDENTIAL
- **H-09-07-361-025** 3019 N MAPLE RD ANN ARBOR RESIDENTIAL
- **H-09-07-361-026** 2896 NEWPORT RD ANN ARBOR RESIDENTIAL
- **H-09-07-460-002** 1701 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-07-460-008** 1873 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-17-250-006** 1133 W HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-09-17-250-010** HURON RIVER DR ANN ARBOR RESIDENTIAL VACANT
- **H-09-17-250-014** 1155 HURON RIVER DR ANN ARBOR RESIDENTIAL
- **H-08-09-1430-006** BARTON SHORE DR ANN ARBOR COMMERCIAL

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**Public Land and Rights of Way:**

- Huron Clinton Metropolitan Authority: Dexter-Huron Metropark: Public Land
- Huron Clinton Metropolitan Authority: Delhi Metropark: Public Land
- City of Ann Arbor: Barton Nature Area: Public Land
- City of Ann Arbor: Bandemer Park: Public Land
- City of Ann Arbor: Brokaw Nature Area: Public Land
- MDOT Railroad Division: Wolverine Line Right of Way: Public Land
- Washtenaw County Road Commission: Huron River Drive Right of Way: Public Land

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**Parcel Ownership**

- 91
This appendix is a summary of public comments that were received as part of the planning process. Nearly 120 people participated in the process and more than 50 written comments were received (124 pages, in total). Many of the comments were similar and had duplicated themes; therefore, this appendix is a summary of those comments. To review all public comments received, visit [b2b.ewashtenaw.org](http://b2b.ewashtenaw.org) and click on “B2B Trail Planning and Active Projects” or scan the code to the right.

Alternatively, visit
### BORDER-TO-BORDER TRAIL MASTER PLAN: DEXTER TO ANN ARBOR

#### PUBLIC MEETING FEEDBACK SURVEY (on-line feedback)

**Comment Sheets Completed:** 22

Do you feel that you have a better understanding of Washtenaw County Park and Recreation Commission's intentions regarding the Border-to-Border Trail connection between Dexter and Ann Arbor after having attended this public meeting?

<table>
<thead>
<tr>
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Please indicate your thoughts on the following as related to the Border-to-Border Trail Master Plan between Dexter and Ann Arbor. Check the appropriate response below.

### Optional Questions:

**Most of the "disagrees" only disagree with 'Segment F'** (see comments)

#### How do you use the B2B Trail?

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<thead>
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#### How do you get information about the B2B Trail?

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#### Demographics

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<tr>
<td>Female</td>
<td>45-54</td>
</tr>
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</table>

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### ONLINE SURVEY & FEEDBACK - FEBRUARY 24 - MAY 05, 2016

**TOTAL SURVEY & FEEDBACK - FEBRUARY 24 - MAY 05, 2016**

**Sign in Sheet Attendance:** n/a

**Comment Sheets Completed:** 51

Please indicate your thoughts on the following as related to the Border-to-Border Trail Master Plan between Dexter and Ann Arbor. Check the appropriate response below.

### Optional Questions:

**Most of the "disagrees" only disagree with 'Segment F'** (see comments)

#### How do you use the B2B Trail?

<table>
<thead>
<tr>
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#### How do you get information about the B2B Trail?

<table>
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<th>Disagree</th>
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#### Demographics

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<th>Gender</th>
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<td>Female</td>
<td>45-54</td>
</tr>
</tbody>
</table>
APPENDIX C | Public Working Sessions

BORDER-TO-BORDER TRAIL MASTER PLAN: DEXTER TO ANN ARBOR
PUBLIC MEETING FEEDBACK SURVEY

ANN ARBOR PRESENTATION (2/24/2016)
Presentation and Master Plan Comments:
1. Very clear graphics. Thorough presentation and Q&A by the team
2. The time line was addressed in some form. That gives us a good idea of how long of a project this will be: 2-5 years?
3. Good presentation
4. The trail would be better between Barton Pond and the railroad than between the road and railroad. Consider closing a lane of Huron River Drive between Wagner and Maple occasionally for two-way biking, walking, or running.

