EXECUTIVE SUMMARY
Bandemer-Barton Trail & Underpass Study

Bandemer Park and Barton Nature Area

Washtenaw County, MI

Draft

Bergmann

Office:
7050 W. Saginaw Highway Suite 200
Lansing, MI 48917

Phone: 517.272.9835

Email: jhedden@bergmannpc.com
www.bergmannpc.com

OHM Advisors

Office:
34000 Plymouth Road
Livonia, MI 48150

Phone: 734.522.6711

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1.1 PROJECT BACKGROUND (BY WASHTENAW COUNTY PARKS & RECREATION)

1.1.1 Project Intent

The Washtenaw County Parks & Recreation Commission (WCPARC), in cooperation with the City of Ann Arbor, commissioned this study to evaluate two components of a proposed project to expand the Border-to-Border Trail (B2B) located on the northwest side in the City of Ann Arbor, Washtenaw County, Michigan. The first component is to understand the feasibility of constructing a shared-use, non-motorized underpass of the Michigan Line railroad (owned by MDOT and operated and maintained by Amtrak) to facilitate the extension of the B2B between Bandemer Park and Barton Nature Area (Part 1 of this report). The second part of the project is to evaluate options and associated impacts for extending the B2B from the proposed underpass through Barton Nature Area, utilizing the existing non-motorized bridges over the Huron River and connecting with the existing parking area south of Barton Dam (Part 2 of this report).

1.1.2 Project Background

The B2B is the premier non-motorized trail system in Washtenaw County. Its goal is to connect people to destinations, such as parks, the Huron River, and downtown areas. The B2B is part of Michigan's Iron Belle Trail, which expands the local trail efforts to make regional connections to neighboring communities. As part of the Iron Belle Trail, Washtenaw County and the B2B will be part of more than 130 miles of interconnected regional trails spanning from the City of Jackson to Lake Erie. Within Washtenaw County, the B2B has 34 miles of completed trails with a total of 55 miles planned.

One of the largest remaining gaps in the B2B is the corridor between the City of Dexter and the City of Ann Arbor along the Huron River. In 2015, the WCPARC led an effort to develop a Master Plan (herein referred to as the 2016 Master Plan) to guide the development for the Dexter-Ann Arbor corridor of the B2B. The planning process engaged local governments, including the City of Ann Arbor, numerous stakeholders, and the public.

The plan was ultimately adopted in 2016 and since then, work has been steadily progressing to extend the popular trail segments near the City of Dexter, east to connect the Huron Clinton Metroparks. The City of Ann Arbor's sections of the B2B are among the oldest and most heavily utilized segments of trail and are integral to the non-motorized transportation network. The existing B2B near Ann Arbor extends from the northwest side of the City, in Bandemer Park, 20 miles east through the City of Ypsilanti and nearly to the county border. On its route, the trail links 14 parks along the Huron River, University of Michigan Hospital, University of Michigan's North and Central Campuses, Washtenaw Community College, St. Joseph's Hospital, Eastern Michigan University, and the downtown areas of Ypsilanti.

According to the 2016 Master Plan, Barton Nature Area and Bandemer Park is the proposed connection point for the B2B between the existing trail in Ann Arbor and the proposed trail coming from Dexter. The primary challenge associated with completing this connection is: how to extend the trail across the existing Michigan Line railroad, which carries Amtrak's Wolverine service. One side of the railroad contains Bandemer Park and the existing trail. On the opposite side of the railroad is Barton Nature Area, owned by the City of Ann Arbor, and Huron River Drive, arguably the most popular and scenic bicycling road in the county. Therefore, developing a safe connection between Bandemer Park and the Barton Nature Area is a critical link in the B2B and the regional efforts of the Iron Belle Trail.

WCPARC, in cooperation with the City of Ann Arbor, commissioned this study to evaluate two components of the proposed project. One being the feasibility of constructing a shared-use, non-motorized underpass of the Wolverine Line to facilitate the extension of the B2B between Bandemer Park and Barton Nature Area. The second part of the project is to evaluate options and associated impacts for extending the B2B from the proposed underpass through

Barton Nature Area, utilizing the existing non-motorized bridges and connecting with the existing parking area south of Barton Dam.

Part 1 of the report investigates alternatives for a proposed grade separation of the railroad between Bandemer Park and the Barton Nature Area (see **Exhibit 1-1** for project location map). An underpass is the recommended method for separating the railroad from non-motorized traffic for the following reasons:

1. It provides the safest, most direct, and legal crossing;
2. It minimizes environmental and aesthetic impacts;
3. At-Grade crossings (traditional gates, bells, and lights), are not permitted at this location by law.

Part 2 of the report investigates alternatives for a proposed accessible trail through the Barton nature Area.

