Ohio River North Shore Trail Feasibility Study

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Ohio River North Shore Trail Feasibility Study

Table of Contents

Executive Summary

Project Background

The Ohio River North Shore Trail (ORNST) Feasibility Study represents a unique effort to physically connect eight municipalities located in Beaver County, along the northern edge of the Ohio River. The ORNST is part of a larger trail corridor that includes up to twenty-six Western Pennsylvania Communities. The communities within the ORNST Feasibility Study include: Ohioville Borough, Glasgow Borough, Midland Borough, Industry Borough, Brighton Township, Vanport Township, Beaver Borough and Rochester Borough. The five communities that include feeder trail extensions within this study include: Rochester Township, New Brighton Borough, the City of Beaver Falls, Fallston Borough, Patterson Township and Bridgewater Borough.

The ORNST corridor roughly parallels the northern bank of the Ohio River from the Pennsylvania/Ohio state line to its terminus in Rochester Borough. After crossing the Ohio River via the Rochester-Monaca Bridge the ORNST would connect with the proposed Ohio River South Shore Trail (ORSST) and then eventually connect directly to the current milepost "0" of the Montour Trail, representing the opportunity to eventually link the ORNST corridor with the Great Allegheny Passage and ultimately Washington, D.C. A separate study is currently underway to evaluate an on-road trail route called the 'Three Rivers Trail' that would continue along the Ohio River to Station Square in Pittsburgh. The ORNST corridor also has the potential to link to trails in Ohio. Jefferson County, Ohio is located to the southwest of PA Route 68 and within reach of the ORNST and has an extensive trails and greenway plan that ties into the Great Ohio Lake-to-River Greenway. Connecting to this greenway through Glasgow, PA would extend the ORNST some 100 miles to Lake Erie at Ashtabula Harbor.

This feasibility study was spearheaded by the Ohio River Trail Council (ORTC) which is an organization that was formed to advocate for the creation of a multi-use trail along the Ohio River and is one of the key partners in promoting this study effort. The Borough of Midland, on behalf of the eight North Shore municipalities, and in partnership with Beaver County and the ORTC, took the lead in obtaining a Pennsylvania Department of Conservation and Natural Resources Community Conservation Partnership Program (C2P2) grant to fund the undertaking of the ORNST Feasibility Study. Matching funds were obtained through contributions, both monetarily and through in-kind services, by each of the participating municipalities.

The ORNST Feasibility Study builds upon the tradition of community based planning that has been led and promoted by Beaver County, as well as all of the eight communities within the study area. Beaver County has recently completed major regional planning efforts that address trail planning elements as well as parks, recreation, open space preservation and the protection and improvement of the Ohio River.

Project Vision

The Ohio River North Shore Trail will be a great asset and wonderful addition to the region. It offers important recreational, health, tourism, and economic benefits to local and regional residents. The trail will help to stimulate the development of new businesses as well as tourism-related opportunities like river rafting or canoe tours, bicycle sales and rentals, restaurants and lodging. It will become a highly desirable recreation destination which will help to attract and retain businesses and residents (including young families) to the region.

Ohio River North Shore Trail Vision Statement

The communities of: Ohioville Borough, Glasgow Borough, Midland Borough, Industry Borough, Brighton Township, Vanport Township, Beaver Borough and Rochester Borough will all be interconnected by a contiguous linear trail spine that links these communities with local and regional trail networks in an effort to support each community's initiatives to promote economic development, expand transportation options, provide additional recreation opportunities and enhance the overall quality-of-life for all residents.

Project Goals

Goal #1: Establish the Spine - Establish a dedicated linear trail, paralleling and located as close to the Ohio River as possible, from the Monaca Rochester Bridge to the Ohio State line and north along the Beaver River to Beaver Falls and the existing Beaver River Trail.

Goal #2: Maximize the Overall Potential Community, Transportation and Economic Impact - Design a trail in a manner that best serves the needs of regional users, businesses, employers, and property owners.

Goal #3: Make Physical Progress in Both the Short and Long Terms - Determine the most viable route for a linear trail or network of trail segments that can be implemented within the shortest period of time and identify the preferred ultimate alignment, that can be created over time.

Goal #4: Develop a Bicycle and Pedestrian Friendly Culture throughout Each of the Communities - Identify a trail feeder system of on-street bicycle and pedestrian connectivity in order to maximize the ability of local residents to access the trail and the riverfront and also provide a means for regional users to reach local businesses, destinations and attractions.

Goal #5: Reconnect the Community to the River's Edge – Utilize the trail as an impetus for a regional greenway network of diverse publicly accessible lands, parks, recreation facilities and historic and cultural activity settings/sites along the Ohio River –i.e. make the Ohio River edge as publicly accessible as possible within each community and as a linear greenway network, while balancing the needs for preserving existing and future redevelopment.

Proposed Trail Route

As a method to divide the overall ORNST corridor into manageable pieces for detailed study, the corridor was originally divided into five segments denoted as 100 through 500A; totaling approximately 17.2 miles. As the project developed, the boundaries were expanded to add two additional sections (500B and 500C) which incorporate community feeder trail connections to key community resources such as Bradys Run Park, the City of Beaver Falls as well as to take advantage of the river crossing connection via the under-construction Veterans Memorial Bridge into the feasibility study. For each segment, a series of alternative and feeder routes were identified for further study through fieldwork and based on public input.

The various alternatives are described in detail and a preferred ORNST route is identified. The following is brief summary of the preferred route by segment.

In general, the encouraging discovery that a significant amount of connectivity can be achieved utilizing or retro-fitting existing infrastructure is positive and should be used as a catalyst for further development. This is particularly true with respect to the ORNST's ability to connect with larger regional bicycles networks in both Pennsylvania and Ohio. That being said, there are gap areas where no viable alternative could be identified and still other areas where significant interventions would be needed to support the ultimate, preferred trail route. What is included in the findings is as follows:

1: The proposed recommendations included in the document provide for the potential to achieve extensive regional trail and greenway connections, including between states, major development core areas and downtowns. The value of having these connections was discussed.

2: Specific trail segments have been identified for implementation projects that can be achieved in a relatively short period of time since they rely heavily on existing roadways or require only minimal gap construction or improvements. As the First Phase Segments Plan shows, there is a potential to formally connect Vanport Township, Beaver Borough, Bridgewater Borough and New Brighton Borough through to the City of Beaver Falls; in essence completing the southern end the Beaver River Trail.

3: Key parcels or areas for preservation easements have been identified, mostly utilizing currently undeveloped or under-utilized lands which could greatly increase public access to the Ohio River and/or create enhanced recreation opportunities for the local community and the region as a whole.

The most significant hurdles to the realization of the ORNST are identified as:

1: Two stretches of study segments, specifically in Sections 300 and 400, between Midland Borough through and into Vanport Township, mostly within Industry Borough, where no viable trail route alternatives could be identified at this time. The details of the various alternatives studied were discussed and it was agreed that there are no reasonably viable routes at this time.

2: The ability to utilize on-road routes, even in the most limited fashion as a signed share-the-road route are precluded by PennDOT requirements and physical constraints along many segement of roadways, especially major portions of PA Route 68. Although segments of PennDOT roadways were identified as having the potential to accommodate bike-lanes within the existing shoulders or rights-of-way, PennDOT's policy states that all proposed bike lanes on PennDOT highways must have the ownership of the shoulders, along with all maintenance responsibilities, transferred to the local municipality. As a result of this policy, the viability of this approach is essentially eliminated on existing PennDOT roadways due to the resultant economic impact on local governments. This was discussed at length and it was agreed that no municipality included in this study was likely to take on such responsibility.

The following is a discussion of the overarching findings categorized by section:

Section 100 – Glasgow Borough – Ohioville Borough

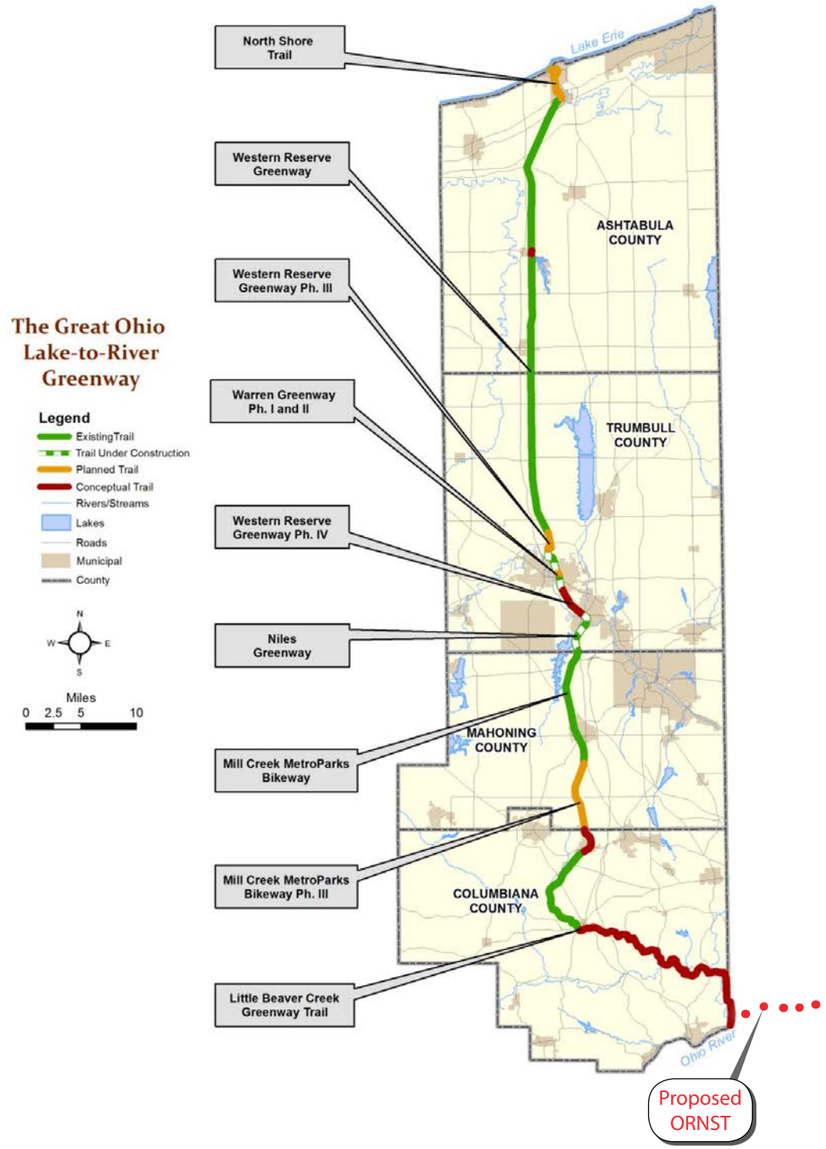
Total Length of Proposed Route in Section 100 = 2.67 miles

+ Several key trail connectivity opportunities can be achieved in this Section. At the local level, a safer connection between Glasgow Borough and the Ohioville Lock 57 Community Park can be achieved capitalizing on recent improvement investments made at the park.

+ A direct connection can be achieved to the planned and partially completed Great Ohio Lake Greenway which allows for a future connection to a 100 mile greenway which travels north, ultimately reaching Lake Erie in Ashtabula, Ohio. If the total multi-state connection could be completed, Glasgow Borough is very well situated to become a significant trail-town destination at the cross-road of the two major trail corridors.

+ The ability to utilize PA Route 68 within this Section as a signed share-the-road designation appears to be feasible although the former trolley line shelf is a more desirable trail route for the majority of its length from Glasgow Borough to Midland Borough. Both are shown considering short and long-term approaches to this Section.

- The former trolley line shelf (no actual former trolley right-of-way exists as separate parcels along this segment in Section 100) disappears and fades into the alignment of PA Route 68 a few hundred feet east of Smiths Ferry Road, eliminating the ability to provide a direct connection between the former trolley line shelf and Smiths Ferry Road. Only through major re-grading and engineering, along with the acquisition of a private residential



The ORNST has the potential to link to several other trail networks including the Great Ohio Lake-to-River Greenway in Ohio

property at the intersection could a direct, off-road connection be achieved. After a lengthy study, it was agreed that a long-term approach which included a retaining wall in this area to increase the width of shoulder or to allow for a dedicated trail on the north side of the roadway should be recommended.

- A mid-block crossing that would connect the on-road route with a dedicated multi-use trail on the former trolley right-of-way could be a method to overcome the issue mentioned above; however, it appears that due to the speed limit of 45 MPH, PennDOT will not allow a un-signalized mid-block pedestrian crossing (per PennDOT PUB 46). After a discussion regarding this issue it was agreed that this is the primary reason to recommend the long-term improvement of a retaining wall along a portion of PA Route 68.

+ If all of the vacant parcels along the historic trolley right-of-way can be acquired either outright or as subdivided parcels with sufficient width to provide for the trail, a linear greenway/park could be created to connect Ohioville, Glasgow and Midland. Many portions of this area are deep enough to accommodate active recreation facilities such as ball courts, etc. and a formal trailhead could be constructed. This area could also become a regional park and recreation destination since it affords spectacular views of the Ohio River. It was agreed that this would be a desirable long-term strategy if a way to acquire the property and maintain it could be developed.

Section 200 – Midland Borough

Total Length of Proposed Route in Section 200 = 1.95 miles

+ A significant portion of the trail can be designated as an on-road sharrow route utilizing existing roadways through Midland Borough.

+ An opportunity exists to enhance the connection of the West End Neighborhood to the core of the Borough's Downtown as well as to Spring Lane Park and a proposed Midland Ohio River Overlook Park near the Borough's Treatment Plant. These connections would require creating a new multi-use path parallel to the active rail siding that serves the steel mill area. The proposed trail could be created on a slightly elevated "bench" created by a low retaining wall. A connector trail could be extended as a switch-back up to the elevation of Spring Lane Park.

+ In order to provide a connection to both sides of PA Route 68 as a share-the-road condition or to the ultimate dedicated multi-use trail on the former trolley shelf, a trail/pedestrian crossing will need to be created at the intersection of Treatment Plan Road and PA Route 68. This intersection should be improved to create a formal roadway intersection and the speed limit along PA Route 68 should be reduced from 45 MPH to 35 MPH from this point and east, as the roadway enters the developed portions of the Borough.

± The feeder route along Beaver Avenue would be designated as a sharrow from 3rd Street to 13th Street to connect the community to its own parks. The designated ORTNS would extend along the entire length of Railroad Avenue, including via the new Railroad Avenue extension to the Borough Line with Industry Borough.

Section 300 – Industry Borough

Total Length of Proposed Route in Section 300 = 1.06 miles

+ There are opportunities to create enhanced bicycle and pedestrian connectivity within the core developed area of Industry Borough, specifically creating direct connections between residential neighborhoods and Industry Community Park.

+ The community has been pursuing pedestrian crossing improvements along PA Route 68 to allow for residential neighborhoods to be safely connected to the community facilities and retail opportunities on both sides of PA Route 68. The ORNST plan proposes that crosswalk enhancement, including prominent striping, be implemented at Engle Road/SR 4032 and Pine Grove Road/SR 4039 since sight distances are good at these locations and the speed limit is 35 MPH.

- The areas of PA Route 68 from Midland Borough to Six Mile Run have multiple constraints including: segments with 45 MPH or higher posted speed limits; limited shoulder widths; sight-line constraints; topographic barriers; multiple heavily utilized industrial driveway access points. Compounding these issue there are limited routing alternatives. In addition, PA Route 68 east of the development core is limited in its ability to provide any share-the-road opportunities due to the posted speed limits for the segment of roadway being 45 MPH or higher.

+ Industry Borough has what the U.S. Fish and Wildlife considers "the most ecologically significant area on the Pennsylvania portion of the Ohio River," which is the Ohio View Peninsula. The study shows how the peninsula could be protected along with the creation of a riverfront trail that could create a major Ohio Riverfront Peninsula Park. One item that should be discussed for inclusion in this study is who might take the lead on the protection of this property since Industry Borough clearly expressed its concerns regarding its ability to undertake any new Borough initiatives based on its current revenue and staffing capacity. In order for this element of the plan to be achieved it will likely include numerous regional partners potentially including the ORTC, Beaver County, the Independence Conservancy, the Western Pennsylvania Conservancy and PADCNR.

Section 400 – Industry Borough – Brighton Township – Vanport Township

Total Length of Proposed Route in Section 400 = 1.81 miles

- As is the case in Section 300, the portion of PA Route 68 from the Section 300 boundary, through to the I-376 Interchange includes stretches of roadway with 45 MPH or greater posted speed limits; limited shoulder widths; sight-line constraints; topographic barriers; industrial uses which include fencing up to the PennDOT right-of-way; and limited routing alternatives to consider.

- Although the former trolley shelf appears to be a viable route, there is no way to access it from the west since the PA Route 68 Bridge over the Norfolk Southern Railroad has cut off the ability to make a through-connection. Additionally, access is fenced off, posted as private property and has some industrial activity occurring within it making in-depth field study impossible. As a result of not being able to access it legally and determine is full viability it could not be considered as a proposed segment of the ORNST.

- Due to the posted speed limits along PA Route 68 at the Four Mile Run underpass beneath the Norfolk Southern Railroad, a mid-block crossing that could connect a trail on the former trolley shelf across PA Route 68 to a potential multi-use trail along the Ohio River does not appear to be possible. This is a result of PennDOT's policy of not allowing an un-signalized mid-block pedestrian crossing (per PennDOT PUB 46) for roadway with these conditions.

+ The opportunity does exist to extend a multi-use trail directly along the Ohio River's edge through several large undeveloped properties, potentially connecting the Ohio View Peninsula to the Lockhouse 6 restaurant. If designed in a manner that created a promenade setting close to the restaurant, potentially with expanded and improved parking accommodations, it could provide additional economic benefit to the restaurant. Understanding that the restaurant recently closed, the impact and viability of this recommendation is uncertain.

- The area between Sebring Road and Mud Lick Run Road would require the acquisition of an easement of right-of-way along the rear of several developed properties. It was agreed that this connection would be shown as a long-term recommendation.

+ The opportunity exists to create a multi-use path via the current utility right-of-way (on the former rail siding that served the Curtiss-Wright Plant, now Eaton) to create a direct connection into the proposed indoor recreation complex which was recently studied to determine its feasibility to be located on the former parking lot of Eaton. The proposed trail would

continue through the facility and into Section 500A and the Beaver High School Complex. Much of the alignment could utilize existing asphalt surfaces that would at most require re-surfacing.

Section 500A – Vanport Township, Beaver Borough, Bridgewater Borough and Rochester Borough

Total Length of Proposed Route in Section 500A = 5.95 miles

+ There are multiple viable alternatives in Section 500A. What is proposed as the ORNST was determined to best meet the project criteria.

± The Beaver Riverfront area from the Rochester Beaver Bridge to Fulton Street appears to be able to provide public access along the Beaver River since it is currently open space; however, an access easement, possibly including a maintenance agreement will be required to gain official access through this privately held portion of riverfront.

± Segment 500S is the only hurdle from connecting the First Phase Trail Route south, along the east side of the Beaver River, to Rochester Borough's Riverfront Park. As described in the document, there are several aspects of this segment which will likely require a significant amount of time to complete, including an easement access, grading, and a bridge span over McKinley Run.

Section 500B – Rochester Township – Fallston Borough – New Brighton Borough – Bridgewater Borough – City of Beaver Falls
Section 500C – Brighton Township

Total Length of Proposed Route in Section 500B/C = 1.02 miles

± The Beaver River Trail and the Bradys Run Park access trail routes are depicted solely as Feeder Trail Routes since they are not part of the Ohio River Trail proper.

+ Viable alternatives exist to create a trail route that connects from the pending Veterans Memorial Bridge north through Rochester Township, New Brighton Borough and the City of Beaver Falls to connect to the existing Beaver River Trail.

- The most significant improvement needed to make the Beaver Trail connection is located at the intersection of PA Route 65/18, 3rd Avenue and Penn Avenue. This intersection should be improved with a traffic signal that includes pedestrian signal heads and prominent crosswalk striping.

± A potentially viable Feeder Route to Bradys Run Park was identified; however, it will require the acquisition of an access easement agreement along the rights-of-way of a major utility corridor and the former P&LE Brady's Run Branch, which runs roughly parallel to Bradys Run as shown in Segment 5F11.

- A separate bicycle/pedestrian bridge span will be required to cross Brady's Run at Wildwood Road to obtain direct access into Bradys Run Park as the current PennDOT Wildwood Road Bridge rehabilitation project does not include adequate bicycle/pedestrian facilities based on the current Wildwood Road roadway classification.

Phasing

Realizing that the improvements identified in this plan collectively represent approximately $5M to $6M in new infrastructure investments in 2012 dollars, it is important to consider how individual projects can be organized to make the overall implementation of the project manageable. An important consideration when developing the phasing strategy is the desire to maximize overall connectivity along the ORNST route as quickly as possible. The key to this strategy is twofold. First, linking with existing bicycle routes in Ohio and Pennsylvania allows for individual projects along the ORNST to occur while providing access to a much greater trail network. Second, places where existing infrastructure already allows for the ORNST to travel should be capitalized on as this also allows for the accommodation of the disconnected trail segments as portions of the proposed ORNST route are constructed in the locations that present larger challenges.

Chapter III provides an itemized list of projects and in some cases sub projects, organized into separate phases, to be achieved within a 10 to 15 year completion horizon.

Ownership, Operation and Management

While this project focuses on the eight ORNST communities, it is important to consider the ultimate trail, as a whole, when considering management, operations and partnerships strategies. By establishing an effective and creative approach to management rooted in collaboration, additional partners and resources can be folded in as the trail is extended. While the level of municipal staffing, budget and capacity for maintenance and operations vary widely by jurisdiction, the eight communities within the North Shore Feasibility Study area should work together in developing, operating and maintaining the ORNST. As the municipalities will be able to develop and operate the trail as a premiere recreation facility that will be an important asset to the region, all stand to benefit from the investment.

As one of the leaders of the ORNST study effort, the ORTC is a non-profit corporation well suited to serve as the umbrella organization for the management of the ORNST. Already in place with a positive public image, the ORTC could help to carry out the intergovernmental agreement for the trail development and operation. The ORTC already provides a management foundation to the municipalities in the trail corridor. The ORTC could serve in a leadership role in all facets of trail planning, development and operation in the corridor, thereby providing expertise and support that the municipalities may not have on their own.

A sample intergovernmental agreement for the ORNST communities is provided in Appendix A of this document and is intended to be used as a model to further partnership discussions.

Ensuring a Corridor-Wide Approach

The ORNST Feasibility Study is in part the result of the previously conducted Ohio River South Shore Feasibility Study (ORSST). The ORNST can be viewed as an extension of this South Shore Study and, though unique in character and experiential quality, builds upon the connections proposed in the ORSST Study. For instance, the ORTC, Stowe Township, in association with the Friends of the Riverfront are undertaking a feasibility study for the development of a trail within an approximately 10-mile corridor from the existing Three Rivers Heritage Trail to the existing Montour Trail and the proposed ORSST/ORNST respectively. Once these feasibility studies are completed, all three documents should be reviewed together and a comprehensive implementation and project prioritization plan for the entire Ohio River Corridor should be developed to ensure that corridor-wide implementation is done in a cohesive manner. The ORNST corridor maps located on pages *vii* and *viii* illustrate this point and the connections created by such a trail network.

ORNST Overall Routing Plan

Legend

- Ohio River North Shore Trail
- Roads
- Parks
- Downtown Districts
- Municipal/State Boundaries
- Connecting Trails
- PA Bike Route A
- Ohio River Feeder Trails

NORTH .5 0 1 Miles

Ohio
Pennsylvania
Ohio River
Beaver River

Connection To Great Ohio Lake Greenway
Connection To Beaver River Trail
The City of Beaver Falls
New Brighton Borough
Bradys Run Park
Patterson Township
Fallston Borough
Rochester Township
Bridgewater Borough
Rochester Borough
Brighton Township
Beaver Borough
Vanport Township
Monaca Borough
Ohioville Borough
Industry Borough
Glasgow Borough
Midland Borough

No Identified Viable Alternative
No Identified Viable Alternative
No Identified Viable Alternative

376
51
18
65
68
168

500B
500A
500C
400
100
200
300

ORNST First Phase Segments

Legend

- Ohio River North Shore Trail First Phase Segments
- Roads
- Parks
- Downtown Districts
- Municipal/State Boundaries
- Connecting Trails
- PA Bike Route A
- Ohio River Feeder Trails

NORTH .5 0 1 Miles

Ohio
Pennsylvania
Connection To Great Ohio Lake Greenway
Connection To Beaver River Trail
The City of Beaver Falls
Beaver River
New Brighton Borough
Bradys Run Park
Patterson Township
Fallston Borough
Rochester Township
Bridgewater Borough
Rochester Borough
Brighton Township
Beaver Borough
Vanport Township
Monaca Borough
Ohioville Borough
Industry Borough
Glasgow Borough
Midland Borough
Ohio River
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Project Background, Public Planning Process and Vision

Project Background

This feasibility study is part of an ongoing effort of the Ohio River Trail Council (ORTC) to create a multi-use trail, the Ohio River Trail (ORT), along the Ohio River and its tributaries from Ohio State Line through Beaver and Allegheny Counties toward the City of Pittsburgh. A key connection of the ORT is located along the South Shore and is the proposed connection with the existing Montour Trail in Moon Township, near Coraopolis.

The Ohio River Trail Corridor is located in the foothills of the Appalachian Mountains and includes up to twenty-six Western Pennsylvania communities. There are eight North Shore communities involved in this feasibility study and six additional communities included as part of the various community feeder routes which extend along both sides of the Beaver River, north of the Ohio River North Shore Trail (ORNST) proper.

The communities within the ORNST Feasibility Study include: Ohioville Borough, Glasgow Borough, Midland Borough, Industry Borough, Brighton Township, Vanport Township, Beaver Borough and Rochester Borough. The six communities that are included to accommodate the various feeder trail extensions of this study include: Rochester Township, New Brighton Borough, the City of Beaver Falls, Fallston Borough, Patterson Township and Bridgewater Borough.

All of the participating communities were actively involved in the undertaking of this feasibility study which first identified all potential trail routes along the corridor to be studied, in greater detail, and then proceeded through a reiterative planning process until the most desirable and "preferred" trail route was identified, if one existed. This process included extensive field-work with the consultant team along with local representatives and interested and/or knowledgeable stakeholders, lengthy conversations and inter-active brainstorming sessions with the project steering committee and discussions with municipal managers and elected officials. In addition, the planning process included holding special meetings, as requested, with broader community groups, such as Industry Borough's Council and concerned citizens in order to identify issues in detail and at the local-level. The emphasis on local outreach and community education was invaluable in answering the community's questions and also dispelling inaccurate information that may have been circulation, regarding the project's intent and proposed routing.

The ORTC proposes to interconnect existing trails in the tri-state area such as The Great Ohio Lake-to-River Greenway, The North Coast Inland Trail, The North Bend Trail, The American Discovery Trail, Brooke Pioneer Trail, Wheeling Heritage Trail, The Beaver River Trail, The North Country National Scenic Trail, The Montour Trail, The Chartiers Creek Greenway, The Three Rivers Heritage Trail, The Great Allegheny Passage, The Erie to Pittsburgh Trail, and The Pittsburgh to Harrisburg Mainline Canal Greenway (Millennium Legacy Trail) thereby creating a comprehensive interlinked mega-trail system. In addition, portions of the ORNST overlap with a significant historic trail, the Great Trail (or Path) which was a network of footpaths created by Algonquian and Iroquoian-speaking peoples prior to the arrival of European colonists in North America. This Native American trail connected the Great Lakes region of Canada to New England and the mid-Atlantic. Many major highways in the Northeastern United States follow the routes set down centuries ago by Native Americans moving along these trails. The Upper Ohio River is also part of the National Park Service's Lewis and Clark National Historic Trail. The Ohio River was navigated by Meriwether Lewis in 1803 before joining up with William Clark's in Louisville, KY.

The ORTC is in support of a growing national movement to develop greenways, especially since 1987 when President Reagan's Commission on American Outdoors recommended establishing a national greenways network. Greenways are often accomplished and managed through partnerships between municipalities, counties, and non-profit organizations. Pennsylvania's statewide Greenways Program was established by Pennsylvania Governor Tom Ridge in 2001 to promote and support the many local and regional greenway efforts in all 67 counties. The vision is to create a network of greenways throughout the Commonwealth, with a greenway in every community by 2020.

The Borough of Midland, on behalf of the eight North Shore municipalities, and in partnership with Beaver County and the ORTC, took the lead in obtaining a Pennsylvania Department of Conservation and Natural Resources Community Conservation Partnership Program (C2P2) grant to fund the undertaking of the ORNST Feasibility Study. Matching funds were obtained through contributions, both monetarily and through in-kind services, by each of the participating municipalities.

The ORNST Feasibility Study builds upon the tradition of community based planning that has been led and promoted by Beaver County, as well as all of the eight communities within the study area. Beaver County has recently completed major regional planning efforts that address trail planning elements as well as parks, recreation, open space preservation and the protection and improvement of the Ohio River.

Beaver County's 2010 Comprehensive Plan and its 2007 Greenways and Trails Plan establish strong goals and recommendations that support the planning, design and implementation of new trails throughout the County. These recommendations set the framework for the ORNST Feasibility Study effort.

The conclusion of this feasibility study is the recommendation of a series of proposed trail segments which together form the backbone of an inter-connective trail corridor along a major portion of the Ohio River's north shore as well as connecting to an established and expanding trail network along the Beaver River. In addition, many of the trail segments are relatively simple to implement, mostly utilizing existing on-road facilities or routes through existing parks and public open space amenities.

Public Planning Process

Community Participation

The trail planning process included a series of public involvement activities as part of the overall ORNST Feasibility Study preparation. The community input and education for the ORNST Feasibility Study was conducted primarily through steering committee meetings, numerous key person interviews and three public meetings, as well as through a municipal leaders/stakeholders targeted survey and a project website managed by the Ohio River Trail Council.

Project Steering Committee

The joint kickoff meeting for the ORNST held on September 29, 2011 included the ORTC board, representatives from Midland, PA and other members of the project steering committee. The project steering committee includes representative members from each of the municipalities as well as from other key public agencies and major stakeholder groups. Many of the members of the steering committee are also active in other local or regional planning efforts and provided valuable insight and direction throughout the planning, alternative review and recommendation development process. There were four formal committee meetings held either separately or in conjunction with public meetings to discuss the vision, goals and objectives for the project as well as to develop trail routing concepts and review and evaluate alternatives as they were developed. Meeting minutes for the formal project steering committee meetings are located in Appendix D – Public Involvement Activities of this document. Additional ad-hoc steering committee meetings were held between September 2011 and September 2012 to discuss various aspects of the draft plan documents. One such coordinated review meeting occurred on August 8, 2012. The minutes from this meeting can also be found in Appendix D – Public Involvement Activities of this document.

Public Meetings

The first public meeting was a public open house and presentation held on December 5th, 2011 at the Bridgewater Borough Hall Building in Bridgewater Borough, PA. The open house provided the community with an opportunity to learn about the overall trail planning effort, see various routing alternatives and provide input into the trail's concept development. The goal of this meeting was to introduce the project to the community and interested stakeholders, obtain feedback on the proposed project vision and goals and determine potential route alternatives to study. The final project Vision Statement and Project Goals developed as an outcome of feedback from this meeting are provided later in the Executive Summary of this document. A meeting exit survey was provided to all attendees and a summary of the responses along with a summary of public comments from this meeting are provided in Appendix D – Public Involvement Activities of this document.

Community members at the second public meeting held in January of 2012.

The second public meeting was a public open house held on January 23, 2012 at the Midland Borough Hall Building in Midland, PA. The open house format of this meeting consisted of a series of information stations grouped by the trail planning sections established to aid in the organization of data, analysis, alternative evaluations and proposed trail recommendations. A detailed set of alternative options were presented in narrative and map format along with supporting graphic material, including roadway cross sections and annotated photographs. Meeting attendees were provided the opportunity to comment and physically mark-up drawings and maps at each work station as a way to record all community comments, concerns, ideas and areas where more information was needed. The outcome of this meeting, along with feedback from the project steering committee, resulted in the proposed Ohio River North Shore Trail route presented in Chapter II of this document. A summary of public comments from this meeting are provided in Appendix D – Public Involvement Activities of this document.

A third and public open house meeting was held in New Brighton on September 17, 2012 from 5:00 PM to 7:00 PM at the New Brighton Borough Hall Building, 610 3rd Avenue, New Brighton, PA. The meeting provided the community the opportunity to learn about the overall trail planning effort, see the proposed trail route and provide input into the trail's draft feasibility plan development. A press release was sent out prior to the meeting inviting the community to attend and directing those interested in the project who could not attend to either visit the www.ohiorivertrail.org website or contact the Beaver County Planning Commission with questions and comments. The overall community response from the meeting was positive with only minor route revisions or questions proposed, mostly focused on PennDOT related requirements as well as temporary versus long-term traffic implications related to Veterans Memorial Bridge currently under construction. Comments and meeting minutes from this meeting are provided in Appendix – D Public Involvement Activities.

A fourth public meeting was held in Monaca Borough on November 12, 2012, as part of a regularly scheduled Ohio River Trail Council Board Meeting. There was a presentation which covered the feasibility study's final proposed trail alignment and key recommendations. The questions raised and following discussion were focused on first phase implementation priorities, especially in the context of the South Shore recommendations and priorities. It was pointed out at this meeting that Beaver Borough and the City of Beaver Falls have both implemented portions of the on-road sharrow recommendations identified in this feasibility study. Due to the general nature of the discussion, no meeting minutes were prepared.

Key Person Interviews and the Municipal Leaders/Trail Town Survey

Representatives from each of the eight communities were interviewed individually, or in small groups, to obtain community specific information, ideas and concerns. In addition, other special interest stakeholders were identified by the steering committee and interviewed, including major landowners, potential user groups and agencies with a related interest in the project. An attempt was made to interview at least one elected official from each of the eight municipalities, primarily to determine issues and concerns related to the ownership and long-term operation and maintenance of the ORT or community feeder trails within their communities.

A four page survey was also distributed to elected officials, key staff and other identified stakeholders. The survey questionnaire included questions which gauged the current status and need for trails and other parks, recreational, open space and multi-modal transportation facilities and resources within each respective municipality. The survey also asked each respondent to assess their community's desire for the creation of new trails within their community and the region, as well as their willingness to support, including economically, the construction of a trail along the Ohio River as well the expansion of public access to the river.

Additional meetings included a December 12, 2012 presentation to the Beaver County Commissioners by Doniele Andrus from the Beaver County Department of Planning. Chuck Jones, of Mackin Engineering facilitated a special briefing meeting with PennDOT District 11-0 on February 21, 2012 to discuss several aspects of the ORNST; minutes of this meeting can be found in Appendix D – Public Involvement Activities of this document. Also, a special community meeting was held between the design team and Industry Borough Council and borough residents to address localized concerns regarding the ORNST. Again, minutes of this meeting can be found in Appendix D – Public Involvement Activities of this document.

Ohio River Trail Project Website

The Ohio River Trail Council maintains a project website which allows all interested parties access to information on the Ohio River North Shore Trail Feasibility Study as well as providing project updates and meeting notices. It can be viewed at: ***www.ohiorivertrail.org***.

Americans with Disabilities Act (ADA) Requirements

During the trail alternative identification process, the ability to conform with the most current federal ADA and supporting state trail design guideline requirements were taken into consideration. Based on the level of detail undertaken during the preparation of this feasibility study, ADA considerations initially consisted of physical parameters, primarily driven by site conditions, such as available width and cross and running slopes. A discussion of the full ADA compliance considerations or constraints that will need to be addressed as the project advances through preliminary/final design and engineering, including: surface material; clear tread width; opening size; tread obstacles; passing space and edge protection, are described for each of the proposed ORNST segments by section in Chapter II of this document.

Planning Context and Proposed Ohio River North Shore Trail (ORNST) Alignment

Section 100 – Glasgow Borough – Ohioville Borough

Community Character and Demographic Overview

Glasgow Borough is located to the east of the confluence of Little Beaver Creek and the Ohio River. It is encompassed by Ohioville Borough and is approximately 0.36 miles east of the Pennsylvania/Ohio State line. The majority of the Borough, and especially the portion that is most densely populated, is the portion south of PA Route 68 adjacent to the Ohio River.

According to the 2010 U.S. Census Data, Glasgow Borough has a population of 60 people, 55% male and 45% female, and a total land area of 0.1 square miles which contains 29 occupied housing units. The population has decreased since the 2000 U.S. Census Data by three people. The median age of residents is 47.3 with a racial makeup of that is 100% White. The per capita income of the Borough is $13,808, down from $17,989 in 2000 and below the national average of $26,059.

Ohioville Borough borders the Ohio State line and stretches east to Midland Borough. It encompasses 23.4 square miles. The total population of the Borough is 3,533 with a median age of 46.1. The racial makeup of the community is 97.5% White, 1.1% Black or African American, 0.3% American Indian and Alaska Native and 0.2% Asian. The per capita income is $22,183.

History and Cultural Resources

Glasgow Borough was originally settled in the hopes of capitalizing on the construction of the Sandy and Beaver Canal, whose southern terminus was Glasgow. The 73 mile canal had 90 locks and was completed in 1848. It was only in operation for a short time closing in 1852 when the Cold Run Reservoir Dam outside of Lisbon, Ohio broke. The Village of Glasgow continued on and was incorporated into a Borough on October 12, 1854. Glasgow is also at times referred to colloquially "Smiths Ferry" in reference to a ferry run by Maryland native Thomas Smith that used to connect the town with Georgetown on the opposite side of the Ohio River.

Ohioville Borough was originally used as hunting grounds for the Archaic and Woodland Epoch Native Americans. Native American pictograms were found in the area though they are said to now be under water. The Borough began as the small village of Blackhawk and had its first post office established sometime after 1837. It was incorporated as Ohioville Borough in 1960 after losing some area to Brighton Township, Glasgow Borough, Industry Township and Midland Borough.

The Beginning Point of the U.S. Public Land Survey is a monument at the border between the U.S. states of Ohio and Pennsylvania, on the north side of the Ohio River. It is near the three-way intersection of Ohio, Pennsylvania, and the northern tip of West Virginia. It is significant as being the point from which the Public Land Survey System was performed, starting in 1785, which would open what was then the Northwest Territory for settlement. The survey was "the first mathematically designed system and nationally conducted cadastral survey in any modern country" and is "an object of study by public officials of foreign countries as a basis for land reform." It was conducted in the late 18th century by U.S. Geographer Thomas Hutchins surveying the Seven Ranges.

Built in 1881, it was declared a National Historic Landmark in 1965.

The area that is landmarked includes a part of Ohio and a part of Pennsylvania. A plaque at the site states that the true starting point was 1,112' further south. The commemorative site is located about two miles east of the center of East Liverpool on Ohio State Route 39 and Pennsylvania Route 68 (PA Route 68).

Land Use, Parks and Recreation Resources and River Access

Lock 57 Community Park, immediately west of Glasgow Borough, is located along the Little Beaver Creek in Ohioville Borough and is the closest park to Glasgow Borough and one of only public boat launch facilities in the immediate area. The park was completed in 2007 through a partnership between Ohioville Borough and the ORTC and has a concrete boat launch, ADA accessible parking facilities and bathrooms as well as room for eleven vehicles with trailers.

George Island National Wildlife Refuge is also located in the Ohio River near the Ohioville/Midland Borough boundary. It was donated to the U.S. Fish and Wildlife Services by The Nature Conservancy in 1991 in an effort to protect the island and evoke "the (Ohio) river's pre-colonial past." The hardwood forest that has established itself on the island has become a refuge for other native plants and animals including a variety of raptors and songbirds, beaver and minks. In its surrounding shallows, local fish

The Beginning Point of the U.S. Public Land Survey

species thrive as do various mussels that had been otherwise absent for decades. As the island is a nature refuge and undeveloped, there is no boat dock or pedestrian access from the mainland.

Though the entirety of Glasgow Borough is located within approximately 0.25 miles of the Ohio River, public access to the river's edge has been fragmented by private residential land ownership. For the portion of the Borough located between the active Norfolk Southern railroad line and PA Route 68, access to the riverfront is further complicated. Church Alley which runs perpendicular to the Norfolk Southern railroad line and the Ohio River is the only at-grade railroad crossing for this portion of the community. Front Street between Custom House Street and Market Street is located very near the river's edge and although it appears that no public access exists in this area, the land between the roadway and the river is too narrow to allow for development to take place. Several deck-like overlooks and staircases down to the river's edge have been constructed in this area. The river is highly visible from Front Street and the topography makes the river's edge generally accessible, although not publicly.

Public river access in surrounding Ohioville Borough is marginally better with less private development occurring, yet there are no true public Ohio River access points. Access to the Little Beaver Creek is much better and includes a boat launch at Lock 57 Community Park. Industrial development exists in Ohioville Borough, adjacent to both the western and eastern boarders with Glasgow Borough and significant topographic changes occur along the riverbank making the ability to create direct access to the Ohio River's edge, especially between Glasgow and Midland Borough, especially difficult. PA Route 68 and the active Norfolk Southern railroad line that run parallel to the Ohio River in this section further complicate this connection, resulting in narrow stretches of generally undevelopable land.

Environmental Context and Infrastructure

River's Edge and Habitat: Much of the Ohio River's edge habitat in this section could be considered good or better plant habitat; meaning that there is limited erosion, limited invasive plant species and a fairly consistent and mature tree canopy. This habitat has been preserved in part due to the fact that the railroad has sectioned off the Ohio River's edge from the community, allowing plant material to grow and develop naturally and fairly undisturbed in many locations. Small portions of the Ohio River edge habitat in and around Glasgow Borough and on George Island National Wildlife Refuge are moderately distressed with disrupted tree canopy. Portions of this distress stem from the various industrial activities. Other portions of habitat disturbance, located in Glasgow Borough, have been caused by pockets of residential development that have cleared native plant material and replaced it with lawn or other plants which provide less species diversity or soil stabilization. In locations where the slope is extreme (25% or greater) tree canopy distress can quickly lead to soil erosion as tree leaves are not present to intercept rainfall and dense fibrous root systems are not in place to hold soil.

Streams and Stormwater: The Little Beaver Creek is, with the exception of the Ohio River, the largest water body in Section 100. It flows through Pennsylvania for only 0.7 miles before running into the Ohio River and flowing back into Ohio. Its headwaters in Ohio are mostly surrounded by undeveloped land or small scale agriculture which makes the creek an exceptionally clean waterway with a highly diverse ecosystem. The preservation and protection of the creek is aided by an Ohio based group named The Little Beaver Creek Foundation (LBCLF). The LBCLF was started in 1993 and works to protect all of the Little Beaver Creek Watershed's 323,160 acres. Lock 57 Community Park is located at the convergence of the Little Beaver Creek and the Ohio River.

In the valley to the east is Dry Run. Dry Run, which is actually a flowing stream most of the year and not a dry run at all, flows through the valley to the west of Smiths Ferry Road before traveling underneath PA Route 68 and the Norfolk Southern railroad just outside of Glasgow Borough before outfalling into the Ohio River. Aside from one industrial site on Rockport Drive paralleling the run, its surroundings are heavily vegetated and undisturbed.

Transportation Infrastructure

Transportation access to and from Glasgow and Ohioville Boroughs via the regional transportation network is provided by PA Route 68.

PA Route 68/Midland Road serves local motorists having eastbound and westbound destinations and also serves as a major connection to the interstate highway system. Route 68, which parallels the Ohio River, enters Ohioville Borough from the west through the City of East Liverpool, Columbiana County, Ohio, where the route is called Ohio State Route 39/ Harvey Avenue. PA Route 68 enters the Ohioville Borough from the east through Midland Borough. PA Route 68 in this section is a rural road with two lanes and wide shoulders, a posted speed limit of 45 MPH, and has an average daily traffic volume of approximately 4,500.

The intersections of PA Route 68 at Tuscarawas Road and PA Route 68 at SR 4047/Smiths Ferry Road should not be too challenging for pedestrians and bicyclists to cross as the traffic volumes are low and the sight distances are good; however, safety improvements are recommended.

Main Street and Liberty Avenue in Glasgow Borough consist of mostly residential land uses and the streets could be classified as "neighborhood" streets with no through traffic and no sidewalks.

Existing trolley shelf that runs parallel to the Ohio River on the opposite side of PA Route 68

Economic Development

Glasgow and Ohioville Boroughs have no strategic economic development plans in place focused on the portions of their communities within the trail study area. There is a limited amount of industrial activity occurring along the riverfront within Ohioville Borough, mostly straddling the Ohio State line. Glasgow Borough is a very small village that is primarily residential and since there is no major through traffic beyond what occurs along PA Route 68, there is no significant commercial/retail activity today. Should the trail connection between Midland Borough and Glasgow be created and a trail extension be completed north along the Little Beaver Creek, Glasgow Borough would be strategically located to serve as a trail town location. If ample land and water-based trail activity could be attracted to this stretch of the overall trail, Glasgow Borough could become a notable trail town and an excellent location for small bed-and-breakfasts as well as trail outfitter, etc. For a community with such a small population, a few small businesses could have a significant positive economic impact on the economy.

Proposed ORNST Route and Alternatives

Three proposed routes are identified for Section 100 which travels from the Ohio/Pennsylvania State line to the Ohioville/Midland Borough border. These proposed routes are labeled as 100B, 100G and 100F.

Proposed ORNST Route Description through Section 100

The proposed ORNST route starts at the Ohio/Pennsylvania State line along PA Route 68 and travels to the southern perimeter of the Lock 57 Community Park. Immediately after crossing the Little Beaver Creek at the intersection of PA Route 68 and Tuscarawas Road the route turns south towards the Ohio River away from what could become a connection to the Great Ohio Lake Greenway. The proposed route enters Glasgow Borough along Main Street after going underneath the active Norfolk Southern railroad line. It then travels through Glasgow Borough along Liberty Avenue before turning north and going underneath the Norfolk Southern railroad line once more. It then follows Smiths Ferry Road south to PA Route 68 where it again becomes a share-the-road bicycle route and remains as such into Midland Borough.

Route Characteristics and Issues

PA Route 68 west of Little Beaver Creek: The portion of Midland Road (PA Route 68) entering Ohio is heavily trafficked with a speed limit of 45 MPH and not conducive to a shared bicycle path. Steep embankments on either side of the existing road make this situation more problematic. Rockslides could leave debris on the roadway that would be harmful to both motorists and cyclists.

Smiths Ferry Road: This road provides ramped access from Glasgow Borough, underneath the railroad and PA Route 68, then wraps around and onto PA Route 68; however, as the shared bicycle lane would require bicycle travel in both directions, eastbound traffic would need to cross PA Route 68 at-grade to continue towards Midland.

Section 100 Topographic Constraints: The varying topography along this portion of PA Route 68 makes the prospect of split bicycle and vehicular paths challenging. PA Route 68 and its paralleling railroad are cut into a hillside that slopes steeply down to the Ohio River.

Americans with Disabilities Act (ADA) Considerations

Tunnel access underneath the Norfolk Southern railroad line provided along both Main Street and Smiths Ferry Road in Glasgow Borough avoids potential ADA at-grade railroad crossing complications. Also, as most of the route would be paved in this section, surface material conflicts are avoidable. The future off-road trail route via the historic trolley right-of-way would require engineering to determine its full ADA compliance; however, there are no known site conditions which appear to preclude the ability to conform with ADA requirements.

Segment 100A

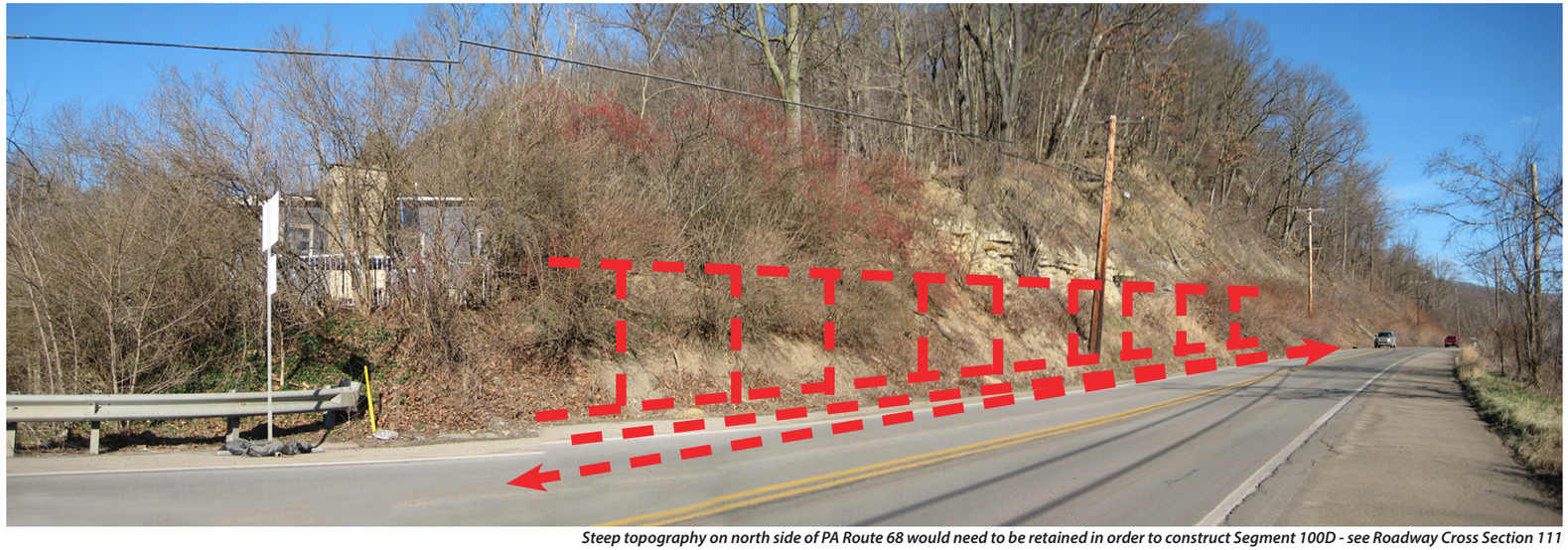
The proposed ORNST route starts at the Ohio/Pennsylvania State line traveling along PA Route 68 to the Lock 57 Community Park. This segment consists of share-the-road signage identifying this portion of PA Route 68 as a bicycle route. Immediately after crossing the Little Beaver Creek at the intersection of PA Route 68 and Tuscarawas Road, intersection safety improvements make the transition from Segment 100A to 100C safe for cyclists. This will become an even more important intersection in the future as a possible connection to the Great Ohio Lake Greenway along the Little Beaver Creek becomes better established.

Segment 100C

As this segment deviates from PA Route 68, which is a PennDOT roadway, trailblazing signs would be placed along the route as it travels through the residential center of Glasgow Borough via Liberty Avenue.

Segment 100D

The ability to connect Smiths Ferry Road directly with a dedicated off-road trail located on the historic trolley right-of-way would be the most desirable trail route through this area. Segment 100D represents the most physically restrictive segment within Section 100 due to the topography.



Steep topography on north side of PA Route 68 would need to be retained in order to construct Segment 100D - see Roadway Cross Section 111

In order to achieve this connection a retaining wall, or a series of walls, will be necessary to either create a widened shoulder at the same elevation as the existing PA Route 68 or to create a "bench" in the side of the slope, to accommodate a trail located slightly above PA Route 68. The bridge located on PA Route 68 which spans over Smiths Ferry Road would also require widening or a separate pedestrian/bicycle span on the north side of the bridge. Another alternative to avoid creating a separate span would require an access easement through the adjacent private property which includes a dwelling, to create a direct connection from the elevated trail down to Smiths Ferry Road, bypassing the bridge span on PA Route 68.

Segment 100E

The route follows PA Route 68 as a share-the-road condition, due in part to the cooperating sightlines along this portion of PA Route 68. This segment of the ORNST route in Section 100 is the closest segment to the Ohio River, however, steep descending topography and an active railroad line make the potential for river access marginal. Segments 100A and 100C traveling through Glasgow Borough present better river access opportunities (depending upon parcel easement acquisitions).

Proposed Route Lengths

Total Length of Route through Ohioville Borough On-Road Portion = 2.19 miles

Total Length of Route through Glasgow Borough On-Road Portion = 0.5 miles

Total Length of Route through Section 100 = 2.7 miles

The intersection of Smiths Ferry Road and PA Route 68 in Ohioville Borough

Identified ORNST Routing Alternatives in Section 100

Several potential alternative routes were identified and studied for this section of the route. The following is a brief description of each of these alternate routes.

Alternative 100B

Description: This alternative examines routing the trail along PA Route 68 from Tuscarawas Road to Smiths Ferry Road.

Issue: Several issues coupled with a clearly defined alternative led to the removal of Alternative 100B as a potential proposed route. Narrow shoulder widths, high traffic volumes and traffic speeds were three of the most immediate issues with this section of the route. Although this alternative has similar characteristics as Segment 100A and 100D, Segment 100C provides a low trafficked alternative closer to the Ohio River.

Alternative 100G

Description: Currently, Alternative 100G does not exist as a roadway or as a former trolley line right-of-way. Through aerial image analysis it is clear that portions of the alternative were part of the abandoned trolly right-of-way, which appears to have ultimately followed what is now part of the PA Route 68 right-of-way. This alternative was explored in conjunction with Alternative 100F as a way to create a dedicated off-road bicycle route separate from this portion of PA Route 68. This alternative would have linked Segment 100C and Alternative 100F connecting Glasgow Borough to Midland Borough on a route separated from PA Route 68.

Issue: Alternative 100G is located on private property, making exploring this alternative on site difficult. Additionally, as determined by aerial images, steep topography makes this alternative functionally prohibitive.

Alternative 100F

Description: Alternative 100F proposes making use of a historic trolley right-of-way or "shelf" that parallels PA Route 68 opposite of the Ohio River. This alternative could be used in the future to create dedicated bicycle lanes between Glasgow and Midland Boroughs. The topographic elevation of this shelf would provide users with striking views of the Ohio River. The elevated route would also provide an excellent vantage point to the George Island National Wildlife Refuge located near Midland Borough in the Ohio River. Eventually, this alternative could become the spine of a linear park dubbed 'The Ohio River Vista Park' that would connect the communities of Glasgow, Ohioville and Midland Boroughs.