What changes and improvements would you like to see at trailheads (in existing parks)?
1. Coordinate signage and trail information with the Huron River Water Trail
2. Signage to remind bicyclists of speed restrictions and etiquette to alert when passing
3. Signage, restrooms, water (in season)
4. Signage to remind bicyclists of speed restrictions and etiquette to alert when passing
5. The trail would be better between Barton Pond and the railroad than between the road and railroad.
6. Snow removal

Is there anything else you would like to let us know?
1. No responses.

BORDER-TO-BORDER TRAIL MASTER PLAN: DEXTER TO ANN ARBOR
PUBLIC MEETING FEEDBACK SURVEY

DEXTER PRESENTATION (3/2/2016)
Presentation and Master Plan Comments:
1. I would like to see Huron River Drive shut down from Wagner Road to north Main Street/M-14 on weekends. Weekdays, make it a one way (one lane) for motorized vehicles and the other lane shut down for non-motorized.
2. Presentation was great. Disagreed with crosswalk at Zeeb Road and mid-block to the east. Would much prefer the south side of Huron River Drive east of Zeeb.
3. Great job, thanks for providing a good vision and plan to get this important asset completed. I disagree with the preferred alignment in Barton Nature Area.
4. I thought it was further along, time wise.
5. Past speed limit signs on Huron River Drive - for bikes.
6. Good information - good visual material. Questions were addressed fully and completely.
7. Wonderful to get this information. Presentation was great. I am very positive about this project.
8. Love the B2B. Wonderful how it will run past our property on Huron River Drive.
9. I like seeing all of the effort going into communicating with the public.
10. Please explore connection for hikers on the west end of Burns-Stokes Preserve as well as alternative, hiking-only routes where feasible (e.g. Barton Park). There must eventually be a connection between Bandemer Park and Huron River Drive.
11. Very clear, well prepared. Very competent in response to questions.
12. Communities south of the B2B need to have a connection. Ex: Saline via Wagner or Zeeb Road north.

Is there anything else you would like to see at trailheads (in existing parks)?
1. More bathrooms and bike repair stations
2. More/better/ improved signage
3. Existing porta-pots (especially behind Dexter Fire Station emptied!)

What changes and improvements would you like to see along the trail?
1. More bathrooms and benches (possibly funded with donations)
2. Better marking of the B2B (mileage, directions, etc.)
4. Work with the City of Ann Arbor to find solution to final link between Bandemer and Barton Parks, keep trail in Barton Nature Area.
5. Signs for cyclists – speed limits on riders. Great concept for “all types” of usage, but there needs to be “respect” for all users.
6. I just love the trails so far. I also cannot quite a bit and the river is lovely – pleased that consideration is given to align bridges with existing bridges as much as possible.
7. Trail access at Flemming and Dexter-Pinckney Road.

Is there anything else you would like to let us know?
1. Explore the option of making Huron River Drive from Main Street to Wagner Road, a one way street permanently and closest to cars all together on weekends.
2. Please stay as close to the river as possible. Would prefer to avoid crosswalks and road crossings.
3. The sooner the better. 
4. Please maintain year-round for walking.
5. Need to do more publicity.
6. I understand the complexity of this project – all the pros and cons, and feel that this seems well thought out.
7. City of Saline is very interested in working the county in creating a connection to the B2B.

BORDER-TO-BORDER TRAIL MASTER PLAN: DEXTER TO ANN ARBOR
PUBLIC MEETING FEEDBACK SURVEY

SCIO TOWNSHIP PRESENTATION (4/20/2016)
Presentation and Master Plan Comments:
1. Excellent presentation. Was against proposal and now I am for.
2. Walk along Huron River road is a large concern. Overall, plan seems to be well thought out. Please get input from Ann Arbor Center for Independent Living.
3. Master Plan design basically ignored public input- “representatives” by way of boards/commissions is not the same. This meeting process occurred way too late in the design process. Funding issues had more priority in determining design rather than aesthetics / ecological priorities.
4. They were excellent. The presentation went over all the plans regarding coordination with other effective entities, cash, and impacts to the environment, property owners and the community.

What changes and improvements would you like to see at trailheads (in existing parks)?
1. Mileage signs from point to point

What changes and improvements would you like to see along the trail?
1. Restrooms (some of us need them more than others)
2. Need more dedicated parking especially at Foster Bridge – Maple crossing- will definitely have on-the-road overflow with current set

Is there anything else you would like to let us know?
1. Try not to cut 100 to 150 trees at Barton Pond
2. I really think the best solution for [Segment] “F” is to make Huron River Dr. one-way or close the road to traffic or make that section of road to the trail.