1.1.3 Project Goals

The goal of this project is to assess the feasibility of constructing a grade separation for a pedestrian underpass under the Michigan Line Railroad near Bandemer Park as well as an accessible trail connecting the new underpass to, and through, the Barton Nature area. Criteria and tools used to evaluate the feasibility are outlined below:

1. Build upon a previous study completed in 2005 (Pedestrian Tunnel Feasibility Study, Ann Arbor, Michigan, July 22, 2005) and update it to meet modern engineering standards and permitting requirements
2. Incorporate findings from the B2B Trail Master Plan: Dexter to Ann Arbor developed in 2016.
3. Trail user safety: safety, protection from trains, trail user conflicts, and perceptions of using an enclosed space
4. Limit disturbance of the natural environment (including minimizing habitat fragmentation) to the minimum necessary to complete the project
5. Avoid Oak trees (just east of the natural prairie area) wherever possible
6. Create a positive trail user (runners, bicyclists, pedestrians, etc.) experience and a structure that is aesthetically pleasing and fits into its context.
7. Public opinion and input regarding all aspects of the proposal
8. Construction methodology and costs
9. Maintenance considerations, including legacy costs
10. Incorporate existing pedestrian bridges over the Huron River
11. Coordinate with heavily used canoe launch located just downstream of the Barton Dam
12. Match existing ground topography as much as possible, minimizing grading impacts

1.1.4 Methodology and Evaluation

The project team used their professional engineering knowledge and past experience to guide the development of this report. The methodology outlined below was followed:

1. Critically analyze and evaluate existing site conditions, including: the railroad, soils and geotechnical considerations, hydrology, topography, presence of utilities, existing vegetation, and other factors
2. Analyze impacts to the quality of ecological areas
3. Identify and evaluate site constraints that may affect each alternative. Options must also be evaluated for compliance with current design standards and criteria:
    a. American Association of State Highway and Transportation Officials (AASHTO)
    b. Americans with Disabilities Act (ADA)
    c. Amtrak standards for structures under railroads
    d. Permit requirements from the appropriate agencies
4. Solicit feedback from stakeholders and advisory bodies, (MDOT Office of Rail, City of Ann Arbor Parks Advisory Commission, etc.) and incorporate into plan
5. Solicit public feedback and incorporate into plan

6. Develop a preferred alternative
7. Alignment of the trail south of Bridge 1 to the pedestrian underpass will be included in the rail underpass project once an alignment (for the underpass) is finalized
8. For Part 1: Develop alternatives to provide a separated grade crossing between a new path and the railroad. Include options that were explored in the 2005 study, potential new ideas, and lessons learned from a similar project, Allen Creek Berm: Feasibility of Flood Reduction and Pedestrian Options (City of Ann Arbor) developed in 2013 and subsequent final design plans completed in 2019.
9. For Part 2: Critically analyze the conditions of the existing pathways through the Barton Nature Area
10. For Part 2: Utilize topographic information and tree survey data results to develop various path alignments and compare each alternative