Issue: Though significant regrading would not be required due to the existing historic trolley shelf, the creation of Alternative 100F would require a significant amount of right-of-way acquisition as this alternative travels through or along 40 parcels. The route and the area around it could be converted into a linear park between Glasgow, Ohioville and Midland, complete with river overlooks and other park-like amenities.

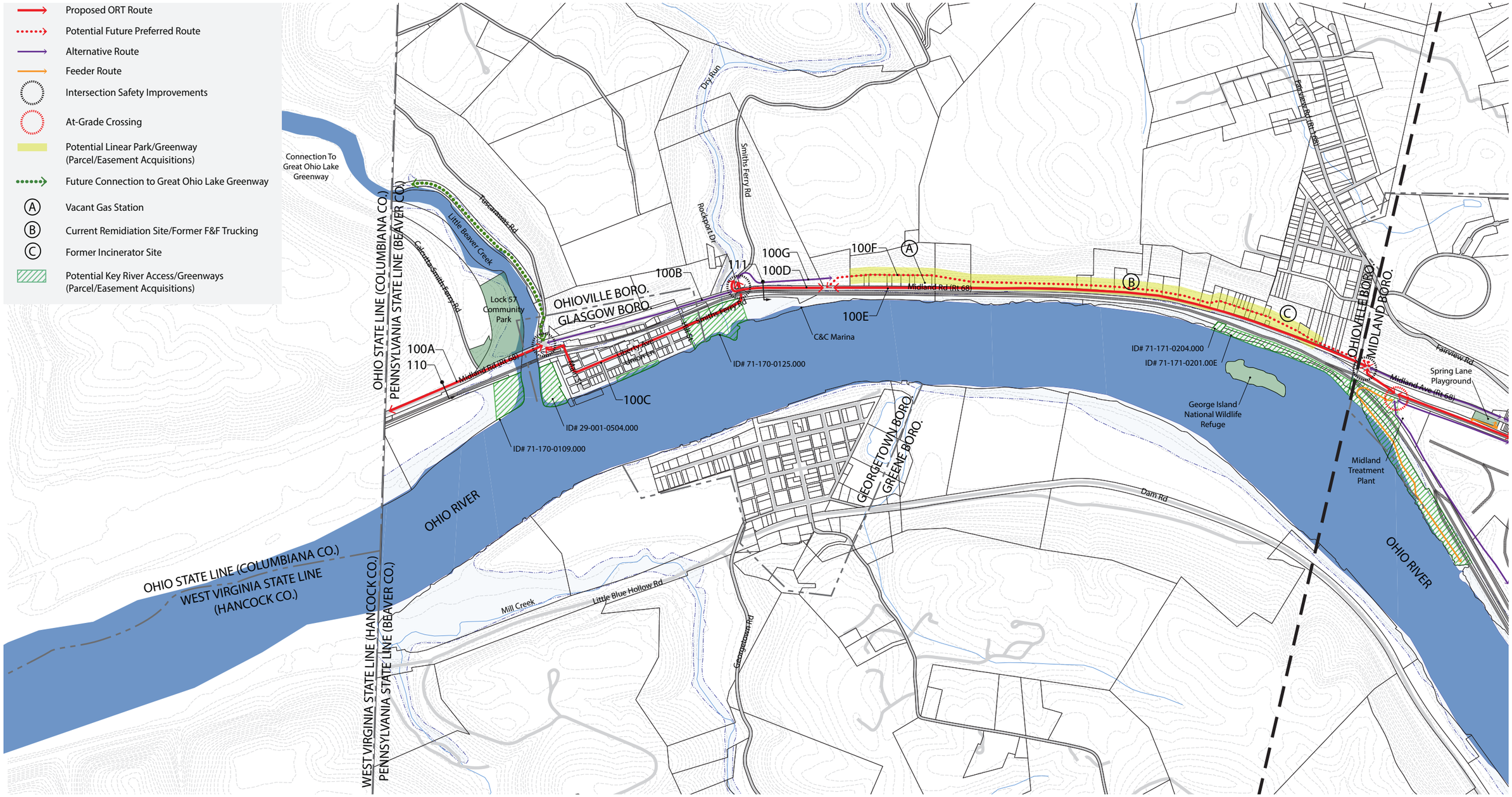
Identified ORNST Future Connections

At the intersection of Tuscarawas Road and PA Route 68, the ORNST could connect to a proposed extension of the Little Beaver Creek Greenway Trail or the Columbiana Greenway Trail along Beaver Creek from Lisbon, OH. The Columbiana Greenway Trail is part of the Great Ohio Lake-to-River Greenway that extends 115 miles from the Ohio River in East Liverpool, OH to Lake Erie at Ashtabula Harbor, OH. On the east bank of the Little Beaver Creek the trails travel along the abandoned Youngstown & Southern Railway (Y&S) Smith's Ferry Branch right-of-way. The Smith's Ferry Branch provided service from Smith's Ferry (Glasgow) to Negley, Ohio where it connected with another branch of the Y&S. This track was removed in 1995. This abandoned railway also presents the ORNST an opportunity to connect to Negley, Ohio. The Y&S also connected with the former Pennsylvania Railroad at Columbiana and Youngstown, Ohio. The railroad right-of-way within Pennsylvania is privately owned.

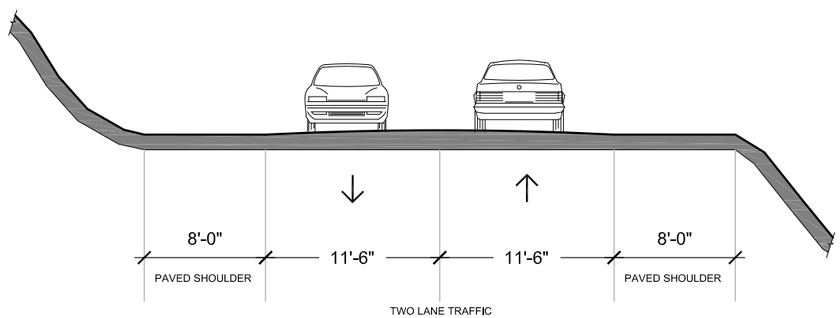
Glasgow Borough – Ohioville Borough - 100

Legend

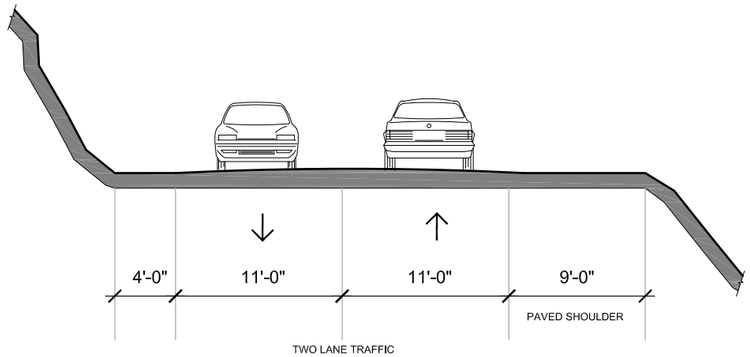
- Proposed ORT Route
- Potential Future Preferred Route
- Alternative Route
- Feeder Route
- Intersection Safety Improvements
- At-Grade Crossing
- Potential Linear Park/Greenway (Parcel/Easement Acquisitions)
- Future Connection to Great Ohio Lake Greenway
- (A) Vacant Gas Station
- (B) Current Remidiation Site/Former F&F Trucking
- (C) Former Incinerator Site
- Potential Key River Access/Greenways (Parcel/Easement Acquisitions)



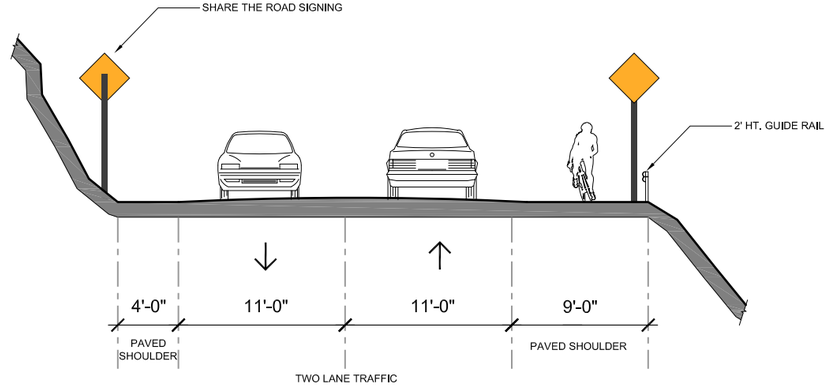
SCALE: Not to Scale NORTH



110 ROUTE 68 NEAR OHIO STATE LINE LOOKING EAST (EXISTING)
SCALE: 1"=10'



111 ROUTE 68 NEAR SMITHS FERRY ROAD LOOKING EAST (EXISTING)
SCALE: 1"=10'



111 ROUTE 68 NEAR SMITHS FERRY ROAD LOOKING EAST (PROPOSED)
SCALE: 1"=10'

Section 200 – Midland Borough

Community Character and Demographic Overview

Midland Borough is 2.2 square miles in area and is located at a bend in the Ohio River between Ohioville Borough and Industry Borough. The majority of the residents however do not live adjacent to the river. This land has historically been used for industrial purposes due in part to the transportation opportunities provided by the river and the railroad. Instead, the vast majority of the Borough's 2,635 residents live north of the railroad line separating the town from the various industrial sites and the Ohio River.

According to the 2010 U.S. Census Data the population of Midland has a median age of 38.2 and is 74.4% White, 20.3% Black or African American, 0.3% American Indian and Alaskan Native and 0.3% Asian. The per capita income is $19,722.

History and Cultural Resources

Beginning as a Native American enclave, Midland's first residents thrived along the fertile banks of the Ohio River. Sustenance farming and the harvesting of resources from the Ohio River such as fish and mussels made life in the region possible. The groups of natives included the Shawnee, Seneca and Delaware. George Washington even came to the area in 1752 to meet with some of these local tribal leaders along with Queen Aliquippa (for whom the City of Aliquippa was named). The first European settlers came to the area from Virginia. These settlers where of Scottish, English and German descent and, like the natives who settled the area before them, took to farming though added their own cultural twist including the raising of cattle and the inclusion of wheat.

The actual town known today as Midland began in the early 1900's when T.K. Miller purchased 1000 acres of farmland from J.A. Neel, Daniel Kaine and the McCoy and Brucker families. When Miller purchased the land he was acting as a representative for a Pittsburgh based industrialist consortium looking for a site to build a blast furnace, a crucial part of iron production.

The site was purchased from the four farmers and as the Midland Steel Company grew in the early 1900's so did its demand for workers. Italian and Slovak immigrants migrated to the region to meet the need. With the influx of immigrants working at the plant the town grew to include schools, a firehouse, shops, churches and a library.

Land Use, Parks and Recreation Resources and River Access

After years of strong industrial development, the land use patterns in Midland Borough are clearly defined. Large industrial portions of land developed along the Ohio River remain industrial despite the fact that industrial production has declined in the region over recent years. These industrial parcels are isolated from the downtown core by an active railroad line and chain-link fencing. There are at-grade railroad crossings and entrance gates providing access to these industrial parcels at 10th Street and 3rd Street, although the 3rd Street gate is unmanned and regularly closed. The main downtown core straddles PA Route 68 between 4th Street and 12th Street and consists of specialty shops, taverns, restaurants, office space, banks, the fire station and a preforming arts center. North of this core is the main residential portion of the Borough. Once acting as housing for the factories to the south of PA Route 68, these residences consist of mostly single family detached units with the exception of a few multi-family developments located between 10th Street and 12th Street along PA Route 68.

The Lincoln Center for the Performing Arts in Midland Borough

For its size and population, Midland Borough has a fair amount of park space in and around its downtown core. Lincoln Park is located adjacent to 10th Street and acts as the towns "central park," an open lawn space of 9.2 acres. The park is surrounded by some of Midland's strongest cultural assets. The Carnegie Library overlooks the park from the west and to the south is one of Midland's strongest new attractions, the Lincoln Park Performing Arts Center.

The Carnegie Free Library is located on 9th Street overlooking Lincoln Park. It was built in April of 1916 and has been providing service to the residents of Midland Borough for the past 86 years. It is the second oldest library in Beaver County and was constructed without any cost to the community through a $20,000 grant by Andrew Carnegie in May of 1914.

To the east of Lincoln Park and its adjacent Carnegie Library are two more of Midland's parks, the Midland Athletic Field and Midland Municipal Park. The 6.2 acre Athletic Field contains a baseball diamond and a walking trail. This park could potentially act as a gateway to the town of Midland as it unofficially marks the town's eastern edge. The Midland Municipal Park is 10.5 acres of adverse terrain and woodlands. There are no sports fields here due in part to the topographic conditions.

On the western edge of town is one of Midland's more traditional "playground" parks. Located on a parcel of land adjacent to PA Route 68 just before its intersection with Fairview Road, there is a flat and fenced play area containing traditional playground equipment such as swings and slides. This park also contains a paved basketball court, an amenity not located in the other parks within the Borough.

Public river access in Midland is non-existent. This portion of the Ohio River is cut off from the town by the active industrial zone and a Norfolk Southern railroad line. The line follows the river closely and is nearly at-grade with the river, making the possibility of a pedestrian underpass

unlikely. Currently, the locations where access to the river is available are used for industrial purposes such as the docking of barges. Near to one of these barge docks there is a water intake plant that it is isolated by the Norfolk Southern railroad line and Midland's industrial zone.

Environmental Context and Infrastructure

River's Edge and Habitat: In Midland, the edge of the Ohio River is also the southern edge of the Borough's active industrial zone. During the peak years of industry (1900s-1950s), much of the vegetation along the river's edge in this area was removed. Since the 1950s, however, as industry has slowed, these sections have been able to regrow and could now be considered to be in good landscape condition. Though the slope is steep in places (around 25%) it is covered by an established tree canopy helping to control what could otherwise become substantial soil erosion. In some places the river is still used for commodity transportation. There are two active moorings along the river's edge as well as a water intake plant. These areas remain clear of vegetation. Aside from these three structures, much of the river's edge has a healthy canopy of vegetation. The edge line's relatively small topographic change is another reason why this vegetation has been able to reclaim so much land. The soil here is stabilized and can easily support vegetation.

Streams and Stormwater: While no prominent streams exist in Section 200, the topography of Midland greatly influences the flow of stormwater through the area. The hills to the north of town quickly direct stormwater along the north/south numbered streets and into the industrial zone south of PA Route 68. Stormwater is conveyed via pipes within the industrial zone before it flows into the Ohio River.

Transportation Infrastructure

Transportation access to and from Midland Borough and Industry Borough via the regional transportation network is provided by PA Route 68 and PA Route 168.

PA Route 68/Midland Avenue serves local motorists having eastbound and westbound destinations and also serves as a major connection to the interstate highway system. It is also the "main street" of Midland Borough. PA Route 68, which parallels the Ohio River, enters Midland Borough from the west through Ohioville Borough and exits Midland Borough to the east through Industry Borough. PA Route 68, from just west of Spring Lane Road/PA Route 168 to approximately 12th Street, is an urban road with two travel lanes, on-street parking and sidewalks on both sides of the street, a posted speed limit of 25 MPH and an average daily traffic volume of approximately 7,400. West of 12th Street to the end of Section 200, there is no on-street parking or sidewalks; however, there are wide shoulders, and a speed limit of 35 MPH. The average daily traffic volume drops to 5,400 at this location. There are five signalized intersections along PA Route 68 through Midland Borough, with the majority of them having pedestrian accommodations (signal heads and ADA ramps).

PA Route 168 serves local motorists having northwestbound and southeastbound destinations. From the west, PA Route 168 is designated as Fairview Road, where it joins PA Route 68. From there, PA Route 168 and PA Route 68 are the same road through downtown Midland. Route 168 separates from Route 68 at the Shippingport Interchange, where SR 168 continues across the Shippingport Bridge and the Ohio River to Shippingport Borough.

Railroad Avenue is Borough-owned alley that runs to the south of and parallel to PA Route 68, and north of the railroad tracks. It is a two lane road, and has considerably less volume of traffic than PA Route 68.

Economic Development

Midland Borough is a community whose economy has been primarily driven by steel mills and heavy industry since the early 1900s. Today, Allegheny Ludlum Steel continues that tradition, although in a greatly diminished capacity when compared to the industry's peak in the 1940s and 1950s. The steel plant is large enough that it not only directly supports 500 jobs within the Borough; it also feeds the need for several supporting businesses including WHEMCO Steel and Kinder-Morgan Trucking. Kinder Morgan has been expanding its presence in the Borough by acquiring a large parcel at the east end of the Borough that was once part of the former Crucible Steel Plant. The future of heavy industry is unknown; however, as part of separate planning effort funded by a grant awarded in 2010 by the U.S. EPA to develop an Area-Wide Brownfields Plan for Midland and three other Ohio River communities, local managers of the three plants attended a special stakeholders meeting and based on the information provided, it would appear that demand for steel production is low, but at a level that is sustainable through the current economic climate.

In recent years, Midland Borough has attracting new industries and businesses that have helped to greatly diversify the local economy and reduce the dependency on heavy industry, especially by local small businesses. PA Cyber, the Pennsylvania Cyber Charter School, is a new State-chartered public school enterprise that has established itself in Midland Borough in the last decade and now educates over 11,000 students throughout Pennsylvania. PA Cyber is based in the Borough and has created hundreds of new jobs as well as developed and redeveloped numerous buildings in the downtown commercial district. As a result of this expansion, there is a significant amount of new economic vibrancy in the downtown commercial district. The Lincoln Park Performing Arts Charter

Views of west Midland from the Spring Lane Playground

School and the Lincoln Center for the Performing Arts is an independent facility located on the site of the former Midland High School which closed in 1987. It is the largest physical anchor along Midland Avenue/PA Route 68 in the Borough's downtown commercial district.

The Borough developed a formal comprehensive plan in 1960; however, various studies and initiatives have been undertaken since focused on specific blocks or topic areas, such as downtown retail. Several developers have been assembling parcels along Midland Avenue/PA Route 68 in the downtown and towards the West End Neighborhood with the goal of constructing new mixed-use infill. The Borough also received Pennsylvania Department of Community and Economic Development (PADCED) Main Street funding to support a façade renovation grant program. A major issue impacting downtown economic development that has been expressed through the years and is an issue now more than ever, is the impact of mill truck traffic turning into the main gate of the Allegheny Ludlum facility, located at 10th Street. A key recommendation of the U.S. EPA funded Area-Wide Brownfields Planning Project for Midland is the creation of a new industrial roadway that would serve as a truck route from the eastern edge of the Borough along the former railroad siding right-of-way to 10th Street.

Midland Borough is part of the regional Rivertown Partnership, in association with nine other Beaver County municipalities. As part of the initiative, the Borough established the Midland Development Corporation as an entity dedicated to the re-establishment of the downtown business district and the surrounding neighborhoods. The Borough was included in a regional Elm Street Initiative Program funded by the PADCED which focused on proposed improvements to Spring Lane Playground, located on the western end of the Midland Avenue/PA Route 69 corridor. This area is also the focus of the West End Renaissance Committee which was formed in 2004 to focus on the revitalization of the area of Midland Borough which includes a significant cluster of older company constructed housing from the area of the original Crucible Steel Mill. This group is especially focused on the removal of blighted properties and the development of new infill housing.

Proposed ORNST Route and Alternatives

Five proposed routes were identified for Section 200 which travels from the Ohioville/Midland Borough border, through Midland Borough and past the Shippingport Bridge before ending along PA Route 68. These proposed routes are labeled as 200A, 200J, 200K, 200L and 200S.

Proposed ORNST Route Description through Section 200

The proposed ORNST route starts at the Ohioville/Midland Borough line and travels east from that point to the intersection of Railroad Avenue and 3rd Street. At this point the route becomes a share the road trail marked by sharrow symbols and other lane markings along the Railroad Avenue corridor to 9th Street in Midland. 9th Street, chosen in part due to its existing traffic signals at the 9th Street/PA Route 68 intersection, would act as the north/south connecting street that carries the route from Railroad Avenue to Beaver Avenue.

Route Characteristics and Issues

Industrial Zone Between 'Town' and River: In Midland, the Ohio River bends away from existing thoroughfares such as Railroad Avenue and PA Route 68. The land between the town's main road (PA Route 68) and the Ohio River is privately owned and is still being used for industrial purposes. Though paralleling as close to the Ohio River as much as possible is at the core of this projects vision, achieving this design in Midland Borough has been deemed unfeasible at this point. Additionally in Midland Borough, following the Ohio River closely directs trail users around the outside of the downtown core. This results in a missed opportunity for Midland Borough which could become one of several trail towns along the ORNST.

Railroad Avenue Corridor: Currently, Railroad Avenue, which is highlighted as Segment 200J of the proposed route, is a one-way street eastbound. Surrounding established homes, overhead utility lines and commercial buildings would make widening the road to two lanes with bike lanes on either side extremely challenging if not impossible. That being said, the road may be widened to allow for two-way traffic. After this redesign the road could facilitate bicycle traffic in either direction. Relatively low vehicular traffic, long and straight sightlines and a speed limit of 25 MPH make using a two lane Railroad Avenue a realistic proposition. Some additional signage and road markings such as sharrow symbols would still be required. This route is still close enough to downtown to foster economic growth while not venturing so far from the Ohio River that route users lose the connection. Cyclists and pedestrians using the trail would be able to spillover into town for refreshments and services.

Shipping Port Bridge: Exiting Midland to the east Shipping Port Bridge, which connects Midland to other industrial sites across the Ohio River, presents serious circulation challenges. Traffic speeds increase here as vehicles leave downtown Midland heading east. This portion of PA Route 68 is also heavily traveled by trucks from various industrial sites in Midland. Additionally, the limited sightlines caused by the curvature of PA Route 68 led to the conclusion that, though several alternatives were considered, none could responsibly be defined as Proposed Routes.

Beaver Avenue in Midland Borough with improved signage recommendations in place

The Norfolk Southern Railroad siding adjacent to the Midland Treatment Plant that serves the Allegheny Ludlum Plant

Americans with Disabilities Act (ADA) Considerations

The at-grade railroad crossing near the Midland Treatment Plant could present issues if the route were to extend along the proposed Feeder Route south to the Ohio River. With regard to the Proposed ORT Route, this crossing would not be an issue as the route descends from PA Route 68, parallel to the northern side of the railroad siding, avoiding the crossing conflict. The connector trail into Spring Lane Park would require a series of switch-backs with landings to conform with ADA requirements. A detailed topographic survey and engineering would be required to make an exact determination of the amount of elevation change that exists and the amount of distance required to make the connector trail compliant with ADA.

Segment 200A

This segment of the proposed ORNST route starts in what would be a public parking lot at the Midland Treatment Plant and is a dedicated, asphalt-paved two lane bicycle path. The parking lot would be sectioned off from the Treatment Plant by fencing. The route travels from this parking lot along the northern edge of the Norfolk Southern railroad line until it reaches 3rd Street. Though it parallels the railroad, the two are separated by retaining walls and fencing as appropriate. Feeder routes could be connected to this segment of proposed route to connect the community of Midland to the existing park located above the railroad along the southern edge of PA Route 68, a connection that is not currently being made.

Segment 200J

This segment follows the mentioned redesign of Railroad Avenue from 3rd Street to 9th Street. It starts where Segment 200A, the dedicated two lane bicycle path, intersects with Railroad Avenue. At this point it transitions from being a dedicated two lane bicycle path to being an on-road path shared with a two-lane road and continues as such until the intersection of Railroad Avenue and 9th Street.

Segment 200K

Description: Segment 200K is an extension of Segment 200J along Railroad Avenue to 12th Street. Slightly offset from the communities heavily trafficked thoroughfare, PA Route 69, this segment along Railroad Avenue provides all of the benefits of being close to town and through traffic without becoming entangled. This allows cyclist and trail users the opportunity to move along the trail safely and freely.

Segment 200L

Segment 200L builds upon Segment 200K routing trail users behind the Kinder Morgan site opposite of PA Route 68. This segment would serve as one of the easternmost trail segments and would help facilitate the transition of trail users from PA Route 68 onto what eventually becomes Railroad Avenue.

Segment 200S

This segment links Section 100 and Section 200 of the proposed ORNST by following the existing J&L Mill private driveway that connects PA Route 68 to the Midland Treatment Plant. A crossing would be required here on Route 68 however; this is not permissible under the current PennDOT publication 212. Despite the fact that traffic volumes are low and sight distances are good, PennDOT prohibits the midblock crossing of state routes by privately owned streets where speeds are equal to or above 45 MPH. To improve safety at this intersection and to gain a crossing of PA Route 68 the posted speed limit could be reduced to less than 45 MPH, which would also help to make this stretch of roadway an 'entrance gate' to downtown Midland. Another way to gain a PA Route 68 crossing here would be to make J&L Mill Drive a local road, providing better access to both the existing Midland Treatment Plant and to any future trailhead parking or riverfront parks.

Proposed Route Lengths

Total Length of Route through Midland Borough On-Road Portion = 1.38 miles

Total Length of Route through Midland Borough 10' Wide Multiuse Path = 0.50 miles

Total Length of Route through Section 200 = 1.88 miles

The portion of PA Route 68 entering Midland from the west where speeds are still 45 MPH

Identified ORNST Routing Alternatives in Section 200

Based on challenging land use and traffic related constraints, several alternative routes were explored and rejected for this section of the route. The following is a brief description of each of these alternate routes.

Alternative 200B

Description: Alternative 200B connects Section 100 and 200 via an on-road route along PA Route 68.

Issue: Like many segments of PA Route 68, high traffic volumes and high speeds make this alternative less than desirable.

Alternative 200F

Description: Alternative 200F would occur south of the Norfolk Southern railroad line within the fence line currently used to separate the community of Midland from its adjoining industrial sites. It would begin where the Midland Treatment Plant access road crosses the Norfolk Southern line and continues to the 3rd Street access gate.

Issue: Primary concerns with this alternative include the security of the treatment plant, railroad and industrial sites as well as the safety of any pedestrians intermingling with these facilities. It quickly becomes apparent that to thwart any undesirable consequences, fencing and controlled gates would need to be incorporated into the design greatly increasing project costs and potential conflicts.

Alternative 200C/200G

Description: Alternatives 200C and 200G represent two possible ways to bring an on-road route into Midland along PA Route 68. 200C differs from 200G in that 200G branches off from PA Route 68 and follows Woodlane Avenue into Midland, traveling through the northern neighborhoods, while 200C continues on PA Route 68 and directly enters what could be considered the "downtown" portion of Midland Borough.

Issue: Both of these alternatives were abandoned when the preferable Segment 200F was adopted. They both are troubled by issues commonly associated with share-the-road routes while Segment 200F is a dedicated bicycle lane independent of any existing thoroughfares and therefor preferable.

Alternative 200D/200E/200H/200I

Description: Alternatives 200D, 200E, 200H and 200I explore alternative connections between Midland west of Fairview Road and the downtown portion of Midland east of 4th Street. 200D simply continues along PA

Route 68 as a share the road route. 200E turns south from PA Route 68 along Railroad Avenue until its intersection with 3rd Street where Alternative 200H carries the route north once more to 200I which is the segment running north/south between PA Route 68 and Beaver Avenue.

Issue: Each of these alternatives has their own respective set of issues and constraints that has caused them to be labeled as alternatives. Like many other alternatives, 200D relies heavily on PA Route 68 and, as PA Route 68 is a less than desirable bicycle experience, it has been ruled out. 200E along Railroad Avenue is a viable alternative except for the fact that the proposed Segment 200A presents an even more desirable approach to Railroad Avenue as it does not rely upon PA Route 68 to get there. 200H would only be required if Alternative 200F were to travel through Midland's industrial zones, which is also rendered unnecessary by Segment 200A. Additionally, a connection between Alternatives 200F and 200H would require a manned access gate controlling the intersection of the bicycle route, the railroad and 3rd Street vehicle traffic. 200I is less than desirable because of the extreme uphill slope of 3rd Street between PA Route 68 and Beaver Avenue.

Alternative 200M/200Q/200P/200R

Description: All of these alternatives delve into the industrial lands avoided by the proposed ORNST routes. The most daring of these forays is Alternative 200R which begins, like many other routes proposed and otherwise, at the Midland Treatment Plant. From here the route travels north of the railroad line between the line and its adjacent industrial properties before connecting with Alternatives 200Q and 200P which take the route north, out of the industrial lands, and back towards PA Route 68. Though these alternatives present a series of issues and concerns, as described in the following discussion, they would bring the route the closest to the Ohio River, which is one of the main objectives of the ORNST, as well as help to reintroduce the forgotten Phillis Island National Wildlife Refuge to the community of Midland.

The Railroad Avenue corridor in Midland Borough

Issue: The greatest issue associated with these alternatives is that any sort of additional burden upon the area's industry could result in tense community/industry relations and could possibly even unintentionally harm the productive output, and thusly the economy, of the greater region. Additionally, though these alternatives would bring route users closer to the Ohio River, they would also be carrying route users further from the downtown of Midland when, if the opposite were achieved and people were routed towards the downtown, Midland could benefit economically from increased pedestrian traffic.

Alternative 200N

Description: Alternative 200N is used to connect the Midland portion of the route with Section 300. It consists of a signed bicycle route, however, because of transportation infrastructure and patterns, it is not presented as a preferred segment.

Issue: Issues include high truck volume, increased traffic speeds (higher than the 25 MPH found in residential portions of Midland) and complicated transportation infrastructure in the form of the Shippingport Bridge. The curvature of PA Route 68 around the bridge in both east and westbound lanes also makes this alternative less than desirable as sightlines are greatly diminished. The eastbound lane, though having a wider shoulder, also has a small, poorly lit tunneled portion where the road travels under the Shippingport Bridge.

Alternative 200O

Description: Alternative 200O is a side route that depends upon Alternative 200N for a connection to Midland. 200O is a dedicated route that would need to be constructed paralleling the Ohio River. Experientially, Alternative 200O would be a desirable alternative as it would allow for a riverside experience separated from PA Route 68 by the active Norfolk Southern railroad line.

Issue: As mentioned, Alternative 200O depends upon 200N to be connected to downtown Midland, which is a questionable connection for reasons previously discussed. This alternative would also require substantial construction along the Ohio River.

Identified ORNST Feeder Routes in Section 200

Feeder Routes are utilized in Section 200 to bring natural and cultural amenities into the ORNST network. They also help to connect several of the communities' vibrant neighborhoods.

2F1, 2F2

Description: Two Feeder Routes that exist in Section 200 are 2F1 and 2F2. 2F1 is proposed as a route that could access a long sliver of land paralleling the Ohio River and the Norfolk Southern railroad line near the Midland/Ohioville Borough border, just south of the Midland Treatment Plant. This area has the potential to provide river access to Midland though currently it is not open to the public. The second feeder, 2F2 would be a switchback route extending from the proposed route up a steep embankment and into Spring Lane Playground, which currently suffers from poor accessibility.

2F3, 2F6

Description: 2F3 connects Alternative 200I on 3rd Street with the Carnegie Library on 9th Street. The route would be on-road which would not present a serious safety concern because of the brick street paving and 25 MPH speed limit of Beaver Avenue. At the library, this route would connect with 2F6 and wrap northward around Lincoln Park and into the northern portion of the Midland Athletic Field before turning south and eventually rejoining PA Route 68.

Issue: The issue with 2F3 and 2F6 is that the routes do not need to travel so far north, away from Midland neighborhoods, the downtown core and more importantly the Ohio River. As such, these alternatives were explored and expelled.

2F4

Description: At the intersection of Railroad Avenue and 9th Street the Feeder Route 2F4 turns north away from the Ohio River and into what could be considered the downtown portion of Midland. 9th Street was chosen as the key street in linking Segments 200J and 200K because of several factors: it occurs before the 10th Street Gate which is the main entrance/exist point for Midland's industrial facilities, there is an existing traffic signal at the intersection of 9th Street and PA Route 68 making the crossing safer for cyclists and other potential route users, and 9th Street is adjacent to some of Midland's strongest cultural assets, the Carnegie Library, the Preforming Arts Center and Lincoln Park.

2F5

Description: Like several other Feeder Routes, 2F5 does not connect to other portions of the ORNST however, it does help to connect the Midland Athletic Fields with Lincoln Park and the Preforming Arts Center. It is also a simple route to construct as Beaver Avenue, which it makes use of, is a residential brick street with a speed limit of 25 MPH.

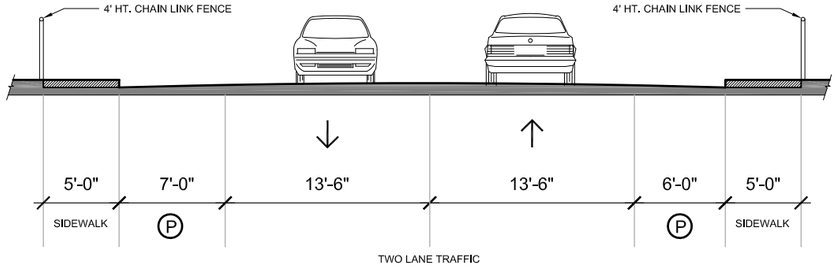
Midland Borough - 200

Legend

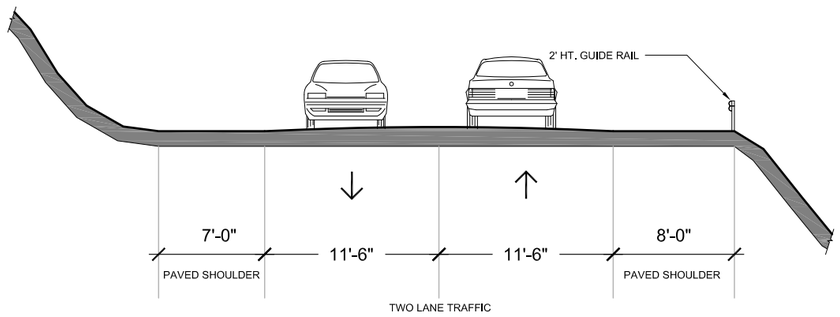
- Proposed ORT Route
- Potential Future Preferred Route
- Alternative Route
- Feeder Route
- Intersection Safety Improvements
- At-Grade Crossing
- Potential Linear Park/Greenway (Parcel/Easement Acquisitions)
- (A) Borough Building
- (B) Performing Arts Center
- Potential Key River Access/Greenways (Parcel/Easement Acquisitions)

OHIOVILLE BORO.
MIDLAND BORO.
OHIO RIVER
Midland Municipal Park
Lincoln Park
Midland Athletic Field
INDUSTRY BORO.
MIDLAND BORO.
Midland Beaver Rd (Rt 68)
Shippingport Bridge
Shippingport Rd (Rt 168)
Pine St (Rt 168)
Fairview Rd
Spring Lane Playground
Midland Rd (RT68)
J&L Mill Pvt Drive
George Island National Wildlife Refuge
Midland Treatment Plant
Proposed Overlook Park
ID# 33-001-0103.017
Allegheny Ludlum
Kinder Morgan
Beaver County Corp. for Economic Development
Water Intake Plant
Dam Rd
Phillis Island National Wildlife Refuge
SHIPPINGPORT BORO.
GREENE TWP.
210
211
200A
200B
200C
200D
200E
200F
200G
200I
200J
200K
200L
200M
200N
200O
200P
200Q
200R
2F1
2F2
2F3
2F4
2F5
2F6

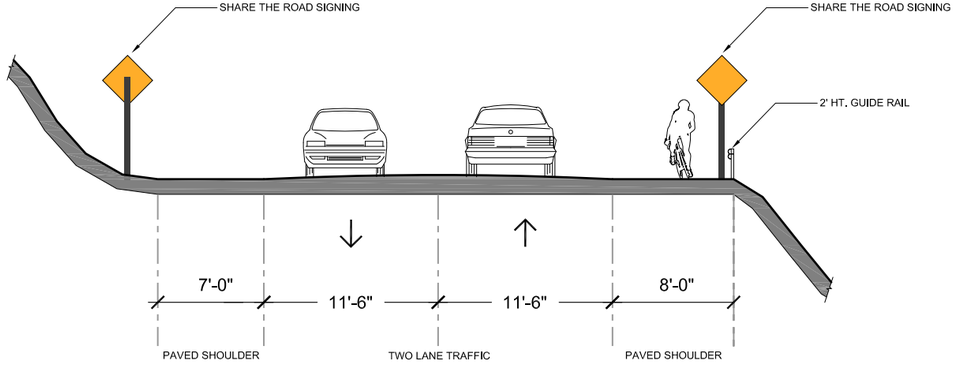
SCALE: Not to Scale NORTH



210 ROUTE 68 NEAR FAIRVIEW ROAD LOOKING EAST (EXISTING)
SCALE: 1"=10'



211 ROUTE 68 EAST OF SHIPPING PORT BRIDGE LOOKING EAST (EXISTING)
SCALE: 1"=10'



211 ROUTE 68 EAST OF SHIPPING PORT BRIDGE LOOKING EAST (PROPOSED)
SCALE: 1"=10'

Section 300 – Industry Borough

Community Character and Demographic Overview

In the west, Industry Borough begins just outside of downtown Midland near where PA Route 68 connects with the Shippingport Bridge. It then continues east along the Ohio River until it reaches Brighton Township near the Lockhouse 6 restaurant (see Section 400). The Borough is 10.6 square miles in size and has a population of 1,835 people with a median age of 45.4.

According to the 2010 U.S. Census Data, the racial makeup of the Borough is 96.7% White, 1.5% Black or African American, 0.1% American Indian or Alaskan Native and 0.5% Asian. The per capita income is $24,949, up from $18,337 in 1999.

History and Cultural Resources

Industry Borough was initially formed as a township following a court ordered decree on February 7, 1856. This decision came about after three years of petitioning from local residents who wanted the area designated as such. Industry Township then became Industry Borough in 1960.

The former Merrill Lock House 6 Complex is on the National Register of Historic Places.

Land Use, Parks and Recreation Resources and River Access

Land use in Industry Borough is, like Midland Borough, clearly defined and not often mixed. Industrial storage facilities exist between PA Route 68 and the Ohio River on the west end of the Borough towards Midland. These facilities not only store material but also transport it along the river making use of moorings just downriver from the Montgomery Dam.

The core commercial development area of Industry Borough is located along PA Route 68 between Clark Avenue and Highland Avenue and consists of a post office, hotel and volunteer fire department. One of the only sidewalks in the Borough exists here in front of the post office on the north side of PA Route 68. Residential neighborhoods surround the commercial core. The majority of these units are further confined to the region of flat land north of the Ohio River and the active railroad line but south of PA Route 68. There are a few exceptions, particularly areas on the west and east ends of the core commercial area where residential development crosses PA Route 68 and begins to move into the adjacent hills.

Industry Borough has two large recreational resources near but not adjacent to the Ohio River; Industry Ballfield and the Ohio View Public Golf Course. The Industry Ballfield complex has multiple baseball fields, ample parking, a pavilion structure and basketball courts. The Ohio View Public Golf Course is located to the north east of the Ballfield and occupies a natural gap in the rolling topography. Access to the golf course and portions of the Borough to the north is gained via Pine Grove Road. Two smaller traditional parks also exist in the borough. The first and the larger of the two, Logan Park, is located at the corner of Pine Grove Road and Ohioview Drive. This park consists of traditional playground equipment such as swings, a picnic table and a wooden play structure as well as a basketball court and offers scenic views of the adjacent Ohio View Public Golf Course located in the valley to the north. The other small traditional park is located further west along PA Route 68 near Wolf Run Road at the corner of Vance Way and Cherry Lane. It is a small park with fencing around portions of it and contains a basketball court and a swing set.

Access to the river's edge in Industry Borough is limited. Steep topography between Midland and Industry has forced PA Route 68 and the railroad to squeeze together occupying a tightly shared shelf close to the edge of the Ohio River. When the topography opens and allows for development, the space is filled with industrial storage facilities not open to public access. The railroad bends back to the edge of the river, which it tightly parallels through Industry Borough, past the Montgomery Dam before diverting slightly north from the river and traveling under PA Route 68. The potential for river access is possible at this point where a peninsula, known as the Ohio View Peninsula, extends from the meeting of the railroad and PA Route 68 back towards the core development area. The peninsula ends just before reaching the Montgomery Dam. This area is low and within the flood zone allowing for the potential to use the area to reconnect the residents of Industry Borough with the Ohio River.

Environmental Context and Infrastructure

River's Edge and Habitat: The river's edge habitat in this section is primarily in good or better condition particularly to the east towards Brighton Township. Like Midland and Ohioville Boroughs to the west, the railroad has isolated the river's edge from development and has allowed a natural tree canopy to evolve, protecting the edge from erosion and invasive plant communities. River patterns east of the Montgomery Dam have created the Ohio View Peninsula.

According to the Pennsylvania Natural Heritage Inventory, the peninsula is recognized by the U.S. Fish and Wildlife Service as "the most ecologically significant area on the Pennsylvania portion of the Ohio River." Its shallow water embayment and wetlands represent some of the last such natural features along the Ohio River as its approximately 36 acres have been left undeveloped for some time. These features provide safe and protected habitat to several sensitive fish species as it is somewhat separated from the deeper, open waters of the river. The edges of the peninsula are lined with trees from the Floodplain Forest Natural Community such as mature

Montgomery Dam in Industry Borough

silver maples (Acer saccharinum) and box elder (Acer negundo). These trees serve as a nesting sites for a bird species of concern in Pennsylvania, the prothonotary warbler (Protonotaria citrea). This bird prefers nesting along the waters edge and is very sensitive to disturbance. Under this tree canopy is a deep, alluvial soil loving herbaceous community containing wingstem (Actinomeris alternifolia), Turk's cap lily (Lilium superbum), green dragon (Arisaema dracontium) and several violet species (Viola spp.).

Exceptions to this healthy edge condition in Industry Borough include portions of industrialized land near Wabash Street and Canton Street. This land is classified as highly disturbed and is used as a gas holding field, material storage facility and a coal transfer facility moving goods via PA Route 68 and the adjacent Ohio River. Here, vegetation has been completely removed to allow for easy barge loading/unloading and in several places bulkheads have been built extending the industrial facilities into the river.

Streams and Stormwater: Six Mile Run is the most substantial stream in Section 300. It flows from the hills above the Ohio View Public Golf Course, through the golf course then west along the southern edge of the Industry Ballfield. It is bridged by Engle Drive then continues its flow westward behind the Willows Inn and several other properties until it turns south near the terminus of Terrace Lane. It then flows under PA Route 68 and the Norfolk Southern railroad line eventually depositing into the Ohio River.

Wolf Run, which parallels Wolf Run Road, is another stream located within Section 300. As mentioned, it flows southward through a valley before going underneath both PA Route 68 and the Norfolk Southern railroad and depositing in the Ohio River just west of where Six Mile Run meets the river.

Transportation Infrastructure

Transportation access to and from Industry Borough via the regional transportation network is provided by PA Route 68.

PA Route 68/Midland Beaver Road serves local motorists having eastbound and westbound destinations and also serves as a major connection to the interstate highway system. It is also the "main street" of Industry Borough. Route 68, which parallels the Ohio River, enters Industry Borough from the west through Midland Borough and exits Midland Borough to the east through Vanport Township. PA Route 68 is a rural road with two travel lanes and variable shoulder widths through this section. West of Wolf's Run Road /SR 4034 to approximately Shell Street, PA Route 68 narrows to 11' lanes and has a 2' shoulder with curb along the northern side, creating a pinch point for pedestrians and bicyclists. In addition, Kinder Morgan is located south of PA Route 68 in this section, and creates high truck traffic and truck turning movements in this area. The average daily traffic volumes are approximately 5,000, while the speed limit is 35 MPH in this location. Between Wolf's Run Road /SR 4034 and Barclay Hill Road/SR 4037, the shoulders widen to 5'-6', the average daily traffic ranges between 7,100 and 9,500, and the speed limit is 35 MPH. East of Barclay Hill Road/SR 4037, the shoulders widen to 8'-10', the average daily traffic is 9,700, and the speed limit is 45 MPH.

Crossings of PA Route 68 at the intersections of Engle Road/SR 4032 and Pine Grove Road/SR 4039 should not be too challenging for pedestrians and bicyclists as the sight distances are good and the speed limit is 35 MPH.

Economic Development

Industry Borough is primarily rural in character; however, it has a small developed core area located along PA Route 68 midway between Midland and Vanport Boroughs. The Borough's municipal building, post office and limited commercial development along with clusters of smaller lot residential neighborhoods are located in this area. This area centers around the Army Corps of Engineers Montgomery Lock and Dam on the Ohio River. This dam replaced the old Merrill Lock 6 which was also located in the Borough, upriver from the current dam. The former Lock House Complex is on the National Register of Historic Places and has been a popular restaurant location along the Ohio River, however, the restaurant recently closed and is for sale.

Industry Borough does not have a comprehensive plan. The Borough recently received several applications for Marcellus Shale gas well permits which could have an economic impact on the Borough, at least in the short term.

Proposed ORNST Route and Alternatives

No viable continuous trail route(s) which connect Section 200 to 400 could be identified. An assessment of the various non-viable alternatives is provided in the following text. Several of the segments in Section 400 were determined to be viable; however, they do not form a complete connection through the section. Although a continuous trail could not be identified, a significant amount of trail route could be created to provide direct mobility and recreational benefits to Industry Borough residents as well as serve as a regional destination to access the Ohio River's edge. Industry Borough has the potential to be a regional destination with some of the most spectacular access points along the Ohio River, west of Beaver.

The viable trail route segments in Section 300 include 300K, 300S and 300L which would serve the core of the Borough development area and link nearby residential neighborhoods to the Borough's Community Park. These segments primarily utilize existing roadways with low-traffic volumes as sharrows with 300S consisting of a small dedicated off-road multi-use path connection around the Ohio View Golf Course.

The southwestern corner of the Ohio View Public Golf Course

A long-term vision for the trail includes a long, linear dedicated multi-use trail and greenway along the Ohio River from the Ohio View Peninsula, which has been identified as an extraordinary natural resource, to Lockhouse 6.

Proposed ORNST Route Description through Section 300

The proposed ORNST route starts at the intersection of PA Route 68 and Engle Road as a share-the-road route and then travels north along Engle Road towards the Industry Community Park. Prior to reaching the ballfields parking lot, the route turns east and becomes a dedicated multi-use trail paralleling the southern edge of Six Mile Run. It continues along Six Mile Run until it reaches the property line for the Ohio View Public Golf Course, at which point it turns south, tracing this property line to Ohioview Drive. From Pine Grove Road the route would be an on-road route consisting of sharrows along Ohioview Drive and Patterson Avenue where it turns south and terminates at PA Route 68. The proposal also recommends several bicycle pedestrian crossing improvements along PA Route 68 at the intersections of Engle Road/SR 4032 and Pine Grove Road/SR 4039 to allow for safe pedestrian and bicycle connectivity across PA Route 68 within the core development area of the Borough.

Route Characteristics and Issues

Six Mile Run Route: While a route paralleling Six Mile Run would be desirable for several reasons, it would first have to overcome the hurdle of private ownership which currently exists along much of the southern edge of the run.

Ohio View Public Golf Course Constraints: A small dedicated multi-use trail segment would be required along the perimeter of the Ohio View Public Golf Course to connect the Industry Community Park to Ohioview Drive. The proposed route would travel near one of the courses' fairways and green, located adjacent to the park.

Americans with Disabilities Act (ADA) Considerations

Portions of the route through Section 300 are proposed to have a more 'natural' feel than other segments of the trail route. In particular, the segment that parallels Six Mile Run adjacent to the Industry Community Park has gravel specified as the surface material of choice. This should not present a conflict with ADA considerations so long as it is properly maintained.

Segment 300K

As previously mentioned, this segment of the proposed ORNST starts at the intersection of Engle Road and PA Route 68 and exists as a route in signage only until it reaches Six Mile Run, at which point it becomes a dedicated gravel path on the southern edge of the run traveling to the Ohio View Public Golf Course. This segment has strong experiential potential as following the run, which is currently not accessible, could become an attractive recreational destination for Industry Borough and the surrounding region.

Segment 300T

This small segment of the route is an on-road signed route that connects the gravel route that is Segment 300K with Logan Park and Segment 300L.

Segment 300L

This segment travels through one of the more residential portions of Industry Borough and is an on-road signed extension of Segment 300T. It continues as such until it turns south on Patterson Avenue and then intersects with PA Route 68. At this point the proposed routes for Section 300 dissolve.

Segment 300S

This segment is labeled in Section 300 as a 'Potential Future Preferred Route' because there are too many property ownership concerns to confidently label this segment as a ready-to-build route, however, as mentioned, such a route could symbiotically exist with the Ohio View Public Golf Course. The two, golf course and bicycle route, could coexist, fostering recreational traffic for each other once an agreeable route through the course has been determined.

Proposed Route Lengths

Total Length of Route through Industry Borough On-Road Portion = 0.58 miles

Total Length of Route through Industry Borough 10' Wide Gravel Path = 0.50 miles

Total Length of Route through Section 300 = 1.08 miles

Identified ORNST Routing Alternatives in Section 300

Based on challenging land use and traffic related constraints, several alternative routes were explored and rejected for this section of the route. The following is a brief description of each of these alternate routes as they occur from west to east.

Alternative 300A

Description: This alternative would be a continuation of the Section 200 portion of the proposed ORNST extending from Midland Borough. The trail would be an on-road route consisting of share-the-road signing only.

Pinch point at the intersection of PA Route 68 and Wabash Street

Pinch point near the Kinder Morgan site along PA Route 68 entering Industry Borough

Issue: There are several major issues associated with this alternative that deem it not viable. The cross section of the roadway is not wide enough to accommodate striped bike lanes in either direction. In addition, PennDOT's policy on bike lanes would require the Borough to assume ownership and maintenance of the bike lanes which is cost-prohibitive. The posted speed of the roadway is above 35 MPH eliminating the ability to post share-the-road signing for the segment. Further physical constraints exist along PA Route 68 as it travels into the core development area of Industry Borough. An area of particular concern is a narrow "pinch-point" located east of Wabash Road heading towards the core development area. At this point, PA Route 68 becomes 22' wide with a 2' paved shoulder on the north side and an 8' unpaved shoulder on the south side. Just beyond the northern shoulder, houses are located very close to edge of the right-of-way further limiting the possibility of a side path.

Alternative 300B

Description: Alternative 300B would follow the Ohio River near its edge and would a very desirable setting for a trail route. This alternative would consist mostly of an off-road multi-use path.

Issue: Due to topographic conditions, especially located mid-way point between the Shippingport Bridge and Wabash Street, significant site engineering would likely be required to form a "bench" to accommodate the trail. This segment is also dependent upon the ability to create an on-road trail crossing of PA Route 68 and the Norfolk Southern rail line, near the Shippingport Bridge Interchange to direct the trail route to the river's edge. On the eastern end of the segment the trail route would require passing through several active industrial parcels in order to access the at-grade rail crossing at Wabash Road.

Alternative 300C

Description: This alternative was analyzed as an alternative route to avoid the highly constrained segment of PA Route 68 between Wabash Street and Wolf Run Road. This alternative routes the trail as a sharrow north along Wabash Street to Pleasant Street, Cherry Lane and Vance Way to Wolf Run Road. The trail would cross Wolf Run Road to Industry Road or consist of a signed share-the-road along Wolf Run Road.

Issue: Although Wabash and Pleasant Streets have low traffic volumes and travel through a residential neighborhood, the approach to Wabash street from the west along PA Route 68 is highly constrained in terms of a narrow cross-section and limited site-lines. The portion of this alternative along Wolf Run Road cannot accommodate even a share-the-run application due to narrow roadway widths and limited site lines. Also, part of the evaluation of this alternative was to look at a direct connection to Industry Street, as described in Alternative 300R; however, no viable connection beyond PA Route 68 was identified.

Alternative 300D/300G

Description: These alternatives continue from 300E where Canton Street intersects with PA Route 68 and continue to the property line of Willows Inn in Industry.

Issue: Alternatives 300D and 300G follow portions of PA Route 68 where there is extensive truck turning movements accessing the industrial facilities located between PA Route 68 and the river, including a major Kinder Morgan facility. This stretch of roadway also has very limited roadway and right-of-way widths and limited site lines making these alternatives non-compatible with an on-road shared bicycle route.

Alternative 300E

Description: Alternative 300E runs parallel to PA Route 68 along Canton Street on the western end of Industry. This route was studied as a possible alternative to the highly constrained portion of PA Route 68 in this area.

Issue: Alternative 300E is short segment that could be a viable alternative to the highly constrained portion of PA Route 68 from Wabash Road to Wolf Run Road; however, it would not connect to any other identified viable adjacent alternatives therefore it is not relevant as a trail route segment.

Alternative 300R

Description: This alternative utilizes Industry Street and Terrace Lane as an on-road sharrow trail route to connect to a possible alternative 300F that would follow Six Mile Run behind Willows Inn.

Issue: Based on tax parcel mapping, this alternative appeared to present a possible alternative to highly constrained area of PA Route 68 east of Industry Street in front of the Kinder-Morgan facility as described as Alternative 300G; however, upon further field investigation, this alternative was deemed infeasible due to the location of a private residential dwelling located at the eastern terminus of Terrace Lane and the significant topographic changes along Six Mile Run.

Alternative 300F/300J/300H

Description: All of these alternatives with the exception of 300H parallel the southern edge of Six Mile Run from the eastern terminus of Terrace Lane to Engle Road and Segment 300K. These alternatives could potentially join to create a "greenway spine" or long linear park with an incorporated off-road multi-use trail route connecting two of Industry's currently disconnected developed areas east and west of Six Mile Run. This potential linear park following Six Mile Run could also act as a conservation measure to protect the value of the stream from future development encroachment and negative environmental impacts.

PA Route 68 in Industry Borough near the post office eastbound

PA Route 68 in Industry Borough near the post office looking westbound

Issue: A trail route paralleling Six Mile Run would be desirable because it would provide public access and potential protection of the stream corridor, forming a linear greenway which expands the Industry Community Park to form passive park to the west, behind the Willows Inn. Land and/or right-of-way easements or fee-simple acquisition would need to occur to make this trail segment possible; however, the land is currently undeveloped and it appears that the trail could be located in flood zone areas that would be otherwise undevelopable for regulatory reasons. Due to topographic issues throughout this area, further engineering studies would need to be performed to determine if a trail could be constructed in this area including how much right-of-way would be required if the potentially impacted parcel would not be purchased outright.