Segment F - Alternative Alignments Study
Presentation and Master Plan Comments:

1. If possible, route the trail along the south side of Huron River Drive.
2. I wish this project would have been considered twenty years ago, however, better late than never. Keep up the good work, as I’ll use this trail frequently!
3. Document is more-than-a-bit complex. After about 45 minutes it made sense. It is unclear how the road crossing will be controlled (if at all). Will HAWK beacons or something similar be in use? What is the timeframe for completing this project?
4. Agree with Master Plan except for preferred alignment for Segment F.
5. See attached letter(s).
6. We would like an opportunity to comment on this plan at another meeting.
7. The primary appeal of purchasing a home in this secluded location (away from Huron River Drive) was the river with its tranquility, bird life, and unobstructed views. I fail to see the necessity of suddenly adding urban structures, jumping across the river with bridges, boardwalks, and fences (topped with barbed wire). Common sense dictates that this segment should continue along the existing roadway. I did not know about this project or the public meetings, communication should be improved. I propose that another meeting be held in the near future.
8. We agree with the response sent to you by our neighbor (a letter). We currently have an unobstructed view over the railroad tracks and down the river. Our backyard is private and quiet. These are the reasons we purchased our home and have invested significant money into it. We are concerned with the preferred alignment and its negative impacts on our neighborhood. A pedestrian super highway looking into our home will destroy our peaceful and quaint Huron River Drive is very popular and scenic for bikers, joggers, and walkers, why alter and invade this sensitive, natural area in our backyard when there is an existing road on the other side of the river? Adding a biking/walking lane to Huron River Drive is a great idea. We recognize that this is a light traffic and altering the existing river bank is not a good option. It does appear that there is some room to move the roadway slightly toward the river to increase space on the south side. We trust the ingenuity of your designers to come up with a far less invasive and no more costly solution to create these pedestrian lanes along the existing roadway.
9. (The plan) looks great, carry on!
10. Disagree with Segment F as it will negatively impact our neighborhood. It seems to be the only section that chooses to align the path on private property and with close proximity to a neighborhood. My property value will decrease and this is unacceptable.
11. Use the 2.5 acre property at the corner of Wagner and Huron River Drive that is owned by the City of Ann Arbor as a partial solution instead of crossing the river.
12. I feel that options for Segment F on the south side of Huron River Drive were not adequately explored. I have driven the road multiple times and think that the amount of traffic that will be needed is significantly overstated. Why not elevate the trail above road grade to deal with uneven terrain? Doing this would solve most of the cited problems, including expensive containment walls, cost impact, substantial tree removal, and so forth. It is clear to me that alternatives for this route were not exhausted.
13. The view from Huron River Drive, looking at the peninsula, is one of the defining visual moments of the road’s experience. Adding bridges and boardwalks with railings would dramatically impact the scenery.
14. Noise pollution from bicyclists and runners has not been considered. It is true that trains pass by in close proximity, but it happens with a low and fixed frequency and therefore cannot be compared to the levels of noise from the non-motorized traffic that would stop for rests next to our neighborhood.
15. I feel that I know the Huron River and Huron River Drive well, and it strikes me that the people involved in assessing the impact of the alternative routes are not as in-tune with the significance and rarity of some of the areas they are proposing to disturb with non-critical human traffic.
16. I am not in favor of the “preferred” plan of routing the walkway along the back of our neighborhood and across the natural peninsula. These properties were purchased for their privacy and seclusion. The occasional train was understood at the time of purchase. Security issues, human noise and traffic, and the disturbance to wildlife are all unwelcome. Huron River Drive would be a better alternative.
17. I don’t see how a plan that uses two bridges can be more economical or efficient than a design that parallels other routes in the area. I look forward to more discussion of this project. The B2B is an important asset to the county and I look forward to seeing it extended.

What changes and improvements would you like to see along the trail?