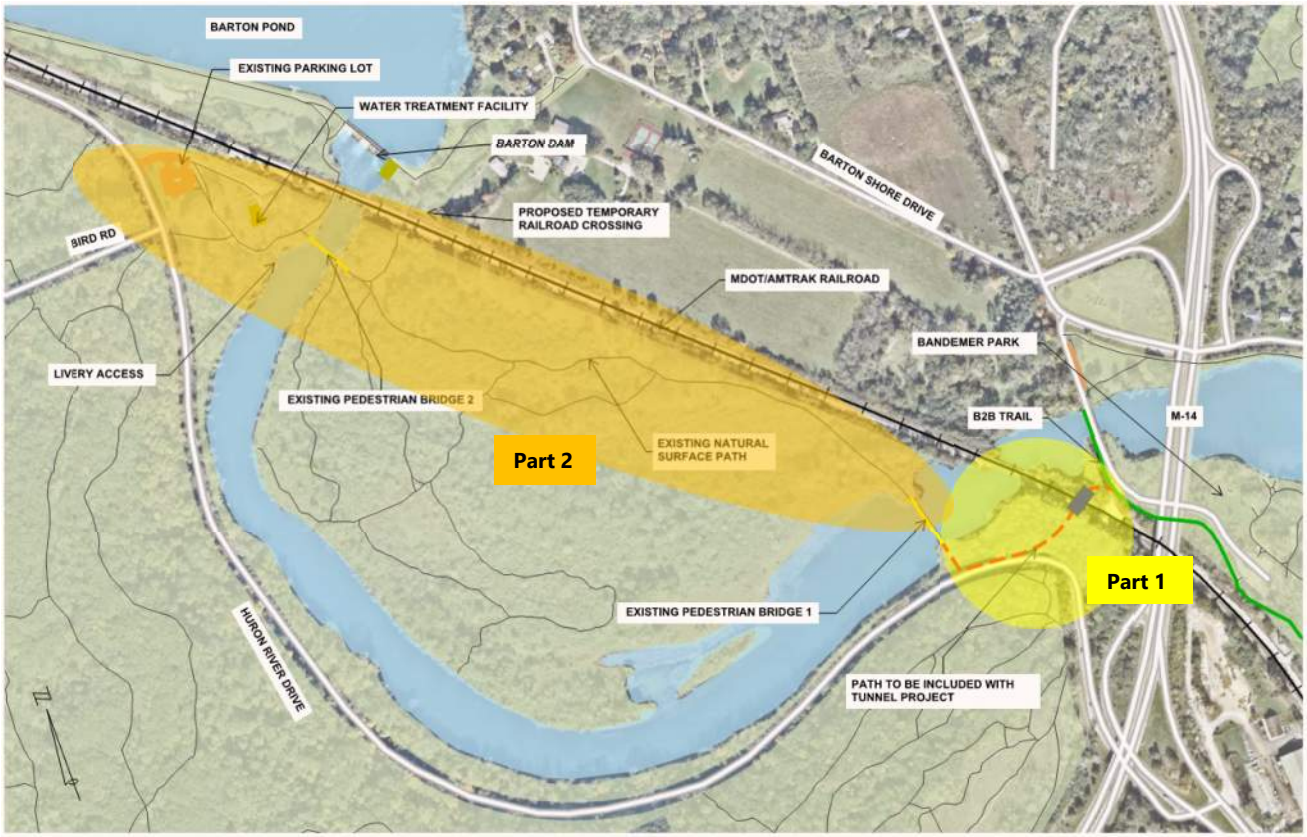

Exhibit 1-1: Area Map

1.1.5 Summary of Part 1 Findings – New Pedestrian Underpass

Eight alternatives were considered during the 2005 study and this report evaluated, refined, and developed those options into 3 alignment alternatives (PA-1, PA-2, and PA-3) utilizing one of 3 structure types (ST-1, ST-2, and ST-3). The general location of the proposed underpass presented in the 2005 study was confirmed and is located just south of the Bandemer Park entrance road (west of US-23 BR/M-14). This location currently sees the most pedestrian and bicycle trespassers as evidenced by a well-worn footpath through the woods. A public meeting was held to discuss the proposed grade separated trail crossing on February 26, 2019 where concepts from this study were presented. The feedback from the public, which was generally in support of the project, was reviewed and incorporated into this study.

The project team recommends advancing PA-3 and ST-1 into preliminary design. The recommended path alignment (PA-3) places the underpass furthest from the Huron River while providing the shortest underpass length. The recommended structure type (ST-1) is a box culvert structure constructed during a short-term track outage (less than 24-hours). The box culvert provides ample room, is the most cost effective to construct and maintain, and can be lengthened in the future relatively easy. The recommended opening is 16-feet wide by 10-feet high.

For complete details on alternatives and the recommended option, please refer to Part 1 of this report. The findings of this study are considered conceptual and not final. Advancing specific alternative recommendations will require additional input from the community and governmental agencies (City, County, State, etc.). Additional environmental study and appropriate environmental clearance may also be required.

1.1.6 Summary of Part 2 Findings – Pathway through Barton Nature Area

Three (3) alternatives were assessed for the pathway. Safety, impact to the environment, cost, as well as overall experience were considered. After various iterations and some preliminary design steps to refine the critical features discussed in the early field meetings and concept evaluations, **Alternative 2 is the recommended pathway alignment.** During the iterative preliminary design, the team developed costs considering impactful elements such as constructability. One outcome included building a cross section that will not only support typical pathway traffic but also construction traffic which is critical due to the unique location and restricted access. It will be difficult to mobilize in the future to perform standard rehabilitation measures therefore, a more robust cross-section was assumed which should require less major future maintenance projects. Alternative 2 provides pedestrians and bicyclists with a safe and aesthetic route through the Barton Nature Area. The Natural Area Preservation (NAP) unit of Ann Arbor Parks & Recreation was consulted regarding level of impact and are generally supportive of this approach. Furthermore, preliminary cost estimates were compared for the three alternatives and no significant cost savings was found among them.

Additional detail will be developed during the design process. It should be noted that additional items such as the impact to the canoe livery / launch area as well as some complicated slope areas identified in this study will need to be further explored. These areas are outlined in more detail in the Part 2 report.

The critical next step is to obtain Parks Advisory Commission (PAC) approval to pave within the nature area. This decision will rest solely on PAC. After that, it will be important to obtain soil borings to validate cross section and identify potential soils issues. Coordination with the canoe livery and additional design at the west end will need to be developed to provide river access for both the livery and the public while maintaining a safe path through the construction area. In addition, continued coordination with MDOT, Amtrak, and the Water Treatment Plant for the temporary railroad crossing will need to be finalized as this has the largest impact to construction cost, timing, and schedule.