Alternative 300I/300Q

Description: These two alternative trail routes run directly through the core development area of Industry Borough along PA Route 68, from the western end of the Willows Inn property, east to Patterson Avenue.

Issue: The Borough of Industry has expressed a desire to make this stretch of roadway more pedestrian-friendly to cross and specifically has identified the intersections of Engle Road/SR 4032 and Pine Grove Road/SR 4039 be improved with striped crosswalks and other pedestrian safety facilities to allow for safe pedestrian and bicycle connectivity across Route 68 within the core development area of the Borough. The Borough and citizens that attended a special public meeting at the Industry Borough municipal building also expressed concern regarding the stretch of PA Route 68 included in these two alternatives as an on-road bicycle route. There are concerns about speeding and limited shoulder widths to safely accommodate on-road bicycle travel. As a result, these alternatives were determined to be unfeasible.

Alternative 300P

Description: Alternative 300P was identified as a potential trail route which would direct trail users along the riverfront, via Pine Grove Road, across PA Route 68 and across the Norfolk Southern railroad to the U.S. Army Corps of Engineers access roadway to the Montgomery Dam. A new bicycle/pedestrian bridge would be required to cross the inland bay along the Ohio River providing access to the Ohio View Peninsula. The trail route would continue east along the peninsula to the southeast and a potential linear greenway to a trailhead access point along PA Route 68 at the point where the roadway crosses over the Norfolk Southern railroad. An additional portion of the trail route would continue east along the edge of the river into Section 400.

Issue: This trail route would open access to the Ohio View Peninsula which has been identified as a major environmental resource worthy of long-term conservation. The portion of the trail route that extends along the peninsula could be viable, although it would require a right-of-way easement of fee-simple purchase. There are several major fatal flaws with the remainder of this alternative, including the need for an expensive bridge span to connect the end of the peninsula with the mainland and the lack of an existing at-grade crossing of the Norfolk Southern railroad. A portion of an at-grade crossing exists over one of the tracks of the railroad, but it appears to have been removed for the track closest to the river, eliminating any possibility of having a trail crossing in this area without an additional bridge span over the railroad, which is topographically difficult.

The narrow descent to Wolf Run Road along Alternative 300C

Alternative 300M

Description: Alternative 300M would be a continuation of proposed Segment 300L and would travel along PA Route 68 from Patterson Avenue into Section 400; however, prior to crossing into Section 400, Alternative 300M bends with PA Route 68 northward before sweeping south again towards the Ohio River and bridging over the active Norfolk Southern railroad line with the roadway.

Issue: Although the bridge to the east of Barclay Hill Road on PA Route 68 has wide shoulders, it also is curved reducing sight line distances and therefore is not conducive to bicycle/pedestrian traffic. In addition, posted traffic speeds increase in this area eliminating the ability to designate this area as a share-the-road condition. As is the case with other on-road alternatives along PennDOT roadways, PennDOT's policy on bike lanes would require the Borough to assume ownership and maintenance of the bike lanes, which is cost-prohibitive.

Alternative 300N/300O

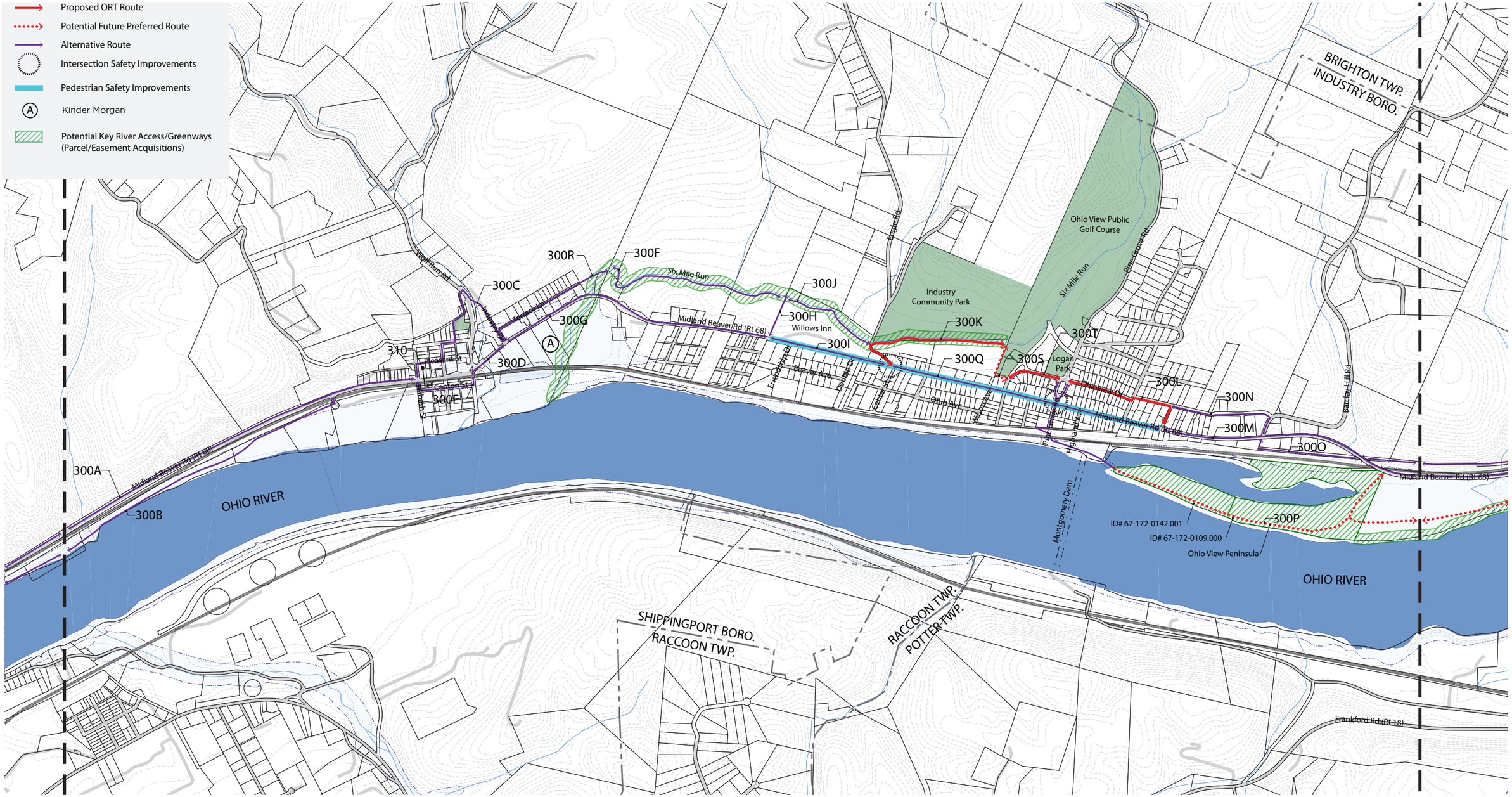
Description: These two alternatives are grouped together because they are codependent in nature. Alternative 300N, which is a linear extension of Alternative 300L along Ohioview Drive, is needed to make the connection to Alternative 300O, which would travel from PA Route 68 south, to the former trolley line right-of-way located behind several residential properties which front on PA Route 68 and then travel east along the former trolley line right-of-way, underneath PA Route 68, parallel to the Norfolk Southern railroad line on its own dedicated path separate from the railroad. This route would connect to alternatives in Section 400.

Issue: These alternatives represent a potentially favorable alternative to an on-road trail route along PA Route 68 as described in Alternative 300M. Over the railroad, they also raise a series of substantial feasibility issues. Local residents expressed concerns over the potential of running the trail route along the former trolley line right-of-way since this alignment is very close to the rear of their dwellings. In addition, Alternative 300O has a fatal flaw as a result of the reconstruction of the PA Route 68 overpass over the Norfolk Southern railroad, which located a new bridge abutment on the former trolley line right-of-way, eliminating any potential connection underneath PA Route 68.

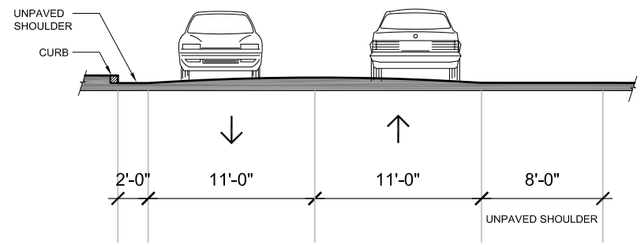
Industry Borough - 300

Legend

- Proposed ORT Route
- Potential Future Preferred Route
- Alternative Route
- Intersection Safety Improvements
- Pedestrian Safety Improvements
- Ⓐ Kinder Morgan
- Potential Key River Access/Greenways (Parcel/Easement Acquisitions)



SCALE: Not to Scale NORTH



310 ROUTE 68 NEAR WABASH STREET LOOKING EAST (EXISTING)
SCALE: 1"=10'

Section 400 – Industry Borough – Brighton Township – Vanport Township

Community Character and Demographic Overview

For Industry Borough see Section 300.

Brighton Township begins half a mile to the east of the Lockhouse 6 restaurant in Industry Borough and continues east to the municipal boundaries of Vanport Township and Beaver Borough. It extends several miles to the north incorporating some of the areas largest regional parks and is bordered to the south by the Ohio River. In total, it covers 19 square miles.

The Township has a population of 8,227 according to the 2010 U.S. Census, up from 8,024 as reported in the 2000 U.S. Census. Of that population, the median age is 47.8 with a racial makeup that is 97.1% White, 1.1% Black or African American and 0.1% American Indian and Alaska Native. The income per capita is $31,024.

To the south and east of Brighton Township is Vanport Township which begins west of the I-376 interchange with PA Route 68 and continues along the Ohio River for nearly two miles before it reaches its eastern limit which is shared with Beaver Borough. To the north above Division Lane it is bordered by Brighton Township and to the south it is bordered by the Ohio River.

The composition of Vanport Township is fairly consistent with that of the surrounding areas. According to the 2010 U.S. Census Data the total population of the Township is 1,321, down from 1,451 in 2000. The racial makeup of the population is 96.7% White, 1.6% Black or African American and 0.1% American Indian and Alaska Native. The median age is 57.3 and the per capita income is $21,526.

History and Cultural Resources

One of the most prominent historic structures in this section is the Merrill Lock No. 6 in Industry Borough, known today as the Lockhouse 6 restaurant or simply Lockhouse 6. The Lock is listed on the National Register Historic Places as of September 4, 1980 and was originally constructed between 1892 and 1904. It is a brick structure with a slate roof and an architectural styling reminiscent of Romanesque structures. It ceased operating as a lock house when the Montgomery Lock and Dam was built downstream in 1936. It became a restaurant in 2000 and has operated as such ever since. The facility provides a unique experience for visitors who are able to enjoy the historic architectural character of the building while dining. The restaurant makes use of additional original structures by providing small boat docking along old bulkheads for diners who wish to boat to their destination, again adding to the unique experience of the place.

Tuscarawas Road, which travels through Brighton Township, was originally a Native American footpath referred to as "The Great Path" that connected the Township's segment of the Ohio River with Central Ohio. At its formation in 1816, the Township was predominantly residential in character but did contain several small manufacturing firms such as the Morgan Carriage Works. This historic residential character continues to be visible today through historically significant buildings such as:

- *Wray Barrickman House - 1835*
- *Wolf Manor*
- *Isaac Morgan House - 1830*
- *William Scott House - circa 1824*

Like many other communities along the Ohio River, Vanport Township was first occupied by Native American tribes such as the Allegewi, Massawama, Shawnaese and Delewares. According to the Vanport Bicentennial Memento, one prominent Native American named "The Beaver" became the main peace negotiator between the settlers and the native tribes. He helped to settle land disputes claiming that he was more concerned about the two groups living in peace than land division. As such, he is identified by Vanport Township as one of the Township's first local peacemakers and politicians. He was buried where the Tuscarawas Trail crossed Two Mile Run.

Vanport was first defined in 1804 as a Borough Township with a population of nearly 400. The actual town of Vanport was not laid out until 1835. Its name comes from a combination of the democratic presidential nominee at the time, Martin Van Buren, and from one of the regions many ports which were used in the distribution of locally made pottery along the Ohio River. The pottery was produced from clay deposits in the area such as those along Mud Lick Run.

Land Use, Parks and Recreation Resources and River Access

Though a portion of the proposed route travels through Brighton Township along the Ohio River, it is more adequately addressed in Section 500C.

Vanport Township is predominantly residential with pockets multifamily and industrial manufacturing. The industrial manufacturing facilities are for the most part located near to the Beaver Valley Expressway/Interstate 376 (I-376) which provides easy truck access to larger vehicular networks. The KMA manufacturing complex along PA Route 68 is one such industrial site. East of I-376, single family residential properties straddle PA Route 68 to the north and south and a multifamily housing neighborhood called Van Buren Homes exists just south of the intersection of PA Route 68 and Tamaqui Drive.

PA Route 68 in Vanport Township eastbound

The Township has several community ballfields, Vanport Ballfield 1, 2 and 3. These ballfields are baseball/softball diamonds and serve the surrounding community as well as the nearby high school. Between the ballfields and the Beaver Area High School (in Beaver Borough) there is the Beaver Cemetery (still within Vanport Township). Though not considered a traditional park, this 40 acre portion of well-maintained open space is regularly used by local residents walking between the ballfields and the high school or those who simply wish to take a leisurely stroll.

River access in Vanport is almost nonexistent. The active Norfolk Southern railroad line runs parallel to the river's edge through the entirety of the Township. To the west near Sebring Road, the railroad moves inland slightly but is replaced by several industrial tank farm sites and chemical storage facilities located directly at the river's edges.

Brighton Township has several large parks and recreation facilities located throughout the Township although none exist within the Section 400 study area. There are two large wooded parcels located along Sebring Road within the study area that are identified as the Brighton Township Municipal Authority Farm and Game Land. The Township has identified a series of parks, recreation and trail priorities and projects through its 2007 Comprehensive Plan Update and its Bicycle/Pedestrian Network Feasibility Study. There is no mention of providing a trail along the Ohio River in these documents. Of the proposed bicycle lanes or share-the-road conditions identified in the Township's feasibility study, which would connect to a trail route along the Ohio River, all appear to be challenging in application due to steep topography, limited roadway and rights-of-way widths and poor sight lines.

Environmental Context and Infrastructure

River's Edge and Habitat: The river edge condition in this section is a mix of good, distressed and highly disturbed conditions. The edge towards the west that connects with the 36 acre peninsula mentioned in Section 300 is of a good condition. Though narrow and steeply sloped in areas, it has maintained a solid tree canopy preventing soil erosion. Conditions remain as such until the area surrounding the Lockhouse 6 restaurant. Here, bulkheads and other industrial interventions, first installed as part of the original Merrill Lock No. 6, have been transformed and repurposed to meet the needs of the current restaurant. These needs include both automobile and boat parking/docking for diners located directly at the river's edge.

Continuing east, the river's edge conditions improve slightly though they do not return to the quality that can be seen west of Lockhouse 6. The railroad, which isolates the river's edge in many other regional communities, is located here on a shelf north of PA Route 68. PA Route 68 closely parallels the river's edge and does not provide the same buffer space as it does in other locations. The result is sparse vegetation with intermittent tree canopy coverage between Lockhouse 6 and the gas facility further east near Sebring Road. Due to active industrial use, the river's edge condition here reverts back to similar conditions noticed surrounding Lockhouse 6. Much of the vegetation has been removed and, though few bulkheads appear, some infrastructure extends into the Ohio River for the loading and unloading of commodities. Similar conditions continue upriver for approximately half-a-mile through another tank storage facility before the steepness of the river's edge makes such development difficult and a significant amount of tree canopy and vegetation is reintroduced. This edge condition begins near where Two Mile Run outfalls into the Ohio River and continues east through the remainder of Section 400.

Streams and Stormwater: Section 400 has three prominent stream systems. From west to east they are Four Mile Run, Mud Lick Run and Two Mile Run. Each stream flows from the hills in the north, down between predominantly wooded valleys and through the communities along the PA Route 68 corridor before finally depositing their contents into the Ohio River. As a result of no industrialization or development being present, Four Mile Run, which outfalls into the Ohio River just east of the Ohioview Peninsula, is considered to be the healthiest of the three streams. Mud Lick Run, which travels parallel with I-376, is smaller in flow and intermingled with the industrial development along Division Lane near PA Route 68 where it alternates between being an exposed and a covered stream system. Two Mile Run flows more east/west than the other two and enters Section 400 to the east near the Beaver Cemetery. It then winds its way through the low lying ground within the Vanport Ballfield before crossing underneath I-376 and connecting with Mud Lick Run. The two streams share an outfall point just west of the I-376 bridge underneath the Norfolk Southern railroad line.

Transportation Infrastructure

Transportation access to and from Industry Borough, Brighton Township, and Vanport Township via the regional transportation network is provided by PA Route 68. There is an interchange between PA Route 68 and I-376 located in Vanport Township in this section. I-376 continues to the north towards the Pennsylvania Turnpike, and the cities of New Castle, Sharon, and Erie. I-376 continues to the south towards the Pittsburgh International Airport, and the City of Pittsburgh.

PA Route 68/State Street serves local motorists having eastbound and westbound destinations and also serves as a major connection to the interstate highway system. It is also the "main street" of Vanport Township. Route 68 is a rural road in Industry Borough and Brighton Township with two travel lanes and variable shoulder widths through this section, ranging from 1'-5'. On the eastern side of Industry Borough, just west of the Interstate Chemical Driveway, PA Route 68 has narrow 1'-2' shoulders for a distance of approximately 4,550', creating a pinch point for pedestrians and bicyclists. In addition, Interstate Chemical is located in this section, and creates high truck traffic and truck turning movements in this area. The average daily traffic is 9,700, while the speed limit is 45 MPH west of the I-376 interchange. East of the I-376 interchange, the speed limit on PA Route 68 drops to 35 MPH, but the average daily traffic increases to approximately 17,000 in Vanport. PA Route 68 within Vanport Borough was recently widened from two lanes to three lanes, creating center turning and left turn auxiliary lanes. The speed limit of PA Route 68 in Vanport Township is 35 MPH, as it is an urban corridor.

PA Route 68 along Alternative 400E with 400D paralleling the route on the shelf above

Division Lane, Spring Lane, North Walnut Lane, and Georgetown Lanes are all local roads owned by Vanport Township, and could be considered "neighborhood" streets. They are two lane roads that handle low traffic volumes, but do have considerable pedestrian traffic due to their location adjacent to the Vanport Ballfields. Georgetown Lane has sidewalks on both sides of the street while North Walnut Lane has sidewalks along the eastern side.

Economic Development

Brighton Township is a large municipality with a strong economy. The Township's planning efforts have been focused on supporting and enhancing its three main centers of economic activity which include: the Tusca Business District; the PA Route 60 (now I-376) Business District and the Dutch Ridge Professional District. None of these areas are within the Section 400 study area.

Vanport Township was once known for its pottery industry though the industry has since declined and been replaced by other forms of mid-sized industrial activity. One such facility is the KMA manufacturing factory located along PA Route 68 between Sebring Road and Division Lane which is a specialty steel fabricator. A large industrial complex is also located between Georgetown and Division Lanes and was originally constructed during World War II as the Curtiss-Wright airplane propeller plant. The government also constructed the Van Buren Homes project adjacent to the plant to provide worker housing. This development became a privately-owned complex in the 1950s. The plant ultimately became part of Cutler-Hammer electrical switchgear supply company now owned by the Eaton Corporation. Much of the supporting industrial land beyond the plant building is now currently vacant.

Vanport Township has a small commercial/retail district located along PA Route 68, roughly between the I-376 Interchange area and Beaver Borough. Vanport Borough does not have a comprehensive plan.

Proposed ORNST Route and Alternatives

Four proposed routes are identified for Section 400 which travels through Vanport Township. These proposed routes are labeled as 400F, 400I, 400K, 400M, and 400O.

Proposed ORNST Route Description through Section 400

The proposed ORNST route starts north of Lockhouse 6 restaurant on the northern edge of the Norfolk Southern railroad line. This portion is a dedicated bicycle route similar to a rail-to-trail type project eventually traveling over Mud Lick Run and under I-376 parallel and to the south of Division Lane. From here, the route continues along a right-of-way into Vanport Ballfield #1, still as a gravel path. When the route crosses Spring Lane it picks up an existing asphalt road parallel though separate to Division Lane and continues along this route to Walnut Lane.

Route Characteristics and Issues

Division Lane Utility Right-Of-Way: This right-of-way presents great potential and opportunity for an enjoyable bicycle route as a dedicated side path through a major portion of Vanport Township. It is believed that most of the proposed right-of-way would occur along a utility corridor, which was once part of a railroad line that connected the former Curtiss-Wright (now Eaton) plant to both the Pennsylvania Railroad Line (now Norfolk/Southern) in Vanport Township and the former P&LE Railroad Line (now CSX) near the Beaver River in Beaver Borough. It appears that this right-of-way is now owned by Vanport Borough for underground utilities from PA Route 68 through the Eaton plant to Walnut Lane. The exact ownership of this right-of-way should be determined. Should the municipality not own the right-of-way, an access easement or fee-simple acquisition should be pursued. This route would require several significant engineering components including a potential culvert extension to a crossing at Mud Lick Run. There is a wide underpass existing beneath I-376 which could easily accommodate the trail.

Recreational Connectivity: One of the great aspects of this section of the proposed ORNST route is that it acts as a recreational back-bone for the community of Vanport connecting several ballfields and park spaces. As this route is extended further to the east, it connects with Beaver Area Junior/Senior High School and therefore could provide the communities' youth with a safe daily route to school. Such a route could also potentially lessen the demands on the school district to provide daily transportation to students.

The current condition of the former Curtiss-Wright plant parking lot

Americans with Disabilities Act (ADA) Considerations

As with Section 300, some route segments in Section 400 have gravel specified as the trail surface material. This should not present a conflict with ADA considerations so long as it is properly maintained.

Segment 400F

This segment is identified because unto itself it appears to be a viable trail route; however, its overall usefulness is contingent upon the viability of adjacent trail segments. This segment would start at a point near the municipal boundary of Industry Borough and Brighton Township, where the historic trolley shelf ends. This point was once the location of a major bridge span for the historic trolley line over the valley created by a small run which parallels Sebring Road. From this point, the trail diverts from the historic trolley shelf and connects with Sebring Road via a utility right-of-way which parallels the Norfolk Southern railroad. For this segment to become truly viable it would need to connect to 400I and ultimately to segment 400K of the proposed ORNST route.

Segment 400I

400I is a dedicated cycling route not following existing paved roads but rather tracing existing parcel boundaries in the hopes of achieving some sort of easement agreement with property owners. This segment is a safer option than Alternative 400H which travels along PA Route 68.

Segment 400K

This segment of the proposed ORNST route consists primarily of a dedicated 10' wide multi-use path from PA Route 68, parallel to Division Lane, until it meets the existing utility right-of-way near the west side of the I-376 interchange. The proposed route travels from PA Route 68 and ends at Segment 400M near Vanport Ballfield #1.

Segment 400M

Segment 400M travels adjacent to Vanport Ballfield #1 as a dedicated trail significantly separated from Division Lane, extending from segment 400K to the intersection with Spring Lane. This segment connects Vaport Ballfield #1 and #2. The route would continue to follow the former railroad right-of-way to Spring Lane.

Segment 400O

The final segment of proposed ORNST Section 400 travels from Spring Lane to Walnut Lane north of Vanport Ballfield #2. Segment 400O makes use of the existing access road and parking lot of the former Curtiss-Wright plant, which is no longer being utilized by the current owner, Eaton, though has

been studied by the greater Beaver Area School District as a potential site for an indoor recreation facility. The access road and parking lot would require resurfacing and striping. This segment is practically in-place today and could be easily converted into a formal trail.

Proposed Route Lengths

Total Length of Route through Vanport Township On-Road Portion = 0.58 miles

Total Length of Route through Vanport Township 10' Wide Gravel Path = 0.37 miles

Total Length of Route through Section 400 = 0.95 miles

Identified ORNST Routing Alternatives in Section 400

Based on challenging land use and traffic related constraints several alternative routes were explored and rejected for this section of the route. The following is a brief description of each of those alternate routes as they were explored from west to east.

Alternative 400B/400E

Description: These alternatives are continuations of Alternative 300M in Section 300. They would be a signed as on-road routes along PA Route 68 traveling from the Section 300/400 line to the outfall of Four Mile Run and beyond to the intersection of Sebring Road and PA Route 68.

Issue: Due to high traffic speeds, all of PA Route 68 through Section 400 has been deemed too high risk to be labeled as a proposed ORNST route. Much of PA Route 68 in this section is without surrounding community context, unlike in places like Midland and Industry. This lack of surrounding community lining the streets means a lack of parallax experienced by motorist traveling through the corridor and, as a result, travel speeds increase. This portion of PA Route 68 that is Alternatives 400B/400E is no exception as trucks and other traffic sweep down from the bridge crossing the Norfolk Southern railroad and barrel past the Lockhouse 6 restaurant towards Vanport Township. If these alternatives were to become realities, serious additional safety improvements such as enhanced roadway striping and markings would need to occur along this corridor.

Alternative 400A/400D

Description: These two alternatives travel to the north of the Norfolk Southern railroad line to Four Mile Run and beyond to Sebring Road along an abandoned trolley shelf cut into the hills. This route would consist of a 10' wide gravel path cut into the hillside pleasantly separated from this narrow portion of PA Route 68.

Issue: Respecting private property and listening to concerns expressed by community members has influenced the categorizing of Alternatives 400A/400D as alternatives and not as proposed routes. The majority of the trolley shelf examined in Section 400 could not be investigated during site visits because of private property restrictions.

Alternative 400C

Description: Alternative 400C would be a 10' wide path making the connection from the Ohio View Peninsula to the outfall of Four Mile Run traveling continuously south of PA Route 68 along the Ohio River. This alternative makes use of existing natural shelf conditions and would provide communities to the east such as Vanport Township and Beaver Borough with access to the wonderful natural asset that is the Ohio View Peninsula, access that currently does not exist.

Issue: To accomplish this route, further engineering and design would need to take place, however, even before that could occur, the land that is privately owned would need to be acquired by an organization in support of such a route.

Alternative 400G/400H/400J

Description: This series of alternatives explore the transition from the alternatives along or paralleling PA Route 68 to the proposed segments along Division Lane and the Vanport Ballfields. They represent hybrid on-road/dedicated route options. Alternative 400G is truly a hybrid existing as a gravel path continuation from Alternative 400D until it connects with Sebring Road where it becomes an on-road route. 400H is an on-road route for its entirety beginning on Sebring Road and transferring onto PA Route 68 where the two thoroughfares connect. Alternative 400J is a dedicated cycling route not following existing paved roads but rather tracing existing parcel boundaries in the hopes of achieving some sort of easement agreement with property owners.

Issue: None of these explored alternatives stood apart from the rest. They are all equally as feasible as they are infeasible, particularly when considering the greater issues associated with the alternatives to the west of these along the narrow PA Route 68 corridor. The alternatives that do not exist as on-road routes face their own slew of issues including but not limited to acquiring the land either through purchase agreements or easements.

Alternative 400L/400N

Description: Alternatives 400L and 400N would both be on-road routes following Division Lane north of the Ohio River and PA Route 68. These routes travel between the Vanport Ballfields which are to the south, and a line of residential houses to the north becoming the recreational interface between the two. Alternative 400L stops at Spring Lane where it becomes Alternative 400N which then continues to North Walnut Lane.

Issue: Compared to other portions of this route, the issues associated with Alternatives 400L/400N are minor. Division Lane is not a major thoroughfare, like PA Route 68, and is instead a much more residential street between a park and a line of residential houses. The primary reason that these two alternatives were not considered as proposed segments is that there are better, more desirable circumstances available. These are labeled as Segment 400M and Segment 400O.

PA Route 68 near the I-376 interchange where road shoulders become narrow

Alternative 400P/400Q

Description: Alternatives 400P and 400Q would both be used to wrap the route around Vanport Ballfield #2. They differ in that while 400Q would be a gravel route that would continue the use of the utility line (also used for Segment 400M) Alternative 400P would be an on-road route traveling south from Division Lane via Spring Street before turning east onto Georgetown Lane and eventually crossing into Beaver Borough.

Issue: The major issue with these routes is that a better alternative exists. This becomes increasingly apparent as several of the routes are examined within their general context. Alternatives 400P and 400Q do not make the park-neighborhood-school-community connections that are made by proposed Segments 400M and 400O.

Identified ORNST Feeder Routes in Section 400

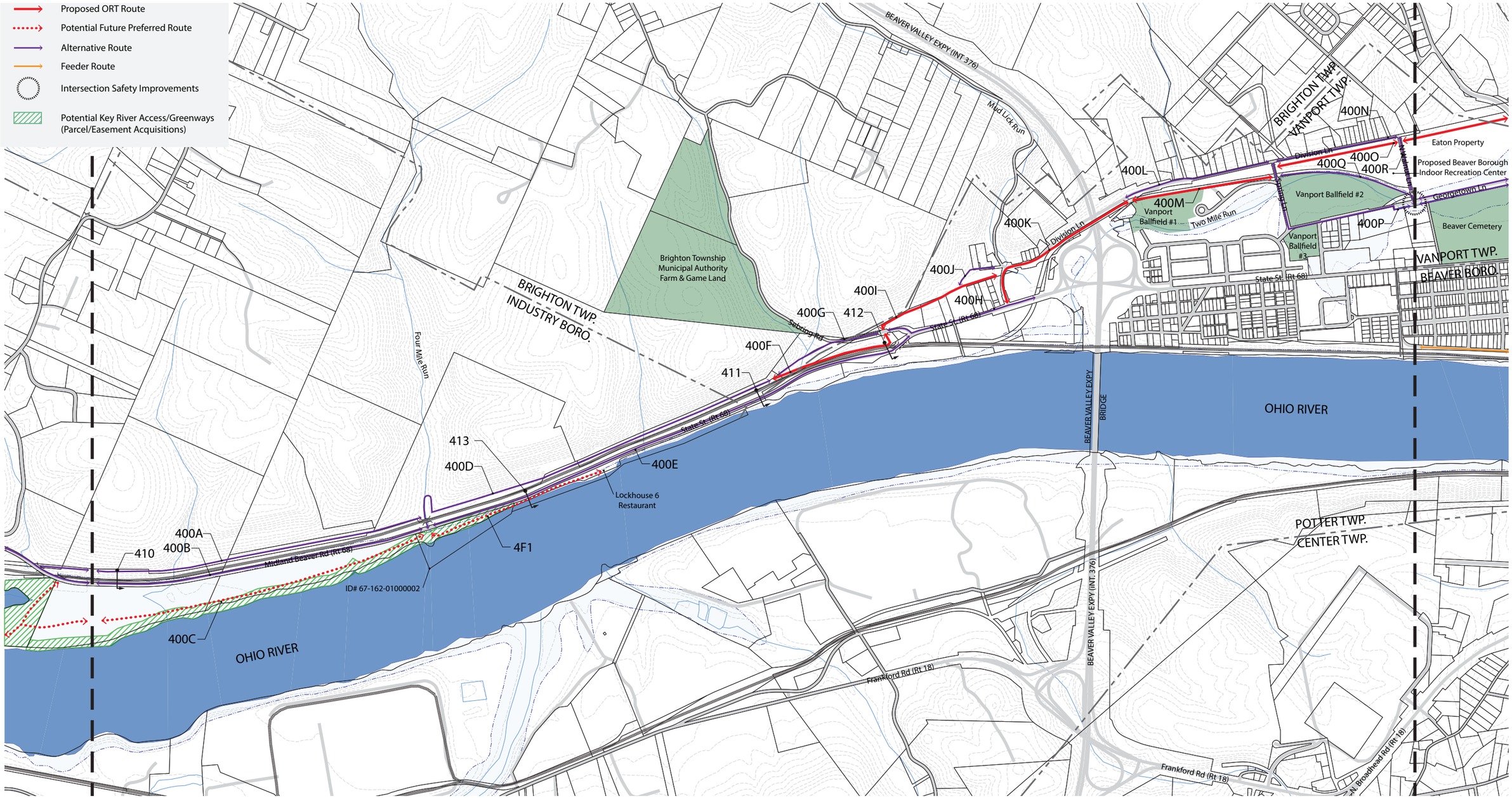
The only feeder route in this section, labeled as 4F1, extends along riverfront to the Four Mile Run outfall and terminates at the Lockhouse 6 restaurant. This feeder route would require significant design and engineering consideration for several reasons. In order to connect the Feeder Route with the larger trail network and specifically Alternative 400C, either a box culvert extension or a bridge span would be required across Four Mile Run, south of PA Route 68. Additionally, Feeder Route 4F1 would run parallel to, but not on, PA Route 68, via a narrow parcel of land between the Ohio River and PA Route 68. This connection would allow Lockhouse 6 to become an integral part of the ORNST by providing a direct bicycle and pedestrian linkage to the restaurant as well as expanding it as a destination along the Ohio Riverfront. This connection would also improve and expanding parking for both the restaurant and the trail and would benefit the ORNST by providing a major destination point on route where users could purchase refreshments and enjoy a key piece of the region's maritime architectural history.

Existing Four Mile Run Box Culvert underneath PA Route 68, west of the Lockhouse 6 restaurant

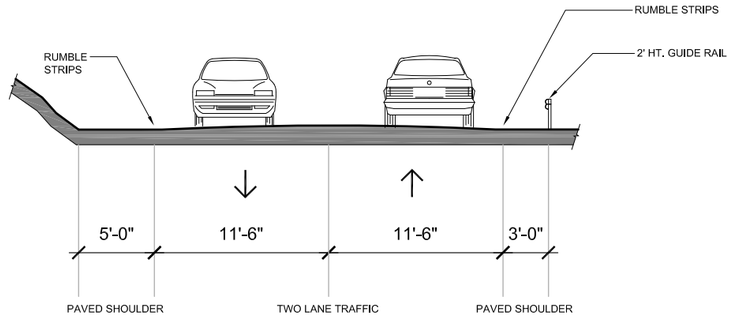
Industry Borough – Brighton Township – Vanport Township - 400

Legend

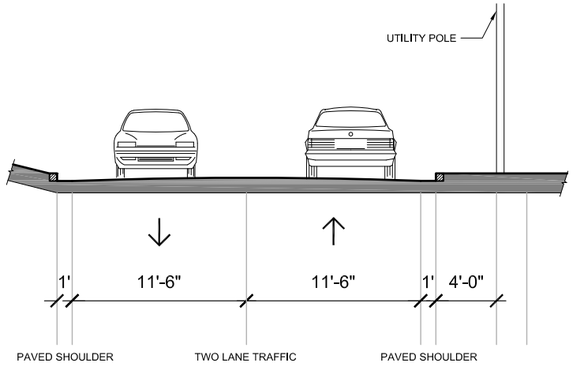
- Proposed ORT Route
- Potential Future Preferred Route
- Alternative Route
- Feeder Route
- Intersection Safety Improvements
- Potential Key River Access/Greenways (Parcel/Easement Acquisitions)



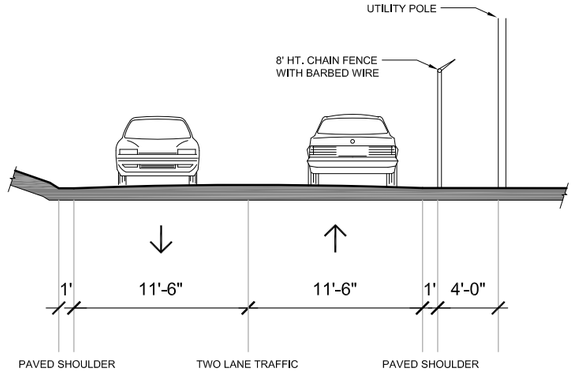
SCALE: Not to Scale NORTH



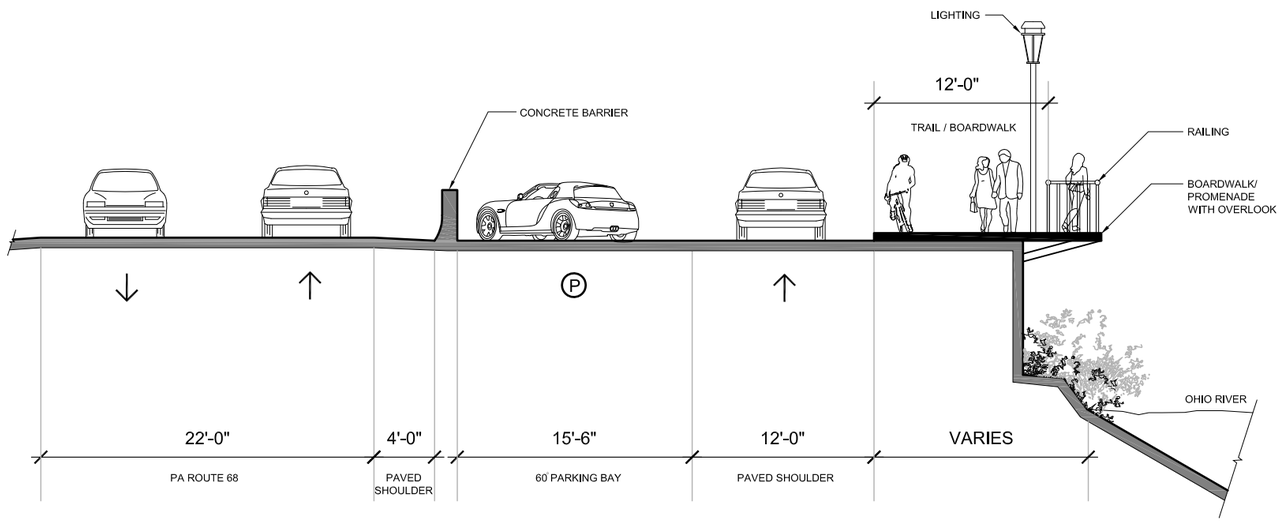
410 ROUTE 68 WEST OF LOCK 6 LOOKING EAST (EXISTING)
SCALE: 1"=10'



411 ROUTE 68 EAST OF LOCK 6 LOOKING EAST (EXISTING)
SCALE: 1"=10'



412 ROUTE 68 ENTERING VANPORT LOOKING EAST (EXISTING)
SCALE: 1"=10'



413 LOCKHOUSE 6 BOARDWALK/PROMENADE

SCALE: 1"=10'

Section 500A – Vanport Township – Beaver Borough – Bridgewater Borough – Rochester Township – Rochester Borough

Community Character and Demographic Overview

Beaver Borough is the county seat of Beaver County and is located along the Ohio River between Vanport Township to the west, Brighton Township to the north and Bridgewater Borough to the east. It has a total population of 4,531 and is 1.1 square miles in size. Beaver Borough is mostly comprised of residential neighborhoods surrounding a mixed use commercial corridor along PA Route 68/3rd Street, which also includes the County courthouse and administrative complex. The portion of PA Route 68/3rd Street between Insurance and Beaver Streets is the main retail/commercial area with diagonal pull-in parking and traditional storefront retail with office and residential uses located on upper floors.

According to the 2010 U.S. Census Data Beaver Borough is 95.9% White, 1.4% Black or African American, 0.1% American Indian or Alaska Native and 0.9% Asian. The per capita income is $32,986, up from $24,003 as reported in the 2000 U.S. Census.

Bridgewater Borough is a municipality that stretches from the Ohio River north along the Beaver River for 1.5 miles before ending at the Fallston Borough line. To the east it is bordered by the Beaver River and to the west by Beaver Borough and Brighton Township. It was originally a part of Beaver Borough until the Act of March 29, 1802 which redefined several boundaries in the region and established the Borough as its own entity.

According to the 2010 U.S. Census Data Bridgewater Borough has a total population of 704 with a median age of 47.7. The racial makeup of the Borough is 92.8% White, 5.3% Black or African American and 0.4% Asian. The per capita income is $21,171.

Located to the east of the Beaver River is Rochester Borough. Though originally a portion of what was "West Bridgewater Borough," Rochester Borough is now its own borough located adjacent to East Rochester Borough and Rochester Township. It is 0.7 acres in size and has a total population of 3,657.

Rochester Borough is slightly more racially diverse than its surrounding communities. According to the 2010 U.S. Census Data the population is 78.3% White, 16.1% Black or African American and 0.2% American Indian and Alaska Native. The per capita income is $18,184, up from $15,359 in 2000.

History and Cultural Resources

The town of Beaver was originally laid out by surveyor Daniel Leet in 1791. At the time, it was 200 acres (.31 square miles) in size with 1,000 adjoining acres (1.5 square miles) set aside on its eastern boundary for agricultural uses. Beaver was made a Borough by the Act of March 29, 1802 which limited its originally extended lands east of the Beaver River (land which is now Bridgewater and Rochester). Predating the creation of the Borough is one of the area's most noteworthy historic treasures, Fort McIntosh. This fort was built in 1778 and served as the largest army outpost west of the Allegheny Mountains. It was here that the Treaty of Fort McIntosh was signed in 1785 opening the northwestern regions of Pennsylvania and Ohio to colonization and permitting all future U.S. territory settlement. The site of the eighteenth-century fort lies on present-day River Road, roughly between College and Dravo Streets, along the plain overlooking the Ohio River. Its partial excavation in the 1970s uncovered some foundation remnants which remain exposed; only about twenty-five percent of the Fort site was explored, since the balance of the Fort lies beneath the surface of River Road and under the homes erected across River Road from the excavation site. The site was National Register listed in 1975.

The Matthew S. Quay House is a historic structure and was a home of Matthew Stanley Quay, a United States Senator from Pennsylvania, Medal of Honor winner, and Republican National Committee chairman who was campaign manager for Benjamin Harrison's successful presidential campaign. It was declared a National Historic Landmark in 1975.

The Beaver Historic District is an area which encompasses the entire 1792 plat of the community as well as most portions of the present Borough. The

Pleasant Street in Rochester Borough

district contains 1,456 resources, of which 1,448 are buildings, seven are military monuments, two iron drinking fountains are objects, and one is a site. A particularly distinctive feature of the Beaver Historic District is the series of square parks located at the core and at each corner of the original plat. These open public spaces date from the 1792 survey, authorized by an Act of the Pennsylvania Legislature, which specified that "the four center lots and four corner lots of the town plot shall be reserved for public use." One of the parks (Gibson, now Agnew Square, at the northwest corner of 3rd and Market Street) is occupied by the Beaver County Court House. Another, Mclntosh Square, has at its center the 1900 Soldiers' and Sailors' Monument, an important local landmark in its own right. The other six squares remain undeveloped except for contemporary playground use. Several contain stands of stately, mature trees. At various times through the years, these public lands have served as sites for the county court house, for an early burial ground, two churches, a jail, a school, and a public water fountain. Of these, only the court house in Agnew Park and the early burial ground in Clark Park remain.

Bridgewater Borough was originally named the "Borough of West Bridgewater" as there was already a "Bridgewater Borough" located elsewhere in the state. At the time, the village of Sharon was located to the north along the Ohio River. The Borough, along with much of the surrounding region, experienced tremendous growth during the 1830 construction of the Beaver Extension of the Erie Canal known as the Pennsylvania Canal. This extension effectively opened the Great Lakes to New Orleans. Shipbuilding and repair industries flooded the market. Sharon had however already been established as a shipbuilding hub as the result of a longboat industry fueled by Aaron Burr's failed attempt to annex the American Southwest. Finally, in 1868, West Bridgewater merged with Sharon to form Bridgewater Borough. Several historic sites from this time period still stand and are listed as points of interest in Bridgewater.

The Bridgewater Historic District was listed on the National Register of Historic Places in 1996. The eastern boundary of the historic district is the Beaver River, except at the southeast corner of the district, where the boundary extends across the river into the Borough of Rochester. This extension is made to include the Bridgewater Bridge (a steel truss road bridge) and a mid-nineteenth century canal lock with an associated submerged canal dam, both structures that contribute to the significance of the historic district (the extension includes no other sections of Rochester). The steel through truss (Parker, Pratt type) Bridgewater Bridge, which spans the Beaver River from Bridge Street in Bridgewater to Rochester on the eastern side of the river is the third bridge on this site. The first bridge (1824 to 1884) was destroyed by a flood, while the second (1884 to 1931) was so weakened by the burning of the wooden bridge deck that it had to be replaced. The present bridge was opened in 1933, the date chosen as the end of the district's period of significance. It crosses the 700' distance between the river bluffs in three spans, the middle of which is by far the longest, since it spans the navigable channel. Among the contributing resources in the district are 97 buildings, mostly two-and-one-half-story houses, as well as commercial buildings concentrated along Bridge Street; one early-twentieth-century industrial complex; two former school buildings; and four churches. Most of the houses are typical examples of nineteenth century and turn-of-the-century residential architecture, largely vernacular in character but with elements of stylistic detailing. Examples of this style can been seen in the Borough's walking tour maps including:

- *Hurst's Opera House*
- *Bridge Street*
- *Methodist Church - 1839*
- *Dunlap Mansion - 1840*
- *Stone's Point – 1902*

Rochester was originally a village of the Mingo Native American tribe, an independent group of the Six Nation Iroquois Confederacy. One of the most famous Mingo leaders was Chief Logan (c.1725 - c.1794) who was a village leader and is credited with promoting peace between the settlers and native groups. Logan, West Virginia is named after this chief.

The ramp used to connect Rochester Borough with the Ohio River

Rochester Borough was eventually developed in part due to its strategic location at the intersection of the Beaver River and the Ohio River and was incorporated as a borough in 1849. It became the southern terminus for the Erie Division of the Pennsylvania Canal. Canal transportation was eventually replaced by rail which continued to take advantage of Rochester's key river edge location. Several lines ran between the Borough and Pittsburgh including the Pittsburg, Fort Wayne & Chicago, the Erie & Pittsburg and the Cleveland & Pittsburgh. The Borough also has a strong industrial manufacturing history dating back to the 1850s when the Rochester Manufacturing Company began manufacturing iron from ore to use in the casting of car wheels and locomotive parts. Other forms of manufacturing also took place in the Borough such as barrels built by Rhodes, Kennedy & Company, a firebrick works started in 1856 by the Pendleton Brothers and a glass bottle company established in 1879 by Rochester Point Bottle Works (originally called the Rochester Flint Vial and Bottle Works). Pottery, glass, cutlery, and milling operations also existed in the Borough in the late 1800s/early 1900s.

Land Use, Parks and Recreation Resources and River Access

Land use in Beaver Borough is less industrialized than several other communities along this section of the Ohio River. The majority of the Borough is single family detached residential units with the occasional multifamily attached development. Beaver Borough's core commercial area is a traditional downtown "main street" mixed use commercial corridor along PA Route 68/3rd Street, which also includes the County courthouse and administrative complex. The portion of PA Route 68/3rd Street between Insurance and Beaver Streets has been upgraded with extensive streetscaping and other public amenities and is the main retail/commercial area with restaurants, cafes and retail shops.

Land use in Bridgewater Borough is also less industrial than neighboring communities. Instead, mixed use commercial lines Bridge Street and the surrounding blocks and then transitions to single family residential in the north. Almost all of this development is contained between Route 51 and the Beaver River. There are also some multifamily housing developments along the Beaver River between Poplar Street and Lion Lane.

The land use pattern in Rochester Borough consists of a traditional mixed use downtown development, commercial and residential all located on a high plateau above the river elevation, with limited industrial along the riverfront. The majority of the residential units are single family and located to the north/northeast of the downtown core. This core, which is approximately the area surrounding Adams Street and Brighton Avenue, is where the traditional mixed use development is most prevalent. Several storefronts here provide unique retail experiences ranging from army surplus to gourmet coffee drinks and haircuts. Many of these stores have

apartment units or small office spaces on the second and third floors. Few if any of these buildings reach above three floors in height. To the west of this downtown core nearer to the Beaver River there is a Giant Eagle shopping center surrounded by surface parking and a two-story parking garage. This is one of the largest retailers in the Borough.

Beaver Borough's parks help add to its historic significance as they are characteristic of traditional 18th century city planning (similarly on display in downtown Philadelphia). These square parks are laid out symmetrically from the intersection of Market Street and 3rd Street (PA Route 68). As such, there is a park on each corner of this intersection with Agnew Square and the Beaver County Court House to the northwest, McIntosh Park to the southwest, Irvine Park to the southeast and Quay Square to the northeast. These are passive recreation spaces designed for a formal setting complete with war memorials, benches, a pavilion and mature trees. This park layout pattern is repeated on the fringes of the Borough by Clark Park to the northwest, Dravo Park to the southwest, Wayne Park to the southeast and Boquet Park to the northeast. Though one of these squares is now a cemetery, these parks are less formal in nature and includes modern play equipment such as swings. To the northwest of Clark Park there is another park facility, Gypsy Glen Park which is nestled in a valley along Gypsy Glen Road. This park, which is adjacent to the Beaver Area Junior/Senior High School, contains the public outdoor Beaver Swimming Pool, tennis courts, a running track and baseball fields. The Junior/Senior High football field is also located in this region of the Borough.

For its size, Bridgewater Borough has a large number of riverfront parks along both the Ohio and Beaver Rivers. The Bridgewater Riverfront Park is located at the confluence of the Ohio and Beaver Rivers and was recently completed. It includes a riverfront walkway, walking path and a small, non-motorized boat launch and dock. The park ends at the CSX railroad bridge that crosses the Beaver River. The Beaver Riverfront is mostly privately controlled immediately north of Riverfront Park and restricted by boating clubs before becoming a public park again, north of the Rochester-Bridgewater Bridge. Riverside Park extends from Fulton Street north to Canal Street and includes a pavilion space and outdoor amphitheater.

One of Rochester Borough's main park systems is, like Bridgewater Borough's, aligned parallel to the Ohio and Beaver Rivers. The Rochester Riverfront Park is accessible via New York Avenue which becomes Lewis Way and then James Avenue as it ramps down to the riverfront while weaving under PA Route 51 and over the active Norfolk Southern railroad line. This riverfront park includes a walking path, an exercise station, several picnic pavilions and boat docking options. It extends from the Ohio River near the Rochester-Monaca Bridge to the point where McKinley Run outfalls into the Beaver River. Other inland parks in the Borough include the small memorial park on either side of Adams Street at the intersection of Adams Street and Rhode Island Avenue and larger active recreation parks that exist along the eastern fringes of the Borough and in nearby East Rochester. These parks include the Rochester Athletic Field, East Rochester Ballfield and North Rochester Ballfield.

Though Beaver Borough contains several public park spaces, none of these are directly adjacent to the Ohio River. That being said there are plans to develop a portion of land west of the Beaver Treatment Plant into a waterfront park that would occupy land between the Ohio River and the CSX and Norfolk Southern railroad lines in southeast Beaver. There was also a planning study conducted in 2012 by the greater Beaver Area School District to assess the feasibility of developing the Eaton site (in Vanport Township) as an indoor recreation space.

River access in Bridgewater Borough is plentiful though at times privatized by boating clubs and housing developments. Unlike other portions of the Ohio River, gently sloping river banks and a general lack of riverfront industry make river access possible. These favorable conditions have been capitalized upon by the local community. The previously mentioned Bridgewater Riverfront Park is one example of this.

River access in Rochester Borough is extensive along the Ohio and Beaver Rivers alike. In fact, with the exception of the land underneath and to the east of the Rochester-Monaca Bridge, all riverfront property in the Borough is public park land. Although the land to the east of the Rochester-Monaca Bridge is not considered public park land there is still Ohio River access and a concrete boat launch. Mixed-use development plans have been considered for this brownfields area which would provide additional public riverfront access. Despite the fact that almost all of this riverfront property is public, it remains isolated from the residents of Rochester due to several levels of active transportation infrastructure, most notably an active four-track railroad line and vehicular routes PA Route 51 and PA Route 65.

Environmental Context and Infrastructure

River's Edge and Habitat: The western portion of Section 500A in Beaver Borough consists of good river edge conditions where once again the railroad has kept the edge isolated from local communities. Though narrow (10-20' wide) and steep, the edge is well vegetated preventing soil erosion and sedimentation along the river. This condition continues along the railroad through much of Beaver Borough before nearing the Beaver Treatment Plant where municipal use has led to the clearing of some river edge vegetation. The condition in this area can be considered distressed meaning that there is significant open tree canopy and a strong potential for erosion and invasive plant species secession. Though the river's edge fluctuates from good or better to distressed from this point north along the Beaver River, no highly disturbed landscape conditions are noted on this western side of the river, however; the same cannot be said about the eastern side in Rochester Borough.

In Rochester Borough several portions of the river's edge can be classified as highly disturbed with steep slope conditions and the potential for heavy erosion/invasive plant species growth. Though some of this edge is part of the Rochester River Front Park, which is a desirable riverfront activity, it is not as heavily vegetated as a naturally occurring edge condition would be and is therefore classified as a distressed landscape. In other areas, particularly along Water Street and Lewis Way, continued industrial and municipal operations have led to these areas being classified as highly disturbed edge conditions that have been heavily engineered. One of the strongest examples of this is at the base of the Rochester-Monaca Bridge where a concrete slab and bulkhead occupy the edge of the Ohio River.

Streams and Stormwater: Aside from the Ohio River, which flows through all discussed sections, the Beaver River plays a strong role Section 500A from a trail location and planning standpoint. In total, the Beaver River is 21 miles in length and begins in Lawrence County at the confluence of the Mahoning and Shenango Rivers, however, only approximately 1.25 miles of the river are within the boundaries of Section 500A. As mentioned previously, much of this river is lined with parks and recreational opportunities including the recently developed Bridgewater Riverfront Park.

Several smaller streams also exist in this section such as Two Mile Run, which weaves its way between Brighton Township and Beaver Borough, and McKinley Run located in Rochester Township to the east of the Beaver River. Two Mile Run plays a largely submissive role through Beaver Borough being channelized while still in the valley to the north of the high school and remaining in said state as it crosses underneath Georgetown Lane flowing west alongside the Beaver Cemetery into Vanport Township. McKinley Run flows east to west through a forested valley just north of the Rochester Borough/Rochester Township line. The point at which it flows into the Beaver River, after crossing underneath PA Route 18, PA Route 65 and the CSX railroad line, is also the effective northern terminus of the Rochester Riverfront Park. Though the park ends at this outfall, a utility right-of-way continues along the eastern edge of the Beaver River between the river and the CSX railroad.

Transportation Infrastructure

Transportation access to and from these four municipalities via the regional transportation network is provided by PA Route 18, PA Route 51, PA Route 65, and PA Route 68.