1. Changes to Segment F
2. Keep the trail out of our backyards. Please don’t destroy the “aesthetic and scenic qualities of the corridor” by erecting an 8’ fence topped with barbed wire (MDOT regulation, I looked it up).
3. No bridges in Segment F
4. Study the impact on wildlife, especially deer and coyotes that are in growing numbers in my neighborhood. Will there be unintended consequences of a fence along the path? Will it limit wildlife travel?
5. Introduction of foot traffic in our backyards will introduce graffiti, litter, noise, and visual blights. This project will cause considerable noise from bicycle users, destroying the peace and quiet of our neighborhood.
6. Myself and other in our sub-division are very concerned and opposed to bridges and trail between bridges (for Segment F).
7. See attached letter(s).

Is there anything else you would like to let us know?

1. Did not know about the public meetings. Communication can be improved.
2. All for it - proceed!
3. Stay off the peninsula!
4. Please keep those you directly impact informed of your proposed plans. I’m hearing about this from concerned neighbors, who hear it from other concerned neighbors. Just because my house isn’t close to the trail, do not assume that my family and I will not be impacted by your absurd proposal.
5. Keep the trail out of our backyards. Please don’t destroy the “aesthetic and scenic qualities of the corridor” by erecting an 8’ fence topped with barbed wire (MDOT regulation, I looked it up).
6. No bridges in Segment F
7. Study the impact on wildlife, especially deer and coyotes that are in growing numbers in my neighborhood. Will there be unintended consequences of a fence along the path? Will it limit wildlife travel?
8. Disagree with Segment F as it will negatively impact our neighborhood. It seems to be the only section that chooses to align the path on private property and with close proximity to a neighborhood. My property value will decrease and this is unacceptable.
9. (The plan) looks great, carry on!
10. Disagree with Segment F as it will negatively impact our neighborhood. It seems to be the only section that chooses to align the path on private property and with close proximity to a neighborhood. My property value will decrease and this is unacceptable.
11. Use the 2.5 acre property at the corner of Wagner and Huron River Drive that is owned by the City of Ann Arbor as a partial solution instead of crossing the river.
12. I feel that options for Segment F on the south side of Huron River Drive were not adequately explored. I have driven the road multiple times and think that the amount of traffic that will be needed is significantly overstated. Why not elevate the trail above road grade to deal with uneven terrain? Doing this would solve most of the cited problems, including expensive containment walls, cost impact, substantial tree removal, and so forth. It is clear to me that alternatives for this route were not exhausted.
13. The view from Huron River Drive, looking at the peninsula, is one of the defining visual moments of the road’s experience. Adding bridges and boardwalks with railings would dramatically impact the scenery.
14. Noise pollution from bicyclists and runners has not been considered. It is true that trains pass by in close proximity, but it happens with a low and fixed frequency and therefore cannot be compared to the levels of noise from the non-motorized traffic that would stop for rests next to our neighborhood.
15. I feel that I know the Huron River and Huron River Drive well, and it strikes me that the people involved in assessing the impact of the alternative routes are not as in-tune with the significance and rarity of some of the areas they are proposing to disturb with non-critical human traffic.
16. I am not in favor of the “preferred” plan of routing the walkway along the back of our neighborhood and across the natural peninsula. These properties were purchased for their privacy and seclusion. The occasional train was understood at the time of purchase. Security issues, human noise and traffic, and the disturbance to wildlife are all unwelcome. Huron River Drive would be a better alternative.
17. I don’t see how a plan that uses two bridges can be more economical or efficient than a design that parallels other routes in the area. I look forward to more discussion of this project. The B2B is an important asset to the county and I look forward to seeing it extended.

Is there anything else you would like to let us know?

1. Did not know about the public meetings. Communication can be improved.
2. All for it - proceed!
3. Stay off the peninsula!
4. Please keep those you directly impact informed of your proposed plans. I’m hearing about this from concerned neighbors, who hear it from other concerned neighbors. Just because my house isn’t close to the trail, do not assume that my family and I will not be impacted by your absurd proposal.
5. Keep the trail out of our backyards. Please don’t destroy the “aesthetic and scenic qualities of the corridor” by erecting an 8’ fence topped with barbed wire (MDOT regulation, I looked it up).
6. No bridges in Segment F
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Section D-D
Station: MH43+67
Huron River Drive
APPENDIX D | MDOT/Amtrak Cross Section Study

Section E-E
Station: MH42+58
Delhi Road

Vertical Scale 1"=20'-0"
Horizontal Scale 1"=20'-0"
Contour Interval = 2'

100 200 300 400 500 600 700 800

Existing Grade

860
850
840
830

RAIL ROW

STA MH42+58

100 0 20 40

Vertical Scale 1"=20'-0"
Horizontal Scale 1"=20'-0"
Contour Interval = 2'

E

ST MH42+58

DELHI ROAD
Volume 34, Page 31

FROM GENERAL LAND SURVEY OFFICE - MICHIGAN TERRITORY - SCIO TOWNSHIP

Section 8 & 9
Section 4 & 9
Section 4 & 5
Section 9 & 10
Section 3 & 10

FROM GENERAL LAND SURVEY OFFICE - MICHIGAN TERRITORY - SCIO TOWNSHIP

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### Section 17 & 20

**Chains Feet**

| 3.10 | 204 | Set post and line on Huron River. There were 4’ 53” NW 8 links. Linn 3’ 14” NW 40 links. |
| 39.00 | 2626 | ½ Sec post xx. D. White Oak 1’ 02” W 28 links. |
| 76.60 | 5555 | Intersect North & South line post. Section corner. |

#### Notes
- Very hilly oak land.
- Surveyed in 1829 by Joseph Wampler.

### Section 17 & 18

**Chains Feet**

| 14.00 | 924 | Run 2 NE 200’ |
| 52.45 | 3461 | Run 2 N 200’ |
| 76.50 | 5049 | To [Huron] River. |
| 76.60 | 5055 | Section corner. |

#### Notes
- Hilly sideling land.
- West marker between Section 17 & 20.
- Surveyed in 1819 by Joseph Wampler.

### Section 7 & 8

**Chains Feet**

| 1.50 | 99 | Set post on north side of Huron River. |
| 40.00 | 2640 | Black Oak 1’ 30” W 82 links. |
| 41.00 | 2706 | Path Northward to Southeast. |
| 35.00 | 2696 | Section corner. |

#### Notes
- Slightly corrected between Section 8 & 17.
- Surveyed in 1819 by Joseph Wampler.

### Section 7 & 18

**Chains Feet**

| 0.75 | 49 | Island. |
| 1.50 | 99 | Over Island. |
| 2.50 | 165 | Over [Huron] River post. |
| 40.00 | 2626 | Set ½ mile post. |
| 41.00 | 2706 | White Oak 1’ 30” W 82 links. |
| 60.90 | 4019 | Path Northward to Southeast. |
| 72.37 | 4776 | White Oak 20” D. |

#### Notes
- First ½ mile level good land, no timber.
- Next level good land, white oak, black oak the whole, with undergrowth hazel vegetation.
- Surveyed in 1829 by Joseph Wampler.
Emergent Marsh

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Taxonomic Group</th>
<th>State Status</th>
<th>Federal Status</th>
<th>State Rank</th>
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<tr>
<td>Acris crepitans</td>
<td>Blanchard's cricket</td>
<td>Amphibians</td>
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<td>S2S3</td>
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<tr>
<td>Botaenus lentiginosus</td>
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<td>Birds</td>
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Southern Wet Meadow

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Floodplain Forest - continued

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Floodplain Forest

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**TOTAL ESTIMATED FINAL CONSTRUCTION COST**

$3,557,633

**CONSTRUCTION CONTINGENCIES**

10%

$323,421

**TOTAL ESTIMATED PROJECT COST**

$3,881,054

**CONSTRUCTION SUBTOTAL AT BID**

$3,234,212

**CONSTRUCTION SUBTOTAL AT BID**

$1,894,910
### Conservation Design Forum - Engineer's Opinion of Construction Costs

#### Conewashenaw County Parks & Recreation Commission
#### Iron Belle Trail

<table>
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<tr>
<th>Description</th>
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<th>UNIT COST</th>
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<td>Lighting,</td>
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<td>LF</td>
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<td>Road Work,</td>
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<td>LF</td>
<td>$650</td>
<td>$1,155,700</td>
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<td>anything not listed above.</td>
<td>1,778</td>
<td>LF</td>
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#### General Conditions