PA Route 18 has multiple local road names as it traverses Rochester Borough including from south to north, the Rochester-Monaca Bridge, Rhode Island Avenue, Brighton Avenue, W Madison Street, and Delaware Avenue. PA Route 18 generally runs north-south along the eastern side of the Beaver River from Monaca Borough, across the Rochester-Monaca Bridge, through Rochester Borough and into Rochester Township. The entire length of PA Route 18 has sidewalks on both sides of the street within Rochester Borough. There is a sidewalk along the eastern side of the Rochester-Monaca Bridge where the trail would connect with the Ohio River South Shore Trail. PA Route 18 also runs through the newly constructed roundabout in Rochester Borough. The average daily traffic on PA Route 18 is 11,000 on the Rochester-Monaca Bridge and 7,500 on Delaware Avenue, north of downtown Rochester. PA Route 18 is designated by PennDOT as PA Bike Route A through the Borough of Rochester.

PA Route 51/Ohio River Blvd/Pennsylvania Avenue serves local motorists having northbound and southbound destinations. It generally follows the western sides of the Ohio and Beaver Rivers and is a limited access highway through this section. Therefore, it would not be appropriate for pedestrian and bicycle activity.

PA Route 65/Ohio River Blvd/65th Infantry Division Memorial Highway serves local motorists having northbound and southbound destinations. It generally follows the eastern sides of the Ohio and Beaver Rivers and is a limited access highway through this section. Therefore, it would not be appropriate for pedestrian and bicycle activity.

PA Route 68 is locally called 3rd Street in Beaver Borough and Adams Street in Rochester Borough. PA Route 68 serves local motorists having eastbound and westbound destinations and also serves as a major connection to the interstate highway system. PA Route 68 through Beaver and Rochester has sidewalks on both sides of the road. It travels through the traditional "main street" commercial area of the downtown of Beaver. PA Route 68 has an average daily traffic volume of between 15,000 and 19,000 in Beaver, 26,000 across the Beaver River, and between 6,000 and 10,000 in Rochester Borough.

Tuscarawas Road/SR 4028 handles a significant volume of vehicular traffic, with approximately 5,400 vehicles per day. Its intersection with Georgetown Lane is especially challenging for pedestrians and bicyclists due to the high speeds of traffic on Tuscarawas Road, the width of the road, which is four lanes wide, and the blind curve on Tuscarawas Road coming from Buffalo Street.

College Avenue in Beaver Borough is a two-way street with sidewalks and on-street parking on both sides of the road. The curb to curb width is approximately 40'. The intersection of College Avenue with 3rd Street/PA Route 68 is signalized and does have pedestrian accommodations.

Bridge Street/SR 4042 in Bridgewater Borough handles a significant volume of vehicular traffic, with approximately 6,400 vehicles per day. This intersection with Riverside Drive is especially challenging for pedestrian and bicyclists due to its close proximity to the Rochester-Bridgewater Bridge, therefor intersection improvements are suggested for this intersection.

Economic Development

Beaver Borough has undertaken extensive community and economic development, planning and physical enhancements in recent years. The Borough is part of the regional Rivertown Partnership, in association with nine other Beaver County municipalities. The Borough maintains a Business District Authority which is responsible for the administration of the facade and streetscape programs and is dedicated to the continued improvement of Beaver's central business district and to the renewal of its nearby community neighborhoods. The Authority serves to promote its vision for the downtown through Organization, Architecture & Design, Business Development, and Community Life initiatives; for connected neighborhood development by a coordinated "Elm Street" approach. The Borough also has a Historic Architectural Review Board focused on the preservation of the Borough's extensive historic resources which it clearly links to its overall economic development strategies.

The intersection of PA Route 68 and College Avenue

The Beaver Area Heritage Foundation is undertaking a project to convert the historic Beaver P&LE train station into a cultural and events center. The Heritage Foundation proposes to renovate the station, built in 1897, to preserve its historic architectural features. There are 8,500 square feet of usable space in the station on East End Avenue. The Beaver County Genealogy and History Center would move from Beaver Falls into the station's lower level, as would the Beaver Area Heritage Museum Collections and Research Area. Two classrooms available to the community would also be in the lower level. On the upper level, there would be event space and a catering kitchen. The foundation envisions a campus-like setting stretching east from 3rd Street. This facility would be directly accessible by the proposed ORNST route as well as a neighborhood feeder routes.

Bridgewater Borough formed the Bridgewater Community Development Corporation which is dedicated to renewing and sustaining its central business district and its nearby residential areas. The Borough is also part of the regional Rivertown Partnership. Through its development and residential committees, including an Architecture and Design Committee; a Business Development Committee and a Community Life Committee focused on downtown events and activities in cooperation with the community at large, the Bridgewater Community Development Corporation seeks to revitalize its business and residential areas by utilizing the Main Street Approach for Downtown Revitalization and the Elm Street Approach for residential renewal.

A major project revitalization project of the Borough was the development of the Bridgewater Riverfront Park area in partnership with the Beaver County Economic Development Corporation. This project includes a completed riverfront park with additional land allocated for new commercial development. This property is designated as a Keystone Opportunity Zone and utilized State RCAP funding for its redevelopment.

Rochester Borough is part of the regional Rivertown Partnership, in association with nine other Beaver County municipalities. The Borough established the Rochester Borough Development Corporation focused on restoring and revitalizing many of the traditional mixed-use buildings in the commercial core. The Beaver County Transit Authority (BCTA) recently constructed the Rochester Transit Center in center of the Borough. As part of that effort, BCTA lead a Transit Revitalization Investment District (TRID) study for the walkable transit service zone in the Borough's downtown, surrounding the transit center. As part of that effort, BCTA, the Borough and PennDOT District 11-0 worked together to design and construct the new roundabout in the center of the downtown. The completed roundabout has improved vehicular and pedestrian safety and created a greatly improved visual icon for the center of the Borough's commercial district.

Proposed ORNST Route and Alternatives

Several proposed routes are identified for Section 500A which travels from Vanport Township through Beaver Borough, Bridgewater Borough, Rochester Township and Rochester Borough before crossing over the Ohio River via the Rochester-Monaca Bridge and into Monaca. These proposed routes are labeled as 500C, 500H, 500I, 500L, 500M, 500N, 500R, 500S and 500T.

Proposed ORNST Route Description through Section 500A

Section 500A has the most proposed route segments of any section within the ORNST. These routes travel along residential streets mostly in the form of sharrows and through various existing park systems connecting many of the key parks, schools and public open spaces with the Ohio and Beaver Rivers. The route begins on the Vanport Township/Beaver Borough line, continues past the Beaver Area Junior/Senior High School and into Beaver Borough, then turns south along College Avenue. After crossing the existing railroad line, the route bends with the Ohio River, through Bridgewater Park, then follows the Beaver River north and into Section 500B. After crossing the Beaver River in Section 500B, the route parallels the Beaver River once more, this time heading south through Rochester Township and into Rochester Borough and its riverfront park. It transcends the elevation change between the river and Rochester by making use of the highway ramp along Lewis Way, then follows Pleasant Street uphill to the Rochester-Monaca Bridge, crossing the Ohio River here to connect with the proposed Ohio River South Shore Trail and the existing PA Bike Route A.

Route Characteristics and Issues

Tuscarawas Road and Buffalo Street Crossings: These two roads run perpendicular to the proposed route traveling north/south from the surrounding valleys to the Ohio River. As such, both roads would need to be crossed by the proposed route which travels predominantly west/east. As both of these roads are moderately to heavily trafficked, special care is given to their crossing points, making sure that they do not divide the route while at the same time ensuring that the route is safe for users.

Beaver Borough One-Way Street Network: Beaver Borough is, from a planning standpoint, a wonderful example of traditional neighborhood planning with a series of park "squares" laid out on a grid surrounding a commercial core. Residential neighborhoods of varying housing types and scales exist, complete with one-way brick-paved streets lined with mature trees. These elements come together to make the borough a pleasantry for the pedestrian to experience. The issue here is adapting the route to best capitalize on the traditional character of the Borough without creating neighborhood conflicts with traffic flow and parking. This is particularly true when it comes to navigating Beaver Borough's one-way street network via bicycle.

Beaver Borough – Rochester Borough Connection: Making the connection across the Beaver River as close to the Ohio River as possible is essential to ensuring the continuation of the ORNST in a manner that allows it to efficiently meet with the proposed South Shore Ohio River Trail and the existing PA Bike Route A. Unfortunately, many of the existing Beaver River crossing options that would directly make this connection possible have significant physical or engineering constraints that preclude their utilization. Fortunately, a new bridge is currently under construction crossing the Beaver River to the north connecting Fallston Borough with Rochester Township. The Veterans Memorial Bridge will cross the Beaver River and will include a 10' wide walkway on its south side, separated from vehicular traffic. This bridge is discussed further in Section 500B; for Section 500A it is sufficient to mention that this bridge is the proposed route used to connect Beaver and Bridgewater Boroughs across the Beaver River with Rochester Township and Rochester Borough.

Americans with Disabilities Act (ADA) Considerations

Two at-grade railroad crossings exist within the proposed segments of Section 500A. These two crossings, near the Beaver and Bridgewater Riverfront Parks should be addressed to adhere to ADA regulations. This may include pedestrian friendly flangeway fillers which prevent entrapment by wheelchair/scooter wheels (see page B.6 in the Design Guidelines appendix for further guidelines). A small portion of the trail route through this segment, connecting the proposed Beaver Borough Riverfront Park and the existing Bridgewater Riverfront Park, is proposed to be gravel. This should not present a conflict with ADA considerations so long as it is properly maintained.

Segment 500C

This segment extends a dedicated multi-use trail along the route from Section 400, parallel to Division Lane. The trail route continues through the rear parking area of the Eaton property and then turns south towards Tuscarawas Road. The trail route crosses Tuscarawas Road at an existing striped mid-block crossing that connects the Eaton property to the Beaver Area Junior/Senior High School complex.

Segment 500H

From Tuscarawas Road, the route travels through Beaver High School property, connecting the trail to active and passive recreation opportunities within the school complex and then continues east to Buffalo Street/ Gypsy Glen Park where it crosses Buffalo Street and enters one of Beaver Borough's residential areas along 6th Street. This street and intersection crossing location were chosen in part because of the fact that 6th Street is a two-way street with a 25 MPH speed limit which facilitates on-road bicycle traffic in either direction. The portion of the trail route to Tuscarawas Road

The point where McKinley Run enters the Beaver River which is also the northern end of the Rochester Riverfront Park. The bridge that would be necessary for this connection is represented diagrammatically.

and through the Beaver High School complex would be a dedicated multi-use trail, the remainder of the route along 6th Street is a sharrow with route trailblazer and route signing.

Segment 500I

The primary segment of the route traveling through Beaver Borough's commercial core is Segment 500I which travels north/south along College Avenue between 5th Street and River Road. College Avenue splits the distance between the Quay, McIntosh and Irvine Parks and is in the "center" of Beaver Borough just west of the main commercial corridor which is complete with coffee shops, restaurants and a prominent bicycle shop, all important amenities for potential trail users. Like Segment 500H, this segment consists of sharrows with trailblazer signing.

Segment 500L

This short segment along River Road serves as the connection from College Avenue to Segment 500M and the Ohio River. It is on-road sharrow with trailblazer route signing.

Segment 500M

Reconnecting the trail route with the Ohio River, Segment 500M follows Water Street, an existing road, to an existing at-grade crossing of the Norfolk Southern railroad line, then continues towards the Beaver Treatment Plant. Here, the route transitions from an on-road trail to a dedicated multi-use path underneath the Monaca-Beaver CSX railroad bridge and into the Bridgewater Riverfront Park where it turns north, again crossing the Norfolk Southern railroad at an at-grade crossing. At this point the trail becomes an on-road sharrow and connects to Wolfe Lane near the Rochester-Beaver Bridge.

Segment 500N/500R

This segment navigates through Bridgewater Borough via Market Street, past the Borough Building, to Brkich Way and to Bridge Street. Bridge Street includes many of the communities most significant historic resources within the Borough's designated historic district which is lined with historic brick buildings, specialty shops, taverns and restaurants. The trail route would consist of an on-road sharrow to Bridge Street. The segment along Bridge Street would consist of a signed share-the-road route that would require intersection improvements at the western base of the Rochester-Bridgewater Bridge to allow for two-way traffic to cross to the Beaver River's edge, north of the bridge. From this point an access easement would be required through a private waterfront walkway which functions as a quasi-public space along the river as part of a multifamily residential development. This trail segment, coupled with segment 500M, connects all of Bridgewater Borough's riverside parks. Segment 500R is a trail route consisting of an on-road sharrow that travels along Riverside Drive up the Beaver River towards Fallston Borough and into Section 500B.

Segment 500S

After crossing the Beaver River via the newly constructed Veterans Memorial Bridge in Section 500B, the trail route continues into Rochester Township as a dedicated multi-use path following a utility-owned parcel that would require an accesses easement from the Veterans Memorial Bridge south, along the Beaver River and the active CSX railroad line to the existing Rochester Borough Riverfront Park. At the Rochester Township/ Rochester Borough line, the trail route passes over McKinley Run and into the Rochester Riverfront Park. This connection would require a bicycle/ pedestrian bridge span; however, the utility company may view the ability to access the utility right-of-way via a span large enough to accommodate a vehicle as a benefit. This could be used to support the negotiation of the access easement. South of McKinley Run, the trail route makes use of the existing vehicular infrastructure network that travels through the Rochester Riverfront Park including asphalt parking lots and an access road. This portion of the on-road trail route would consist of sharrows through to the Lewis Way ramp. At this point, the trail route climbs from the elevation of the Ohio River up to the plateau elevation of Rochester Borough proper.

Segment 500T

Segment 500T connects the ORNST with the ORSST via Pleasant Street and the Rochester-Monaca Bridge. The trail route segment would consist of a 10' wide sidepath located along an existing sidewalk on the south side of Pleasant Avenue. This segment would require re-engineering to widen the sidewalk, including potentially constructing a small length of retaining wall near the bridge abutment at the intersection of the bridge and Pleasant Avenue in order to create an area wide enough to accommodate the side path.

Proposed Route Lengths

Total Length of Route through Vanport Township On Asphalt = 0.30 miles

Total Length of Route through Beaver Borough On-Road Portion = 2.10 miles

Total Length of Route through Bridgewater Borough 10' Wide Gravel Path = 0.14 miles

Total Length of Route through Bridgewater Borough On-Road Portion = 1.14 miles

Total Length of Route through Rochester Township 10' Wide Gravel Path = 0.30 miles

Total Length of Route through Rochester Borough On-Road Portion = 2.00 miles

Total Length of Route through Section 500A = 5.98 miles

Identified ORNST Routing Alternatives in Section 500A

Numerous alternative routes were explored through Section 500A and rejected based on various physical or contextual constraints. The following is a brief description of each of these alternative trail routes as they were analyzed from west to east.

Alternative 500A/500B

Description: Alternatives 500A and 500B both connect Section 500A with Section 400, the difference between the two is that 500A would be a dedicated multi-use path located on a flat grassy area between Two Mile Run and the north wall of the Beaver Cemetery while 500B would be a signed share-the-road trail route travelling to the north of Two Mile Run along Georgetown Lane.

Issue: While neither of these alternatives would be jeopardized by traffic volume or speeds along Georgetown Lane, both would require significant intersection safety improvements at their respective intersections to the west with North Walnut Lane and to the east with Tuscarawas Road. Despite these issues, Alternative 500A is unofficially already being used as a foot path from the Vanport Ballfields to the Beaver High School complex, as observed during a several site visits. The proposed Segment 500C was determined to be more favorable as a trail route due to the fact that it included safer intersection crossing points for the heavily trafficked Tuscarawas Road and Buffalo Street while still making the desired connections between Vanport Township and Beaver Borough.

Alternative 500D/500E

Description: These alternatives would follow Tuscarawas Road through its intersection with Georgetown Lane, across Buffalo Street and into Beaver Borough via 4th Street ending at Insurance Street.

Issue: This alternative was identified for study due to the fact the 4th Street is a two-way street, unlike its adjacent streets, allowing it to accommodate two-way bicycle circulation. It has a positive neighborhood character, is brick paved (helping to minimize vehicular speeding), tree lined and contains sidewalks in both directions. The fact that this alignment relies on trail routing through the intersection of Tuscarawas Road and Georgetown Lane made it less desirable as a trail route since this intersection is heavily trafficked with a predominance of turning movements making crossing the intersection safely a challenge.

Alternative 500G/500F

Description: Similar to Alternative 500E, Alternatives 500G and 500F explored potential routes into Beaver Borough from the intersection

of Tuscarawas Road and Georgetown Lane. The northern of the two, Alternative 500G, would follow 5th Street the entire way passing just south of Gypsy Glen Park and continuing along 5th Street into Beaver Borough. Alternative 500F would continue along George Lane until the point where it would cross Buffalo Street. It would then follow Clark Park around its southwestern perimeter onto Canal Street and into Beaver Borough.

Issue: Canal Street is a one-way westbound thoroughfare and therefore not conducive to a two-way bicycle route. If this street were to be used it would have to be used in conjunction with an eastbound route. The fact that this alignment also relies on trail routing through the intersection of Tuscarawas Road and Georgetown Lane made it less desirable as a trail route since this intersection is heavily trafficked with a predominance of turning movements making crossing the intersection safely a challenge.

Alternative 500J

Description: Alternative 500J would be a sharrow and a signed trailblazer route extending from 5th Street/Alternative 500G and traveling south to the intersection of Segments 500L and 500M. This alternative would jog from Insurance Street to Corporation Street to Market Street before ending at River Road.

Issue: This alternative would connect the proposed route segments in the north with the Ohio River and with the proposed segments to the south. It would also travel beside some of Beaver Borough's best defined and most centrally located parks. The issue with this alternative is that Insurance Street is a one-way street that splits directions at PA Route 68. Corporation Street is also a one-way street which would require splitting the trail route onto multiple streets based upon direction of travel.

Alternative 500K

Description: Alternative 500K was a trail route originally explored as a way to return the route closer to the Ohio River further west than College Avenue. This alternative would follow South Walnut Lane then Chestnut Street to make this connection crossing and for approximately 100 feet paralleling PA Route 68 before reaching River Road and the Ohio River to the south.

Issue: The crossing of PA Route 68, between South Walnut Lane and Chestnut Street is miss-aligned, requiring travel on PA Route 68 for a short distance along a heavily trafficked segment of roadway with a constrained cross section. Although technically feasible, it was determined that directing the trail route through Beaver Borough's historic and culturally significant downtown was more favorable and could be accommodated with a more desirable crossing of PA Route 68 at College Avenue.

Alternative 500O

Description: Alternative 500O is a short alternative that would be utilized to circumvent the Market Street underpass at the Rochester-Beaver Bridge. It would also provide additional riverfront trail access along the Beaver River opposite to the Rochester Riverfront Park.

Issue: Although an underpass exists today beyond the bridge's abutment on the west side of the Beaver River it would require access through a private boat club traveling directly adjacent to its dock facility and through its boat ramp. These issues are avoided by utilizing Market Street as seen in Segment 500N.

Alternative 500P/500Q

Description: These alternatives explored various routes through Bridgewater Borough.

Issue: Both of these alternatives divert the trail route away from the Beaver River and its associated riverfront parks.

Alternative 500U/500V/500W

Description: These alternatives were explored in an effort to connect the Rochester-Monaca Bridge with the proposed route that travels through the Rochester Riverfront Park, Segment 500S. Connecting to the Rochester-Monaca Bridge is essential to providing the connection to PA Bike Route A, the proposed Ohio River South Shore Trail and communities on the south shore of the Ohio River.

Issue: Alternative 500W is dependent upon Alternatives 500U and 500V. Without either of these, 500W becomes unnecessary. As such, once the proposed segment was determined to be best situated on Pleasant Street, 500U and 500V were categorized as alternatives and, subsequently, so was 500W. Though 500U and 500V travel further into Rochester Borough's historic downtown commercial area, they also venture further away from a direct connection to the Ohio River.

Identified ORNST Feeder Routes in Section 500A

Feeder Routes are used in this section to make community connections to existing community assets and amenities rather than linkages to the Ohio River or any of its associated trail route networks. There are three Feeder Routes in this section labeled as 5F1, 5F2 and 5F3.

Feeder Route 5F1

5F1 which would be a sharrow route along River Road purely to designate a route which has desirable views of the Ohio River although it does not formally connect to another trail route beyond serving a portion of the residential neighborhoods in Vanport.

Feeder Route 5F2

Feeder Route 5F2 would function as a sharrow trail route paralleling the boundary line between Beaver and Bridgewater Boroughs and traveling through some of the communities' neighborhoods and historic sites, especially the historic P&LE train station targeted for improvement as a community center.

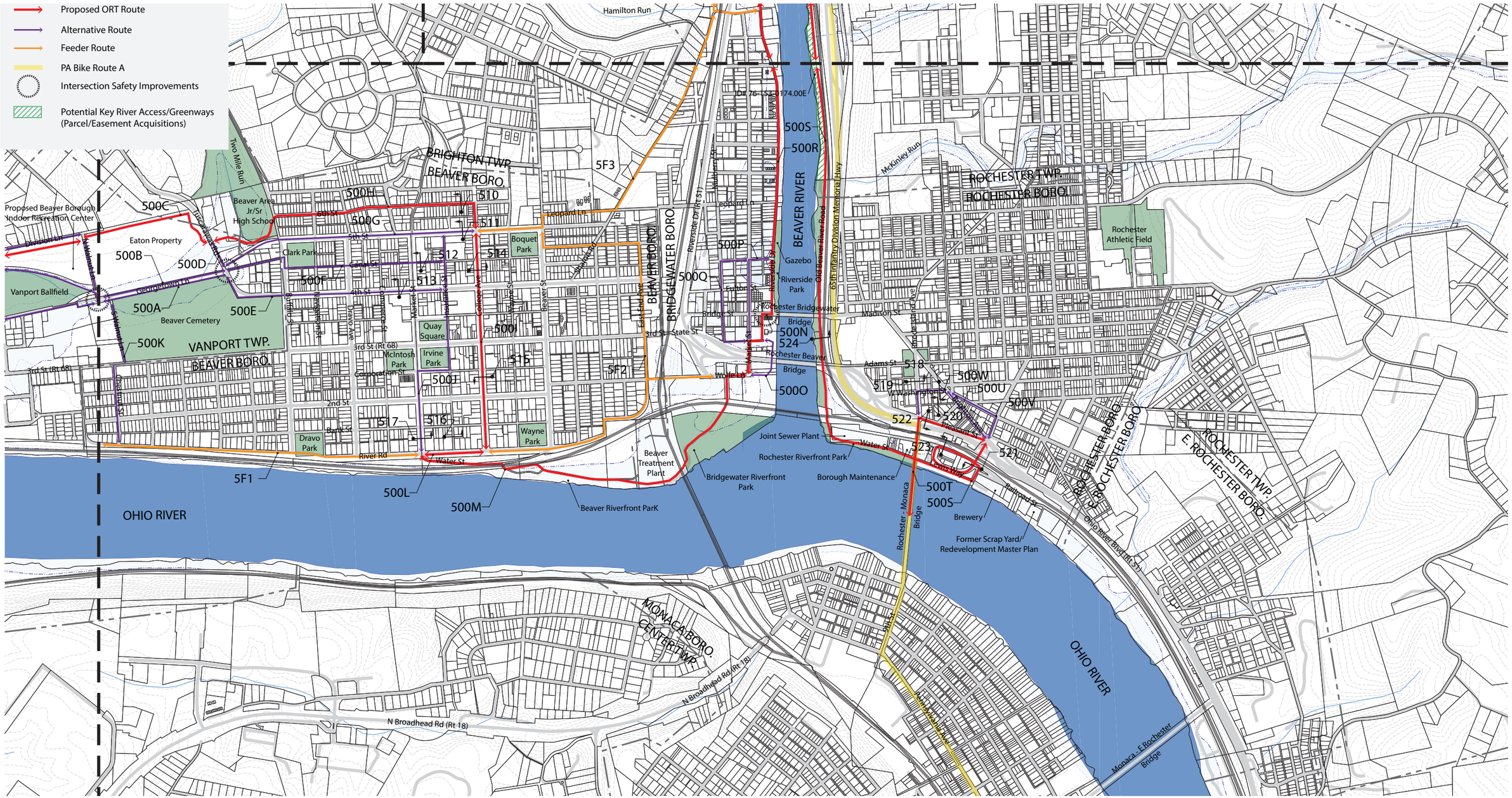
Feeder Route 5F3

Feeder Route 5F3 would also be designated as an on-road sharrow providing an alternative direct connection to the Bradys Run Feeder Route described in Sections 500B and 500C. This route generally follows the same elevation level, eliminating some of the potential steep grades located near the Beaver River along Sharon Road from Riverside Drive to the CSX railroad underpass.

Vanport Township – Beaver Borough – Bridgewater Borough – Rochester Township – Rochester Borough - 500A

Legend

- Proposed ORT Route
- Alternative Route
- Feeder Route
- PA Bike Route A
- Intersection Safety Improvements
- Potential Key River Access/Greenways (Parcel/Easement Acquisitions)



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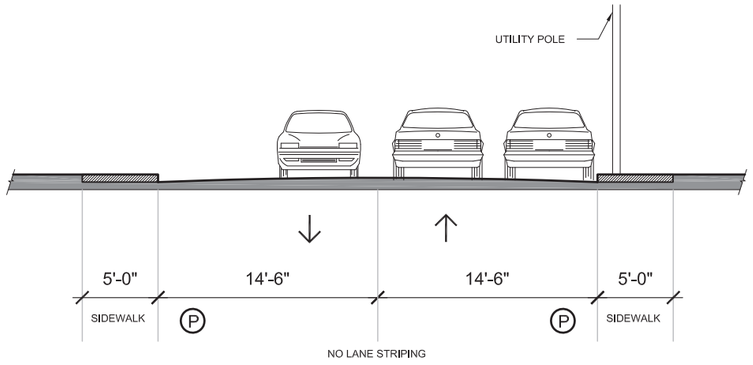

510 BEAVER - 6TH STREET WEST OF COLLEGE AVENUE LOOKING WEST (EXISTING)
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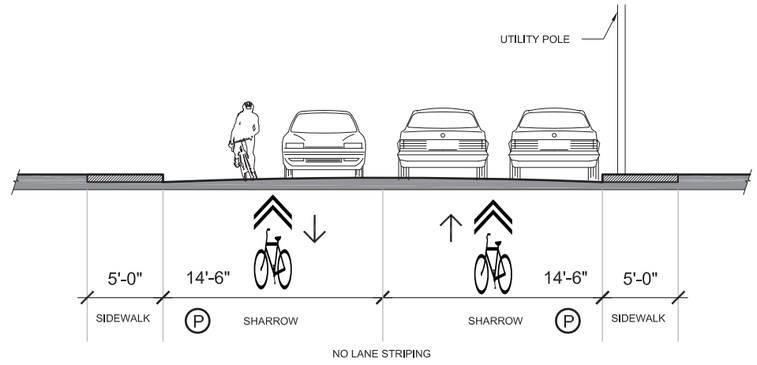

510 BEAVER - 6TH STREET WEST OF COLLEGE AVENUE LOOKING WEST (PROPOSED)
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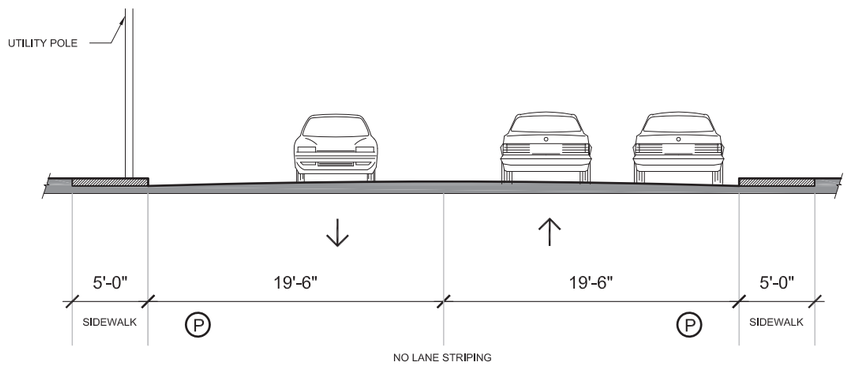

511 BEAVER - 5TH STREET WEST OF COLLEGE AVENUE LOOKING WEST (EXISTING)
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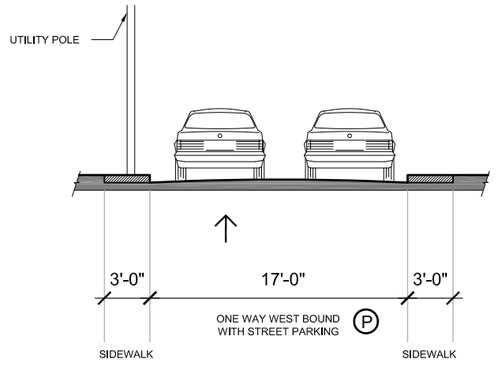

512 BEAVER - CANAL STREET LOOKING WEST (EXISTING)
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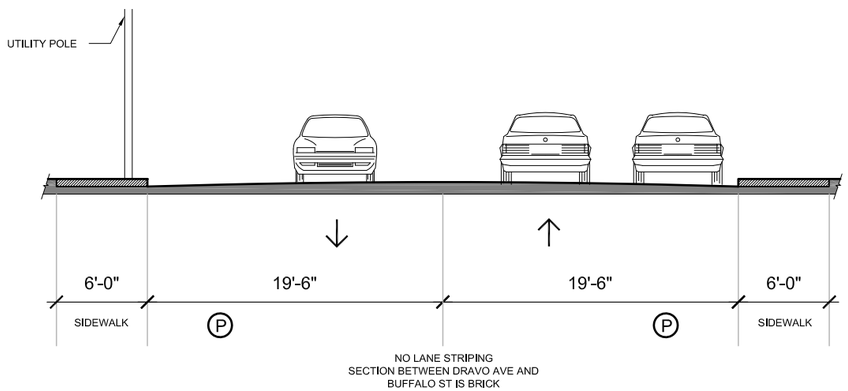

513 BEAVER - 4TH STREET WEST OF COLLEGE AVENUE LOOKING WEST (EXISTING)
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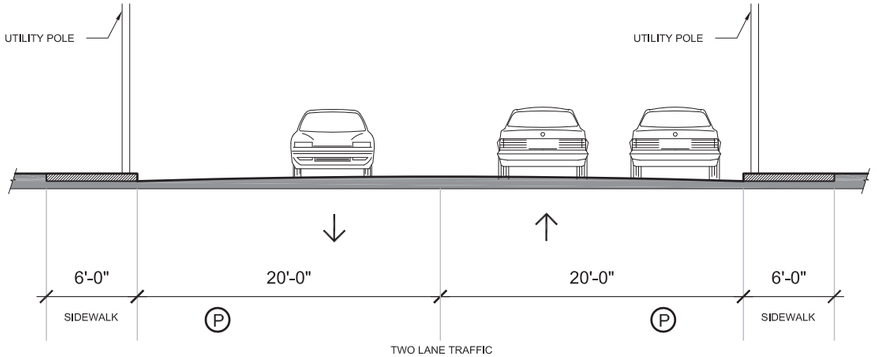

514 BEAVER - COLLEGE AVENUE NORTH OF 4TH STREET LOOKING NORTH (EXISTING)
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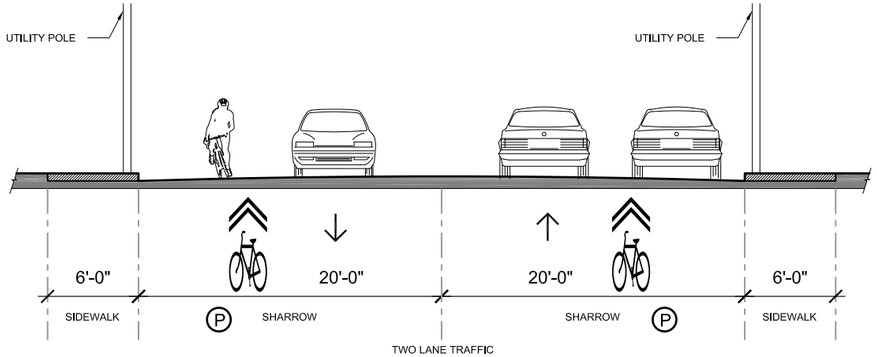

514 BEAVER - COLLEGE AVENUE NORTH OF 4TH STREET LOOKING NORTH (PROPOSED)
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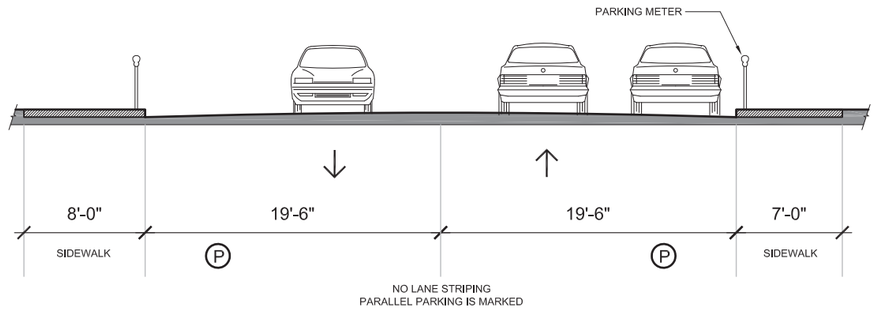
SCALE: Not to Scale NORTH



515 BEAVER - COLLEGE AVENUE SOUTH OF ROUTE 68 LOOKING SOUTH (EXISTING)
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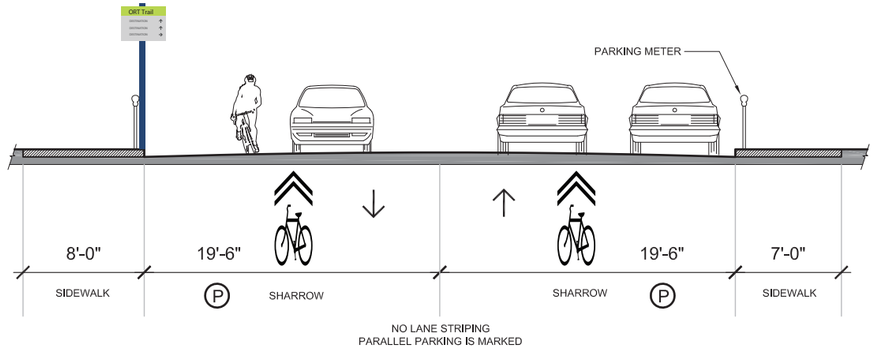

515 BEAVER - COLLEGE AVENUE SOUTH OF ROUTE 68 LOOKING SOUTH (PROPOSED)
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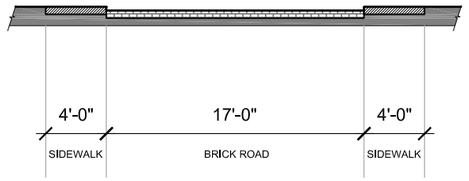

516 BEAVER - INSURANCE AVENUE FROM RIVER ROAD LOOKING NORTH (EXISTING)
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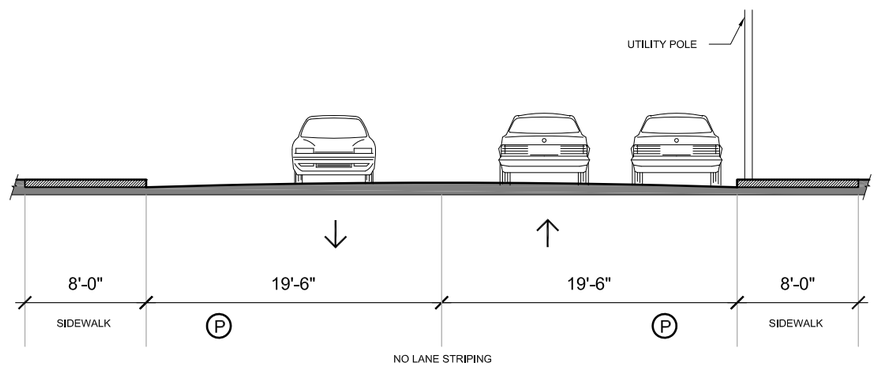

517 BEAVER - MARKET STREET FROM RIVER ROAD LOOKING NORTH (EXISTING)
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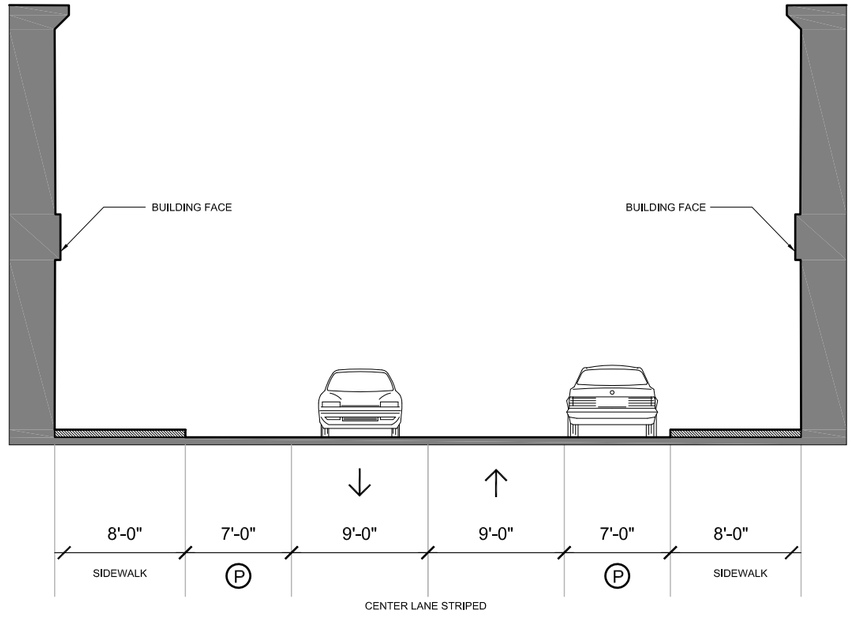

518 ROCHESTER - WASHINGTON STREET LOOKING EAST (EXISTING)
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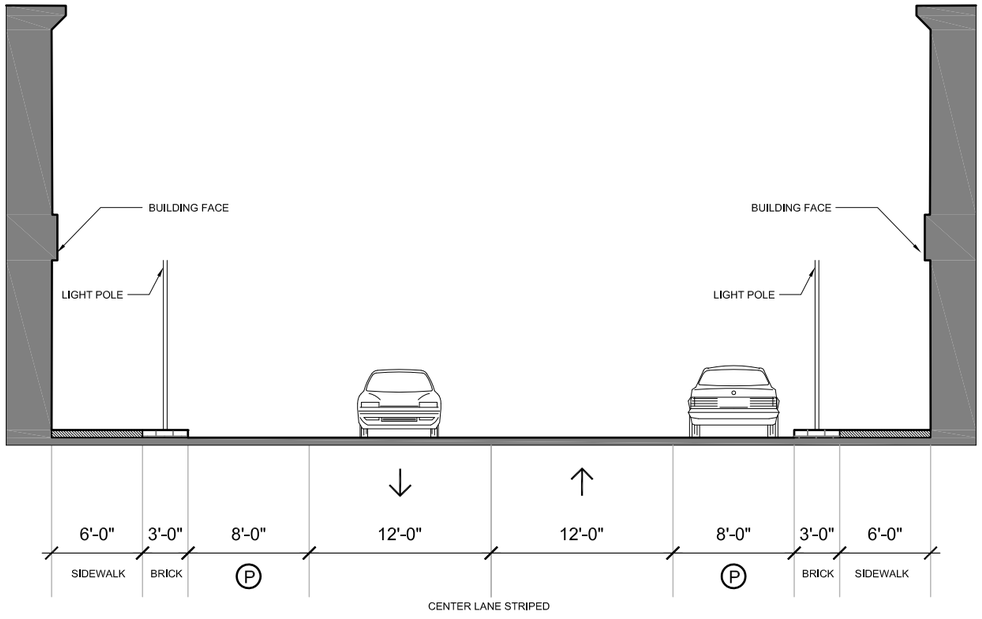

519 ROCHESTER - RHODE ISLAND AVENUE LOOKING NORTH (EXISTING)
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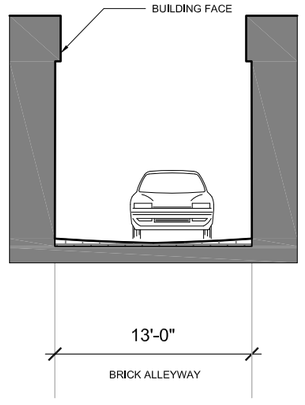

520 ROCHESTER - GREEN WAY LOOKING WEST (EXISTING)
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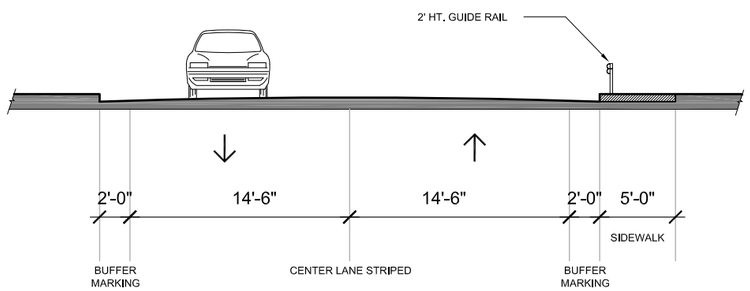

521 ROCHESTER - LEWIS WAY LOOKING SOUTH TOWARDS ROCHESTER-MONACA BRIDGE (EXISTING)
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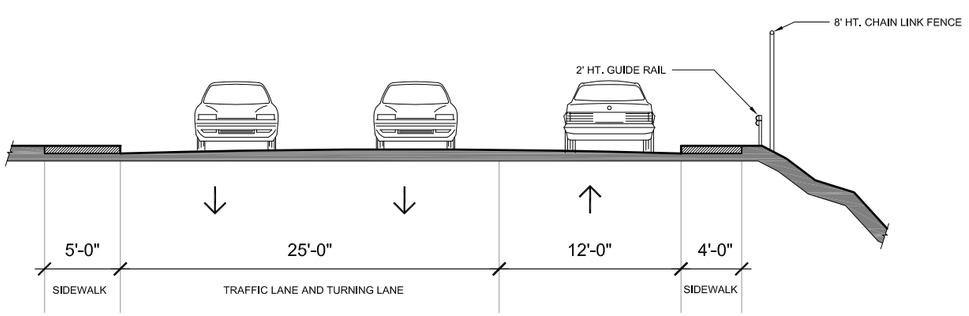

522 ROCHESTER - PLEASANT STREET LOOKING EAST (EXISTING)
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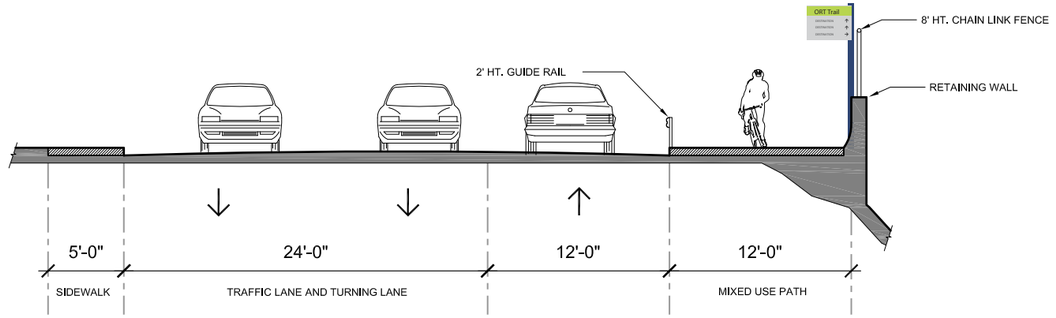

522 ROCHESTER - PLEASANT STREET LOOKING EAST (PROPOSED)
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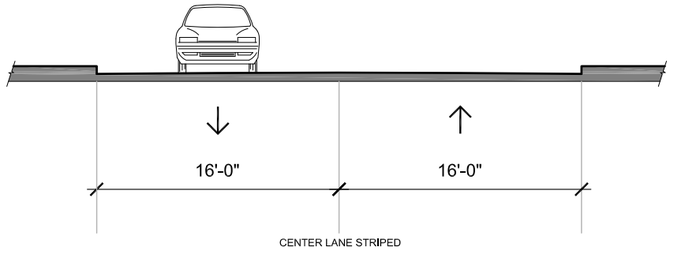

523 ROCHESTER - HARRISON STREET LOOKING WEST (EXISTING)
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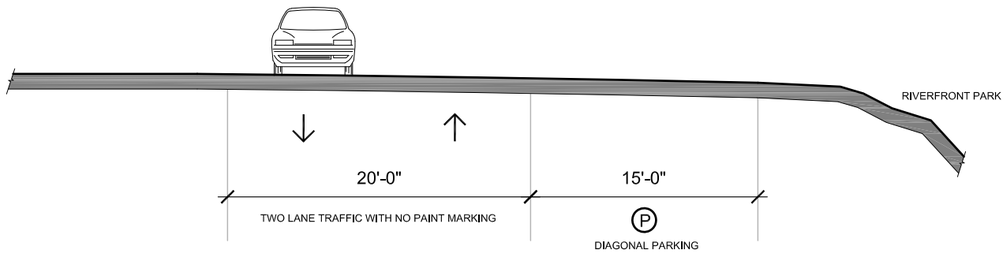


524 ROCHESTER - OLD BEAVER RIVER BOULEVARD LOOKING NORTH (EXISTING)
SCALE: 1"=10'

Section 500B – Rochester Township – Fallston Borough – New Brighton Borough – Bridgewater Borough – City of Beaver Falls

Community Character and Demographic Overview

Rochester Township was formed from what was "New Sewickley Township" in 1840 and is located on the eastern shore of the Beaver River. It is 3.9 square miles in area. According to the 2010 U.S. Census Data the Township has a population of 2,802 with a median age of 46.8 and is 95.1% White and 3% Black or African American. The per capita income is $24,512, up from $18,528 in 2000.

Fallston Borough is located on the west side of the Beaver River and down river from the falls that give the Borough its name. It is bordered by the Beaver River to the east, Bridgewater Borough to the south and Patterson Township to the north. It was settled in 1796 and incorporated in 1829. It is 0.5 square miles in area. According to the 2010 U.S. Census Data the Borough has a total population of 266 with a median age of 45.4. The population is 94.7% White and 2.6% Black or African American with a per capita income of $23,917.

New Brighton Borough is located on the eastern shore of the Beaver River between Rochester Township, Pulaski Township and Dougherty Township. The Borough is 1.1 square miles in size and has a population of 6,025. According to the 2010 U.S. Census Data the population has a median age of 38.1 and is 84% White and 10.7% Black or African American. The per capita income is $17,785.

Bridgewater Borough is described in section 500A.

The City of Beaver Falls is located at a bend on the western shore of the Beaver River. It is across the river from Daugherty Township and New Brighton Borough and just north of Patterson Township. According to the 2010 U.S. Census Data the City of Beaver Falls has a total population of 8,987 and covers an area of 2.3 square miles. The median age of residents is slightly younger than surrounding communities at 34.1. The racial makeup of the City is 75.3% White and 19.3% Black or African American with a per capita income of $14,935.

History and Cultural Resources

Fallston Borough was initially a passing through point on a foot trail for soldiers from Fort McIntosh and Native Americans from what is now Sandusky, Ohio. Sam Brady, a captain from Fort McIntosh rescued Jenny Stupes and her child along this trail sometime around the mid-18th century from a band of Native Americans who had been holding the two against their will. Though Brady was commemorated for this rescue and the local stream was named after him (Brady's Run), he was later denounced following a 1791 altercation with various Native American traders that left several dead including two women.

New Brighton Borough was laid out in 1815 and incorporated in 1838. Like many other communities in the region it prospered from the opening of the Pennsylvania Canal in 1834. Manufacturing flocked to the area to take advantage of the convenient transportation network provided by the canal. Industries such as flour mills, carriage works, lumber mills, pottery works, glass works and foundries could all be found in the Borough. When the railroad came to the town a large iron rail car shop was established by Merrick, Hanna, and Company. According to the Borough's website, these rail cars may have been some of the first metal railroad cars ever manufactured. There was also an armory at 610 Third Avenue which has been renovated and is now borough offices.

The City of Beaver Falls was originally laid out in 1806 by two English brothers who, as a favor for their services, were allowed to name the town. They aptly dubbed it Brighton in honor of their native Brighton, England. As time went on a settlement developed on the east side of the Beaver River which came to be called New Brighton (as it is still known). The original Brighton then became known as "Old Brighton" until the Harmony Society became the owners of the property and renamed it Beaver Falls. The City grew to be a mecca of manufacturing with industries ranging from cutlery to bicycles. Regional staples such as steel, pottery and iron works were also present and all made use of the ample power generated by the falls in the adjacent Beaver River. The City was so well known for its manufacturing productivity that after the destruction of the arsenal at Harper's Ferry Congress twice attempted to relocate the arsenal there.

Land Use, Parks and Recreation Resources and River Access

Land use in Rochester Township is significantly less dense then in neighboring Rochester Borough. The Township stretches from the banks of the Beaver River to the surrounding hills in the east and is predominantly comprised of single family residential housing units located on a plateau well above the river. The industrial land use that was once more prevalant in the region has left its mark, perhaps most noticeably with the Hydril facility located off of Virginia Avenue. This facility, once used for threading oil and gas well piping, has since been torn down and the land remains vacant and is classified as a brownfield. Further into the hills there is Irvin Cemetery. Large portions of the Township remain undeveloped and forested, particularly those paralleling McKinley Run where there are steep slopes limiting development potential.

Fallston Borough, on the west side of the Beaver River, is a mix of single family residential and light industry. The residential land use is mostly confined between the Beaver River and Beaver Street while the light

The first hotel in Beaver Falls, 1803

industry snakes its way west away from the river paralleling PA Route 51. These industries include personal and corporate storage facilities and the Littel Steel facility. This corridor also contains mixed commercial such as restaurants, sports taverns and car dealerships. There is another industrial site within the Borough not located in this corridor. The International Titanium/Col-Fin Specialty Steel site is located along the Beaver River where Front Street bends to become the Fallston Bridge.

New Brighton Borough is densely developed with a commercial corridor existing along 3rd Avenue and 5th Avenue between 13th Street and the 7th Avenue Bridge into Beaver Falls. This corridor contains pull-in parking, banks, restaurants, drug stores and small specialty shops. Though much of the surrounding Borough is comprised of single family detached housing units, there are a few multifamily attached developments towards Penn Avenue and at the southern end of 5th Avenue. Other land uses include Saint Joseph Cemetery located on a hill at the northern end of the Borough overlooking the City of Beaver Falls. There is very little active industrial land use.

The Eclipse Bicycle Company was located at 220 7th Avenue in Beaver Falls in 1894. After several corporate shifts, the company became part of Bendix Co. and then Bendix Aviation in 1928. Today it is part of Facet Enterprises.

The City of Beaver Falls has similar land use patterns to New Brighton Borough. There is a commercial core located along 7th Avenue with on-street parking, restaurants, specialty shops, drug stores and a bank. Surrounding this core is residential development, predominantly single family residential with some multifamily dwellings on the west ends of 9th Street and 8th Street. There is some ongoing industrial activity on the periphery of the City. The McDanel Advanced Ceramic Technologies facility at the corner of 9th Street and 5th Street is one such ongoing industrial facility. Other industrial facilities are located along the Beaver River between the 7th Avenue Bridge and 11th Street.

One of the largest park/recreation resources in Rochester Township is the Rochester Athletic Field facility attached to the Rochester Area High School at the corner of Deer Lane and PA Route 68. This facility includes a running track, baseball and football fields and tennis courts. There is also a YMCA with indoor recreation facilities at the corner of YMCA Drive, 3rd Avenue and PA Routes 65/18 near New Brighton Borough.

Fallston Borough, being a relatively small community, has no traditional park or recreation spaces. This lacking is however not such a concern when the Borough is examined in a more contextual setting as several neighboring communities have ample park facilities (such the nearby Bradys Run Park, one of the largest in Beaver County).

Park and recreation opportunities in New Brighton Borough are varied. Big Rock Park is a long linear park located adjacent to the Beaver River between the 7th Avenue Bridge and 12th Street. This seven acre riverfront park offers fishing opportunities, a half-mile walking trail and picnic pavilions available for rent. South of Big Rock Park is the New Brighton Fishing Park where visitors can fish for Walleye, Striper Bass, Northern Pike and White Bass. Facilities include wheel chair accesses to a fishing wharf and a canoe launch. In the core of the Borough, there is Townsend Park located directly across from the Borough Building on 3rd Avenue. This is a formal park with yearly Memorial Day services. There are also a handful of pocket playground parks such as the Oak Hill Playground off Short Street and the Hunky Alley Playground located off 2nd Street. The Hunky Alley Playground was reconditioned in 2001 and now includes a baseball/softball diamond in addition to traditional play equipment. The other major recreation facility in the Borough is a part of the Rochester Borough Area High School and includes amenities typical to high school sports such as baseball and football fields, a track and tennis courts.

Park and recreation opportunities for the City of Beaver Falls include those associated with the Beaver Falls Senior High School to the west (baseball/softball fields, tennis courts), a small triangular pocket park at the intersections of 5th Avenue and 11th Street and Morrell Field at the eastern terminus of 11th Street along the western shore of the Beaver River. Morrell Field consists of traditional baseball fields and open lawn spaces. The park also serves as the southern beginning/end of the Beaver River Trail, a rails-to-trails project spearheaded by the Beaver River Rails-to-Trails Association.

River access for Rochester Township is limited and dependent upon Rochester Borough. Though Beaver River access is granted to the Borough to the south in the form of a riverfront park, this access stops at the outlet of McKinley Run in Rochester Township and does not begin again until New Brighton Borough to the north. This is unfortunate as there is a river bank wide enough to support recreational activities, however, it is isolated from the community by several transportation thoroughfares including PA Route 65/PA Route 18 and the active railroad line.

River access in Fallston Borough is limited to a stretch of the Beaver River located between Evans Street and Front Street. Though access here is available, it is controlled by the Beaver Valley Yacht Club and consists mostly of boat slips.

River access to the Beaver River in New Brighton Borough is strong despite a multitude of thoroughfares running between the town and the River. Several access points from 2nd Avenue reach the river and its adjacent Big Rock and Fishing Parks by tunneling under the active railroad line. The main entrance is the 8th Street tunnel.

River access in the City of Beaver Falls is limited. Despite Morrell Fields being located adjacent to the Beaver River it is separated from the water by the active CSX railroad line. This railroad line parallels the riverbank too tightly for river access throughout most of the City. In places where it moves away from the water, industrial sites appear such as the water treatment plant near the 7th Street Bridge.

Environmental Context and Infrastructure

River's Edge and Habitat: The Beaver River's edge in Section 500B alternates between industrial and recreational in land use. Moving upriver from Section 500A, the first significant industrial site is located on the western shore of the Beaver River where Fallston Bridge crosses over from New Brighton. This is the site of the International Titanium/Col-Fin Specialty Steel facility. Further upriver on the western shore the topography is very steep limiting the area to only the active CSX railroad line. On the opposite side of the river, New Brighton Borough has capitalized on its advantageous riverside location by creating several long linear parks described in detail previously. These parks include Fishing Park and Big Rock Park. An industrialized river's edge condition occurs once more, again on the west wide of the Beaver River, where the 7th Avenue Bridge enters the City of Beaver Falls. This site is the location of the City's water treatment plant. From this point to Morrell Field, the Beaver River's western shore is lined with a mix of active and inactive industrial sites that were focused on the riverfront and railroad access. Morrell Field, described previously, is the northernmost recreational land use site examined in Section 500B and is the southern terminus of the Beaver River Trail which currently connects with Geneva College to the north and could eventually travel further north into Lawrence County.

Streams and Stormwater: Two main stream systems in this section are Block Hollow Run in New Brighton Borough and Bradys Run, traveling between Fallston Borough and Bridgewater Borough. Block Hollow Run flows down from the water treatment facility to the northeast through a natural channel. It passes underneath PA Route 65 then underneath 21st Street (which itself passes underneath the active railroad line) before its outfall into the Beaver River. Bradys Run, which flows from Bradys Run Lake, located in Bradys Run Park (both in Section 500C) plays a more integral role with regard to feeder routes and route alternatives in Section 500B than does Block Hollow Run. Several historic industries such as clay manufacturers and mills used the waters of Bradys Run for production purposes. As such, a rail corridor was created connecting these industries which, for the most part, no longer exist today.

Transportation Infrastructure

Transportation access to and from these five municipalities via the regional transportation network is provided by PA Route 18, PA Route 51, and PA Route 65.

PA Route 18 serves local motorists having southbound and northbound destinations. PA Route 18 has multiple local road names as it travels through Rochester Township (Delaware Avenue), New Brighton Township (Third Avenue, Fifth Street), and Beaver Falls (Seventh Avenue). In this section, PA Route 18 generally runs north-south along the eastern side of the Beaver River from Rochester Township, through New Brighton Borough, across the Seventh (7th) Avenue Bridge and the Beaver River, and into the City of Beaver Falls. PA Route 18 is a four lane road with wide shoulders and a 40 MPH speed limit in Rochester Township and New Brighton Borough to Penn Avenue Extension. North of this, PA Route 18 is a two lane road with a 30 MPH speed limit, sidewalks on both sides, and on street parking in most places. In the City of Beaver, PA Route 18 is again a four lane road with sidewalks and on street parking on both sides in most places. The average daily traffic is 15,000 in Rochester Township, between 7,500 and 11,000 in New Brighton Borough, and 9,500 in the City of Beaver Falls. PA Route 18 is designated by PennDOT as PA Bike Route A through the entire corridor in this section.

PA Route 51/Constitution Blvd serves local motorists having northbound and southbound destinations. It generally follows the western side of the Beaver River. South of Beaver Street/SR 4027 PA Route 51 has four travel lanes, shoulders, and a 45 MPH speed limit. North of Beaver Street, Route 51 is only two lanes with shoulders. In the vicinity of the Beaver Street intersection, there is curb and sidewalk along the western side. Just north of Riverside Drive/SR 4049, the proposed Veteran Memorial Bridge is being constructed which will cross the Beaver River and connect with PA Route 18. This bridge is being designed with a 10' sidewalk on the southern side of the bridge. Pedestrian and bicycle safety improvements would be recommended at both ends of this new bridge due to the new traffic patterns and high traffic volumes. The average daily traffic volumes on PA Route 51 are approximately 11,000 vehicles north of Beaver Street, 15,000 vehicles between Beaver Street and Riverside Street, and 12,000 vehicles south of Riverside Street.

PA Route 65 and PA Route 18 are the same route through Rochester Township and New Brighton Borough to Fifth Street, where PA Route 65 separates and becomes Fifth Street heading northeast. The section of PA Route 65 that is Fifth Street is a two lane road with parking and sidewalks on both sides of the road, and an average daily traffic volume of approximately 5,200.

Riverside Road/SR 4049 handles a small amount of vehicular traffic, with approximately 2,300 vehicles per day. It is a two lane road with newly constructed sidewalk on both sides of the road in most places.

Economic Development

Very little information was available regarding Rochester Township. The study area for this project within Rochester Township mostly includes a long linear stretch of undevelopable land consisting of a utility corridor, the Norfolk Southern railroad and PA Route 18. There is a small commercial area located near the future eastern end of the Veterans Memorial Bridge which includes the Beaver County YMCA located along 3rd Avenue and YMCA Drive.

Fallston Borough is a small municipality which is located between PA Route 51 and the Beaver River. The municipality is primarily residential with limited commercial development mostly along PA Route 51 and the International Titanium/Col-Fin Specialty Steel site, a large industrial plant, located along Front Street, near the Fallston Bridge. The Borough is currently in discussions with Patterson Township regarding a merger of the municipalities. The two municipalities are currently sharing public safety services.

New Brighton Borough has a vibrant downtown commercial district located along PA Route 18/3rd Avenue, roughly extending from 4th Street to 13th Street. Canal Park, which is located along the Beaver River, is within a block of New Brighton Borough's "main street" commercial district providing excellent opportunities to link parks, recreation and special events with economic development activities in the downtown. New Brighton Borough is part of the regional Rivertown Partnership, in association with nine other Beaver County municipalities. As a result of the initiative the Borough formed the New Brighton Business District Authority as an entity tasked with promoting the sustenance and re-establishment of the core commercial area, including undertaking the New Brighton First campaign focused on promoting downtown businesses. The Borough has executed significant streetscaping improvements along 3rd Avenue in support of its goal of making the downtown commercial district an attractive and vibrant business district.

The City of Beaver Falls' Downtown Business District Main Street is 7th Avenue which spans 20 blocks and includes a variety of goods and services. The City is part of the regional Rivertown Partnership; however, it also operates an independent Main Street Program under the Pennsylvania DCED program and employs its own Main Street Manager. A major component of the program is the administration of the façade improvement program. The City of Beaver Falls is the location of Phase 1 and Phase 2 of the Beaver River Trail which currently starts along 1st Avenue and 11th Street at Morrell Field. Extending the trail to the south, through the downtown commercial district along 7th Avenue, would allow for the trail route to directly interface with downtown business as it continues towards New Brighton Borough.

Proposed ORNST Route and Alternatives

Three proposed routes exist in Section 500B, the final section with proposed ORNST routes (Section 500C is comprised entirely of Feeder Routes). These three segments travel on either side of the Beaver River to the Veterans Memorial Bridge, where they make their cross-river connection.

Proposed ORNST Route Description through Section 500B

Section 500B is short in length, with the combined segments adding up to a total of one mile of trail route. Moving from Bridgewater Borough, the trail route travels upriver paralleling the Beaver River via a share-the-road network alongside Riverside Drive, then crosses the river by way of the under-construction Veterans Memorial Bridge which includes dedicated pedestrian facilities. From here the route slopes downhill and downriver ramping to connect with the utility easement on the eastern bank of the Beaver River, between the river and the CSX railroad. This part of the route is a dedicated multi-use path eventually crossing McKinley Run and entering into Rochester Riverfront Park in Section 500A.

A pedestrian connection to the 7th Avenue Bridge in the City of Beaver Falls

Route Characteristics and Issues

Beaver River Crossing and the City of Beaver Falls Connection: In order to extend the ORNST over the Beaver River, a viable bridge crossing is required. As discussed in Section 500A, several of the existing options for crossing are undesirable for safety and financial reasons. In Section 500B, and with the help of the Veterans Memorial Bridge, this crossing becomes realized. However, crossing the Beaver River once more to connect New Brighton and Beaver Falls would also connect the proposed Ohio River Trail networks to an existing bicycle trail that begins near Morrell Field, the Beaver Rail Trail. While it may initially seem to make more sense to stay on the western banks of the Beaver River and to make the connection from Fallston Borough to the City of Beaver Falls from this side, this raises issues of space as the steep hills surrounding the west bank of the river leave little room for such a route. This crossing would also serve trail routes to the north via several of New Brighton Borough's well established riverfront parks. The existing 7th Avenue Bridge is used to cross the Beaver River connecting New Brighton and the City of Beaver Falls via the existing pedestrian sidewalk which would require bicyclist to dismount or travel in the roadway.

Veterans Memorial Bridge/Segment 500Z Grade Change: Between the finished grade of Veterans Memorial Bridge and Segment 500Z there is a significant change in topography, nearly 30' in places. To accommodate this elevation change, a ramp will need to be created in the hill beside the CSX railroad, transitioning the elevation change between the bridge and the proposed trail.

CSX/PA Route 51 Underpass Lane Change: Just north of Wright Pontiac, PA Route 51 enters a tunnel that takes it underneath the active railroad. This is also a transitional section where the roadway cross section changes from four lanes to two lanes. These lane changes coupled with the underpass make this section difficult to navigate and unsafe for bicyclists. It was determined that directing a trail through the underpass was not feasible in its current configuration. In order to overcome this constraint the Feeder Route follows 5F12 (in Section 500C).

Americans with Disabilities Act (ADA) Considerations

No significant challenges to ADA accessibility are present in any of the proposed segments for Section 500B.

Segment 500X

This segment follows Riverside Drive from Section 500A to PA Route 51 then continues to the abutment of the Veterans Memorial Bridge. This segment of the trail route would consist of a sharrow including signage and striping in both directions of travel.

Segment 500Y

This segment utilizes the Veterans Memorial Bridge which is designed to provide a 10' wide sidewalk which is substandard for a multi-use path which is recommended to be a minimum of 12' wide to accommodate the "shy zone" created by the vertical enclosure of the concrete barrier on the roadway side and the railing.

Segment 500Z

After descending from the bridge, the route is a 2,400' long and travels from the bridge to the Section 500A line where it continues south into the Rochester Riverfront Park. This route rests between the railroad and the Beaver River. As discussed previously, significant grading may be required to accommodate the grade change from the bridge walkway to the primary trail elevation along the river's edge.

Proposed Route Lengths

Total Length of Route through Bridgewater Borough On-Road Portion = 0.56 miles

Total Length of Route through Rochester Township On Asphalt = 0.45 miles

Total Length of Route through Section 500B = 1.01 miles

Identified ORNST Feeder Routes and Secondary Feeders in Section 500B

The ORNST diverts far from the Ohio River in this section because the Beaver River must be crossed and the Veterans Memorial Bridge is the best route for a trail crossing. Because the trail route already extends far into several northern communities along the Beaver River, opportunities exist for possible Feeder Route extensions. These extensions were explored and are discussed in both Section 500B and Section 500C. Secondary Feeder Routes are also introduced here to delineate between feeder routes that are viable (Feeder Routes) and those that might require significantly more engineering investigation (Secondary Feeders).

Feeder Route 5F4

This is an extension of Feeder Route 5F3 which begins in Beaver Borough and crosses into Bridgewater Borough via Sharon Road. It stops at the at-grade railroad crossing near the Agway where it intersects with 5F5, 5F10 and the Fallston Borough Secondary Feeder Network.

Feeder Route 5F5

This trail feeder route segment connects with an on-road route at Sharon Road and continues as a dedicated multi-use path via a utility corridor

The CSX/PA Route 51 underpass heading towards Bradys Run Park

Cyclists already using the 7th Avenue Bridge traveling from the City of Beaver Falls to New Brighton Borough

located at an elevation above the active CSX railroad line to a point near the intersection of PA Route 51 and Beaver Street in Fallston Borough. At this location the trail route connects with an abandoned P&LE railroad spur which travels along Bradys Run. The trail continues behind several commercial sites, including the Affordable Storage property and industrial parcels to Colonial Street where it becomes a sharrow. Across Brady Street, the trail route continues as a multi-use trail along the perimeter of the Littel Steel plant to the former Bradys Run rail spur bridge span over Bradys Run.

Feeder Route 5F6

This trail feeder route segment connects with the proposed route at the intersection of Segments 500Y and 500Z. It follows YMCA drive wrapping behind the community YMCA then traveling northward towards PA Route 18 via 3rd Avenue as a sharrow and then crossing PA Route 65/18 at the Penn Avenue Extension to 21st Street, which travels under the Norfolk Southern railroad via an underpass and then along the riverfront to 19th Street. The intersection of PA Route 65/18, 3rd Avenue and Penn Avenue should be improved with a traffic signal that includes pedestrian signal heads and prominent crosswalk striping.

Feeder Route 5F7

From 19th Street, the trail feeder route extends north along 2nd Avenue to the Fallston Bridge. The current intersection of 2nd Avenue and the Fallston Bridge is congested with limited sight lines for motorist entering 2nd Avenue from the bridge. The traffic volume in this location is project to drop significantly once the Veterans Bridge is open for traffic.

Feeder Route 5F8

This trail feeder route segment travels from the Fallston Bridge intersection, via 2nd Avenue to the southern entrance to Big Rock Park located between 11th and 12th Avenues. It travels through the remainder of New Brighton Borough via Big Rock Park to the northern-most Norfolk Southern railroad underpass located at 8th Street. It again continues as a sharrow along 2nd Avenue until it terminates at 4th Street. At this point, a new multi-use path connection would be created to continue the trail route to meet with the existing pedestrian walkway located on the south side of the 7th Avenue Bridge. Since the walkway is not wide enough to allow for bicycle riding, the span would require signage noting the required bicycle dismount for walkway crossing.

Feeder Route 5F9

After crossing the 7th Street Bridge by way of the bridge's walkway, the trail feeder route turns 180 degrees and travels along the perimeter of the bridge wing wall, along the PennDOT right-of-way, adjacent to the car dealership property. The trail feeder route continues to 9th Avenue. The trail route would be a sharrow for the remainder of 5F9 to the existing Beaver River Rail Trail at Morrell Field on 1st Avenue. It travels along 9th Avenue before turning east onto 5th Street, it then crosses 7th Avenue at the traffic light on 5th (where there are existing pedestrian signal heads) and then continues to 6th Avenue where it turns north only for one block, making a soft right hand turn to the northeast along 3rd Avenue. 3rd Avenue was determined as the most desirable trail route due to the fact it makes a direct connection through the City of Beaver Falls from the 7th Avenue Bridge to Morrell Field and because it is relatively flat. The route continues along 3rd Avenue to 11th Street where it turns towards 1st Avenue and the Beaver River and finally joins the southern terminus of the Beaver Rail Trail at Morrell Field.

Construction along Riverside Drive south of Veterans Memorial Bridge

Feeder Route 5F10

This small portion of trail route segment continues along Sharon Road underneath the railroad tunnel and PA Route 51 to connect with Riverside Drive which parallels the Beaver River. A connection to Riverside Drive also means a connection back onto the ORNST as Segment 500X utilizes Riverside Drive for north/south travel.

Feeder Route 5F11

The trail route segment continues Feeder Route 5F5 as a dedicated multi-use trail between the western edge of PA Route 51 and Bradys Run to Circle Street.

New Brighton / Abandoned Railroad Secondary Feeder Network

These secondary feeder routes could be used to enhance local communities' connections to facilities such as the YMCA with several neighborhoods along the 5th Avenue corridor in New Brighton Borough. These neighborhoods include the multifamily residential complexes located at the southern terminus of 5th Avenue as well as the single family neighborhoods located further to the north. A portion of this trail route would occupy the abandoned railroad right-of-way that begins near YMCA Drive and continues north to 16th Street and 5th Avenue.

Beaver Falls Secondary Feeder

The City of Beaver Falls, Geneva College to the north and the commercial district along 7th Avenue could benefit greatly from a denser network of bicycle routes. With its residential streets, various parks and existing bicycle trails, an extended bicycle network would further improve connectivity and accessibility to many of the City's existing assets. These routes would be designated as sharrows.

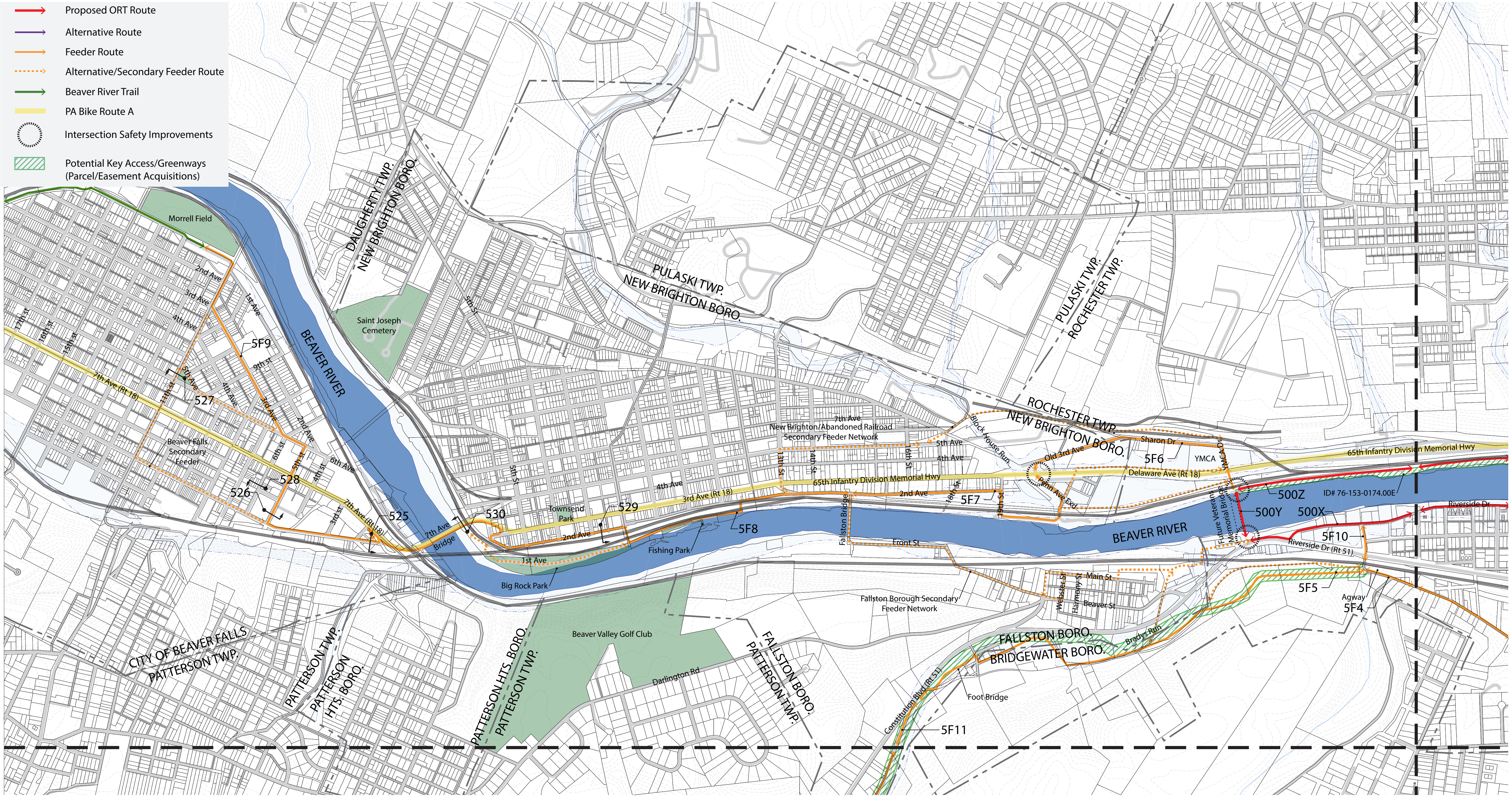
Fallston Borough Secondary Feeder Network

Depending on the amount of vehicular traffic that is diverted from this area by the Veterans Memorial Bridge, a signed share-the-road bicycle network may be achievable which could provide a second crossing point over the Beaver River. Based on current traffic volumes, utilizing the Fallston Bridge the area is too congested to safely accommodate a bicycle route, particularly along Beaver Street and Front Street in Fallston Borough and the underpass intersection of the bridge at 2nd Avenue on the New Brighton Borough end of the bridge. This intersection is especially problematic due to the limited sight lines and the pitch of the roadway as a result of the railroad underpass.

Rochester Township – Fallston Borough – New Brighton Borough – Bridgewater Borough – City of Beaver Falls - 500B

Legend

- Proposed ORT Route
- Alternative Route
- Feeder Route
- Alternative/Secondary Feeder Route
- Beaver River Trail
- PA Bike Route A
- Intersection Safety Improvements
- Potential Key Access/Greenways (Parcel/Easement Acquisitions)



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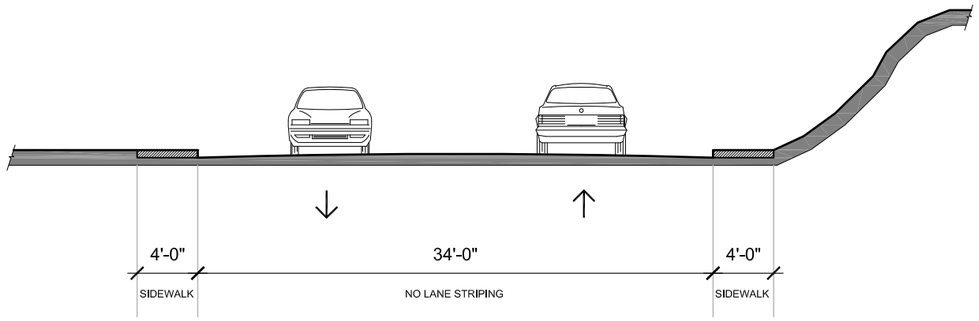
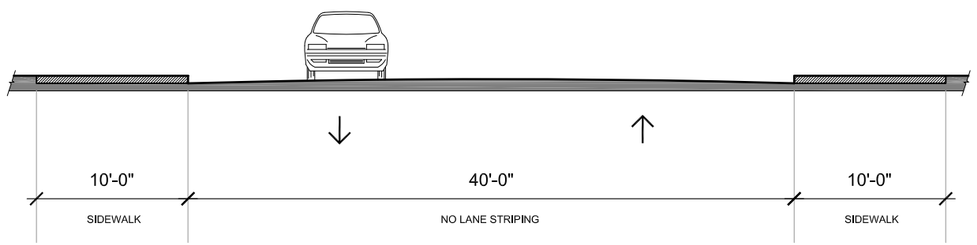


525 BEAVER FALLS - 2ND STREET LOOKING SOUTH (EXISTING)
SCALE: 1"=10'



526 BEAVER FALLS - 5TH STREET LOOKING EAST (EXISTING)
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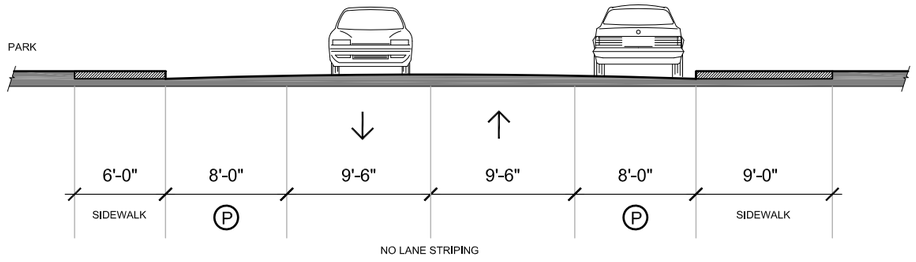

527 BEAVER FALLS - 11TH STREET LOOKING WEST ALONG PARK (EXISTING)
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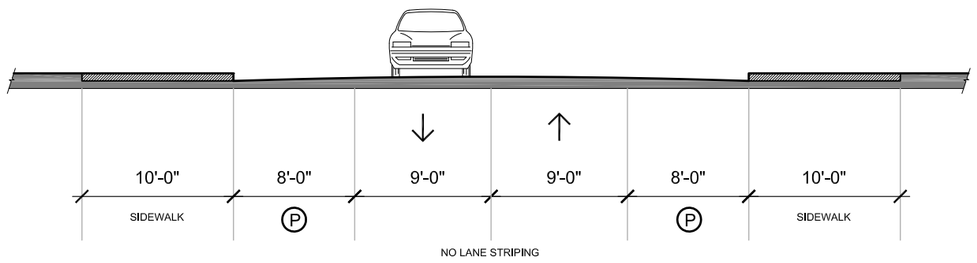

528 BEAVER FALLS - 6TH STREET LOOKING SOUTH (EXISTING)
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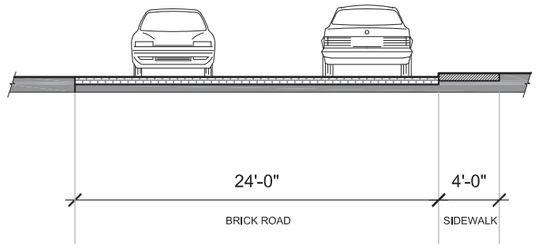
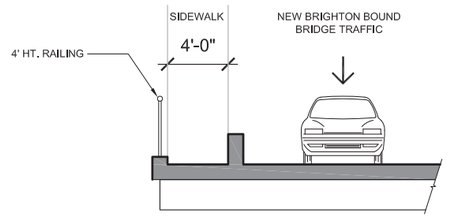


529 NEW BRIGHTON - 2ND AVENUE LOOKING SOUTH (EXISTING)
SCALE: 1"=10'



530 NEW BRIGHTON - 7TH AVENUE BRIDGE LOOKING TOWARDS BEAVER FALLS (EXISTING)
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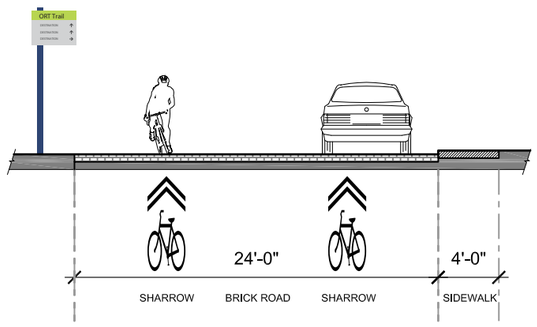

529 NEW BRIGHTON - 2ND AVENUE LOOKING SOUTH (PROPOSED)
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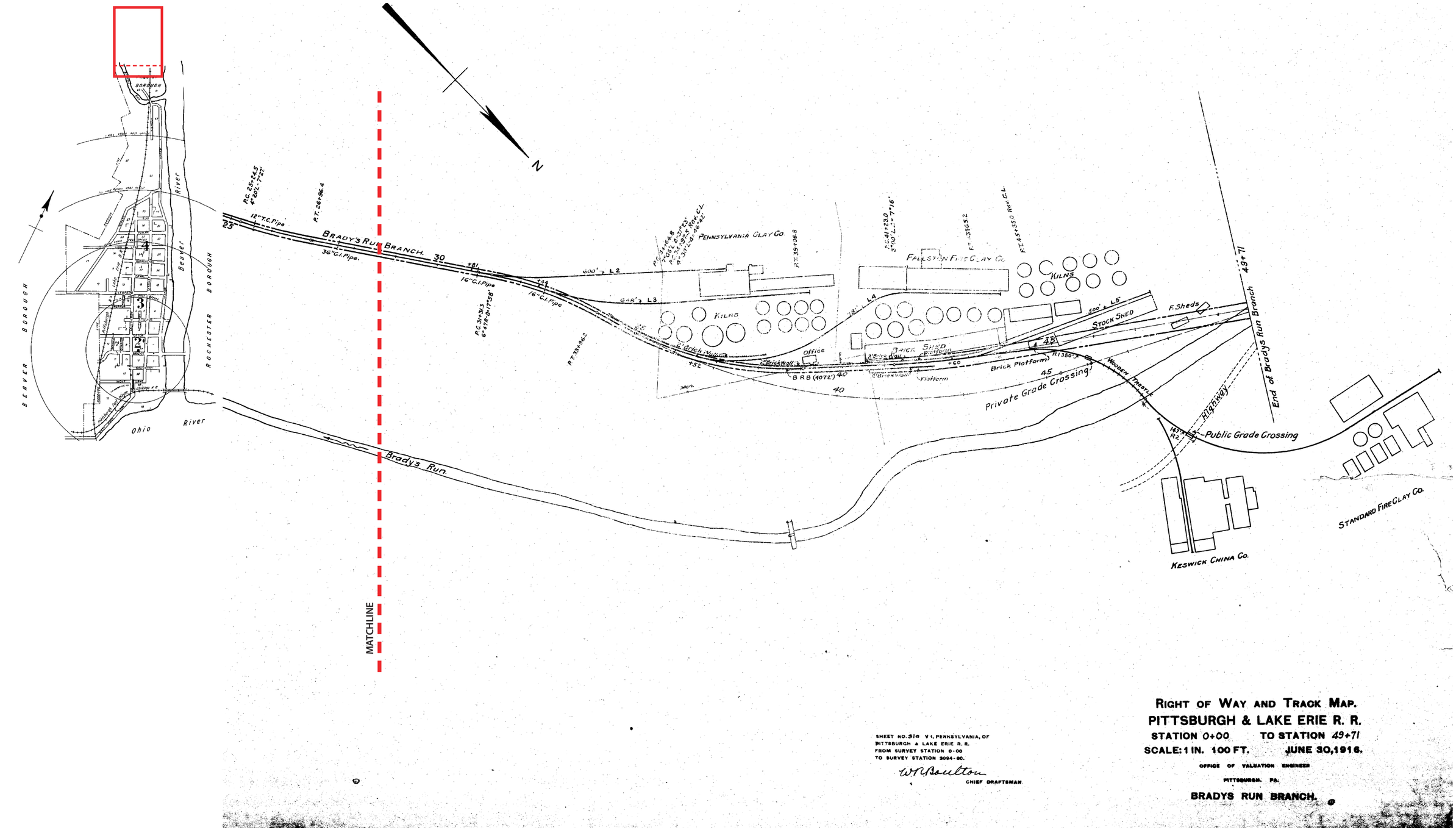
Key

Right-of-Way and Track Map for Pittsburgh & Lake Erie R. R. Bradys Run Branch

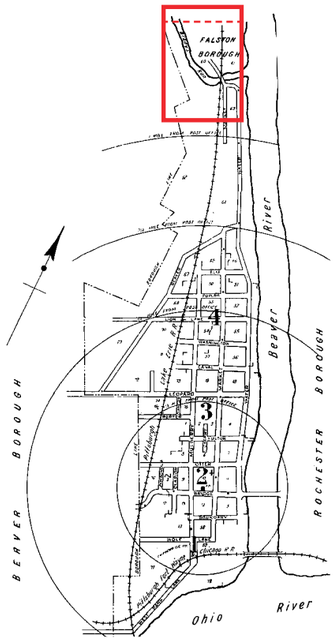


SHEET NO. 316 V 1, PENNSYLVANIA, OF
PITTSBURGH & LAKE ERIE R. R.
FROM SURVEY STATION 0-00
TO SURVEY STATION 3094-60.

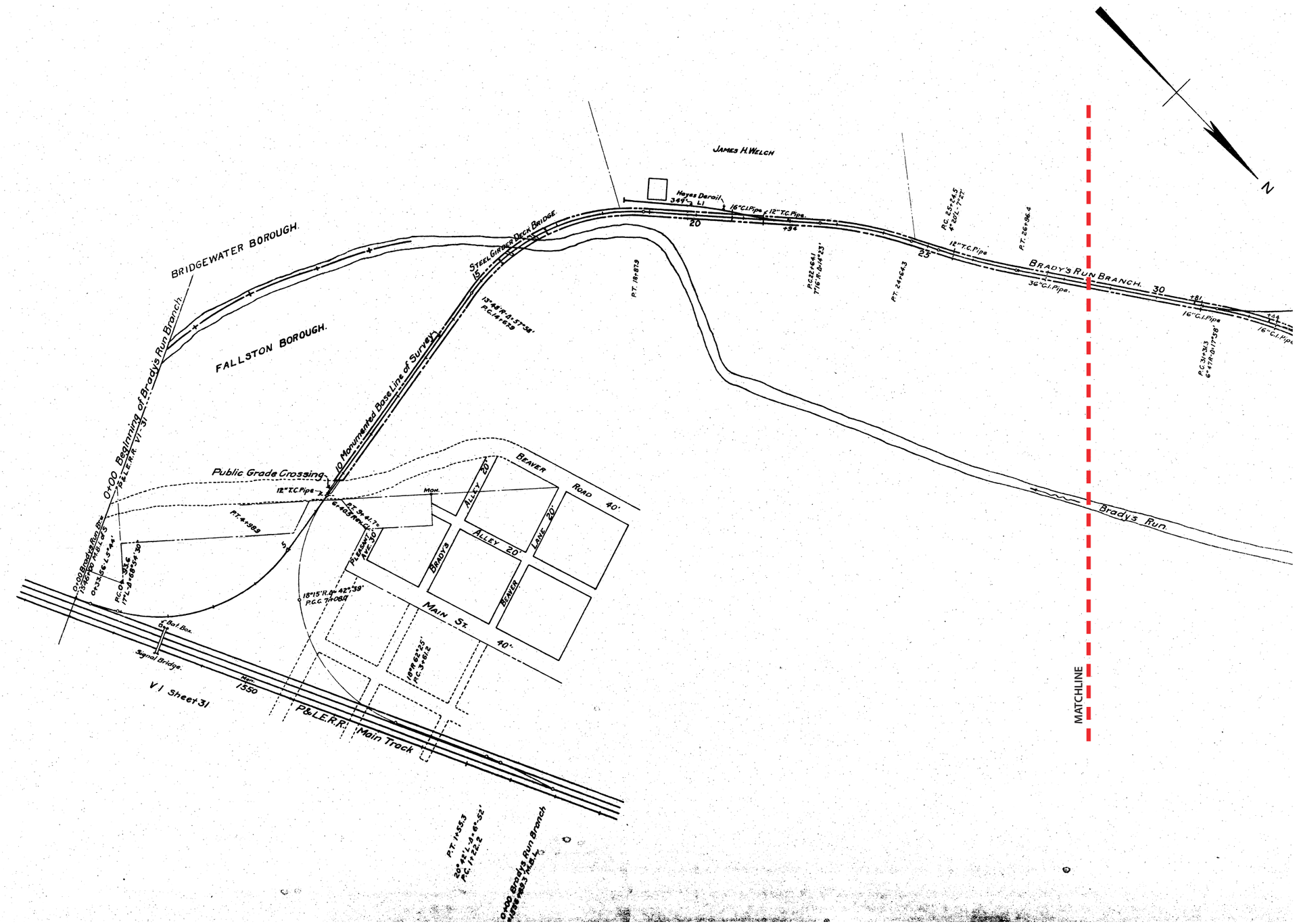
W. R. Boulton
CHIEF DRAFTSMAN.

RIGHT OF WAY AND TRACK MAP.
PITTSBURGH & LAKE ERIE R. R.
STATION 0+00 TO STATION 49+71
SCALE: 1 IN. 100 FT. JUNE 30, 1916.
OFFICE OF VALUATION ENGINEER
PITTSBURGH, PA.
BRADYS RUN BRANCH.

Key



Right-of-Way and Track Map for Pittsburgh & Lake Erie R. R. Bradys Run Branch



Section 500C – Brighton Township

Land Use, Parks and Recreation Resources and River Access

Bradys Run Park is primarily located in Brighton Township with some areas of the park extending into adjacent municipalities. The park is Beaver County's largest public recreation facility covering 2,000 acres and consisting of an ice arena, indoor tennis courts, an indoor running/walking track, horse arena, recycling center, outdoor mountain biking trails, hiking trails and a 22-acre lake with access to year-round fishing and non-motorized boating. The Park is two miles north of Beaver and can be accessed from either PA Route 51 or I-376.

Two Mile Run Park, also located in Brighton Township, is a five acre recreation area located along Gypsy Glen Road between Bradys Run Park and Beaver. There is an extended portion of Two Mile Run Park located behind the Public Works site at 1250 Brighton Road. This extension includes a 1-mile paved walk and a professionally designed 9-hole par 35 disc golf course.

Environmental Context and Infrastructure

River's Edge and Habitat: There is no river and therefore no river's edge to be discussed in Section 500C.

Streams and Stormwater: Bradys Run is the most significant stream within section 500C. It flows from Bradys Run Lake in Bradys Run Park and down along Bradys Run Road before turning to parallel Constitution Boulevard and flowing into the Beaver River in Bridgewater Borough.

Transportation Infrastructure

Transportation access to and from Brighton Township via the regional transportation network in the area of the proposed trail is provided by PA Route 51.

PA Route 51/Constitution Blvd serves local motorists having northbound and southbound destinations. It generally follows Brady Run in this area. PA Route 51 has two travel lanes, shoulders, and a 45 MPH speed limit. The average daily traffic volume on PA Route 51 is approximately 11,000 vehicles. The intersection of Wildwood Road at PA Route 51 can be challenging for pedestrians and bicyclists attempting to cross Wildwood Road due to the trail crossings close proximity to PA Route 51 and free-flowing turning traffic from PA Route 51 onto Wildwood Road.

Economic Development

This portion of Brighton Township consists of older industrial land that was originally focused on brick-making. Older strip-style commercial exists along the PA Route 51 corridor.

Proposed ORNST Route and Alternatives

No proposed ORNST trail route segments exist in Section 500C. All trail routes discussed in Section 500C are either Feeder Routes or Secondary Feeder Networks primarily utilized to make an extended connection between the ORNST (discussed in Sections 100-500B) and Bradys Run Park, Beaver County's largest park. As a result of its regional recreation significance, it is an important trail destination.

Americans with Disabilities Act (ADA) Considerations

No significant challenges to ADA accessibility are present in any of the proposed segments for Section 500C.

Identified Feeder Route Descriptions through Section 500C

Feeder Route 5F12

The trail route segment continues Feeder Route 5F11 along Circle Street as a sharrow with trail blazer signing to the point where Circle Street's northern end terminates at PA Route 51. The trail route continues along the western edge of PA Route 51, adjacent to the Bradys Run Farm Market. The trail route continues north as a multi-use trail, parallel to PA Route 51 and Bradys Run to Wildwood Road.

Feeder Route 5F13

The trail route extends Feeder Route 5F12 across Wildwood Road to the north side of the roadway at the intersection. At this point the trail route turns west, along the north side of Wildwood Road as a sidepath. The existing roadway bridge span over Bradys Run is programmed by PennDOT for pending upgrades; however, the proposed improvements do not include any pedestrian accommodations. As a result the trail route would likely need to divert north, away from Wildwood Road and the vehicular bridge and cross Bradys Run via a separate bicycle/pedestrian bridge into Bradys Run Park.

Feeder Route 5F14

At this point the trail route will be within Bradys Run Park and would connect with existing hiking paths. A path would be upgraded to accommodate both pedestrian and bicycle traffic to extend the trail route to the main entrance area of the park at Bradys Run Road.

Patterson Heights Borough Secondary Feeder:

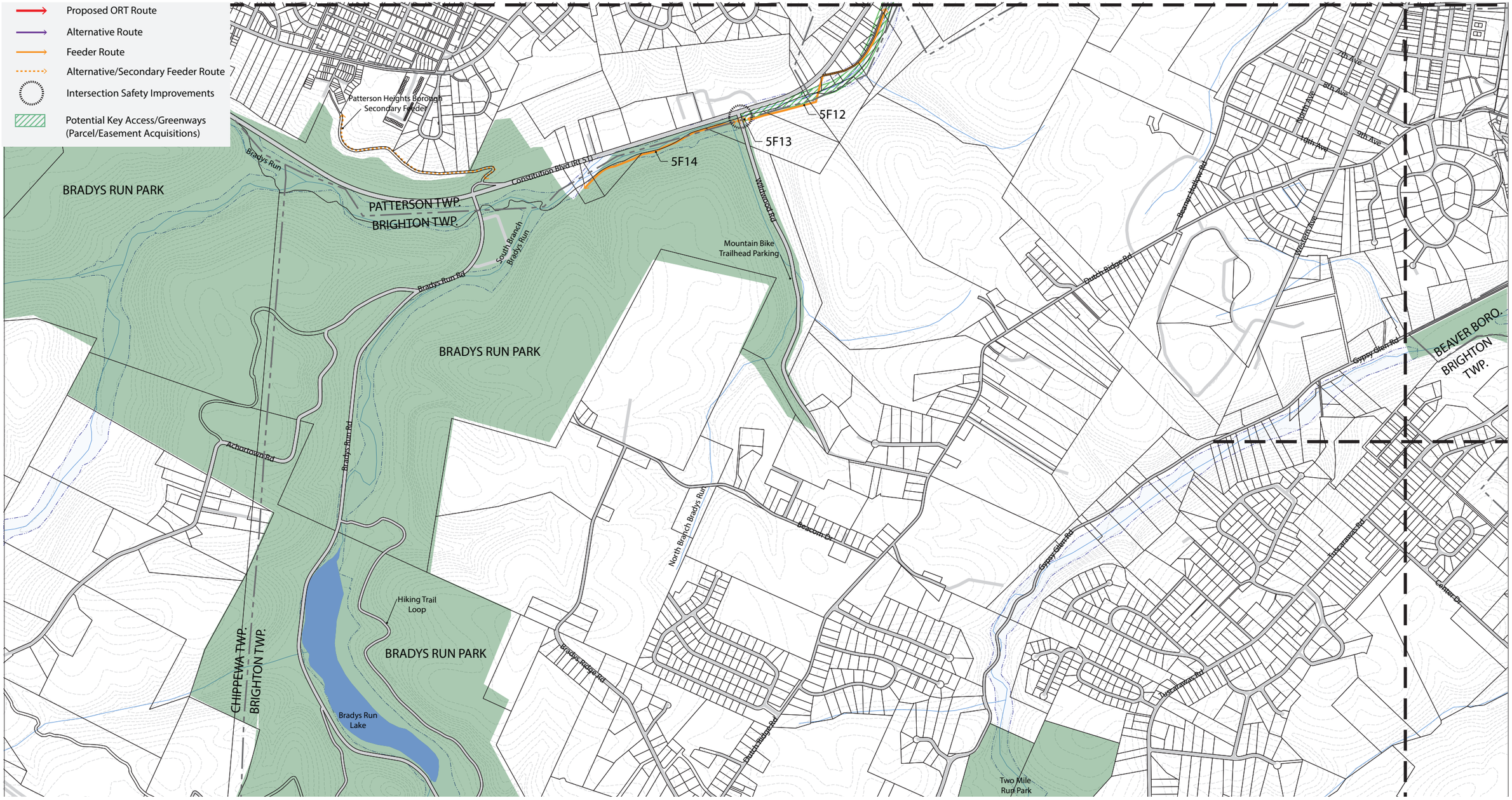
The Patterson Heights Borough Secondary Feeder Route would make use of an existing but un-utilized roadway easement to connect to the entrance of Bradys Run Park with Patterson Heights Borough. The two are currently separated by a dense woodland area. This connection would provide the community with direct access to Bradys Run Park. Currently, traveling from the Borough to Bradys Run Park requires first joining PA Route 51 at either the 8th Street intersection to the north or the Darlington Road/State Route 4014 intersection to the south, both of which are over one mile away from the park's entrance.

A bridge over Bradys Run from 1827

Brighton Township - 500C

Legend

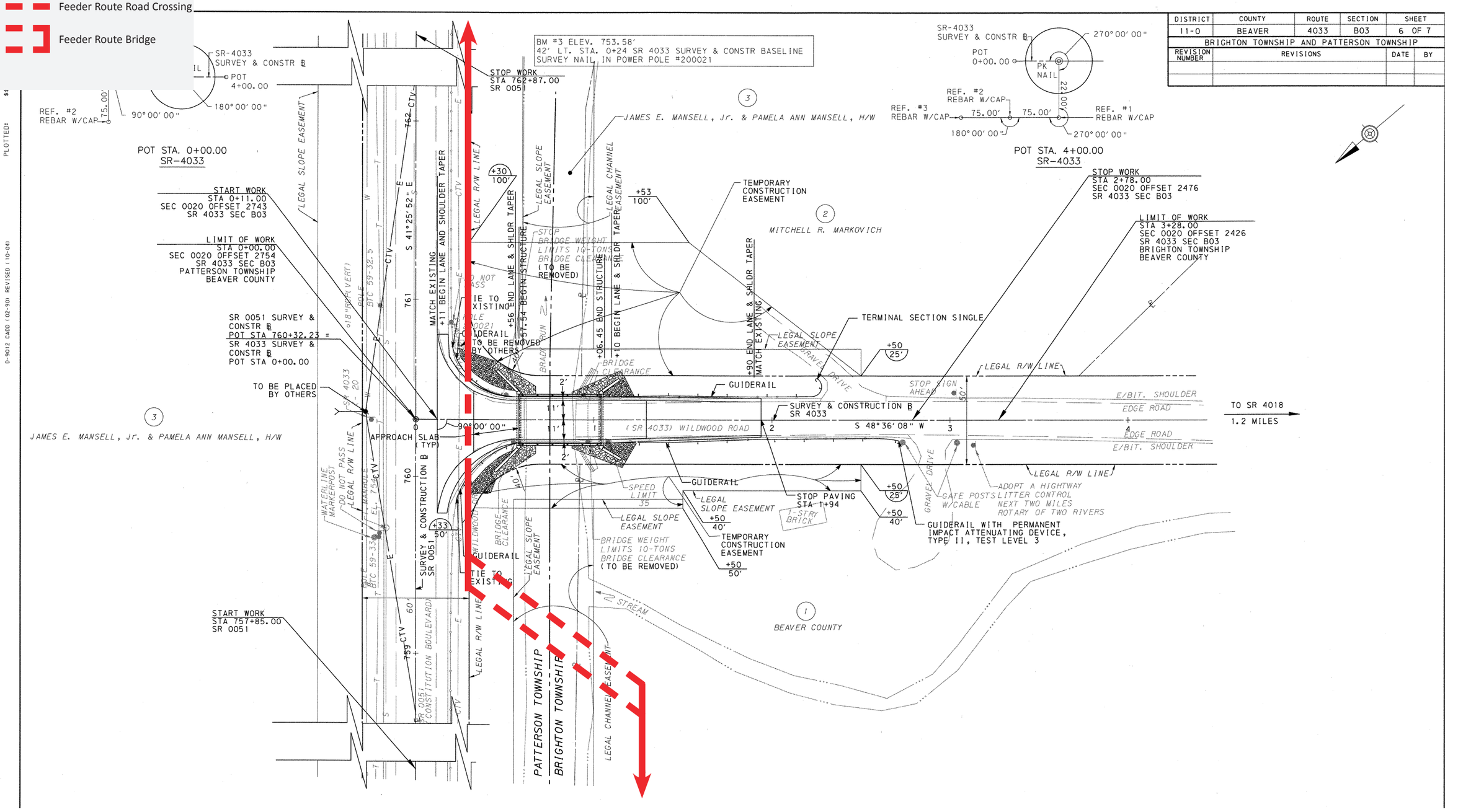
- Proposed ORT Route
- Alternative Route
- Feeder Route
- Alternative/Secondary Feeder Route
- Intersection Safety Improvements
- Potential Key Access/Greenways (Parcel/Easement Acquisitions)



SCALE: Not to Scale NORTH

Legend

- Feeder Route
- Feeder Route Road Crossing
- Feeder Route Bridge



OPERATOR: $user$
FILE NAME: $$design files$$

Phasing Strategy

The proposed Ohio River North Shore Trail is composed of a combination of off-road and on-road facilities. In fact, a significant amount of the proposed trail route consists of upgrades to existing roadway infrastructure. As a result, the opportunity exists to implement significant portions of the overall route segments in a short time frame. Some of the communities have stated that they could implement their portions of the projects almost immediately, which in the case of the City of Beaver Falls, they have already accomplished.

Despite this ability to relatively easily retrofit existing infrastructure there are several segments of the proposed trail that require significant engineering and construction to complete. Therefore, it is important to consider how individual projects can be organized to make the overall implementation of the project manageable. An important consideration when developing the phasing strategy is the desire to maximize overall connectivity along the ORNST route as quickly as possible and to directly connect to completed trail routes and minimize isolated trail segments that have limited connectivity whenever possible.

The following break-down represents an itemized list of projects, and in some cases sub-projects, organized into separate phases to be achieved within the next year or two, the next three to five years, or beyond the five year horizon.

The proposed improvements are organized into three separate phases:

Phase 1 – On-Road Segment Improvements and Signing: Years 1 and 2 -

The projects in this phase represent the segments of the proposed ORNST route that will consist of on-road segments, either on the current Pennsylvania Bicycle Route A (as seen in Section 500A) or via other existing roadways.

Phase 2 – Linkages to On-Road Segments: Years 3 through 5 - The projects in this phase represent the first phase of major trail segment construction and include projects that expand on Phase 1 on-road segments or to take advantage of planned construction activities along portions of the proposed ORNST route.

Phase 3 – Key Infill Linkages: 5+ Years - The projects in this phase consist of key linkages that will require significant right-of-way acquisition, engineering, permitting design and funding to complete.

Phase 1- On-Road Segment Improvements and Signing: Years 1 and 2

The projects in this phase represent the segments of the proposed ORNST route that will consist of on-road segments, either on the current route of Pennsylvania Bicycle Route A or via other existing roadways. In most cases, the improvements required for the initial implementation of these segments will consist of trailblazer signing for the route and enhanced safety improvements in the form of signing, roadway striping and markings and crossing improvements, as well as pedestrian/bicyclist signals and warning lighting. When compared to some of the construction intensive projects included in later phases, which are more costly to achieve, most of the projects in Phase 1 can be achieved at a comparatively low cost.

Some of these segments are identified to ultimately have new trail facilities constructed parallel to the existing roadway, specifically along Division Lane within Section 400. With the goal of establishing the trail route and the identity of the Ohio River Trail as a real facility as soon as possible, most of these segments can be initially addressed as signed and/or striped on-road routes. The on-road segments would immediately serve the local community and in most cases would connect to more extensive existing or proposed trail networks such as the Great Ohio Lake Greenway, the Beaver River Trail and Pennsylvania Bicycle Route A.

The segments included in the Phase 1 are:

Section 100 – Ohioville Borough

100.1 – Ohio/Pennsylvania state line to the Lock 57 Community Park via PA Route 68: Improvements along this on-road segment will consist of share-the-road signing that will begin to establish the "point-of-beginning" of the Pennsylvania portion of the ORNST and its connection to Ohio along the Ohio River, via PA Route 68.

100.2 – Smiths Ferry Road/PA Route 68 connection: Share-the-road signing will be used to identify this segment of route which travels from Liberty Avenue at Glasgow Borough, underneath PA Route 68 via an existing underpass and then uphill along Smiths Ferry Road to its intersection with PA Route 68.

100.5 – PA Route 68 from Smiths Ferry Road to the Ohioville/Midland Borough border: Although a long-term dedicated off-road multi-use trail alternative (depicted on the map as segments 100.3 and 100.4 and described in detail under Phase 3 projects) has been identified for the segment as the ultimate preferred route, an interim on-road route is proposed in Phase 1. This segment would consist of intersection crosswalk striping and signing improvements at the intersection of PA Route 68 and Smiths Ferry Road and share-the-road signing along PA Route 68 to the municipal border of Midland Borough.

Section 100 – Glasgow Borough

100.6 – PA Route 68 to Main Street (at Tuscarawas Road intersection) and Liberty Avenue to Smiths Ferry Road: This segment would consist of share-the-road signing on PA Route 68 and intersection crosswalk striping and signing improvements at the intersection of PA Route 68 and Tuscarawas Road/Main Street. Main Street and Liberty Avenue would serve as an on-road route with sharrow markings and trailblazer signing as the route travels through the core residential area of the borough.

Section 200 – Midland Borough

200.3 – Railroad Avenue: Railroad Avenue is a low trafficked service roadway which would function as an on-road trail route from 1st Avenue to 12th Avenue and would consist of sharrow markings and trailblazer signing.

Section 300 – Industry Borough

300.1 – Ohioview Drive: This roadway would receive sharrow markings and trailblazer signing from Ohioview Drive's intersection with PA Route 68 to Patterson Avenue; designating it as a bicycle friendly connection through the residential neighborhood to the commercial core along PA Route 68. Eventually, this would reconnect with PA Route 68 at Engle Road. This would occur once the Phase 2 trail project through the Industry Community Park is completed (described under Phase 2 – Section 300 projects).

Section 500A – Vanport Township

500.1 – Eaton Property Connector: A striped and signed dedicated path would be created utilizing an existing rear lane and parking lot located near the terminus of Division Lane. The trail would then wrap around the industrial complex (outside of the fenced-in area) parallel to Tuscarawas Road to the existing mid-block pedestrian crossing with the school complex. The exact treatment of the striping technique will need to be negotiated with the property owners as part of an access easement. If the parking lot is maintained, the circulation drive could be marked by a sharrow or striping pattern to designate a two-way cycle track through the existing asphalt area.

The sidewalk in front of the Eaton Building will be widened to a minimum of 10′ wide to create a multi-use trail condition and striped as two-way trail circulation condition.

The mid-block crossing of Tuscarawas Road should receive additional safety improvements including more prominent crosswalk striping and signing. Tuscarawas Road from the descent down the hillside to 4th Street should be consider for traffic calming treatments, not only for improved trail safety but also to address the significant amount of pedestrian activity and crossings generated by the school complex.

Section 500A – Beaver Borough

500.2 – Beaver Area Junior/Senior High School to the Beaver Treatment Plant through Beaver Borough via 6th Street, College Avenue and River Road: Extending through a major portion of Beaver Borough, this segment represents an opportunity to formally establish a significant length of ORNST. The majority of the route consists of on-road sharrow markings and signing including along 6th, Market and Water Streets. Sharrow striping and trailblazer signing will occur through the school complex to connect Tuscarawas Road to 6th Street at Buffalo Street. ADA compliant pedestrian and bicycle crossing improvements should be negotiated with Norfolk Southern at the existing at-grade crossing along Water Street.