- **90% Design** Prepared By: AF

#### Conceptual

- **Bridge Abutments** (Bridge #5 & #6) 4 EA $150,000 $600,000
- **Install Massive Wall Unit Retaining Wall at Pavement Path Terminus** 3 EA $3,500 $10,500
- **12’ Wide Boardwalk on helical peirs (< 30” height & no railings)** 100 LF $450 $45,000
- **10’ Wide Pathway Pavement (4” Asphalt)** approx 2956 LF x 10’ W = 29,560 SF = 3,284 SYD $25 $82,100

#### 23 Signage and Pavement Marking (MUTCD and AASHTO) 1 LS $12,000 $12,000

#### 22 Proposed Pathway Amenities (benches, tables, bike racks, etc.) 1 LS $8,000 $8,000

#### 21 Fine Grading, Restoration Seeding, and Straw Blankets for sides of Trail 3,284 SYD $18 $59,112

#### 20 Proposed Bridge #6 (+/- 210’) Keystone Bridge (Includes Delivery and Installation) 1 EA $888,000 $888,000

#### 19 Proposed Bridge #5 (+/- 160’) Capstone Standard (Includes Delivery and Installation) 1 EA $510,000 $510,000

#### 18 Install / Remove Temporary Shoring, Gravel Crane Pad, and Access Drive (1 per bridge location) 2 EA $50,000 $100,000

#### 17 Bridge Abutments 4 EA $150,000 $600,000

#### 16 Retaining Wall (Allowance) 1 LS $50,000 $50,000

#### 15 12’ Wide Boardwalk on helical peirs (< 30” height & no railings) 1,778 LF $650 $1,155,700

#### 14 Install / Remove Temporary Shoring, Gravel Crane Pad, and Access Drive (1 per bridge location) 2 EA $50,000 $100,000

#### 13 10’ Wide Pathway Pavement (4” Asphalt) approx 2956 LF x 10’ W = 29,560 SF = 3,284 SYD $25 $82,100

#### 12 Chain Link Fence (8’ Height, black vinyl coated) approx 6,820 LF $18 $122,760

#### 11 Demolition and Removals (trees, debris, sawcutting, existing walk, etc.) 1 LS $15,500 $15,500

#### 10 Machine Grading 2,956 LF $20 $59,120

#### 9 SESC/Proposed Silt Fence/Rip-Rap/Check Dams 1 LS $23,000 $23,000

#### 8 Chain Link Fence (8’ Height, black vinyl coated) approx 6,820 LF $18 $122,760

#### 7 Traffic Control & Maintenance 1 LS $20,000 $20,000

#### 6 Franchise Utilities Coordination/Relocation 1 LS $5,000 $5,000

#### 5 Silt Fence 1 LS $10,000 $10,000

#### 4 General Conditions/Mobilization/Permits/Bonds (5% Max) 1 LS $199,078 $199,078

#### 3 Construction Fencing, Natural Areas Fencing, and Tree Protection Fencing 750 LF $4 $3,000

#### 2 Contractor Construction Layout & Staking 1 LS $15,000 $15,000

#### 1 General Conditions/Mobilization/Permits/Bonds (5% Max) 1 LS $175,306 $175,306
Community and Economic Benefits of Bicycling in Michigan
Prepared for: Michigan Department of Transportation 425 West Ottawa Street Lansing, Michigan

MDOT University Region: Regional Non-Motorized Plan
Prepared by: Michigan Department of Transportation 425 West Ottawa Street Lansing, Michigan July 2015

Pedestrian Tunnel Feasibility Study
Ann Arbor, Michigan
Prepared by: City of Ann Arbor, Michigan The University of Michigan Washtenaw County Parks and Recreation
With the Assistance of: Carter & Burgess Soil & Materials Engineers Giffels-Webster Engineers
July 22, 2005

Dexter-Huron Metropark NRD Management Areas
Huron-Clinton Metropolitan Authority Sources: HCMA, MNFI, SEMCOG January, 2012

Delhi Metropark NRD Management Areas
Huron-Clinton Metropolitan Authority Sources: HCMA, MNFI, SEMCOG March, 2013

GIS Data Sources:

Washtenaw County GIS 2015 Aerial Imagery Elevations based on 2009 LIDAR Data