Section 500A – Bridgewater Borough

500.3 – Beaver Treatment Plant Area connection: An informal trail exists in this location today which is frequently utilized by the public. This 750′ segment is a critical link between the core commercial district of Beaver Borough (that will be served by 500.2) and Bridgewater Borough (served by 500.4). It would also link two of the area's newest riverfront parks, the constructed Bridgewater Riverfront Park at the mouth of the Beaver River and the proposed Beaver Riverfront Park (which has been designed though not yet developed) to the west of the treatment plant in Beaver Borough. This route is targeted for a 10′ wide trail with a gravel surface that will travel along the southern border of the treatment plant alongside the Ohio River traveling underneath the Monaca-Beaver CSX railroad bridge. Additional improvements include strategic vegetation clearing and pruning to improve safety and sight lines.

500.4 – Bridgewater Riverfront Park connector through Market Street and Riverside Drive: This trail segment links the communities of Bridgewater Borough and Beaver Borough via the recently developed Bridgewater Riverfront Park where access can be gained to both the Ohio River and Beaver River. In the riverfront park, the route is designated with sharrow markings and signage and striping and travels through the parks parking lot, across the at-grade railroad crossing and onto Wolfe Lane. As the route navigates through Bridgewater Borough along Market Street to Boundry Lane, Brkich Way and Bridge Street, sharrows and trailblazing signing would be utilized. Bridge Street would receive sharrow markings from Market Street to the western approach of the Rochester-Bridgewater Bridge. A striped and signed mid-block crosswalk would be created at the west end approach to the bridge to align with the existing asphalt trail between Bridge Street and Fulton Street, along the Beaver riverfront.

This segment of Riverside Drive would receive sharrow markings and signing as an on-road route to Popular Street where it connects with the same treatment described in Section 500B, segment 500.10.

Section 500A – Rochester Borough

500.7 – Old Beaver River Road through the Rochester Riverfront Park: Along the east bank of the Beaver River this on-road trail route travels through the park's parking lots and existing access roads then up the Lewis Way ramp into the core of Rochester Borough. As this segment is targeted as an on-road route, it is recommended for sharrow markings and trailblazing signing.

500.9 – Rochester-Monaca Bridge to Pleasant Street: To connect the ORNST with the existing PA Bicycle Route A and with the proposed ORSST in Monaca, bicyclists would either be required to ride with traffic or dismount and walk with their bicycles over the sidewalk along the bridge. Dismount signs will be located at each end of the bridge.

Section 500B – Bridgewater Borough

500.10 – Riverside Drive and the Veterans Memorial Bridge: Though labeled as a 1-2 year on-road segment, 500.10 greatly relies upon the completion of the Veterans Memorial Bridge, slated for completion in the spring of 2014, to facilitate the crossing of the Beaver River. Leading up to this bridge via Riverside Drive the route would be designated by sharrows with signing to PA Route 51. There is a 10′ wide sidewalk that is proposed along the east side of PA Route 51 from the bridge approach to Riverside Drive. Due to the need for a retaining wall to support the sidewalk, a railing is specified on the Beaver River side. A concrete barrier is specified between the roadway shoulder and the sidewalk. In order accommodate a "shy zone" since there is a vertical element on both sides of the sidewalk, the ideal width to allow the sidewalk to legally function as a multi-use path is 12′. Crosswalk striping and signing at the intersection of Riverside Drive and PA Route 51 should be implemented to allow for crossings from the northbound side of the PA Route 51 sidewalk to the southbound side sharrow of Riverside Drive. Due to the acute angle of the intersection, there are exceptionally large turning radii making pedestrian and bicyclist crossings exceptionally long, especially when considering the free-flow of motorist making right turns onto PA Route 51 and those turning left from PA Route 51 southbound, across north bound traffic, onto Riverside Drive.

Phase 2 – Linkages to On-Road Segments: Years 3 through 5

The projects in this phase represent the first phase of major trail segment construction. The determination of which segments to include in this phase is a function of their ability to expand on Phase 1 on-road segments and small "gap" construction segments.

The segments included in Phase 2 are:

Section 200 – Midland Borough

200.1 – Midland Treatment Plant Road Upgrade and Intersection Improvement and: This existing access road will be upgraded as a paved roadway, designated as a formal public roadway with an intersection with PA Route 68 and designated as a sharrow and signed. This improvement could be done as an independent construction project or in conjunction with segment 200.2.

200.2 – Midland Treatment Plant to Railroad Avenue paralleling the Norfolk Southern railroad plant access siding: This segment is proposed to consist of a 10′ wide gravel path. The improvements in this area will require grading, retaining walls and drainage improvements to create a 'bench' for the trail. Right-of-way fencing is proposed on top of the retaining wall along the railroad side of the trail.

Section 300 – Industry Borough

300.2 – Engle Road to Industry Borough Park to Ohioville Drive: Consisting of a combination of share-the-road and dedicated off-road 10′ wide gravel trail, this trail segment would connect PA Route 68 to the Industry Community Park and Ohioview Drive. The intersection of Engle Road and PA Route 68 would receive crosswalk striping and signing to provide increased pedestrian safety for connecting the two sides of the development core, across PA Route 68. Engle Road will receive share-the-road signing to the entrance to the Borough Park. A new 10′ wide dedicated multi-use trail will be constructed along the southern perimeter to the park. A small connecting trail, also consisting of a 10′ wide dedicated multi-use path, would cross into the Ohio View Public Golf Course. This connection would need to be negotiated, ideally as an access easement with the owners of the golf course property. It would need to be routed along the southern perimeter to ensure that it is not in conflict with the layout of the fairways.

Section 400 – Vanport Township

400.3 – Division Lane side-path: This trail segment will consist of a 10′ wide multi-use gravel trail that would be located adjacent to Division Lane, starting at the PA Route 68 intersection. At a point near Mudlick Hollow Road, the trail would turn and travel via the former railroad right-of-way that now functions as a utility corridor. The 10′ wide gravel multi-use trail would continue east, via the utility right-of-way, until Old Division Lane and the Vanport Ballfield.

400.4 – Division Lane utility easement: This trail segment is a continuation of segment 400.3 and would be 10′ wide multi-use gravel trail on the same existing utility line that parallels Division Lane. The route travels past the entrance to Vanport Ballfield #1, and only splits from the easement just before Spring Lane so that it can align with 400.5 on the other side.

400.5 – Former Curtiss-Wright plant parking lot paralleling Division Lane: The improvements to this segment would consist of repaving the existing asphalt parking lot which, based on field observations, is in poor condition. The 10′ wide paved asphalt route through the parking lot would consist of a marked sharrow or striping and could be used to designate a two-way cycle track through the existing asphalt area. This area was identified as a potential location for a future indoor recreation complex.

Section 500A – Rochester Township

500.5 – Rochester Riverfront Park extension to the Veterans Bridge: This trail segment essentially completes a critical gap that exists between the extensive riverfront park located at the confluence of the Beaver and Ohio Rivers and the new Veterans Memorial Bridge crossing of the Beaver River. It will consist of a 10′ wide gravel path that will follow an existing utility easement through Rochester Township between the Beaver River and the Norfolk Southern railroad. This access would require an easement or outright right-of-way acquisition from the railroad, not the utility company. In addition, a pedestrian/bicycle bridge would be required extending from the existing parking lot at the north end of the Water Street access roadway, over McKinley Run. This bridge is discussed further as 500.6 under the Phase 3 descriptions. Coordinating with the utility company may aid in the negotiations with the railroad if the bridge span can be structurally sufficient to support a truck to pass over it, allowing maintenance access to the underground utility line. The 10′ wide multi-use trail would be located on top of the utility along the river's edge and continue north to trail segment 500.11.

500.8 – Pleasant Street sidewalk widening: Used to connect 500.7 and 500.9 (which are both Phase 1 segments) 500.8 is labeled a Phase 2 segment because it would require expanding an existing sidewalk. Starting at a point approximately 25′ east of the intersection with the Monaca-Rochester Bridge, the existing 6′ wide sidewalk would be widened to 10′ wide to accommodate a multi-use trail to New York Avenue. Pleasant Avenue travels parallel to the PA Route 51 PennDOT right-of-way so public right-of-way exists to allow for the expansion of the sidewalk. The right-of-way fencing for the limited access road would need to be relocated as part of the project. Since it is located at a visually prominent location in the Borough, the chain link fencing should be replaced with black vinyl coated or other decorative fencing, along with the planting of canopy trees, etc. to create a positive gateway experience into the Borough.

Section 500B – Rochester Township

500.11 – Veterans Memorial Bridge and the North Old Beaver River Road extension: This trail segment continues segment 500.5. The 10′ wide multi-use trail would be located atop the utility easement along the river's edge. At a point south of the Veterans Memorial Bridge, a retaining wall will be required to allow the trail to rise to the elevation of the walkway which is to be located on the south side of the new bridge. As with segment 500.5, this segment would require an easement or outright right-of-way acquisition from Norfolk Southern.

Phase 3 – Strategic Off-Road Routes and Infill Linkages: Years 5+

The projects in this phase consist of key linkages that will require significant right-of-way acquisition, engineering and permitting design and funding to complete. These segments represent the most significant construction projects in the ORNST corridor and will likely be the last trail segments to be constructed. They mostly parallel on-road segments, primarily along PA Route 68, and will either create opportunities to access major riverfront parcels or parcels well suited for broad vistas of the Ohio River and/or also be part of areas suited for additional recreational amenities or open space preservation.

The segments included in Phase 3 are:

Section 100 – Ohioville Borough

100.3 – Ohio River Vista Park located along the historic trolley right-of-way: This trolley shelf that once accommodated the historic trolley line parallels the north side of PA Route 68 opposite of the Ohio River. This segment will consist of a 10′ wide gravel multi-use trail separated from PA Route 68 that is approximately 1.3 miles in length. Its position, elevated well above the roadway, will provide users with vistas out to the Ohio River and George Island National Wildlife Refuge. There are flat terraces that exist along this segment to also accommodate small-scale recreational facilities ranging from ball courts to playgrounds and pavilions. The key to the implementation of this trail segment is the assemblage of access easements along the PA Route 68 frontage/historical trolley right-of-way to allow the trail to proceed. There are multiple small, undeveloped parcels which could be pursued for fee-simple acquisition, whereas the larger parcels could be a minor-subdivision or access easement. At least one and possibly two trailheads should be considered for this segment. Either at the location of the former fueling station site and/or at the area where the recent remediation occurred. Creating a trailhead at the former fueling stations site, approximately where the historic trolley right-of-way drops to meet the elevation of PA Route 68, would allow for a logical terminus of the Vista Park trail segment until segment 100.4 could be constructed. Ideally, a mid-block trail crossing would occur in this location across PA Route 68 to connect to both directions of share-the-road travel on PA Route 68; however, the ability to get this approved by PennDOT is unclear. It should include prominent crosswalk striping and signing.

100.4 – Ohio River Vista Park Trail segment to Smiths Ferry Road connector: This trail segment represents a relatively short, yet complex segment to achieve and as a result is anticipated to be a very long-term project. It will extend the proposed trail segment described in segment 100.3 as a dedicated 10′ wide multi-use trail to a connection with the Smiths Ferry Road underpass underneath PA Route 68. In order to achieve this connection, a retaining wall, or a series of walls, will be necessary to either create a widened shoulder at the same elevation as the existing PA Route 68 or to create a "bench" in the side of the slope, to accommodate a trail located slightly above PA Route 68. The bridge located on PA Route 68 which spans over Smiths Ferry Road would also require widening or a separate pedestrian/bicycle span would be required on the north side of the bridge. The other alternative to creating a span is to acquire an easement through the adjacent private property (which includes a dwelling) to create a direct connection from the elevated trail down to Smiths Ferry Road, bypassing the bridge span issue on PA Route 68.

Section 200 – Midland Borough

200.4 – Dedicated multi-use side path parallel to the proposed Steel Way, truck route connector: The U.S. EPA Ohio River Area-Wide Brownfields Master Plan proposes to create a new truck route connector behind the Kinder-Morgan complex, between 12th Street and the municipal boundary with Industry Borough. This new roadway connection will re-direct a significant amount of truck traffic originating and travelling eastbound to access the major industrial plants and future redeveloped industrial parcels, without having to utilize PA Route 68 through Midland's downtown commercial district. The roadway is proposed to be a model "green" roadway with integrated passive stormwater treatment and management as well as a 10′ wide asphalt side path. Ideally, this trail segment could be constructed as part of the roadway construction project or as a separate effort after the roadway is constructed, as long as the design and engineering of the roadway is done in a manner that accommodates the location of the proposed trail.

Section 300 – Industry Borough

300.3 – Ohio View Peninsula open space preservation and access: Due to the identified ecological significance of this land, the recommendation is to pursue a regional effort to permanently protect this area. Should that effort be successful, a long-term goal should include the ability for the public to gain some access to the site, at least in the upland areas. The private owner of this property has expressed a desire to pursue various development strategies for portions of these parcels. As part of any land development approval process, all development should be setback from the river at least 75′ to 100′ from the river's edge and public access should be granted within the public setback area. This riverfront trail access could connect to trail segment 400.1 to create a combined riverfront trail and public access area that is approximately 1.4 miles in length (300.3, 400.1 and 400.2 combined). A trailhead, which would be accessed via the underpass created by the PA Route 69 bridge span over the Norfolk Southern railroad, would allow convenient access to both directions of PA Route 68.

Section 400 – Industry Borough

400.1 – Ohio View Peninsula to Four Mile Run: This proposed trail segment could be linked to segment 300.3, however, it has value independently, especially when linked to segment 400.2. The trail segment would consist of a 10′ wide gravel multi-use trail along several undeveloped riverfront parcels lining the Ohio River. The creation of this trail segment would require access easements or fee-simple acquisition of trail right-of-ways or the entire parcels for open space preservation. The trail segment's eastern terminus would be at the PA Route 68 culvert over Four Mile Run. Further engineering studies would be required to determine if the culvert could be extended slightly to allow for a full two-directional trail over Four Mile Run or if a separate pedestrian/bicycle span would be required. A trailhead would be required along the western end of this trail segment, if trail segment 300.3 is not completed prior.

400.2 – Four Mile Run to Lockhouse 6 Restaurant: This area is proposed to be significantly reconfigured to allow for a trail connection in the form of a riverfront promenade. The concept is to build upon the attraction of the lockhouse as a commercial/entertainment venue while creating a regional destination location for people to gain public access to the Ohio River. The proposed project would include installing a bulkhead along the river's edge to accommodate a multi-use trail and promenade with architectural lighting, benches and possibly piers with overlook pavilions and places to launch kayaks, etc. In addition, a rights-in only vehicular access would be created east of Four Mile Run which would provide access to a long parking area with diagonal parking. This parking would be divided from PA Route 68 by a physical barrier and would not only provide parking for the promenade but also provide additional parking for the restaurant, which is lacking in parking, to support its economic viability.

400.6 – PA Route 68/Sebring Road connection to Division Lane: This trail segment would consist of a dedicated 10′ wide gravel multi-use trail extending along a utility corridor east of Sebring Road to Division Lane. This trail segment would link to trail segment 400.3 through Vanport Township. A mid-block crossing would be required across Sebring Road which would include crosswalk striping and signing. At this point, there is no identified eastern trail connection beyond this segment due to existing industrial activity occurring between this segment and Four Mile Run.

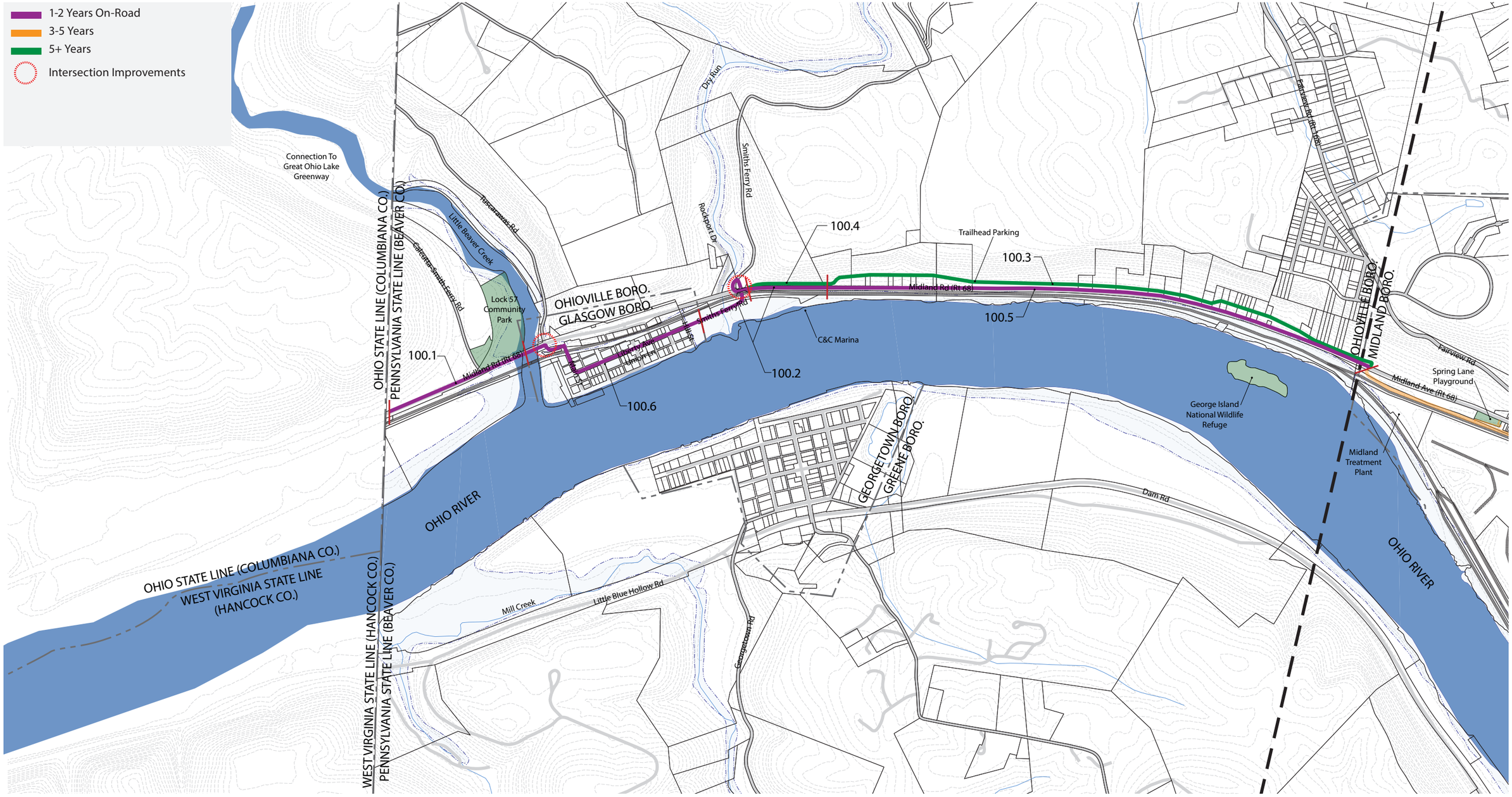
Section 500A – Rochester Township

500.6 – McKinley Run Crossing: A span crossing McKinley run will link 500.5 (a Phase 2 project) with 500.7 (a Phase 1 project) and should occur in conjunction with the construction of other attached segments. This pedestrian/bicycle bridge would extend from the existing parking lot at the north end of the Water Street access roadway, over McKinley Run. As mentioned previously, this access would require an easement or outright right-of-way acquisition from the railroad, not the utility company. Coordinating with the utility company may aid in negotiations with the railroad if the bridge span can be structurally sufficient to support a truck to pass over it, allowing maintenance access to the underground utility line, something that is currently limited.

Glasgow Borough – Ohioville Borough - 100.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Intersection Improvements



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SECTION 100

OHIOVILLE BOROUGH (1-2 Years On-Road)

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
100.1	SIGNING / STRIPING	1	L.S.	$860.00	$ 860.00
100.2	SIGNING / STRIPING	1	L.S.	$840.00	$ 840.00
100.2	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	1	L.S.	$1,300.00	$ 1,300.00
100.5	SIGNING / STRIPING	1	L.S.	$2,760.00	$ 2,760.00
		SUBTOTAL			$ 5,760.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 288.00
		MATERIAL SUBTOTAL			**$ 6,048.00**
ENGINEERING				**20%**	**$ 1,209.60**
INSPECTION				**15%**	**$ 907.20**
CONSTRUCTION CONTINGENCY				**20%**	**$ 1,209.60**
				OHIOVILLE BOROUGH TOTAL COST	**$ 9,374.40**

OHIOVILLE BOROUGH (5+ Years)

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
100.3	GRAVEL	7,450	L.F.	$18.00	$ 134,100.00
100.3	TRAILHEAD PARKING LOT: GRAVEL	1	L.S.	$15,000.00	$ 15,000.00
100.4	RETAINING WALL CONSTRUCTION	1,140	L.F.	$450.00	$ 513,000.00
		SUBTOTAL			$ 662,100.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 33,105.00
		MATERIAL SUBTOTAL			**$ 695,205.00**
ENGINEERING				**20%**	**$ 139,041.00**
INSPECTION				**15%**	**$ 104,280.75**
CONSTRUCTION CONTINGENCY				**20%**	**$ 139,041.00**
				OHIOVILLE BOROUGH TOTAL COST	**$ 1,077,567.75**

GLASGOW BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
100.6	INTERSECTION IMPROVEMENTS	1	L.S.	$1,300.00	$ 1,300.00
100.6	SIGNING / STRIPING	1	L.S.	$1,200.00	$ 1,200.00
		SUBTOTAL			$ 2,500.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 125.00
		MATERIAL SUBTOTAL			**$ 2,625.00**
ENGINEERING				**20%**	**$ 525.00**
INSPECTION				**15%**	**$ 393.75**
CONSTRUCTION CONTINGENCY				**20%**	**$ 525.00**
				GLASGOW BOROUGH TOTAL COST	**$ 4,068.75**

SECTION 100 **TOTAL COST $ 1,091,010.90**

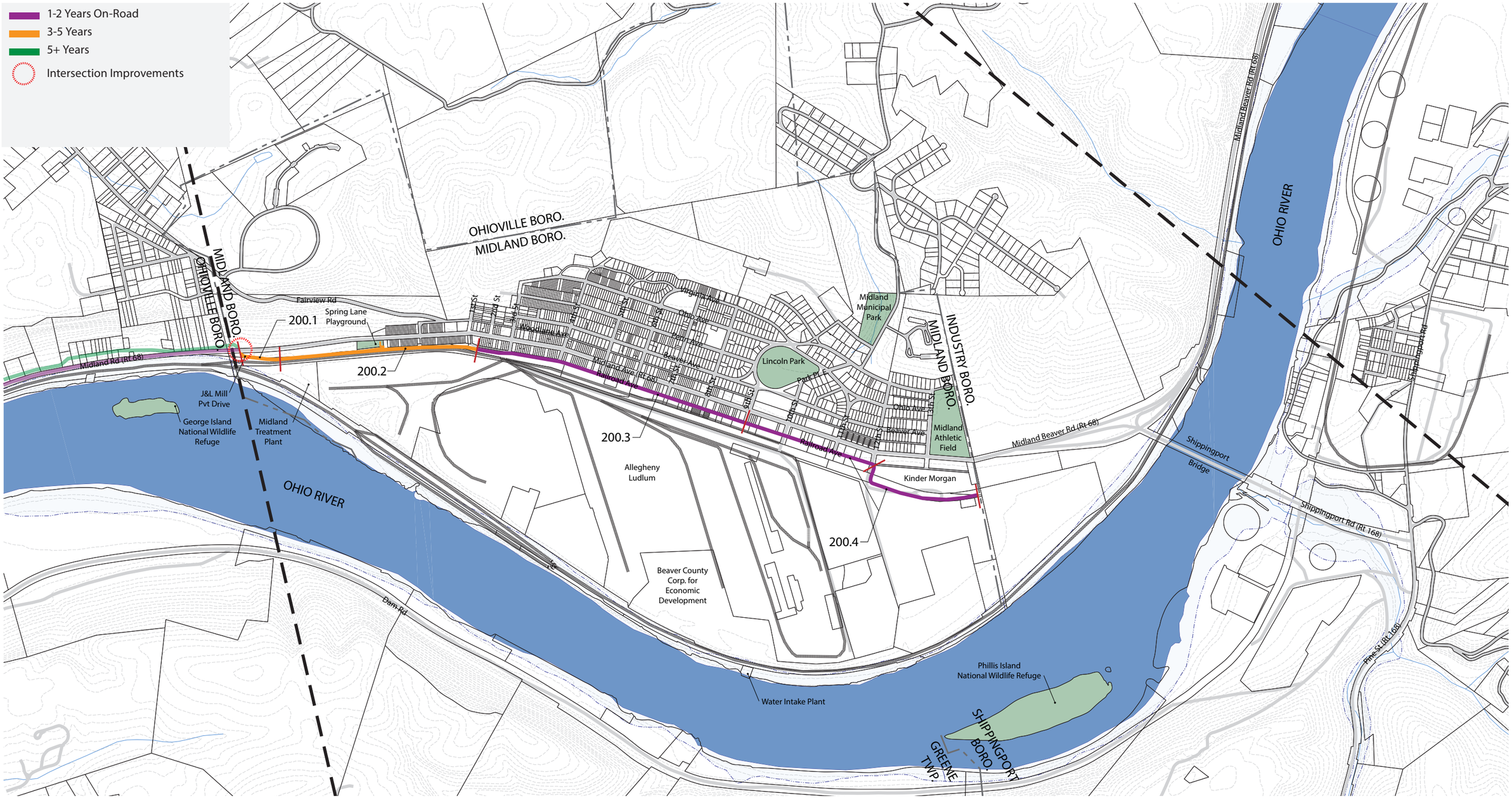
NOTE: Does not include easement or right-of-way acquisition costs.

The Ohioville Borough Total Cost is separated by 1-2 Years On-Road ($9,374.40) and 5+ Years ($1,077,567.75). These are then combined for a total Section 100 cost of $1,091,010.90.

Midland Borough – 200.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Intersection Improvements



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SECTION 200

MIDLAND BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST		MATERIALS MATERIAL TOTAL COST
200.1	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	1	L.S.	$1,300.00	$	1,300.00
200.1	SIGNING / STRIPING	1	L.S.	$200.00	$	200.00
200.2	ASPHALT *1	2,670	L.F.	$45.00	$	120,150.00
200.2	FENCING	2,670	L.F.	$12.00	$	32,040.00
200.2	RETAINING WALL CONSTRUCTION	2,002	L.F.	$175.00	$	350,350.00
200.3	SIGNING / STRIPING	1	L.S.	$1,240.00	$	1,240.00
200.4	SIGNING / STRIPING *2	1	L.S.	$700.00	$	700.00
200.4	ASPHALT SIDE PATH	1,650	L.F.	$45.00	$	74,250.00
				SUBTOTAL	$	580,230.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	29,011.50
				MATERIAL SUBTOTAL	**$**	**609,241.50**
ENGINEERING				**20%**	**$**	**121,848.30**
INSPECTION				**15%**	**$**	**91,386.23**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**121,848.30**
				MIDLAND BOROUGH TOTAL COST	**$**	**944,324.33**

SECTION 200	**TOTAL COST**	**$**	**944,324.33**

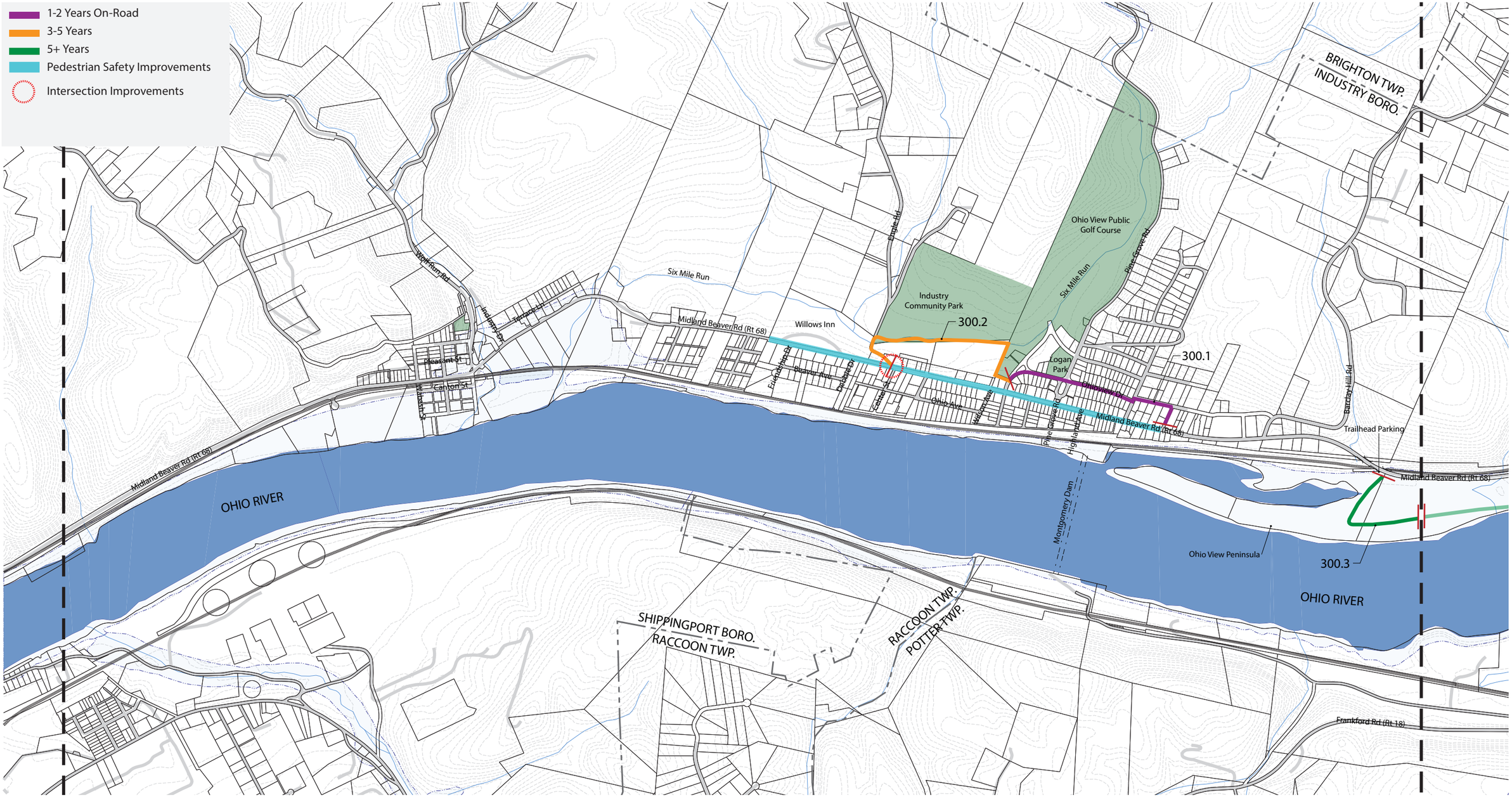
NOTE: Total Cost does not include easement or right-of-way acquisition costs.

1. Does not include Feeder Route connection to Spring Lane Playground.
2. To be constructed jointly with proposed road behind Kinder Morgan site.

Industry Borough - 300.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Pedestrian Safety Improvements
- Intersection Improvements



SCALE: Not to Scale NORTH

SECTION 300

INDUSTRY BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST		MATERIALS MATERIAL TOTAL COST
300.1	SIGNING / STRIPING	1	L.S.	$1,000.00	$	1,000.00
300.2	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	1	L.S.	$1,300.00	$	1,300.00
300.2	SIGNING / STRIPING	1	L.S.	$300.00	$	300.00
300.2	GRAVEL	2,460	L.F.	$18.00	$	44,280.00
300.3	GRAVEL	1,800	L.F.	$18.00	$	32,400.00
300.3	TRAILHEAD PARKING LOT & ACCESS DRIVE (GRAVEL)	1	L.S.	$45,000.00	$	45,000.00
				SUBTOTAL	$	124,280.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	6,214.00
				MATERIAL SUBTOTAL	**$**	**130,494.00**
ENGINEERING				**20%**	**$**	**26,098.80**
INSPECTION				**15%**	**$**	**19,574.10**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**26,098.80**
				INDUSTRY BOROUGH TOTAL COST	**$**	**202,265.70**

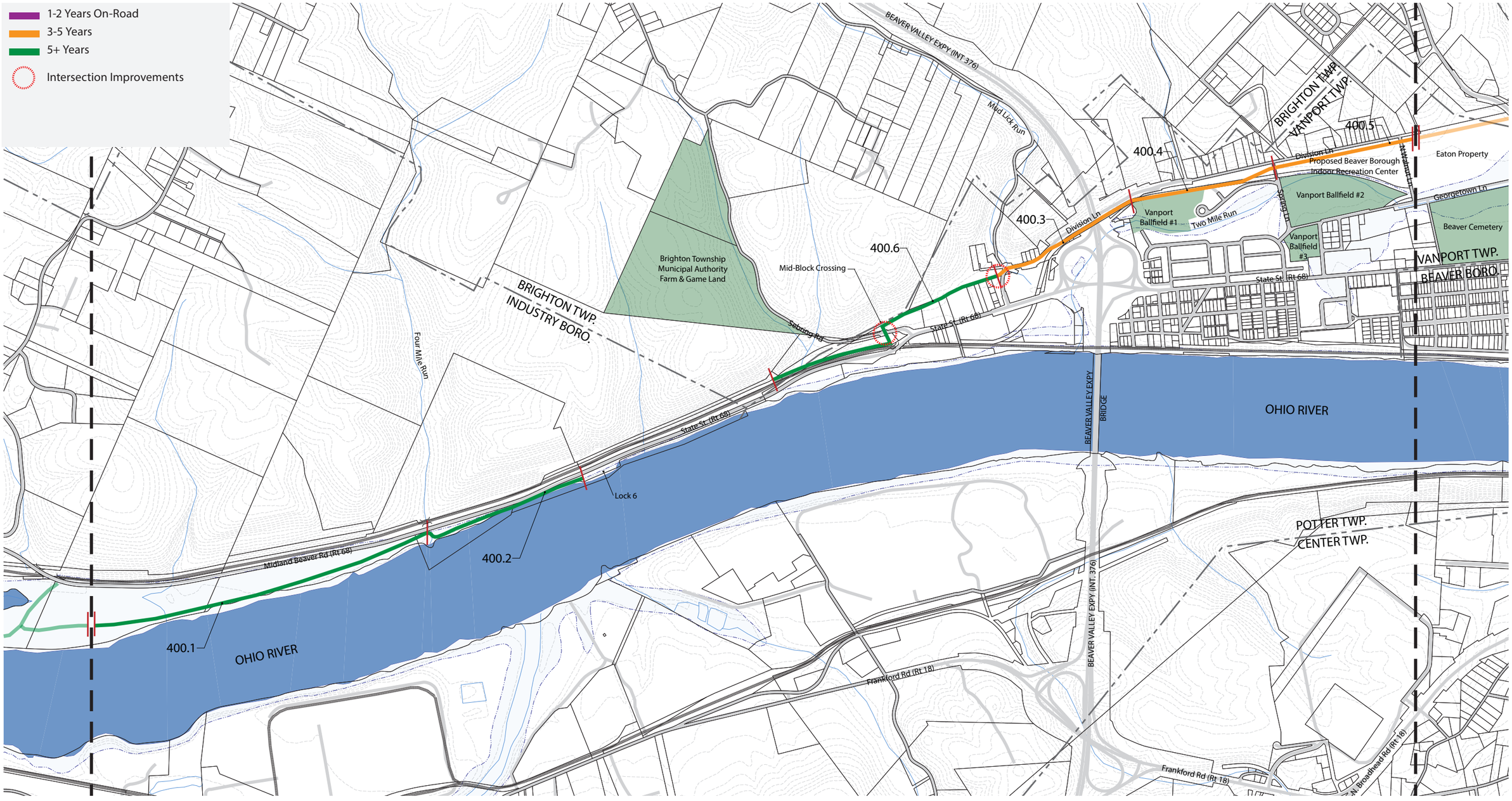
SECTION 300	**TOTAL COST**	**$**	**202,265.70**

NOTE: Total Cost does not include easement or right-of-way acquisition costs.

Industry Borough – Brighton Township – Vanport Township – 400.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Intersection Improvements



SCALE: Not to Scale NORTH

Industry Borough – Brighton Township – Vanport Township – 400.PC

SECTION 400

INDUSTRY BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
400.1	GRAVEL	4,600	L.F.	$18.00	$ 82,800.00
400.2	ASPHALT *1	2,000	L.F.	$45.00	$ 90,000.00
				SUBTOTAL	$ 172,800.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 8,640.00
				MATERIAL SUBTOTAL	**$ 181,440.00**
ENGINEERING				**20%**	**$ 36,288.00**
INSPECTION				**15%**	**$ 27,216.00**
CONSTRUCTION CONTINGENCY				**20%**	**$ 36,288.00**
				INDUSTRY BOROUGH TOTAL COST	**$ 281,232.00**

VANPORT TOWNSHIP

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
400.3	GRAVEL	1,100	L.F.	$18.00	$ 19,800.00
400.4	GRAVEL	2,000	L.F.	$18.00	$ 36,000.00
400.5	ASPHALT	2,000	L.F.	$45.00	$ 90,000.00
400.6	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	2	L.S.	$1,300.00	$ 2,600.00
400.6	GRAVEL	3,650	L.F.	$18.00	$ 65,700.00
				SUBTOTAL	$ 214,100.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 10,705.00
				MATERIAL SUBTOTAL	**$ 224,805.00**
ENGINEERING				**20%**	**$ 44,961.00**
INSPECTION				**15%**	**$ 33,720.75**
CONSTRUCTION CONTINGENCY				**20%**	**$ 44,961.00**
				VANPORT TOWNSHIP	**$ 348,447.75**

SECTION 400	**TOTAL COST**	**$ 629,679.75**

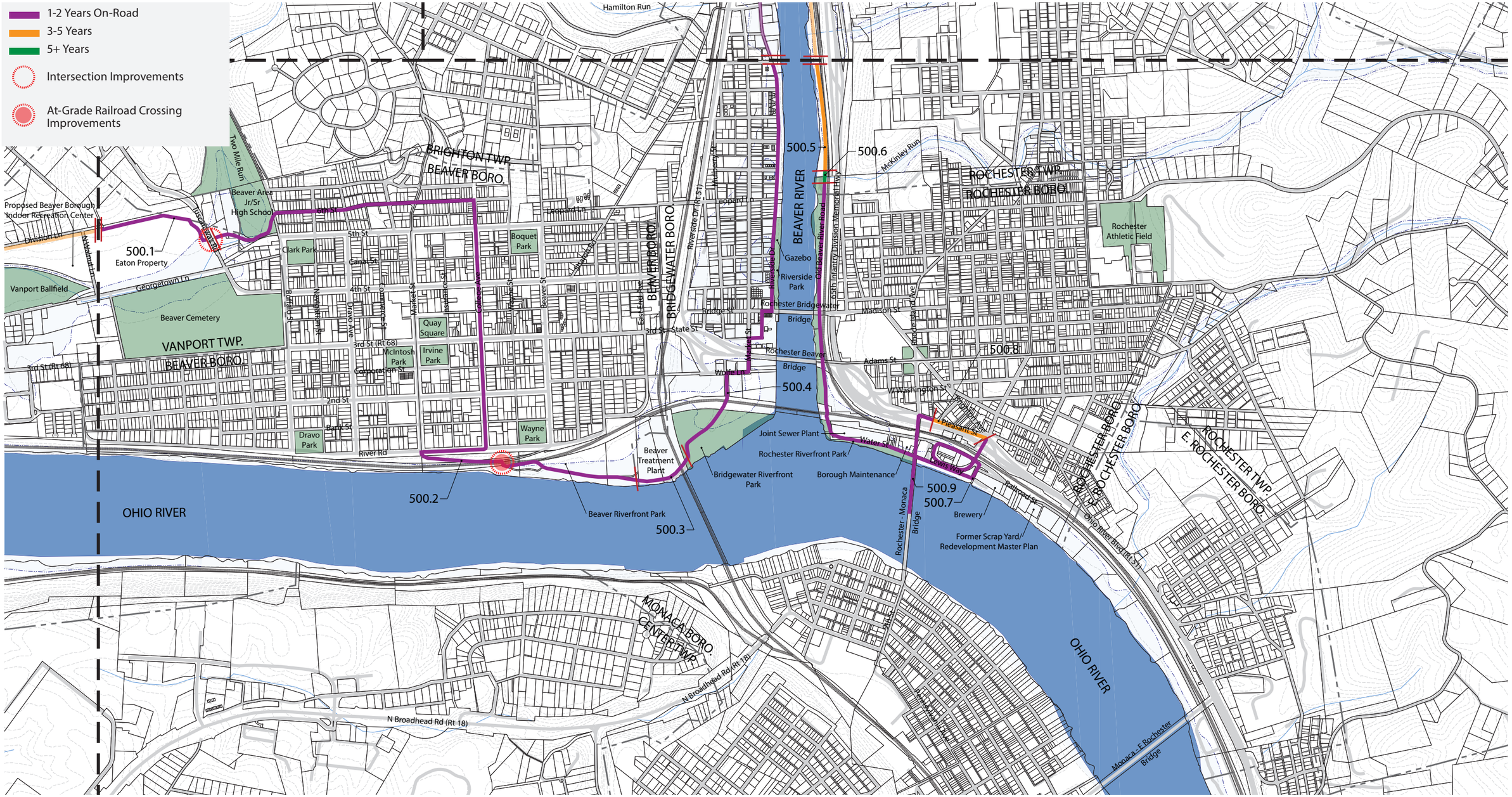
NOTE: Total Cost does not include easement or right-of-way acquisition costs.

1. Does not include potential retaining wall and parking improvements associated with a Lockhouse 6 redevelopment plan.

Vanport Township - Beaver Borough – Bridgewater Borough – Rochester Township – Rochester Borough – 500A.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Intersection Improvements
- At-Grade Railroad Crossing Improvements



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Vanport Township - Beaver Borough – Bridgewater Borough – Rochester Township – Rochester Borough – 500A.PC

SECTION 500A

VANPORT TOWNSHIP

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	UNIT MEAS.	MATERIALS PER UNIT COST		MATERIAL TOTAL COST
500.1	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	1	L.S.	$1,300.00	$	1,300.00
500.1	ASPHALT	1,600	L.F.	$45.00	$	72,000.00
				SUBTOTAL	$	73,300.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	3,665.00
				MATERIAL SUBTOTAL	**$**	**76,965.00**
ENGINEERING				**20%**	**$**	**15,393.00**
INSPECTION				**15%**	**$**	**11,544.75**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**15,393.00**
				VANPORT TOWNSHIP TOTAL COST	**$**	**119,295.75**

BEAVER BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	UNIT MEAS.	MATERIALS PER UNIT COST		MATERIAL TOTAL COST
500.1	INTERSECTION IMPROVEMENTS: SIGNING / STRIPING	1	L.S.	$1,300.00	$	1,300.00
500.2	SIGNING / STRIPING	1	L.S.	$3,400.00	$	3,400.00
500.2	AT-GRADE CROSSING IMPROVEMENTS	1	L.S.	$17,500.00	$	17,500.00
		SUBTOTAL			$	22,200.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	1,110.00
				MATERIAL SUBTOTAL	**$**	**23,310.00**
ENGINEERING				**20%**	**$**	**4,662.00**
INSPECTION				**15%**	**$**	**3,496.50**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**4,662.00**
				BEAVER BOROUGH TOTAL COST	**$**	**36,130.50**

BRIDGEWATER BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	UNIT MEAS.	MATERIALS PER UNIT COST		MATERIAL TOTAL COST
500.3	GRAVEL	750	L.F.	$18.00	$	13,500.00
500.4	SIGNING / STRIPING	1	L.S.	$2,400.00	$	2,400.00
		SUBTOTAL			$	15,900.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	795.00
				MATERIAL SUBTOTAL	**$**	**16,695.00**
ENGINEERING				**20%**	**$**	**3,339.00**
INSPECTION				**15%**	**$**	**2,504.25**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**3,339.00**
				BRIDGEWATER BOROUGH TOTAL COST	**$**	**25,877.25**

NOTE: Total Cost does not include easement or right-of-way acquisition costs.

SECTION 500A

ROCHESTER TOWNSHIP

SEGMENT #	*DESCRIPTION*	*QUANTITY NO. UNITS*	*UNIT MEAS.*	*MATERIALS PER UNIT COST*		*MATERIAL TOTAL COST*
500.5	GRAVEL	1,650	L.F.	$18.00	$	29,700.00
500.6	McKINLEY RUN BRIDGE	1	L.S.	$125,000.00	$	450,000.00
		SUBTOTAL			$	479,700.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	23,985.00
				MATERIAL SUBTOTAL	**$**	**503,685.00**
ENGINEERING				**20%**	**$**	**100,737.00**
INSPECTION				**15%**	**$**	**75,552.75**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**100,737.00**
				ROCHESTER TOWNSHIP TOTAL COST	**$**	**780,711.75**

ROCHESTER BOROUGH

SEGMENT #	*DESCRIPTION*	*QUANTITY NO. UNITS*	*UNIT MEAS.*	*MATERIALS PER UNIT COST*		*MATERIAL TOTAL COST*
500.7	SIGNING / STRIPING	1	L.S.	$2,900.00	$	2,900.00
500.8	SIDEWALK WIDENING FOR SIDEPATH	3,260	S.Q.F.T	$15.00	$	48,900.00
500.9	SIGNING	1	L.S.	$820.00	$	820.00
		SUBTOTAL			$	52,620.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$	2,631.00
				MATERIAL SUBTOTAL	**$**	**55,251.00**
ENGINEERING				**20%**	**$**	**11,050.20**
INSPECTION				**15%**	**$**	**8,287.65**
CONSTRUCTION CONTINGENCY				**20%**	**$**	**11,050.20**
				ROCHESTER BOROUGH TOTAL COST	**$**	**85,639.05**

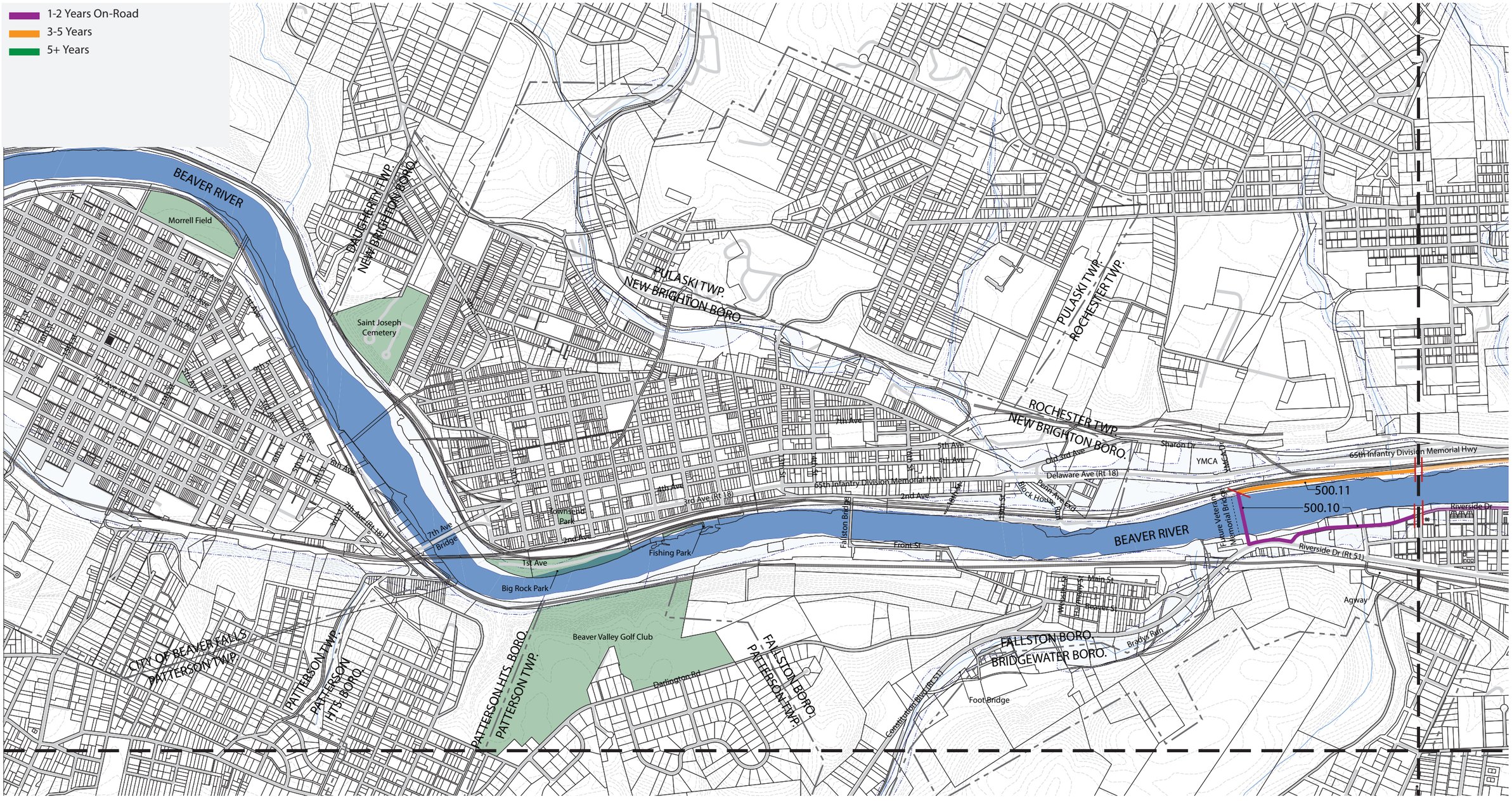
SECTION 500A	**TOTAL COST**	**$**	**1,047,654.30**

NOTE: Total Cost does not include easement or right-of-way acquisition costs.

PROJECT PHASING

Rochester Township – Fallston Borough – New Brighton Borough – Bridgewater Borough – City of Beaver Falls – 500B.PC

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years



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SECTION 500B

BRIDGEWATER BOROUGH

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
500.10	SIGNING / STRIPING	1	L.S.	$1,140.00	$ 1,140.00
				SUBTOTAL	$ 1,140.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 57.00
				MATERIAL SUBTOTAL	**$ 1,197.00**
ENGINEERING				**20%**	**$ 239.40**
INSPECTION				**15%**	**$ 179.55**
CONSTRUCTION CONTINGENCY				**20%**	**$ 239.40**
				BRIDGEWATER BOROUGH TOTAL COST	**$ 1,855.35**

ROCHESTER TOWNSHIP

SEGMENT #	DESCRIPTION	QUANTITY NO. UNITS	QUANTITY UNIT MEAS.	MATERIALS PER UNIT COST	MATERIALS MATERIAL TOTAL COST
500.11	ASPHALT	2,400	L.F.	$45.00	$ 108,000.00
500.11	RETAINING WALL / FILL*1	600	L.F.	$450.00	$ 270,000.00
				SUBTOTAL	$ 378,000.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	$ 18,900.00
				MATERIAL SUBTOTAL	**$ 396,900.00**
ENGINEERING				**20%**	**$ 79,380.00**
INSPECTION				**15%**	**$ 59,535.00**
CONSTRUCTION CONTINGENCY				**20%**	**$ 79,380.00**
				ROCHESTER TOWNSHIP TOTAL COST	**$ 615,195.00**

SECTION 500B	**TOTAL COST**	**$ 617,050.35**

NOTE: Total Cost does not include easement or right-of-way acquisition costs.

1. At Veterans Bridge approach.

SECTION 100

OHIOVILLE BOROUGH	SUBTOTAL	$	1,086,942.15
GLASGOW BOROUGH	SUBTOTAL	$	4,068.75
	SECTION 100 TOTAL COST	**$**	**1,091,010.90**

SECTION 200

MIDLAND BOROUGH	SUBTOTAL	$	944,324.33
	SECTION 200 TOTAL COST	**$**	**944,324.33**

SECTION 300

INDUSTRY BOROUGH	SUBTOTAL	$	202,265.70
	SECTION 300 TOTAL COST	**$**	**202,265.70**

SECTION 400

INDUSTRY BOROUGH	SUBTOTAL	$	281,232.00
VANPORT TOWNSHIP	SUBTOTAL	$	348,447.75
	SECTION 400 TOTAL COST	**$**	**629,679.75**

SECTION 500A

VANPORT TOWNSHIP	SUBTOTAL	$	119,295.75
BEAVER BOROUGH	SUBTOTAL	$	36,130.50
BRIDGEWATER BOROUGH	SUBTOTAL	$	25,877.25
ROCHESTER TOWNSHIP	SUBTOTAL	$	780,711.75
ROCHESTER BOROUGH	SUBTOTAL	$	85,639.05
	SECTION 500A TOTAL COST	**$**	**1,047,654.30**

SECTION 500B

BRIDGEWATER BOROUGH	SUBTOTAL	$	1,855.35
ROCHESTER TOWNSHIP	SUBTOTAL	$	615,195.00
	SECTION 500B TOTAL COST	**$**	**617,050.35**

OHIO RIVER TRAIL PREFERRED ROUTE	**TOTAL COST**	**$**	**5,622,996.23**

Financing and Funding

The following narrative offers a comprehensive description of funding sources that can be used to support the acquisition of land and the development of trail facilities for the Ohio River Trail. The sources are organized and defined by local, state and federal resources and agencies.

Local Sources

The Counties have in place a number of local resources required to assist in the financing of the trail program. It is important that a local, dedicated source of revenue be established and utilized to attract state and federal funding. Listed below are other possible sources of local revenue for the trails program.

Taxation Options

These are presented as options with the understanding that their utilization in this current economic climate is not likely.

Excise Taxes – See below for hotel tax

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Earned Income Tax

The earned income tax is a kind of income tax levied only on residents' earned income (such as wages, salaries, or other reimbursements for work). Unearned income, such as interest, dividends, pensions, and social security are exempt from the tax. Unlike the federal or state income taxes, the earned income tax allows no exemptions or standard deductions. A jurisdiction can collect earned income tax from non-residents who work in the jurisdiction but do not pay an earned income tax in their "home" jurisdiction. The maximum levy is 1 percent of earned income. If both the municipality and school district levy the earned income tax, both must share the 1 percent.

Act 153 of 1996

Pennsylvania municipalities have added a percentage of the Earned Income Tax for open space purposes. The municipalities generally put the question of adding to the Earned income tax, generally one-quarter to one-half of one percent, on a voter referendum. Generally these have been passing in Pennsylvania. Amending the Pennsylvania Conservation and Land Development Act, Act 153 provides certain types of local government units with a valuable financing tool as many municipalities seek the means to preserve open space in their communities.

The Act allows cities, boroughs, towns and townships, as well as certain cooperative governmental units, to impose one of two taxes in addition to the taxing limitations set forth elsewhere to finance certain types of open space initiatives. Counties and county authorities are specifically prohibited from invoking either of the local taxing options. By ordinance, qualifying local government units may impose either (a) a tax on real property not exceeding the millage authorized by voter referendum, in addition to the statutory rate limits on real estate taxes in the relevant municipal code, or (b) an earned income tax on residents of that local government unit not exceeding the rate authorized by referendum, in addition to the earned income tax rate limit found in the Local Tax Enabling Act.

The Act requires that revenue from either of the two authorized tax levies be used to retire indebtedness incurred in purchasing "interests in real property" or in making additional acquisitions of real property to secure an "open space benefit" under either the Conservation and Land Development Act or the Agricultural Area Security Law. The terms "interest in real property" and "open space benefits" are defined broadly in the Act and allow municipalities significant flexibility to achieve their land preservation goals in the manner best suited to their specific needs.

In addition to the local taxing options, the Act authorizes school district boards to exempt by resolution certain real property from further millage increases imposed on real property. Those types of real property that may be exempted include those whose open space property interests are acquired by a local government unit pursuant to the Conservation and Land Development Act, real property that is subject to an easement acquired under the Agricultural Area Security Law and real property whose transferable development rights have been transferred and retired by a local government unit without the development potential having occurred on other lands. The tax exemptions granted under the Act are not to be considered by the State Tax Equalization Board in deriving the market value of school district real property resulting in a reduction in the subsidy to that school district or an increase in the subsidy to any other school district.

Realty Transfer Tax

The realty transfer tax is a tax on the sale of real estate. The maximum levy is 1 percent of the sales price. If both the municipality and school district levy this tax, both must share the 1 percent.

Hotel Tax

The hotel occupancy tax, imposed at the same rate as sales and use tax, applies to room rental charges for periods of less than 30 days by the same person. The purpose of the hotel tax is to increase tourism and economic development in Pennsylvania. The tax supports advertising, development of publications related to tourism, capital and program projects to attract tourists, and in some counties open space conservation, trails and recreation facility improvements.

Bonds/Loans

Bonds have been a very popular way for communities across the country to finance their open space, parks and trails projects. A number of bond options are listed below. Since bonds rely on the support of the voting population, an education and awareness program should be implemented prior to any vote.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payments). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

General Obligation Bonds

Local governments generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond.

Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public enterprise's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of open space acquisition and make funds available for immediate purchases. Voter approval is required.

Special Assessment Bonds

Special assessment bonds are secured by a lien on property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities can execute installment/lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

Fees and Service Charges

Mandatory dedication of Parkland and Trails

The Mandatory Dedication of parkland is traditionally applied to development in suburban areas. However, it can also be applied to redevelopment projects. For example the redevelopment of a brownfield site in Plymouth Township, Montgomery County into the Metroplex, a site that can be viewed from the Pennsylvania Turnpike, generated over one million dollars through the fee-in-lieu of parkland dedication provision Mandatory Dedication of Parkland Act. This approach is important to consider for future redevelopment of riverfront parcels along the Ohio River.

If suitable parkland is not available the developer may offer a fee-in lieu of dedication under the provisions of the Mandatory Dedication of Parkland Ordinance under the Pennsylvania Municipalities Code. Municipalities can also require the mandatory dedication of trails. The fee-in-lieu of dedication alternative allows the community to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

Other Local Options

Local Park, Open Space and Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Volunteer Work

It is expected that many citizens will be excited about the development of a greenway corridor or a new park or canoe access point. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

State of Pennsylvania Funding Sources

The Commonwealth's current administration has consolidated and/or reorganized several of the traditional economic development funding programs, as well as the parks, recreation and trails programs, to a lesser degree.

Historically, however, Pennsylvania has offered a plethora of funding resources in support of open space trails, and greenway implementation. The following provides a summary of these sources.

PennDOT

Historically PennDOT's primary means of funding greenways projects is through the Transportation Enhancements Program that was part of the federal transportation bill - SAFETEA-LU. The bill had three distinct programs for distribution funding for trails and bicycle projects: Transportation Enhancements, Safe Routes to School, and Recreational Trails. In 2012, the U.S. Congress passed the new federal transportation bill called Moving Ahead for Progress in the 21st Century Act or MAP-21. In this bill these programs were combined with others into a single program called Transportation Alternatives. The combined funding for the Transportation Alternatives Program will be approximately $800M per year. By combining the three main programs that funded biking and walking projects, planners and local communities lose the specific mechanisms for funding. In order to take full advantage of these programs, applicants and advocates must learn the new system and nomenclature. Because the funding mechanism will be completely new, it will take US DOT and State DOTs some time to get this new program up and running. Overall, the amount of funding has been cut by 33%. If all states fully exercise their opt-out, the new bill will represent a 66% cut in funding; therefore the state opt-out provision is a major blow to funding levels. A state that chooses to opt out can use this funding for any program with no additional restrictions. Even a state DOT that is concerned about biking and walking may be tempted to have unrestricted funding for highway uses.

Under the Transportation Alternatives Program the following activities have designated as eligible for funding:

Eligible activities:

1. *Bicycle and Pedestrian facilities*
2. *Safe routes for non-drivers projects and systems*
3. *Construction of turnouts, overlooks and viewing areas*
4. *Vegetation management practices in rights of ways and other activities under Section 319 (similar to landscaping and beautification)*
5. *Historic preservation, rehabilitation and operation of historic transportation buildings, structures and facilities*
6. *Preservation of abandoned railway corridors including for pedestrian and bicycle trails*
7. *Inventory, control and removal of outdoor advertising*
8. *Archeological activities related to transportation projects*
9. *Any Environmental mitigation, including existing uses*

PennDOT District 11-0 Bicycle & Pedestrian Coordinator, Kathryn Power can be reached at:

Safety/Studies Section Phone: (412) 429 – 4966

Email: kpower@state.pa.us

PennDOT Central Office Statewide Bicycle & Pedestrian Coordinator, Brian Sanders can be reached at:

(717) 783-6193

Email: basanders@state.pa.us

The Community Conservation Partnership Program (C2P2)

The State of Pennsylvania makes available grant moneys to municipal governments through this program to support greenway and park planning, design and development. Applications for these grants are typically due in April of each year, and a 50 percent match is required from the local project sponsor. The amount of maximum award varies with the requested activity. Planning grants are typically awarded for $50,000 or less. Land acquisition and construction grants range from $150,000 to $200,000. Small community grants are also available through this program for municipalities with populations less than 5,000. These grants can support up to 100 percent of material costs and professional design fees for recreational facilities. Grants for these projects are typically limited to $20,000.

PADCNR Southwest Region (5) can be reached at:

301 Fifth Avenue, Suite 324

Pittsburgh, PA 15222-2420

Kathy Frankel

Natural Resource Program Supervisor

(412) 880-0846

Email: kfrankel@pa.gov

Grants Customer Service Center Address:

PA Department of Conservation and Natural Resources

Bureau of Recreation and Conservation

Rachel Carson State Office Building

Attn: Grants Customer Service Center

400 Market Street, 6th Floor

Harrisburg, PA 17101-2301

1-800-326-7734

Rails-to-Trails Grants

The Rails-to-Trails Grants provide 50% funding for the planning, acquisition or development of rail-trail corridors. Eligible applicants include municipalities and nonprofit organizations established to preserve and protect available abandoned railroad corridors for use as trails or future rail service.

PADCNR Southwest Region (5) can be reached at:

301 Fifth Avenue, Suite 324

Pittsburgh, PA 15222-2420

Kathy Frankel

Natural Resource Program Supervisor

(412) 880-0846

Email: kfrankel@pa.gov

Grants Customer Service Center Address:

PA Department of Conservation and Natural Resources

Bureau of Recreation and Conservation

Rachel Carson State Office Building

Attn: Grants Customer Service Center

400 Market Street, 6th Floor

Harrisburg, PA 17101-2301

1-800-326-7734

Urban and Community Forestry Grants

This funding is used to encourage the planting of trees in Pennsylvania communities. Municipal challenge grants provide 50% of the cost of the purchase and delivery of trees. Special grants are available for local volunteer groups, civic clubs, and municipalities to train and use volunteers for street tree inventories, and other projects in urban and community forestry.

PADCNR "Service Forester" for Beaver County Forest District #8 can be reached at:

John Brundege

(814) 226-1901

Pennsylvania Community Forestry Council in Harrisburg at www.pacommunityforests.com/ contactinformation/index.htm

Pennsylvania Recreational Trails Program (PRTP)

The Pennsylvania Recreational Trails Program (PRTP) provides funds to develop and maintain recreational trails and trail related facilities for motorized and non-motorized recreational trail use. Federal funding for the program is through the Federal Highway Administration (FHWA) and the Federal Recreational Trails Program (RTP).

In Pennsylvania, the Recreational Trails Program is administered by the Department of Conservation and Natural Resources (DCNR), Bureau of Recreation and Conservation (BRC) in consultation with the Pennsylvania Recreational Trails Advisory Board (PARTAB), which is composed of both motorized and non motorized recreational trail users.

For this grant round the Department has approximately $1 million available for grants. This funding must be distributed among motorized, non-motorized, and diverse trail use, as follows:

- *40% minimum for diverse trail use;*
- *30% minimum for motorized recreation; and*
- *30% minimum for non-motorized recreation.*

Match requirements for Pennsylvania Recreational Trails Program Grants are 80% grant money, up to a maximum of $100,000, and 20% project applicant money.

"Soft match" (credit for donations of funds, materials, services, or new right-of-way) is permitted from any project sponsor, whether a private organization or public agency.

Eligible applicants include federal and state agencies, local governments and private organizations.

Eligible project categories are:

- *Maintenance and restoration of existing recreational trails;*
- *Development and rehabilitation of trailside and trailhead facilities and trail linkages;*
- *Purchase and lease of recreational trail construction and maintenance equipment;*
- *Construction of new recreational trails (with restrictions on new trails on Federal land); and*
- *Acquisition of easements or property for recreational trails or recreational trail corridors.*

The Commonwealth may also use up to 5 percent of its funds for the operation of educational programs to promote safety and environmental protection related to the use of recreational trails. The Department will also give consideration to projects that provide for the redesign, reconstruction, non-routine maintenance, or relocation of recreational trails to benefit the natural environment. Project sponsors are encouraged to enter into contracts and cooperative agreements with qualified youth conservation or service corps to perform trail construction and maintenance.

PADCNR Southwest Region (5) can be reached at:

301 Fifth Avenue

Suite 324

Pittsburgh, PA 15222-2420

Kathy Frankel

Natural Resource Program Supervisor

(412) 880-0846

Email: kfrankel@pa.gov

Grants Customer Service Center Address:

PA Department of Conservation and Natural Resources

Bureau of Recreation and Conservation

Rachel Carson State Office Building

Attn: Grants Customer Service Center

400 Market Street, 6th Floor

Harrisburg, PA 17101-2301

1-800-326-7734

Rivers Conservation Program

This program seeks to maintain, restore, and enhance rivers throughout Pennsylvania. Non-profit organizations and municipalities may apply for grants above $2,500. Before being considered for river conservation, implementation, acquisition, or development projects, a grant applicant must have an approved river conservation plan.

DCED's mission includes four elements that each have a relationship to greenways: economic development, travel and tourism, technical assistance and community development. Each of DCED's funding programs is listed and described below.

DCED's Office of Community Affairs and Development:

1: Keystone Communities Program - $12.5M proposed

- *Consolidates New Communities, HRA & Accessible Housing programs*
- *Designated Keystone Communities*
- *Core Communities Development Projects*

2: Neighborhood Assistance Program (NAP) Tax Credits - $18M proposed

- *All Components Open for Competition*
- *Regular Program – 55% Credits*
- *Neighborhood Partnership Programs – 75 or 80% Credits*
- *Enterprise Zone Projects – 25% Credits*
- *Special Program Priorities – 75% or 35% Credits*
- *Connect NAP Tax Credits to Keystone Communities*
- *Performance / Outcome Measures Required*

3: Municipal Assistance Grant Program (MAP) - $683,000 proposed

- *Consolidates SMS, LUPTAP and Flood Plain Management programs*
- *MAP will address Flood Plain Management Act 166 reimbursements*
- *MAP will promote cooperation between and among municipalities*
- *MAP will support Community Planning, Implementation and Transportation*

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Revitalization Districts (TRID)

DCED's Center for Business Financing:

1: Liberty Loan Fund - $330M proposed

- *consolidates six existing DCED authorities and funds and simplifies them into one funding application process*
- *combines the Commonwealth Financing Authority, Pennsylvania Industrial Development Authority, Machinery and Equipment Loan Fund, Pennsylvania Minority Business Development Fund, remaining Tobacco Settlement Fund investments and the Small Business First Fund*
- *leverages new private funds using combined resources*
- *creates new financing products*

2: PA First Fund - $25M proposed

- *a tool that streamlines financing for business owners seeking funds for capital improvement costs, job training and infrastructure projects*
- *fund would be available for-profit businesses, non-profit entities, municipalities and municipal authorities working on behalf of businesses*
- *combines the Opportunity Grant (OGP), Customized Job Training (CJT) and Infrastructure Development Program (IDP)*
- *Requires 10:1 private investment*
- *Includes a job creation requirement*

3: Partnerships for Regional Economic Performance (PREP) - $12M proposed

- *Support for regional economic development partnerships*
- *Coordinated approach to delivery of services*
- *Single or multi-year grants*
- *Implements strategic service delivery, co-location, linked to IT systems, defined referral process*
- *Selects proposals through public/private advisory board PREP program will rely on a more coordinated and regionalized approach to DCED's economic development system, with single or multi-year grants driving the selection process via a public/private advisory board*

Revitalization Districts (TRID) can be reached at:

PennDOT Central Office

Smart Transportation Coordinator, Brian Wall, (717) 772-0827

Email: bwall@state.pa.us

Community Development Block Grants

This program provides financial and technical assistance to communities for infrastructure improvements, housing rehabilitation, public services, and community facilities. The program targets local governments and 70% of each grant must be used for activities or projects that benefit low to moderate income people.

Community Development Program of Beaver County can be reached at:

1013 Eighth Avenue

Beaver Falls, PA 15010

(724)-847-3889

Lisa Signore, Director

Email: lsignore@beavercountypa.gov

Industrial Site Reuse Program - Land Recycling Grants Program

This program provides grants and low interest loans for environmental assessments and remediation. The program is designed to foster the cleanup of environmental contamination at industrial sites and remediate the land to a productive use.

For Industrial Site Reuse funds, contact:

The Environmental Cleanup Program Manager in the PA DEP Southwest Regional Office in Pittsburgh

Michael Forbeck

(412) 442-4094

Main Street Program

The Main Street Program provides grants to municipalities and redevelopment authorities to foster economic growth, promote and preserve community centers, creating public/private partnerships, and improve the quality of life for residents. The program has two components, a Main Street Manager and Commercial Reinvestment. The Main Street Manager component funds a staff position that coordinates the community's downtown revitalization activities. The Community Reinvestment component provides funding for actual improvement projects in the community. The Main Street Manager is partially funded for a 5-year period while the Community Reinvestment activities require a minimum of a 50% match. A business district action plan must be completed for eligibility in this program.

For detailed descriptions and requirements see:

www.newpa.com/sites/default/files/uploads/NewCommunitiesProgramguidelines08.pdf

Elm Street Program

The Elm Street Program was created to strengthen the older historic neighborhoods that characterize many of the commonwealth's communities. The Elm Street Program is a work in progress and is likely to be so for the next several years. Although receiving one grant is not predicated on receiving the others, there is an ideal sequencing to the funding and assistance available through the Elm Street Program. The following text is from: www.padowntown.org/programs/elmstreet/

Planning Grants: Communities must have a plan that meets the program's requirements and the plan must address all five facets of the program to be eligible for Elm Street designation. Thus, most communities will apply for and receive planning grants first. Even communities with recent plans that don't quite meet Elm Street Program requirements might apply for planning grants to augment existing documents for Elm Street. Communities with DCED-approved eligible plans may forgo the planning grant and apply for designation directly.

Elm Street Designation: An application to DCED and the submission of an Elm Street plan make up the package required for designation. The majority of communities will have completed an Elm Street Plan with an Elm Street planning grant, but some will submit plans created independent of Elm Street funding. Designation carries administrative and staffing funds, including support for an Elm Street Manager position.

Residential Reinvestment Grants: These grants provide funds for physical improvements in neighborhoods. Elm Street Designation is not currently required for grant eligibility, but these grants are generally targeted for Elm Street communities. As more Elm Street communities are designated, competition for the Residential Reinvestment Grants will grow, making it more and more difficult for non-designated neighborhoods to acquire these funds.

PADEP has dozens of grants and loans to assist individuals, groups and businesses with a host of environmental issues. In addition, PADEP may be able to offer technical assistance to municipalities facing tough environmental challenges.

For detailed descriptions and requirements see:

www.newpa.com/sites/default/files/uploads/NewCommunitiesProgramguidelines08.pdf

DEP Growing Greener

Growing Greener, the largest single investment of state funds in Pennsylvania's history, expired at the end of 2011-2012 fiscal year. Growing Greener directed nearly $650 million over five years to the new Environmental Stewardship Fund. Growing Greener funds can be used for farmland-preservation projects; preserving open space; cleanup of abandoned mines, watershed planning; recreational trails and parks; and help communities address land use concerns. Eligible applicants include non-profit groups, counties, and municipalities. A local match is encouraged, but not required. A Growing Greener III program may replace the existing program, but there is no certainty of a replacement at this time.

DEP Growing Greener can be reached at:

PADEP Southwest Regional Office - Lower Ohio River Basin Office

Holly Cairns

400 Waterfront Drive

Pittsburgh, PA 15222-4745

(412) 442-4000

Stormwater Planning and Management Grants

This program provides grants to counties and municipalities for preparation of stormwater management plans and stormwater ordinances. The program requires a 25% local match that can come in the form of in-kind services or cash. While greenways are not specifically funded by the project, they are excellent elements of a stormwater management system. This program is part of the Growing Greener Initiative.

PADEP Southwest Regional Office - Lower Ohio River Basin Office can be reached at:

Jeff Fliss

400 Waterfront Drive

Pittsburgh, PA 15222-4745

(412) 442-4207

Nonpoint Source Management Section 319 Grants

Section 319 grant funding comes from the Federal Clean Water Act. The grants are available to local governments and nonprofit groups for watershed assessments, watershed restoration projects, and projects of statewide importance. The grant requires a 60% local match and 25% of the construction costs of practices implemented on private land must come from non-federal sources.

Nonpoint Source Management Section 319 Grants can be reached at:

U.S. Environmental Protection Agency

Office of Water (4100T)

1200 Pennsylvania Avenue, N.W.

Washington, D.C. 20460

http://www.epa.gov/aboutepa/ow.html

Environmental Education Grants

This program uses a 5% set aside of the pollution fines and penalties collected in the Commonwealth each year for environmental education in Pennsylvania. There are eight different grant tracks with grants ranging from $1,000 to $20,000, most requiring a 20% match. Public and private schools, non-profit conservation/education organizations and county conservation districts may apply for the grants.

Enactment of Ordinances and Implementation of Stormwater Management Plans

Reimburse municipalities for costs incurred in the adoption or revision of ordinances or regulations and other actual administrative, enforcement, and implementation costs incurred in complying with the Pennsylvania Stormwater Management Act (1978 Act 167) and the companion regulation governing stormwater management grants and reimbursements (25 Pa. Code 111).

PENNVEST – PA Infrastructure Investment Authority

PENNVEST has continued its service to the communities and citizens of Pennsylvania by funding sewer, storm water and drinking water projects throughout the Commonwealth. These projects not only contribute to improving Pennsylvania's environment and the health of its people, they also provide opportunities for economic growth and jobs for Pennsylvania's workers.

PENNVEST has been empowered by Pennsylvania state law, Pennsylvania Infrastructure Investment Authority Act 16 of 1988, to administer and finance the Clean Water State Revolving Fund (CWSRF) and the Drinking Water State Revolving Fund (DWSRF) pursuant to the federal Water Quality Act of 1987, as well as to administer the American Recovery and Reinvestment Act of 2009 (ARRA) funds. PENNVEST also finances, through the issuance of special obligation revenue bonds, water management, solid waste disposal, sewage treatment and pollution control projects undertaken by or on behalf of private entities.

PENNVEST actively funds Green Initiatives that promote and encourage environmental responsibility in our communities that are creative and innovative with green solutions for water quality management. These solutions can be as simple as installation of water barrels for water collection and re-use, to regional projects that reduce sediment and nutrient contamination of the Chesapeake Bay watershed by reducing storm water runoff from agricultural areas.

The process starts with a consultation meeting with a PENNVEST representative together with a PA DEP representative, which then leads to an application through PENNVEST. Contact Larry Gasparato at www.portal.state.pa.us/portal/server.pt/community/financial_assistance/9321/get_regional_assistance/541647.

Federal Sources

There are two approaches the ORTC and partnership municipalities can utilize to pursue federal funding for trail and multi-modal supportive projects and programs. Traditionally most federal programs provide block grants directly to states through funding formulas. For example, if a Pennsylvania community wants funding to support a transportation initiative, they would contact the PENNDOT and not the US Department of Transportation to obtain a grant. Despite the fact that it is rare for a local community to obtain a funding grant directly from a federal agency, it is relevant to list the current status of federal programs and the amount of funding that is potentially available to the ORTC communities through these programs. The other approach is to pursue direct appropriations through the region's legislative representation in the form of project earmarks.

Funding for the federal government is provided by annual appropriations bills that are supposed to be enacted into law before October 1, the beginning of the federal fiscal year. The appropriations bills are written by the House and Senate Appropriations Committees, which are each divided into subcommittees, each of which has jurisdiction over one of the appropriations bills. The Appropriations Committees are divided into 13 subcommittees. The subcommittees do most of the work on the appropriations bills, and influencing the content of an appropriations measure is done most effectively at the subcommittee level.

Each appropriations subcommittee has its own system for accepting funding requests ("earmarks") from individual Members of Congress, but in general the subcommittees set deadlines for these "Member requests," which, generally, must be in writing. Usually, the deadline is near the end of the hearing process in mid/late March or April. Most Members of Congress, in turn, set their own deadlines for receiving appropriations requests from constituents, local agencies and interest groups. These congressional office deadlines are usually one to three weeks in advance of the Member request deadlines set by the appropriations subcommittees. Some Members require that funding requests be presented to them in a very specific format.

Moving Ahead for Progress in the 21st Century Act (MAP-21) - (Accessed through PennDOT).

In 2012, the U.S. Congress passed the new federal transportation bill called MAP-21. A general description of resulting changes to what was formally known as the Transportation Enhancements Programs is described under the PennDOT section above.

Surface Transportation Program (STP)

This is the largest single program within the legislation from a funding point of view, with $32.5 billion committed over the next five years. Of particular interest to greenway enthusiasts, 10 percent of the funding within this program is set aside for Transportation Enhancements (TE) activities. Historically, a little more than half of the TE funds have been used nationally to support bicycle/pedestrian/trail projects.

Surface Transportation Program (STP) can be reached at:

Gene Heyman

Transportation Planning Specialist, Center for Program Development and Management, PennDOT

(717) 346-8133

euheyman@pa.gov

Matt Smoker

Lead Program Development Specialist – Planning, US DOT / FHWA - PA Division

(717) 221-3703

Matt.Smoker@dot.gov

Congestion Mitigation and Air Quality (CMAQ)

Under SAFETEA-LU, approximately $8.6 billion has been set aside. Historically, about five percent of these funds have been used to support bicycle/pedestrian/trail projects. This would equal about $430 million under SAFETEA-LU.

Congestion Mitigation and Air Quality (CMAQ) can be reached at:

Gene Heyman

Transportation Planning Specialist, Center for Program Development and Management, PennDOT

(717) 346-8133

euheyman@pa.gov

Matt Smoker

Lead Program Development Specialist – Planning, US DOT / FHWA - PA Division

(717) 221-3703
Matt.Smoker@dot.gov

Transportation, Community and System Preservation Program (TCSP)

This program is administered by the FHWA and is a comprehensive initiative of research and grants to investigate the relationships between transportation, community and system preservation plans. Cities are eligible for discretionary grants to carry out eligible projects to integrate planned transportation and community practices that specifically reduce environmental impacts of transportation and examine community

development patterns and identify strategies to encourage private sector development patterns and investments that support these goals. Typical project applications that utilize this funding include corridor safety upgrades such as signal improvements, striping and multi-modal upgrades. The primary method of securing this funding is through congressional appropriations.

Transportation, Community and System Preservation Program (TCSP) can be reached at:

Gene Heyman

Transportation Planning Specialist, Center for Program Development and Management, PennDOT

(717) 346-8133

euheyman@pa.gov

Matt Smoker

Lead Program Development Specialist – Planning, US DOT / FHWA - PA Division

(717) 221-3703
Matt.Smoker@dot.gov

Highway Safety Improvement Program (HSIP)

SAFETEA-LU funds this program at $5 billion over four years. Historically, bicycle and pedestrian projects have accounted for one percent of this program, or about $50 million under SAFETEA-LU. Some of the eligible uses of these funds would include traffic calming, bicycle and pedestrian safety improvements, and installation of crossing signs. This is not a huge source of funding, but one that could be used to fund elements of a project.

Highway Safety Improvement Program (HSIP) can be reached at:

Gene Heyman

Transportation Planning Specialist, Center for Program Development and Management, PennDOT

(717) 346-8133

euheyman@pa.gov

Matt Smoker

Lead Program Development Specialist – Planning, US DOT / FHWA - PA Division

(717) 221-3703
Matt.Smoker@dot.gov

Recreational Trails Program (RTP)

The Recreational Trails Program was combined into the Transportation Alternatives Program (see the PennDOT text under the State of Pennsylvania Funding Sources section).

Scenic Byways

The National Scenic Byway program has not traditionally been a good source of funding for bicycle/pedestrian/trail projects. The total amount of funding available nationally is $175 million under SAFETA-LU. Historically, only 2 percent of these funds have been used to support bicycle and pedestrian improvement projects. Applications are only accepted by PENNDOT from established scenic byways groups, but historically, byways groups have advanced proposals in partnership with other organizations — including cultural heritage tourism groups — in support of the byways' goals.

PennDOT, Bureau of Programming, Jackie Koons-Felion

TPS-Air Quality/ Federal Initiatives/ Byways/ Rec. Trails

PO Box 3565

Harrisburg, PA 17105

(717) 787-6388

Fax: 717-787-5247

jfelion@pa.gov

Safe Routes to School Program (SR2S)

The Safe Routes to School Program was combined into the Transportation Alternatives Program (see the PennDOT section above).

PennDOT Program Manager

Chris Metka

(717) 787-8065

cmetka@pa.gov.

Environmental Protection Agency (EPA)

The EPA funds a program that enables communities to clean up polluted properties. Funding for these programs is available directly from the EPA and is administered in the form of grants to localities. Eligible projects must be on or within identified brownfields areas. The funding can be used for planning as well as environmental assessment activities where there is no known responsible party for the contamination. Municipalities in both Beaver and Allegheny Counties have received funding through this program, including for brownfields properties along the Ohio River corridor communities. Assessment grants are capped at $200,000 per round for single municipalities and $1M for partnerships of three or more municipalities. Applications are typically due in mid-October each year.

The Environmental Protection Agency (EPA) can be reached at:

Regional Brownfields Coordinator

Tom Stolle

U.S. Environmental Protection Agency

Region 3

1650 Arch Street

Philadelphia, Pennsylvania 19103

Brownfields Revitalization Assessment and Cleanup Grant Funding

- *Needy communities fare better in competition;*
- *High unemployment rates, high poverty rates, loss of jobs/population, minority or other sensitive ;*
- *Populations. Include demographic statistics;*
- *Mention any unusually high health concerns in the area;*
- *Present the environmental, economic, social and health impacts of brownfields on the community;*
- *Environmental Justice concerns; and*
- *Focus on the environmental and health impacts of your project.*

New Jersey Institute of Technology's (NJIT) EPA TAB program (covers Geographic Zone 1 for communities in EPA Regions 1, 2, and 3 including all of PA) can be reached at:

Colette Santasieri, Manager

(973) 642-4165

tab@njit.edu

National Highway Traffic Safety Administration (NHTSA) State and Community Highway Safety Program

More commonly referred to as "Section 402 Funds," these grants exist to assist eligible entities in carrying out specific programs that will have a direct impact in reducing the number of collisions and traffic-related fatalities and injuries. Eligible areas of funding include the development, implementation and evaluation of educational and enforcement programs that will enhance pedestrian safety. These funds support, in general, non-construction activities.

NHTSA Headquarters can be reached at:

1200 New Jersey Avenue, SE

West Building

Washington, DC 20590

1-888-327-4236

Preserve America

The Preserve America grants program funds "activities related to heritage tourism and innovative approaches to the use of historic properties as educational and economic assets." Its five categories are: research and documentation, interpretation and education, planning, marketing, and training. Interpretative signing programs are one of the largest project types that receive funding through this program. The grant does not fund "bricks and mortar" rehabilitation or restoration. This grant is available to State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), designated Preserve America communities and Certified Local Governments (CLGs) applying for designation as Preserve America Communities.

Grants require a dollar-for-dollar non-federal match in the form of cash or donated services. In order to be eligible for funding, communities must first apply to receive Preserve America designation by the U.S. Department of the Interior. Once designated, a community is then eligible to apply for grant funding through the program. The maximum grant amount is typically $250,000 and the application deadline occurs quarterly. www.preserveamerica.gov/federalsupport.html

Small Business Administration

Many cultural heritage tourism businesses are small businesses. The Small Business Administration (SBA) does not itself loan money, but guarantees loans from banks or from specially chosen small business investment companies. These loans can be used for business expenses ranging from start-up costs to real estate purchases. Eligible companies must be defined as "small" by the SBA. This program could help support the expansion of existing small and upstart bicycle sales/repair/rental shops, outfitters and sports and tourism related businesses in the Ohio River Trail Corridor. www.sba.gov

U.S. Fish and Wildlife Service

The U.S. Fish & Wildlife Service has a long list of grant programs that benefit the conservation or restoration of habitats. These include grants for private landowners to assist in protecting endangered species, grants to restore the sport fish population and grants for habitat conservation planning and land acquisition. The amount, matching requirements and eligibility for each grant vary. The website also provides practical information about successful projects and conserving specific habitats www.fws.gov/grants.

The Water Resources Development Act (WRDA)

The Water Resources Development Act (WRDA) authorizes new water resources related projects every two years. Administered by the Army Corps of Engineers (ACOE) civil works program, it is the nation's largest water resources program and includes projects for navigation, flood control, shoreline protection, hydropower, dam safety, water supply, recreation, environmental restoration and protection and disaster response and recovery. This program represents a major potential source of funding for trail projects, especially along water course and flood prone environmental areas, if the trail projects can be married with larger habitat enhancements, wetland and flood control improvements and stream bank restoration projects. In order to receive funding, the ORTC would need to work with its legislators and the Philadelphia District of the ACOE in order to ensure that the proposed projects receive priority attention within their project program.

The first step in an ACOE water resources development project is a study of the project's feasibility. If the ACOE has conducted a study in the area previously, the new study can be authorized by a resolution (known commonly as a "survey resolution") of either the House Transportation and Infrastructure Committee or the Senate Committee on Environment and Public Works. If the ACOE has not previously studied the area, then an Act of Congress is necessary to authorize the study. The majority of the studies are authorized by Transportation Committee survey resolutions.

Assuming the study recommendations are favorable, the next step is authorization. Project authorizations are traditionally contained in a biennial WRDA. The ACOE also has certain authorities to construct small projects without specific authorization by Congress. These authorities known as the "continuing authorities program" include beach erosion, navigation, flood control, stream bank and shoreline protection, snagging and clearing, modifications to existing projects for the benefit of the environment and aquatic ecosystem restoration. Projects along the major and minor watercourses in the Ohio River Trail Corridor may qualify under this authorization, if deemed a priority by the ACOE. The number of projects funded nationally on an annual basis ranges between 200 and 300 and the annual total funding earmark is typically between $50M and $60M.

USACE Pittsburgh District's Deputy District Engineer for Project Management can be reached at:

Lenna Hawkins

(412) 395-7105

Private Foundations/Philanthropic Sources

American Greenways Eastman Kodak Awards

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities. For more information visit the Conservation Fund website at www.conservationfund.org.

Bikes Belong Coalition

Bikes Belong formed in 1999 when U.S. bicycle companies recognized an exceptional opportunity to work together to maximize bike funding in TEA-21 – the multi-year transportation bill of the time. The initial goal was to ensure funding for new bicycle facilities that would increase riding, boost public health and enjoyment, and strengthen the bicycle business. In the intervening years, Bikes Belong has successfully harnessed the collective power of the U.S. bicycle industry. They have steadily expanded their efforts, but remain focused on creating safe places to ride so more people will bike, and bike more by:

- *Working with the federal government to maximize federal funding for bicycling;*
- *Awarding grants to help create more and better places to ride;*
- *Sponsoring programs to help cities and towns become more bike-friendly; and*
- *Cultivating cooperation throughout the bicycle industry.*

The Bikes Belong Grants Program funds important and influential projects that leverage federal funding. These projects include bike paths, lanes, routes, as well as bike parks, mountain bike trails, BMX facilities, and large-scale bicycle advocacy initiatives. Since 1999, Bikes Belong has awarded 186 grants in 45 states, investing nearly $1.5M in bicycling projects and leveraging close to $500M in federal, state, and private funding.

Bikes Belong will accept requests for funding up to $10,000 for project construction. They do not require a specific match, but will not consider grant requests in which they are the sole funder – they look for existing funding partnerships. Priority is given to bicycle organizations, coalitions, and associations that have not received Bikes Belong funding in the past.

Applications are reviewed on a quarterly basis, and typically 15-20% of the received applications are approved.

The Bikes Belong Coalition can be reached at:

P.O. Box 2359

Boulder, CO 80306

(303) 449-4893

mail@bikesbelong.org

bikesbelong.org

Active Living by Design

Active Living by Design was established in 2001 as a national program office of the Robert Wood Johnson Foundation. Based in Princeton, New Jersey, the mission of the Robert Wood Johnson Foundation is to improve the health and health care of all Americans. Active Living by Design works with local and national partners to build a culture of active living by pursuing a "5P Approach." Active Living by Design has focused on five strategies to promote physical activity: preparation, promotions, programs, policies, and physical projects.

Active Living by Design's approach to grant making is "high touch, low dollar" and is demonstrated by modest financial contributions to the community partnerships – just $200,000 over five years for each site – but providing generous support in the form of high-quality technical assistance to build capacity in the communities.

Active Living by Design can be reached at

University of North Carolina at Chapel Hill School of Public Health

400 Market Street, Suite 205, Chapel Hill, NC 27516-4028

(919) 843-2523

General Mills Foundation

The General Mills Foundation was created in 1954 to focus on the Company's philanthropic resources on community needs. The Foundation's mission is to provide financial assistance to nonprofit organizations that create sustainable community improvement in the areas of youth nutrition and fitness, social services, education and arts and culture. Based in the General Mills World Headquarters in Minneapolis, the Foundation has awarded over $400M to nonprofits since its inception. In fiscal 2008, the Foundation contributed $21M in grants.

Among the Foundation's four grant categories, the Champions for Healthy Kids grant program is most relevant to this plan. Under this category, the Foundation awards 50 grants per year of $10,000 each to community-based groups that develop creative ways to help youth adopt a physically active lifestyle. The grant cycle begins in November when applications are made available. Grant checks are mailed to recipients in May. The Foundation may be reached at Community.ActioQA@genmills.com (763) 764-2211.

Surdna Foundation

Surdna is a New York-based family foundation established in 1917 to pursue philanthropic purposes. The foundation makes grants to non-profit organizations in the areas of environment, community revitalization, effective citizenry, the arts and the non-profit sector, with annual grantmaking of approximately $37M. Applicants are asked to first submit a letter of inquiry to request funding. Due to the large number of requests Surdna receives, applicants are asked to send full proposals only when requested by the foundation following a successful review of the letter of inquiry. Within the context of this Plan, the following information describes the relevant grant programs:

- *Build support for programs to stabilize climate change at the local, state, and national level. This includes accelerating energy efficient solutions to conserve energy, reduce emissions and promote a "green" economy.*
- *Improve transportation systems and patterns of land use across metropolitan areas, working landscapes, and intact ecosystems. Specifically, this grant category seeks to ensure the implementation of demonstration projects that will improve patterns of land use and transportation systems in metropolitan areas, enhance community sustainability, and enhance regional green infrastructure.*

The Surdna Foundation can be reached at:

330 Madison Avenue, 30th Floor

New York, NY 10017

(212) 557-0010

Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grant program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development. Visit the web site for more information: www.bankofamerica.com/foundation.

National Trails Fund

American Hiking Society created the National Trails Fund in 1998; the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a $200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails.

To date, American Hiking has granted more than $382,000 to 105 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project. What types of projects will American Hiking Society consider? Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements. Constituency building surrounding specific trail projects - including volunteer recruitment and support are eligible activities. Annual applications are typically due in the late summer, with grants awarded in the spring of the following year. Website: www.americanhiking.org/NTP.aspx

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. One hundred percent of its member companies' dues go directly to diverse, local community groups across the nation. For these groups, who seek to protect the last great wild lands and waterways from resource extraction and commercial development, the Alliance's grants are substantial in size (about $35,000 each), and have often made the difference between success and defeat. Since its inception in 1989, The Conservation Alliance has contributed more than $7 million to conservation projects across the nation, and its member companies are proud of the results. To date the groups funded have saved over 39 million acres of wild lands and 27 dams have been either prevented or removed, all through grassroots community efforts.

The Conservation Alliance is a unique funding source for grassroots environmental groups. It is the only environmental grant maker whose funds come from a potent yet largely untapped constituency for protection of ecosystems - the non-motorized outdoor recreation industry and its customers. This industry has great incentive to protect the places in which people use the clothing, hiking boots, tents and backpacks it sells. The industry is also uniquely positioned to educate outdoor enthusiasts about threats to wild places, and engage them to take action. Finally, when it comes to decision-makers - especially those in the Forest Service, National Park Service, and Bureau of Land Management, this industry has clout - an important tool that small advocacy groups can wield.

The Conservation Alliance Funding Criteria: The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation. We're not looking for mainstream education or scientific research projects, but rather for active campaigns. All projects should be quantifiable, with specific goals, objectives and action plans and should include a measure for evaluating success. The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years). Funding emphasis may not be on general operating expenses or staff payroll. Web site: www.conservationalliance.com/grants

Ownership

Partnerships: An Effective Way of Planning, Developing, Managing, & Maintaining the Ohio River Trail

The Ohio River Trail will be a great asset and wonderful addition to the region. It offers important recreational, health, tourism, and economic benefits to local and regional residents. The trail will help to stimulate the development of new businesses as well as tourism-related opportunities like river rafting or canoe tours, bicycle sales and rentals, restaurants and lodging. It will become a highly desirable recreation destination, which will help to attract and retain businesses, residents (including young families) to the region.

Trail Host Communities

The entire Ohio River Trail, including the North and South shores, will traverse twenty-six (26) western Pennsylvania communities. While this project focuses on the north shore communities, it is important to consider the ultimate trail, as a whole, when considering management, operations and partnerships strategies. By establishing an effective and creative approach to management rooted in collaboration, additional partners and resources can be folded in as the trail is extended. The eight North Shore communities include Ohioville Borough, Glasgow Borough, Midland Borough, Industry Borough, Brighton Township, Vanport Township, Beaver Borough and Rochester Borough. In addition, the North Shore Extension and the Bradys Run Extension communities include Rochester Township, New Brighton Borough, the City of Beaver Falls, Fallston Borough, Patterson Township and Bridgewater Borough.

The eight communities within the North Shore Feasibility study area are all within Beaver County. Municipal staffing, budget and capacity for maintenance and operations vary widely by jurisdiction. By working together in developing, operating and maintaining the Ohio River North Shore Trail, the municipalities will be able to develop and operate the trail as a premiere recreation facility that will be an important asset of the region.

Multi-Municipal Support and Partnerships

During the course of the feasibility study, an effort was made to reach out to an elected official from each of the thirteen municipalities in the study area. After reasonable attempts to make contact with key representatives from each of the townships or boroughs, a series of interviews was conducted with nine of them. In another instance, a meeting was held with one to directly address issue and questions from elected officials.

Overall, there was genuine support for the project, with officials identifying what they felt were the beneficial aspects of the potential trail and trails in general. Each of the municipal officials interviewed felt their municipality would be willing to cooperate on joint grant applications in pursuit of development funding. Furthermore, there was consensus that cooperative maintenance efforts would be something their municipality would be willing to consider.

Value of Intergovernmental Collaboration

Intergovernmental collaboration in planning, developing, and maintaining the Ohio River Trail has a sound basis in the following six areas:

- *Interdependence – The Ohio River Trail encompasses eight municipalities in two counties and is without jurisdictional borders. By working together, a municipal collaboration can assure that the trail will appear seamless and unified along its entire length. Decisions made by one municipality along the trail will affect other municipalities and the segment of the trail in their respective community.*
- *Effectiveness - Public services can be more effective when municipalities work together. This is especially true when facilities, such as the Ohio River Trail, cross boundaries and when special skills or services may be needed for a facility.*
- *Economy of Scale – Working together is a smart way of conducting the public's business in terms of efficient and effective practices that result in cost savings, more "bang for the buck", and reduction in duplication of services, equipment and spending.*
- *Improved chance for grant funding – The trend is for funding agencies, including the Commonwealth of Pennsylvania, to award grants for projects with a regional, multi-municipal, and public private partnership foundations in place.*
- *Higher quality of facilities and services – By joining forces, the municipalities can maintain, advertise, program and respond to citizen needs regarding the trail in a higher quality manner than they could independently.*
- *Better, more convenient public service – Having a unified trail organization in place enables "one stop shopping" for citizens. The single organization offers a single point of contact that is easily identifiable by the public as the "go to" place for information about the trail, resolution of problems and reporting of issues.*

Ohio River Trail Council: Umbrella Organization

The Ohio River Trail Council (ORTC) is a non-profit volunteer-led corporation that works to bring individuals, communities, businesses, recreational users and all levels of government together to promote and protect a continuous corridor of natural and cultural resources along the Ohio River and its tributaries. The ORTC's goal is to honor the region's past and build the future by providing recreation opportunities, heritage development, environmental stewardship, safe transportation networks and economic stimulus to the community. The ORTC is an organization committed to excellence, with a clear vision and a passion for delivering outstanding results. The ORTC mission includes the construction of land and water trails through the reallocation of abandoned rail corridors, bridges, trolley lines, brownfields, and canal towpaths. The ORTC encourages additional access to these resources and ensures that these natural areas are afforded protection. The ORTC endorses the revitalization of the natural beauty of the Ohio River and its surroundings, one of Western Pennsylvania's most important natural resources. The ORTC's goal is to conserve one of the most diverse ecological ecosystems in Pennsylvania.

The ORTC focuses its efforts on showcasing recreational, educational, historical and cultural sites along the trail. The ORTC is committed to saving and exhibiting collections of historical significance of the region. This preservation provides an enduring record of the past, celebrating our heritage and providing an experience to discover our history with the establishment of the Ohio River Trail Museum.

ORTC as Vehicle for Multi-Municipal Collaboration

The ORTC could serve as the vehicle for a multi-municipal agreement for the Ohio River Trail. Already in place with a positive public image, the ORTC could help to carry out the inter-municipal agreement for the trail development and operation. The ORTC already provides a management foundation to the municipalities in the trail corridor in terms of getting it up and running.

The ORTC could serve in a leadership role in all facets of trail planning, development and operation in the corridor, thereby providing expertise and support that the municipalities have on their own. To that end, the

following guiding principles could be established to provide a common and clear foundation for the multi-municipal partnership.

Guiding Principles

Productive Partnerships – Partners in the inter-municipal agreement would include The eight North Shore communities include Ohioville Borough, Glasgow Borough, Midland Borough, Industry Borough, Brighton Township, Vanport Township, Beaver Borough and Rochester Borough as well as the North Shore Extension and the Bradys Run Extension communities including Rochester Township, New Brighton Borough, the City of Beaver Falls, Fallston Borough, Patterson Township and Bridgewater Borough. ORTC would serve as the umbrella organization.

- **Excellent Service –** *Provide the best possible service in the planning and development of the Ohio River Trail that foster high quality experiences for the people who use it.*
- **Trail Planning Leadership –** *Set the standard for trail planning and development in the trail corridor.*
- **Capacity Building –** *Work with the municipalities and other organizations interested in the trail and other trail segments connecting to the Ohio River Trail for the purpose of advancing the trail network in the region.*
- **Wise Decisions –** *Base decisions on a solid foundation of information that includes public opinion, environmental, engineering, safety, aesthetics, heritage, transportation and recreation considerations.*
- **Effective and Efficient Management –** *Develop and implement sound management practices that are action oriented, have accountability, and foster creative and collaborative solutions.*
- **Stable Funding –** *Strive to provide a stable funding base to support the ORT mission. The projected annual cost for maintaining the ORT covered by this plan is projected to cost about $25,000 equating to about $1,500 per mile. On-road lengths will require less maintenance and therefore cost less than off-road segments. Maintenance costs by trail segment will be provided as part of this plan so that each municipality will have the projection for their respective jurisdiction. Other costs for advertising, volunteer management, programs and events would fall to the ORTC.*

Legislation Authorizing Intergovernmental Cooperation

The Commonwealth of Pennsylvania law authorizing intergovernmental cooperation, now codified in Title 53 of the Pennsylvania Consolidated Statutes, Sections 2301-2315, was originally adopted as Act 180 of 1972. Title 53 authorizes two or more "local governments" to "jointly cooperate in the exercise or in the performance of their respective governmental functions, powers or responsibilities." Such cooperation is to be authorized by ordinance, which must specify the conditions, duration, purpose, manner, and extent of any financing, organizational structure, manner in which property will be acquired, managed, and disposed of, and that the entity created will be empowered to enter into certain employee related contracts.

Appendix A - Sample Intergovernmental Agreement

A sample agreement for the ORNST communities is provided in Appendix A of this document and is intended to be used as a model to further partnership discussions. This is presented as an example and as the basis for discussion in advancing the intergovernmental agreement for the trail. The process for negotiating this agreement should be determined. This could be done with appropriate existing parties involved with this project such as the ORTC. If no suitable party is in place to undertake this negotiation, the municipalities could consider applying for a Peer Study funded by PADCNR. The Peer Study would be a grant funded project with PADCNR contributing $10,000 and the partnering communities or another source such as the counties or the ORTC paying a total cost of only $1,000 as the match. A solicitor must review the agreement with each municipality having their own solicitor review the agreement at appropriate points in development.

Other Partnership Opportunities

The ORTC is currently pursuing other partnership opportunities to expand the recognition and destination potential of the Ohio River Trail. A few of the partnerships being discussed include with the Adventure Cycling Association to include the ORT as part of the U.S. Bicycling Route 50. The ORTC is also working with the Center for Minority Health at the University of Pittsburgh to include the route as part of the Underground Railroad Pittsburgh Spur. As the trail project advances, opportunities to tie trail development efforts with other overlapping or mutual interested parties will help to elevate the importance of the Ohio River Trail as a local, regional and national asset.

Operation and Maintenance

Maintenance is a key facet of all trail management programs. Effective maintenance provides trail users with a clean, safe and enjoyable trail experience while protecting trail ownership from unwanted liability claims. Proper maintenance is also a means to keep the cost of managing the trail in check over the long-term.

General Trail Quality and ADA Compliance Inspections

General trail inspections provide management with an overall sense of the condition of the trail and allow for planning of upcoming maintenance needs and projects. Trail inspections can occur regularly throughout the year but a spring trail inspection is of particular importance because of the potential problems created by 3-4 months of winter weather. These inspections can occur simultaneously with ADA compliance inspections. Trail ambassador and friends of the trail groups are a particularly valuable inspection resource because of their frequency of use on the trail. These groups can be advised of what to look for and a reporting system established to relay problems to the appropriate management entity. It is also good practice to keep records of inspections and maintenance activities.

Drainage Inspections

The inspection of drainage facilities which include ditches, swales, culverts and cross pipes, is of particular importance in the overall health of the trail. When functioning properly, they ensure water is directed and handled accordingly, preventing unwanted erosion of the trail. Inspections facilitate that the drainage system is operating correctly and that impediments can be removed before they cause problems. These should be conducted in the spring and again in the late fall and can be performed by a variety of parties, including volunteers.

Surface Treatment

Treating the surface of the trail is dependent on the type of surface. Crushed stone trails present more maintenance concerns than asphalt trails. Crushed stone trails require some form of grading or dragging on at least an annual basis, sometimes more frequently depending on usage patterns. This can be accomplished with machinery designed for the task or with a drag pulled behind a truck (many regional trail groups have had success in designing “homemade” or machine fabricated drags). Asphalt trail surfaces do not require dragging or grading.

Bridge Maintenance/Inspections

There are a variety of bridge structures that are used on trails. Each type of bridge carries with it a specialized set of maintenance activities. Maintaining a schedule of bridge inspections will help to ensure the integrity and safety of the structures on the trail. Regardless of the type, if the bridge passes over or under PennDOT right-of-way it must be inspected every two years for structural integrity. All other bridges, if only carrying pedestrian and bicycle traffic, can rely on an inspection schedule of every five years. Outside of the inspection of the superstructure, the safety barriers should be inspected annually to ensure they are functioning properly, any vegetation encroaching on the superstructure should be removed and the deck of the bridge should be free of obstructions/impediments. There are bridges carrying the trail over an obstruction and others carrying structures over the trail. These structures can be further divided by the types of decks they have. Each requires attention specific to its particular style:

Wooden Decked Bridges: Typically constructed with pressure treated lumber, this type of deck should have a wood preservative applied to the deck every other year once the wood begins to show signs of aging to ensure protection of the deck and extension of its usable life. During the application of preservative, the fasteners that have loosened should be either removed/replaced or pounded back into the deck to remove the hazard they create. The plates that cover expansion joints on the bridges should be fastened securely and sit flush against the wood decking, if over exposed, the edges of the plates present a safety hazard.

Concrete Decked Bridges: These structures should have the decks inspected annually for any evidence of cracks. Any caulking at the joints that is loose or exposed should be replaced. The expansion plates should be inspected as well to ensure they are secure and flush with the deck.

Culvert Bridges (stream crossings): These structures experience erosion from the movement of water against their superstructure. Debris needs to be removed from the wings and walls on an as needed basis to allow for the free flow of water and reduce the risk of flooding. Because they experience constant pressure from the water they should have a cursory inspection conducted annually to ensure their integrity.

Culvert bridges (Grade Separated Road Crossing): These structures are unique in that another party is partly responsible for their maintenance. The roadway and its components are the responsibility of the municipality or PennDOT, depending on who owns the road. The responsibility for the structure itself rests with the owner identified in the highway occupancy agreement. Generally, these bridges will need to be inspected by an engineer every two years to meet the requirements of PennDOT or the municipal owner of the roadway.

Mowing

Mowing, where vegetative shoulders exist along the side the trail, is important to provide for safe, clear recovery zones and also for aesthetic purposes. Mowing shoulders also helps to slow the encroachment of vegetation into the trail surface material, particularly a problem with crushed stone surfaces. In most cases a four to five foot swath is an appropriate mowing width. In heavily used areas, close to access points, wider mowing swaths can be desirable. Mowing can be accomplished through contracted services, municipal cooperation or by the trail group’s volunteer corps. Trail groups also have employed a system of purchasing the equipment and contracting with an operator or coordinating the volunteers. Mowing cycles generally are 1-2 months apart, resulting in mowing requirements of 3-5 times annually.

Mowing at parking access areas is an important part of vegetation management. These are often the first areas visitors see and a clean, well-mowed area presents a good first impression. In addition to mowing, hand trimming is also recommended. These areas can be maintained by volunteer labor groups.

Spraying

Both asphalt and crushed stone trails can require some herbicidal spraying as part of the maintenance program. Spraying helps to prevent parallel vegetation encroachment that, over time, can considerably decrease the width of the trail. It also helps to control vegetation infiltration into the trail surface itself. On crushed stone trails, a spraying/dragging program is particularly effective at managing infiltration. Keep in mind that the application of herbicides should only be conducted by a licensed applicator. Many municipal recreation or public works departments keep someone on staff licensed to spray. Since spraying is usually only required once during the year, late spring preferably, the possibility of cooperatively obtaining this service with other public works entities in the area should be considered.

Tree Trimming

As a maintenance operation, tree trimming helps to maintain vertical clearances and also to catch potential problem limbs and trees before they fall to the ground. Trimming should be conducted initially in the spring to remove tree falls and limb hangers. It is also a good idea to reevaluate the trimming in the late summer or early fall when the trees are vegetated so the effects on vertical clearances can be accurately judged.

Sweeping

Both asphalt and crushed stone surfaces can require sweeping, generally performed in the spring and mid-fall, to remove vegetative debris from the trail. This can be accomplished with machinery designed for this purpose or through cheaper means such as placing individuals on a pickup bed with leaf blowers.

Litter and Graffiti Control

The enforcement of graffiti and litter ordinances will be the responsibility of the relevant municipal police force. Litter control can be accomplished by educating volunteer groups and trail ambassadors to remove litter when they encounter it. Routine monitoring and patrolling by trail users and local support groups will minimize this problem as well.

Law Enforcement/Security

In general, law enforcement will be handled by the local law enforcement agency, with the state police serving as backup. When there is no local agency available, the State Police will provide primary law enforcement services. Several of the communities have or are planning on installing monitoring cameras for portions of their communities. The City of Aliquippa has live cameras along Woodlawn Road, including most of the portions that include the proposed ORNST. Monaca Borough has received funding to locate security cameras along the riverfront, especially targeting the bridge areas.

When trails are proposed, a common concern expressed by local residents and elected officials is the issue of the safety of users and neighboring properties due to a perceived potential for crime. While this is a common concern, it is also largely an unfounded one.

While studies show the issue of crime on trails is more perceived than reality, there is no way to completely eliminate the potential for crime that exists almost everywhere in our society. To help minimize the potential for issues and increase the safety of users, there are design elements that can be incorporated into trail facilities. These include lighting as trail access areas and signage, such as mile markers, that help to orientate trail users if a need arises to locate themselves for emergency providers. Also, routing determined during the design phase can help to ensure the trail remains visible to the public eye and a deterrent to unwanted activity. Furthermore, once the trail is built, effective programming can help to ensure the corridor remains safe. Volunteer patrols, trail ambassadors and engaging neighboring property owners are effective means to assist in ensuring a safe facility.

In a classic example of perception not equaling reality, the proposal to construct a section of trail in Somerset County, Pennsylvania, that eventually would become a section of the Great Allegheny Passage, was met with opposition by some of the residents in the towns the proposed project passed through. One of the more vocal opponents was John Tressler, Confluence Borough Council President. He cited the potential for crime, particularly with the proponents touting the possibility of connecting the trail to the urbanized elements of Pittsburgh. With the trail constructed and open for over 20 years, Mr. Tressler has since changed his opinions. He has seen the value of the trail to his community and the issues of crime spurred by the trail never came to fruition. In fact, he has reached out to other communities considering trail projects to espouse the benefits the trail has had on Confluence, including increased property values, economic development and community pride. Mr. Tressler has been quoted as saying, "I do think the bike trail was one of the best things that ever happened to Confluence, the town was dying." By 2004 property values were between four and five times higher than before trail.

Another example comes from Elizabeth Township, PA, on the Youghiogheny River Trail when it was being developed in the late 1990's. The Chief of Police at the time, Charles Tennant, went on record as saying "…The trail has not caused any increase in the amount of crimes reported…We have found that the trail brings in so many people that it has actually led to a decrease in problems we formally encountered such as underage drinking…". He was so impressed by the impact of the trail he became an advocate for trail development in other areas, lending his name, title and positive experiences to a letter of support to the Rails-to-Trails Conservancy addressing the reality of the perceived crime issues.

EMS

When emergencies arise on the trail, the local emergency response networks will generally manage the responses. Access to the local networks is through dialing 911. It is important that coordination with the appropriate EMS providers take place to ensure that access is attainable to areas of the trail system where vehicular use is restricted. It is also important to coordinate with County EMS to develop mapping as trail sections are developed and opened to aid in emergency response. The trail, along with mileposts, should be included in the County GIS inventory used by 911 for emergency dispatching.

Vehicular Use

Although strongly discouraged, there will be times that vehicular use of the trail by others is a necessity. A vehicular use policy should be established that outlines the request process and guidelines for use of the trail. The trail group could request a fee for the privilege.

Signage

A simple standardized signage system should be designed and implemented to deliver clear, concise messaging and promote continuity of the trail system. An effective signage program would include trailblazer signs defining the ORNST trail route as well as connection to neighboring feeder trails. Trail directional signs should provide information related to the location of support services, major destinations and attractions. Mile markers, regulatory signs and interpretive signs for historic and cultural features provide valuable support information to trail users. In addition to its primary purpose, signage can be an important tool in helping to brand the trail. In some cases, the Federal Department of Transportation, Highways Administration, Manual of Uniform Traffic Control Devices (MUTCD) signage will be required which have clear, established guidelines for use and generally are used to alert vehicular traffic of at-grade crossings. Signage should be replaced when damaged or faded.

Friends Group

As the trail is developed, the continued growth and involvement of the Ohio River Trail Council will be an important asset to the long-term care of the trail. The development of an ORTC maintenance committee could

spearhead and coordinate the overall care of the trail, where it is likely that a conglomeration of different parties will be participating in the maintenance of the trail. If municipal partners are involved, they should be offered seats on the committee. The ORTC should also develop a volunteer based "trail care crew" whose role would be to provide maintenance assistance and help on special projects matched to skill sets of the members.

Trail Ambassador Program

The ORTC should implement a Trail Ambassador program once sections of trail come on-line. Many of the regional trail groups have established programs that could be copied and modified to meet the needs of the ORTC. Outside of providing a friendly, helpful face to the trail, ambassadors provide an important monitoring function. Often, ambassadors spend as much or more time on the trail than the managing entity and are more in tune with the state of the trail.

The costs associated with maintaining the Ohio River Trail will vary by surface type. The trail system will utilize three different surfaces that each has their own maintenance needs. Of the three types (on-road, 10' multi-use path, boardwalk) the on-road trail will be the most economical to maintain, followed by boardwalk and then off-road.

Potential Maintenance Costs

The maintenance needs of the on-road route consist of street sweeping done at bi-monthly intervals, pavement marking re-striping/repair, vegetation management and sign replacement as needed. The needs of the boardwalk trail portion consist of the replacement of warped/broken decking and railing, annual superstructure inspections, vegetation management and fastener repair/replacement. The maintenance needs of the off-road asphalt trail include surface repairs, drainage work, vegetation management, mowing, and surface sweeping/clearing. There are inherent costs to trails, regardless of surface type, such as vandalism repair and litter control/trash removal that are built into each cost range shown.

The figures shown represent a range in which maintenance costs will likely fall. The cost of some maintenance activities can be mitigated through volunteer work, donated labor and equipment and preventive measures to lessen future costs. These average ranges, however, do not account for unanticipated costs caused by weather events, natural disasters or other catastrophic failures that otherwise cannot be planned for in annual budget. It is wise to develop a contingency fund or maintenance endowment to help offset the impact of these types of problems.

Ohio River North Shore Trail Feasibility Study

APPENDIX

Appendix A: Sample Intergovernmental Agreement

This agreement made this ____ day of _____, 201__ by and among:

Ohioville Borough, situated in Beaver County
AND

Glasgow Borough, situated in Beaver County
AND

Midland Borough, situated in Beaver County
AND

Industry Borough, situated in Beaver County
AND

Vanport Township, situated in Beaver County
AND

Beaver Borough, situated in Beaver County
AND

Bridgeview Borough, situated in Beaver County
AND

Rochester Township, situated in Beaver County
AND

Rochester Borough, situated in Beaver County
AND

Monaca Borough, situated in Beaver County
AND

Center Township, situated in Beaver County
AND

City of Aliquippa, situated in Beaver County
AND

Hopewell Township, situated in Beaver County
AND

South Heights Borough, situated in Beaver County
AND

Crescent Township, situated in Allegheny County
AND

Moon Township, situated in Allegheny County
AND

Coraopolis Borough, situated in Allegheny County

Hereafter collectively referred to as the “Partnership” or sometimes individually as “Participant”.

Witnesseth

WHEREAS, the Partnership, desires to improve and maintain said real property of the Ohio River Trail for the purpose of providing recreational trails for biking, hiking, equestrian and other non-motorized activities.

WHEREAS, the Intergovernmental Cooperation Act (53 PA. C.S. Sections 2301 and 2302, herein called the “Act”) permits municipalities to enter into agreements to cooperate in the exercise or performance of their respective functions, powers or responsibilities, including recreation and park activities; and

WHEREAS, it is believed by the Participants that the citizens within their respective political boundaries will be benefited by the Ohio River Trail jointly maintained by them, which program shall comply with all applicable laws; and

WHEREAS, it is the desire of the parties to arrange for proper operation and maintenance of the Ohio River Trail, and

WHEREAS, the purpose of the Agreement is to provide a framework and a mechanism to adequately maintain the trail within the political boundaries of the Participants through joint efforts rather than by separate efforts of each Participant; and

WHEREAS, to prevent duplication of effort and to maximize cost effectiveness, the Participants mutually desire to mobilize community resources to effectively and economically maintain the Ohio River Trail; and

WHEREAS, the Participants intend to foster partnerships with other public and private organizations to collaborate with the Partnership for the good of all of the communities participating and enable other municipalities to become members of the partnership in the future, and

WHEREAS, all municipalities are legally authorized to enter into such an agreement for the joint administration of recreational facilities including trails for their respective citizens.

NOW THEREFORE, in consideration of the mutual promises contained herein, the Participants agree as follows:

1. Incorporation of Recitals
   The above recitals are hereby incorporated herein as if fully set forth.

2. Responsibilities
   (A) The Ohio River Trail Council (ORTC) shall manage and administer the operation and management of the Ohio River Trail pursuant to this agreement, and all amendments hereto.
   (1) **Ownership** – Each municipality retains ownership of its portion of the Ohio River Trail within its limits.
   (2) **Grants** – The ORTC in partnership with all or some of the participating municipalities, will pursue grant funding for the cyclic costs, such as resurfacing of the trail so that Participants will not be responsible for the capital re-surfacing and equipment replacement expenses.
   (3) **Coordination** – The ORTC shall be responsible for coordinating all trail functions including special events with the Participants.
   (4) **Communication** – The ORTC shall be responsible for taking the lead on communication to insure that all parties are fully informed and involved with all aspects of the Ohio River Trail. This shall include an annual meeting of the Partnership to set goals for the next fiscal year and to resolve any issues related to trail operations.
   (5) **Planning** – The ORTC shall be responsible for all planning related to the operation and management of the trail. The ORTC shall involve the Participants in the planning process.
   (6) **Directing** – The ORTC shall be responsible for directing the operations of the trail through coordination with the Participants. This includes:
      (a) Development and establishment of planned maintenance management system for the Ohio River Trail.
      (b) Scheduling and implementation of seasonal trail cleanup programs.
      (c) Inspecting the trail at regular intervals and coordinating any maintenance needs with the respective Participant.
      (d) Contracting for high tree pruning and herbicide spraying.
      (e) Replacement of equipment.
      (f) Contracting for any repair that is “capital’ in size and scope. (A minimum dollar amount could be included)
      (g) Serving as the single point of contact for the trail and responding to all citizen concerns and requests for information.

(h) Publicizing and marketing the trail.
(i) Coordinating the development of volunteer training.
(j) Developing and implementing a trail volunteer program.
(k) Responding to requests for assistance from the Participants regarding trail operations.
(l) Fundraising for the trail.

(7) **Evaluating** – The ORTC shall be responsible for annually evaluating trail operations in collaboration with the Participants and making recommendations on operational improvements.
(a) Participants.

(A) **Ordinance or Resolution** -Each Participant must adopt an ordinance, or pass by resolution or other action of its governing body of equal status, ratifying their participation in the program and approving and authorizing the execution of the Agreement.
(B) **Official Recognition**- Each Participant will incorporate the Ohio River Trail in its official municipal maps and plans.
(C) **Communication** – Each participant shall inform the ORTC about the trail with respect to conditions or incidents that require ORTC response. Each participant shall designate an official contact for the Ohio River Trail for communication with the ORTC.
(D) **Trail Segment** - Each participant shall administer the maintenance of the Ohio River Trail within the segment of the corridor located within the respective municipality according to agreed upon Maintenance Standards, attached hereto. The trail will have a "pack it in/pack it out" regulation for trash.
(1) **Trail Surface**- The ORTC will be responsible for soliciting and entering into contracts for trail resurfacing.
(2) **Trail Heads –** Each Participant shall be responsible for the maintenance of the trailhead(s) within its jurisdiction according to the Maintenance Standards. (Trailhead is defined as a major point of entry to the trail that provides parking, information boards, and other trail amenities.)
(3) **Tree Trimming –** Each Participant shall be responsible for trimming trees along its segment of the corridor twice annually to the height specified in the Maintenance Standards
(4) **Trail Mowing –** Each Participant shall be responsible for trail mowing twice-monthly April through October.
(5) **Security –** Each Participant shall be responsible for the patrolling of the trail on a schedule to be determined by the Participant.

3. The Partnership will establish its own form of organization and appropriate by-laws. Said by-laws shall incorporate any and all provisions set forth in this Agreement with regard to the conduct of business and shall be reviewed and commented upon by the governing bodies of the Participants.

(A) Duties of the Members

(1) Each member shall serve as a liaison with his or her respective local government, keeping them informed of the Ohio River Trail and to obtain the input of local officials.

(2) Identify and report the trail needs of their respective municipality to the ORTC, as well as monitoring the progress of the ORTC in addressing those needs.

4. Finances

(A) The ORTC shall be responsible for all capital improvements through the pursuit of grants; raising funds for contracting the tasks of high tree maintenance and herbicide spraying; staff for coordination, oversight and management.

(B) Participants shall be responsible for providing the above identified maintenance tasks in Item 2(b) as their in-kind service for the operation of the Ohio River Trail.

(C) Insurance – The ORTC in conjunction with the Counties of Beaver and Allegheny shall provide liability insurance for the Ohio River Trail.

5. Effective Date, Term, Termination, Adding Participants

(A) Effective Date and Term – This agreement shall be effective _____ __, 201__ and shall be for a term of _____ years ending _____. Participants may not withdraw from this agreement during the initial _____ agreement. The Agreement shall continue in full force and effect and shall automatically be renewed year-to-year thereafter except as otherwise provided in this agreement.

(B) Withdrawal – After the initial _____ term, a Participant may withdraw from the terms of this agreement at the end of any calendar year by giving written notice to the ORTC one (1) year before the proposed withdrawal date. Withdrawal from this agreement by any Participant shall not terminate the agreement among the remaining parties. Withdrawal from this agreement must be approved by the majority of the voting members of the governing body of the Participant, which desires to withdraw, and voted on in a public meeting held in accordance with the Pennsylvania Sunshine Act.

(C) Dissolution – In the case of dissolution of the Partnership by mutual consent of all Participants hereto, the equipment, property, materials, supplies and capital assets of the Partnership shall remain in place and become the responsibility of a successor trail manager or the landowner,.

(D) Adding Participant(s) – At any time during the term of this Agreement consideration may be given to invite or at their own choosing allow other municipal entities to join and become part of this Agreement. The new Participant must pass an ordinance, or other action of its governing body of equal status, which includes approval of this Agreement and its amendments and authorizes the additional execution of this Agreement by the new participant. Terms of such addition shall be approved by a majority of Participants at such time.

6. Entire Agreement

This Agreement constitutes the entire contract by the Participants and there are no other understandings, oral or written, relating to the subject matter hereof.

7. Amendment
This Agreement shall not be amended or altered except by writing duly approved by and signed on behalf of all of the Participants.

8. Governing Law

This Agreement shall be governed by the Laws of the Commonwealth of Pennsylvania. This Agreement is adopted pursuant to the Act and each Participant shall take all necessary steps under said statute to copy with the same.

9. Further Action

The Participants agree to take all action necessary to carry forth the provisions of this Agreement.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals of the day, month and year first above written

Attest:

_____

Ohioville Borough, Beaver County

By: _____

Attest:

_____

Glasgow Borough, Beaver County

By: _____

Attest:

_____

Midland Borough, Beaver County

By: _____

Attest:

_____

Industry Borough, Beaver County

By: _____

Attest:

_____

Vanport Township, Beaver County

By: _____

Attest:

_____

Beaver Borough, Beaver County

By: _____

Attest:

_____

Bridgeview Borough, Beaver County

By: _____

Attest:

_____

Rochester Township, Beaver County

By: _____

Attest:

_____

Rochester Borough, Beaver County

By: _____

Attest:

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Monaca Borough, Beaver County

By: _____

Attest:

_____

Center Township, Beaver County

By: _____

Attest:

_____

City of Aliquippa, Beaver County

By: _____

Attest:

_____

Hopewell Township, Beaver County

By: _____

Attest:

_____

South Height Borough, Beaver County

By: _____

Attest:

_____

Crescent Township, Allegheny County

By: _____

Attest:

_____

Moon Township, Allegheny County

By: _____

Attest:

_____

Coraopolis Borough, Allegheny County

By: _____

Note: Allegheny and Beaver Counties could also be partners in this agreement.

Paved Multi-use Trail: *Overview*

Multi-use paths are completely separated from motorized vehicular traffic and are constructed in their own corridor, often within an open-space area. Multi-use trails typically have a paved asphalt surface and are capable of being constructed within flood-prone landscapes as well as upland corridors.

- Paved asphalt, concrete or permeable paving is recommended.
    1. In most areas, paved asphalt trails offer substantial durability for the cost of installation and maintenance. As a flexible pavement, asphalt should also be considered for installing a paved trail on slopes.
    2. In areas prone to frequent flooding, and for intensive urban applications, it is recommended that concrete be used for its superior durability and lower maintenance requirements; Consider using high albedo pavement in place of conventional concrete surfaces (it reflects sunlight, reducing radiated heat).
    3. Consider the following for permeable paving: a) It can be twice the cost of asphalt, b) A maintenance schedule for vacuuming debris is required to retain permeability, and c) Not suitable in the floodplain, or in areas without proper drainage (sheet flow or pooling of water with sediment clogs pours).
- Proper trail foundation will increase the longevity of the trail; two inches surfacing material over four inches (min.) of base course gravel over geotextile fabric is recommended. Soil borings may need to be conducted to determine adequate material depths; it should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles.
- Typically 10' wide, 2% cross slope, with two-foot wide graded shoulders; the shoulders help prevent edges from crumbling and provide an alternate walking and jogging surface.
- Centerline stripes should be considered for trails that generate substantial amounts of traffic, and are particularly useful along curving sections of trail.
- Trail landscaping and maintenance should enhance conditions for wildlife by planting only native species in the trail corridor, removing invasive species when possible, and avoiding harmful pesticides and herbicides. The overall shape of protected natural landscapes along trail corridors also influences wildlife: single, large, contiguous natural areas are more beneficial to wildlife than the same acreage split into smaller segments.

Paved Multi-use Trail: *Urban Waterways*

'Paved Multi-use Trail' guidelines apply, with the following considerations and exceptions:

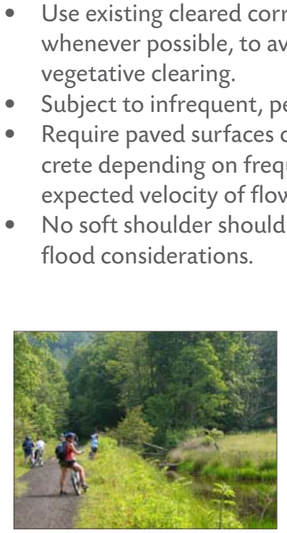
- Located only in urban areas, where right-of-way constraints and channelized streams restrict trail development to the floodway.
- Typically positioned directly adjacent to the stream channel and are therefore subject to frequent flooding; require hard paved surfaces of concrete to withstand high-velocity stream flows.
- Parking areas near urban waterways can also be retrofitted to accommodate this type of trail.
- When box culverts are built along creeks on planned trail routes, they should be designed to meet with this trail type, and should have sufficient space for trail users.
- Retaining walls or other structural elements may also be required for stable construction and to protect the trail from erosion and flood damage.
- The installation of railings, benches, signage, and trash receptacles, that could obstruct flow during storm events, should be carefully considered.
- The use of retaining walls as seat walls is one way in which non-obtrusive amenities can be included.
- Special consideration should be paid to the mitigation of impacts from trail construction on the natural environment.

Appendix B - Design Guidelines

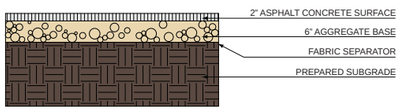
Paved Multi-use Trail : *Floodway Areas*

'Paved Multi-use Trail' guidelines apply, with the following considerations and exceptions:

- Typically positioned within the floodway, but not directly adjacent to streams; some vegetative buffer between the stream and trail should be left intact.
- Use existing cleared corridors for trail routing whenever possible, to avoid unnecessary vegetative clearing.
- Subject to infrequent, periodic flooding.
- Require paved surfaces of either asphalt or concrete depending on frequency of flooding and expected velocity of flow.
- No soft shoulder should be constructed due to flood considerations.
- All elements of the trail, including the trail tread, railings, benches, and trash receptacles, will be periodically flooded; design and materials should be carefully selected and sited accordingly.
- Special consideration should be paid to the mitigation of impacts from trail construction on the natural environment.

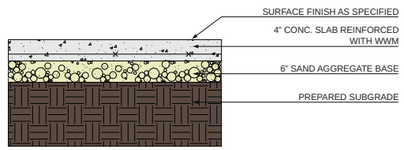


LOW VELOCITY



ASPHALT PAVING ON AGGREGATE BASE

HIGH VELOCITY

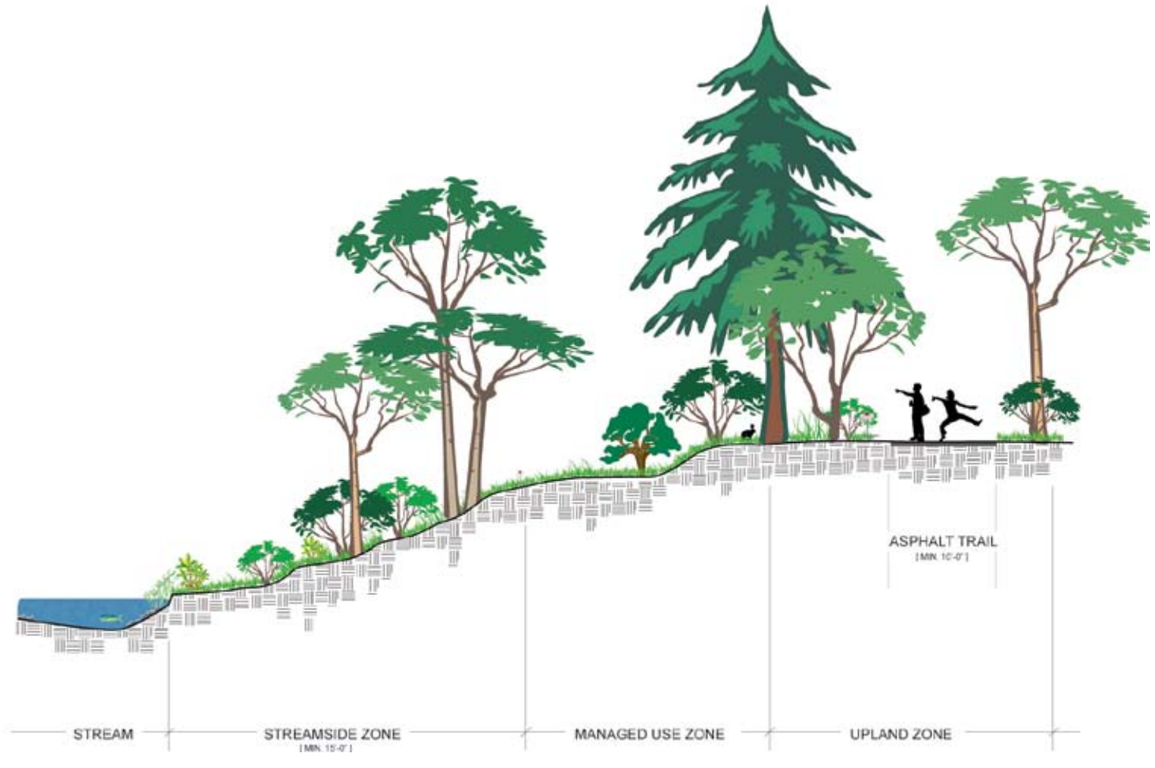


CONCRETE PAVING ON AGGREGATE

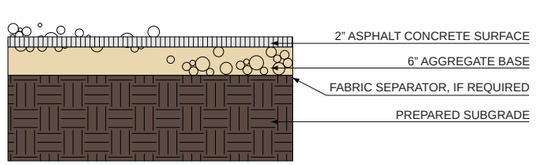
Multi-use Trail : *Floodplain Areas*

'Paved Multi-use Trail' guidelines apply, with the following considerations and exceptions:

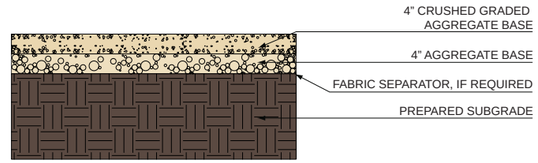
- Typically positioned outside the floodway, within the floodplain; significant vegetative buffer between the stream and trail should be left intact.
- Use existing cleared corridors for trail routing whenever possible, to avoid unnecessary vegetative clearing.
- Subject to occasional flooding, during large storm events.
- Paved asphalt recommended, though an aggregate stone surface may be adequate in some locations.



TYPICAL PAVED & UNPAVED TRAIL CROSS SECTIONS

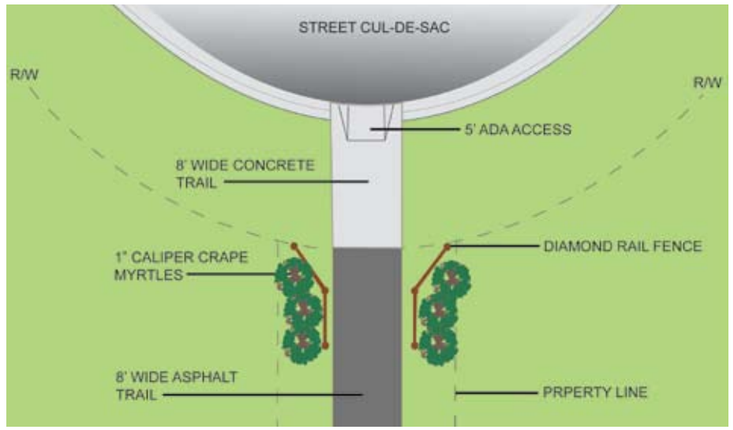


ASPHALT PAVING ON AGGREGATE BASE



GRAVEL PAVING ON AGGREGATE

Neighborhood Spur Trail



Neighborhood entrance trail diagram.

Neighborhood spur trails provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own rights-of-way and easements. Additionally, these smaller trails can be used to provide bicycle and pedestrian connections between dead-end streets, culs-de-sac, and access to nearby destinations not provided by the overall street network. Neighborhood and homeowner association groups are encouraged to identify locations where such connects would be desirable.

- Neighborhood spur trails should remain open to the public.
- Trail pavement shall be at least 8' wide to accommodate emergency and maintenance vehicles, meet ADA requirements and be considered suitable for multi-use.
- Trail widths should be designed to be less than 8' wide only when necessary to protect large mature native trees over 18" in caliper, wetlands or other ecologically sensitive areas.
- Access trails should meander whenever possible.
- Landscaping shall be included at the street frontage of the access trail based upon input from the residents of the cul-de-sac or dead-end street. If the access is not in a cul-de-sac, the adjacent property owners and property owners directly across from the access trail will be invited to provide landscape design input. See following section related to landscaping.
- Two sections of diamond rail fencing should be included on each side of the trail near the street frontage. Diamond rail will not be included if the respective neighborhood deeds and covenants do not permit it.

Example of a neighborhood entrance trail, featuring landscape signage.

Vegetation Buffer, Landscaping, and Street Trees

Vegetated buffers are used to separate trails not only for floodplain protection and noise from the road, but also, where desired, to screen trail corridors from nearby properties.

- Use native plant species and plants appropriate to the region that are already adapted to the local soil and climate, reducing overall maintenance costs and enhancing local identity. Landscape materials should be installed during the appropriate planting season for the particular species.
- Design the buffer with a combination of evergreen and deciduous plants for year-round interest.
- Plant buffers with a combination of trees and large shrubs, understory plantings, and ground cover.
- Keep the vegetation buffer maintained so that it does not impede views or interefere with trail circulation.
- Avoid vegetation "walls" that box-in trail users.
- Select and place trail vegetation to provide seasonal comfort: shade on trails in the warmer months and warming sunlight on trails in colder months.

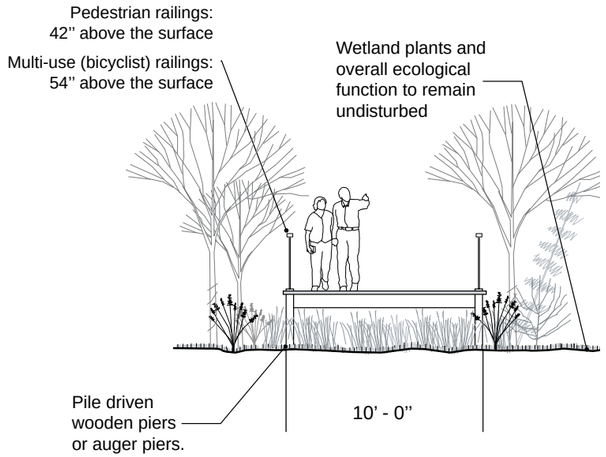
Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians.

- Street and sidewalk landscaping can be used to provide a separation buffer between pedestrians and motorists, reduce the width of a roadway, calm traffic by creating a visual narrowing of the roadway, enhance the street environment, and help to generate a desired aesthetic.
- Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and other pedestrian obstructions.
- Islands of vegetation can be created to collect and filter stormwater from nearby streets and buildings. These islands are referred to as constructed wetlands, rain gardens, and/or bioswales. When these devices are employed, the benefits listed above are coupled with economic and ecologic benefits of treating stormwater at its source. See Seattle's Green Streets Program as a model.

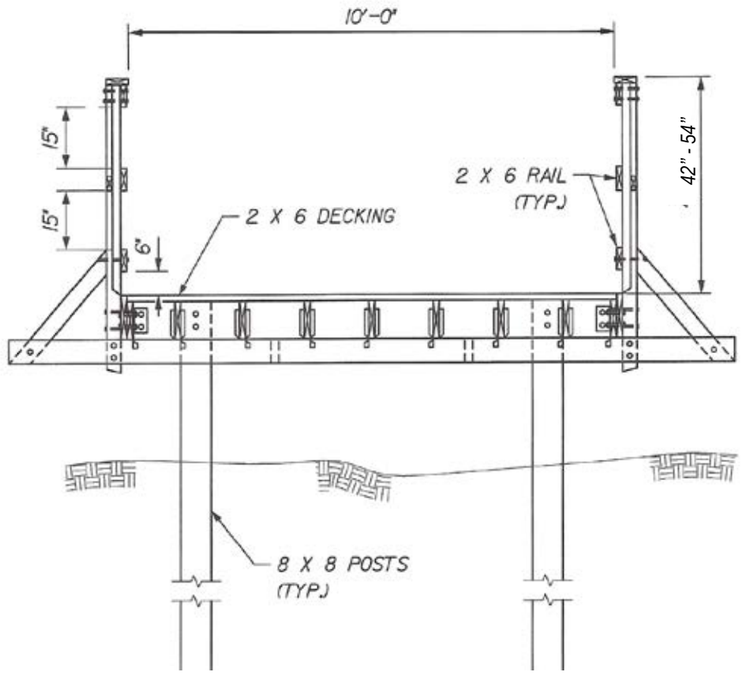
Landscaping used on the Capital Crescent Trail, Washington DC, shows how stormwater treatment can be tied to aesthetically pleasing plantings.

Boardwalk

Boardwalk or wood surface trails are typically required when crossing wetlands or other poorly drained areas. They are constructed of wooden planks or recycled material planks that form the top layer of the boardwalk. The recycled material has gained popularity in recent years since it lasts much longer than wood, especially in wet conditions. A number of low-impact support systems are also available that reduce the disturbance within wetland areas to the greatest extent possible.



- When the height of a boardwalk exceeds 30", railings are required (see section on 'Railings and Fences' for details)
- The thickness of the decking should be a minimum of 2"
- Decking should be either non-toxic treated wood or recycled plastic.
- The foundation normally consists of wooden posts or auger piers (screw anchors). Screw anchors provide greater support and last much longer.
- Opportunities exist to build seating and signage into boardwalks.
- In general, building in wetlands should be avoided.
- Note: muddy bicycle tires may be slick on wood surfaces.

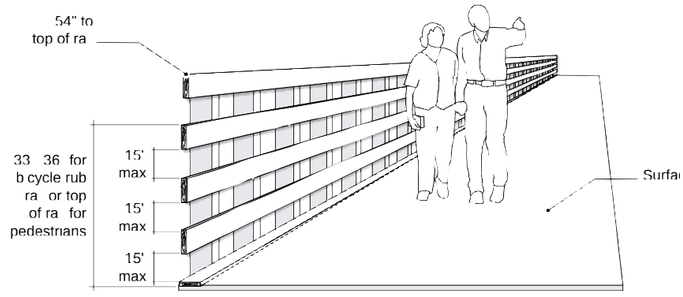


A boardwalk allows for travel through wet areas..

Railings and Fences

Railing and fences are important features on bridges, some boardwalks, or in areas where there may be a hazardous drop-off or hazardous adjacent land uses (such as active rail lines).

- At a minimum, railings and fences should consist of a vertical top, bottom, and middle rail. Picket style fencing should be avoided as it presents a safety hazarad for bicyclists.
- A pedestrian railing should be 42-inches above the surface.
- A bicyclist railing should be 54-inches above the surface.
- The middle railing functions as a "rub rail" for bicyclists and should be located 33-and 36-inches above the surface.
- Local, state, and/or federal regulations and building codes should be consulted to determine when it is appropriate to install a railing.



Innovative Accessways

There are also other innovative ways to provide direct access, particularly in topographically constrained areas (e.g., on steep hills, over waterways, etc.) Stairs, alleyways, bridges, and elevators can provide quick and direct connections throughout the city and can be designed so they are safe, inviting, and accessible to most trail users. For example, stairways can have wheel gutters so that bicyclists can easily roll their bicycles up and down the incline and boardwalks can provide access through sensitive wet areas and across small waterways.

Bicycle wheel gutters on stairs and boardwalk bridge

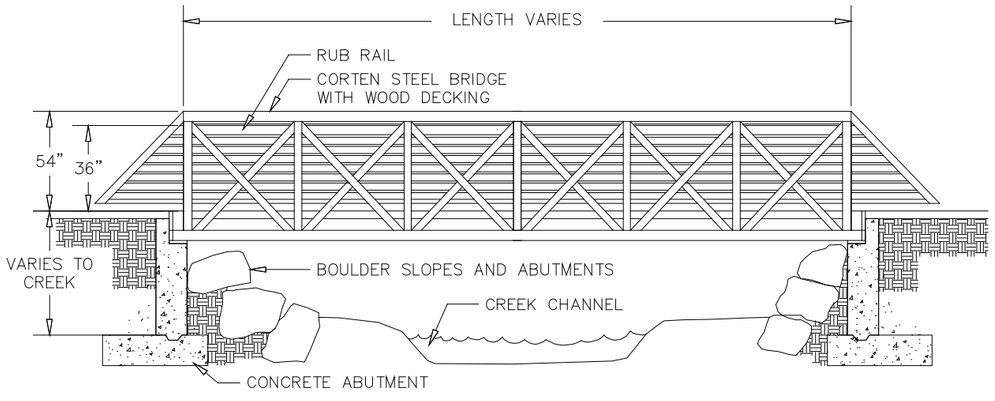
Appendix B - Design Guidelines

Example image of fence used along a rail with trail (Grand Rounds Parkway).

Trail Bridge

Multi-Use Trail bridges (also 'bicycle/pedestrian bridges' or 'footbridges') are most often used to provide trail access over natural features such as streams and rivers, where a culvert is not an option. The type and size of bridges can vary widely depending on the trail type and specific site requirements. Some bridges often used for multi-use trails include suspension bridges, prefabricated span bridges and simple log bridges. When determining a bridge design for multi-use trails, it is important to consider emergency and maintenance vehicle access.

- If a corridor already contains a bridge such as an abandoned rail bridge, an engineer should be consulted to assess the structural integrity before deciding to remove or reuse it.
- A trail bridge should support 6.25 tons; Information about the load-bearing capacity of bridges can be found in the American Association of State Highways and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges.
- There are many options in terms of high quality, prefabricated pedestrian bridges available. Prefabricated bridges are recommended because of their relative low cost, minimal disturbance to the project site, and usually, simple installation.
- All abutment design should be sealed by a qualified structural engineer and all relevant permits should be filed.



Trail Overpass

Appendix B - Design Guidelines

Trail overpasses are most often used to are most often used to provide trail access over large man-made features such as highways and railroads.

- Overpasses work best when existing topography allows for smooth transitions.
- Safety should be the primary consideration in bridge/overpass design.
- Specific design and construction specifications will vary for each bridge and can be determined only after all site-specific criteria are known.
- Always consult a structural engineer before completing bridge design plans, before making alterations or additions to an existing bridge, and prior to installing a new bridge.
- A 'signature' bridge should be considered in areas of high visibility, such as over major roadways. While often more expensive, a more artistic overpass will draw more attention to the trail system in general, and could serve as a regional landmark.
- For shared-use facilities, a minimum width of 14' is recommended.
- Trail overpasses are prohibitively expensive and should only be placed in areas of substantial need.

"Vehicular" Bridges And Underpasses

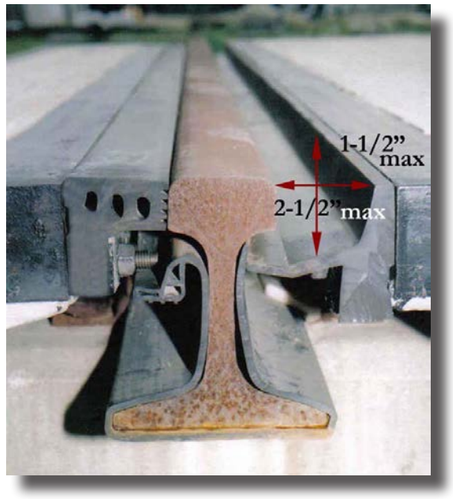
All new or replacement bridges and tunnels should accommodate pedestrians and bicyclists (except on controlled access roadways where such uses are already prohibited by law). Even though bridge replacements do not occur regularly, it is important to consider these in longer-term pedestrian planning.

- Sidewalks should be included on roadway bridges on both sides, minimum 5' wide, with minimum handrail height of 42"
- Sufficient bridge deck width should be provided on new bridges, including approaches, to accommodate bicyclists
- In roadway underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the roadway by more than a standard curb height.
- On bridges built for controlled access roadways, a separated, mult-use sidepath should be provided, minimum 12 ' wide, with connections made to bike/ped facilities on both sides of the bridge.

Trail Underpass

- Over and underpasses should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over.
- Underpasses work best with favorable topography when they are open and accessible, and exhibit a sense of safety.
- Underpasses should have a daytime illuminance minimum of 10 fc achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle.
- Typically utilize existing overhead roadway bridges adjacent to steams or culverts under the roadway that are large enough to accommodate trail users
- Vertical clearance of the underpass is ideally at least 10'; minimum clearance is 8'.
- Width of the underpass is ideally at least 12'; minimum width is 10'.
- Proper drainage must be established to avoid pooling of stormwater, however, some undepasses can be designed to flood periodically (after significant rainfall, for instance).

At-Grade ADA Railroad Conditions

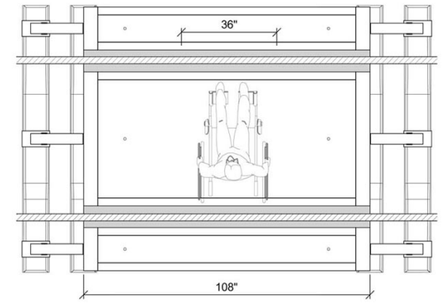


Pedestrian grade crossing systems can be implemented to provide access across railroad lines for persons with disabilities. These crossings systems are commercially manufactured and take into account associated potential hazards such as flangeway entrapment (as addressed above by the application of a flangeway filler).

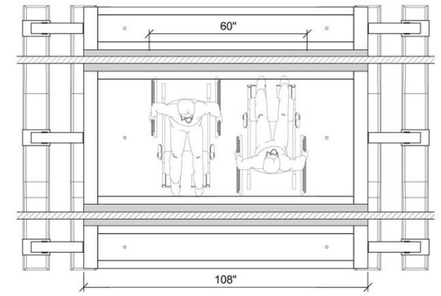
ADA requires that the flangeway widths be a maximum of 2.5″ wide from inside ball of the rail to the grade crossing surface and depth of of the flangeway area should be approximately 1.5″ deep from top of rail to bottom of flangeway.

The spacing of these crossing systems must also adhere to ADA guidelines as illustrated by the graphics to the right.

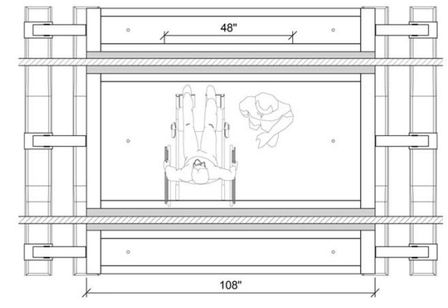
For additional information regarding bicycle traffic at at-grade railroad crossings see B.16.



MINIMUM CLEARANCE WIDTH
FOR SINGLE WHEELCHAIR - 36"
SCALE: N.T.S.

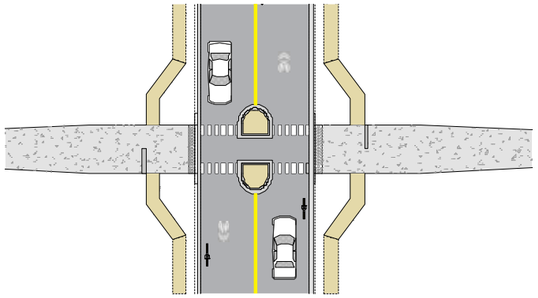


MINIMUM CLEARANCE WIDTH
FOR WHEELCHAIR PASSING (4.2.2) - 60"
N.T.S.

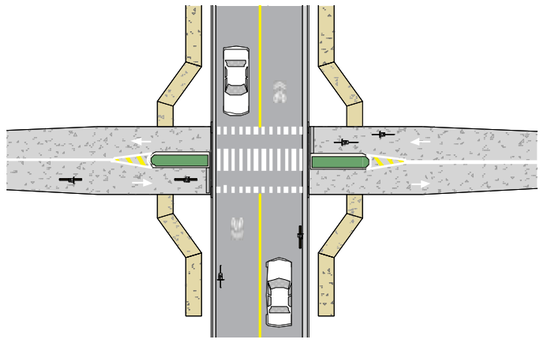


MINIMUM PASSAGE WIDTH FOR
ONE WHEELCHAIR AND ONE AMBULATORY PERSON A4.2.1 (3) - 48"
SCALE: N.T.S.

Trail-Roadway Intersections



Median Refuge
Shared Use Path with Sidewalks



Mid-block Crossing
Shared Use Path with Sidewalks and Medians

Trail-Roadway Intersections (Signalized)

- Signalized crossings may be necessary on trails with significant usage when intersecting with demanding roadways, but MUTCD warrants must be met for the installation of a signalized crossing. Consult the MUTCD or NCDOT Division of Bicycle and Pedestrian Transportation for signal, sign and light placement.

- FHWA issued an interim approval for the optional use of rectangular rapid flashing beacons (RRFBs, shown at left) as warning beacons supplementing pedestrian crossing or school crossing warning signs at crossings across uncontrolled approaches. An analysis by the Center for Education and Research in Safety found them to have much higher levels of effectiveness in making drivers yield at crosswalks than the standard over-head and side-mount round flashing beacons.

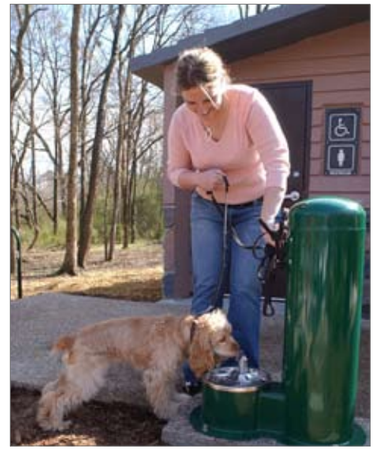
Trail Heads

Major access points should be established near commercial developments and transportation nodes, making them highly accessible to the surrounding communities. Minor trailheads should be simple pedestrian and bicycle entrances at locally known spots, such as parks and residential developments.

A minor trailhead could include facilities such as parking, drinking fountains, benches, a bicycle rack, trash receptacles, and an information kiosk and/or signage. Major trailheads could include all of the above plus additional facilities, such as rest rooms, shelters, picnic areas, a fitness course, an emergency telephone, and a larger parking area.

Partnerships could also be sought with owners of existing parking lots near trails. Benefits are three fold: Business benefit from trail-user patronage; trail owners benefit from not having to buy more land and construct a parking facility; and the environment benefits from less development in the watershed.

A major trail head at the Capital Crescent Trail in Maryland, featuring concessions and bicycle, canoe, and kayak rentals.



A water fountain and pet-water fountain..

Example layout for a major trail head.

Example layout for a minor trail head.

Trail Amenities

Benches

Description: There are a wide variety of benches to choose from in terms of style and materials. The illustrated bench is a custom design that reflects the industrial feel of the warehouse district it is found in. Material selection should be based on the desired design theme as well as cost.

Recommendations: Due to a wide range of users, all benches should have a back rest. A bench should normally be 16 - 20" above ground with sturdy handrails on either side. The seating depth should be 18-20" and the length should vary between 60 - 90". Provide wheelchair access alongside benches, at least a 30-by-48-inch area for adequate maneuvering. If benches are next to each other (either side by side or face to face), allow 4 feet between them.

Other Seating

Description: Other more informal seating opportunities may exist along a trail or near a parking area where other furniture like a picnic table may be appropriate.

Recommendations: This type of furniture can be triangulated with cooking facilities, and a trash receptacle. Wheelchair access spacing recommendations, as noted in the preceding section on 'benches,' also applies to other seating.

Trash Receptacles

Description: Trash receptacles should be constructed of a suitable material to withstand the harsh elements of the outdoor environment. Additionally trash receptacles should ensure that litter is contained securely preventing contamination or spillage into the surrounding environment.

Recommendations: Trash receptacles should be placed along the trail and at all trailheads. Adequate trash receptacles will combat littering and preserve the natural environment for all trail users.

Public Art

Explore opportunities to include public art within the overall design of the trail system. Local artists can be commissioned to provide art for the trail system, making it uniquely distinct. Many trail art installations are functional as well as aesthetic, as they may provide places to sit and play on. According to American Trails,

"Art is one of the best ways to strengthen the connection between people and trails. Across America and elsewhere, artists are employing a remarkably wide range of creative strategies to support all phases of trail activities, from design and development to stewardship and interpretation. In particular, art can be an effective tool for telling a trail's story compellingly and memorably."

Example art programs for trails can be found at:
www.americantrails.org/resources/art/ArtfulWays.html

Appendix B - Design Guidelines

Trail Lighting

Lighting for multi-use trails should be considered on a case-by-case basis in areas where 24-hour activity is expected (such as college campuses or downtown areas), with full consideration of the maintenance commitment lighting requires. In general, lighting is not appropriate for off-road trails where there is little to no development.

- A licensed or qualified lighting expert should be consulted before making any lighting design decisions. Doing so can reduce up-front fixed costs as well as long-term energy costs.
- Use full cut-off, energy-efficient lighting that is IDA Approved Dark Sky Friendly to avoid excess light pollution and save costs (See www.darksky.org for more info)
- If a main trial corridor is unlit and closes at dark, extended hours for commuters should be considered, particularly during winter months when trips to and from work are often made before sunrise and after dusk. See the American Tobacco Trail in Durham, NC, as an example, which is unlit and remains open to commuters until 10 PM.
- Consider lighting at the following locations:
  - Entrances and exits of bridges
  - Public gathering areas along the greenway
  - Trail access points
- Only use lighting along a trail if:
  - Night usage is desired or permitted
  - It is acceptable to residents living along or near the trail
  - The area is not a wildlife area

Roadway Lighting

Proper lighting in terms of quality, placement, and sufficiency can greatly enhance a nighttime urban experience as well as create a safe environment for motorists and pedestrians. Two-thirds of all pedestrian fatalities occur during low-light conditions (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities). Attention should be paid to crossings so that there is sufficient ambience for motorists to see pedestrians. To be most effective, lighting should be consistent, adequately spaced, and distinguished, providing adequate light.

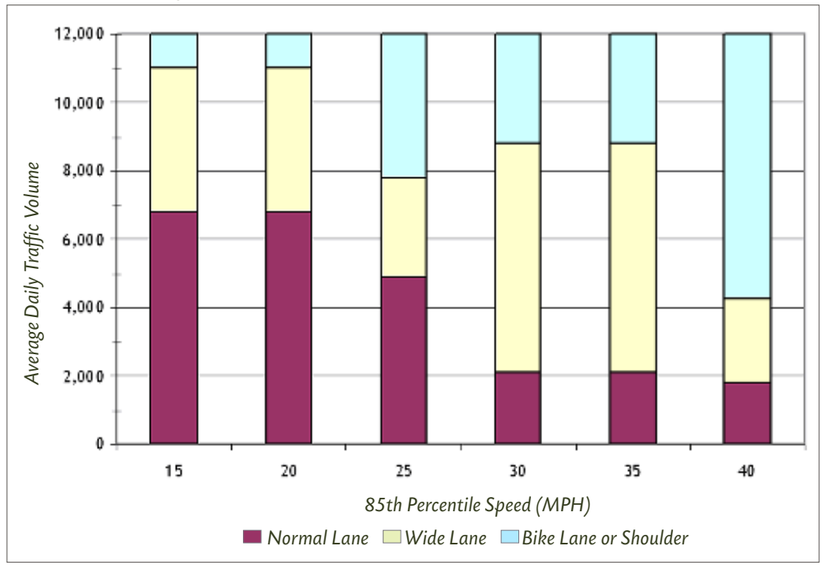
In commercial or downtown areas and other areas of high pedestrian volumes, lower level, pedestrian-scale lighting with emphasis on crossings and intersections may be employed to generate a desired ambiance. Roadway streetlights can range from 20-40 feet in height while pedestrian-scale lighting is typically 10-15 feet. It is important to note that every effort should be made to address and prevent light pollution. Also known as photo pollution, light pollution is 'excess or obtrusive light created by humans'.

- Ensure pedestrian walkways and crossways are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at key intersections.
- Install lighting on both sides of streets in commercial districts.
- Use uniform lighting levels
- Use full cut-off, energy-efficient lighting that is IDA Approved Dark Sky Friendly to avoid excess light pollution and save costs (See www.darksky.org for more info)

On-road Bicycle Facilities

A wide variety of on-road bicycle facilities have been developed to meet different transportations needs in different roadway situations. The appropriate bicycle facility for any particular roadway, whether new or existing, should be dictated primarily by vehicle volume and speed of the roadway. The figure below provides a matrix for evaluating bicycle facilities. The speed of the travel lane is shown along the x-axis and total traffic volumes per day are shown along the y-axis. The different colors represent the type of bikeway facility prescribed given the volume and speed of the travel lane.

North American Speed-Volume Chart



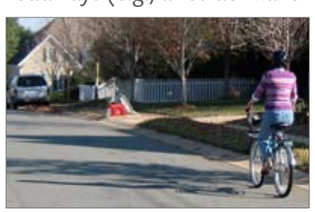
Source: M. King: Bicycle Facility Selection: A Comparison of Approaches

Shared Roadways

By state law, bicycles are vehicles and bicyclists have the same rights and responsibilities as motor vehicles drivers, including the right to share travel lanes on all roadways, except limited access highways. There are several types of roadway environments in which bicycles most commonly share the travel lane with other vehicles. Hence, some of these roadway types are also considered bicycle facilities, including neighborhood streets, bicycle boulevards, wide outside lanes, and streets with shared-lane markings.

Neighborhood Streets

Many bicyclists can safely share the road with vehicles on low volume (less than 3,000 cars per day), low speed roadways (e.g., a residential or neighborhood street).



Left: Neighborhood street examples.

Appendix B - Design Guidelines

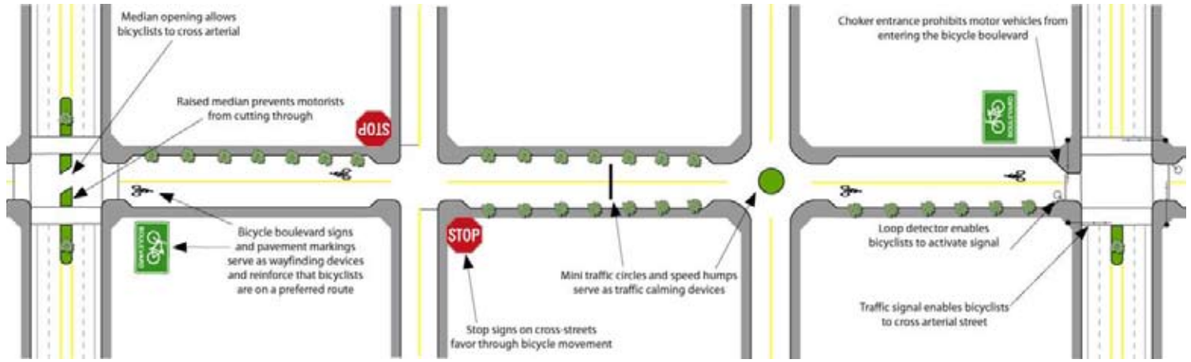
Bicycle Boulevards

To further identify preferred routes for bicyclists, the operation of lower volume roadways may be modified to function as a through street for bicycles while maintaining local access for automobiles. Traffic calming devices reduce traffic speeds and through trips while limiting conflicts between motorists and bicyclists, as well as give priority to through bicycle movement.

For a complete overview, see www.ibpi.usp.pdx.edu/guidebook.php

Above: Bike boulevard route pavement markings and signs direct bicyclists.

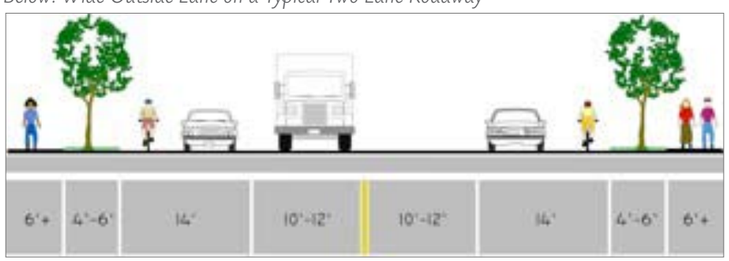
Below: A bicycle boulevard.



Wide Outside Lanes

Even without a bicycle facility or marking, the conditions for bicyling are improved when the outside travel lane in either direction is widened to provide enough roadway space so that bicyclists and motor vehicles can share the roadway without putting either in danger (e.g., higher volume roadways with wide (14') outside lanes).

Below: Wide Outside Lane on a Typical Two Lane Roadway

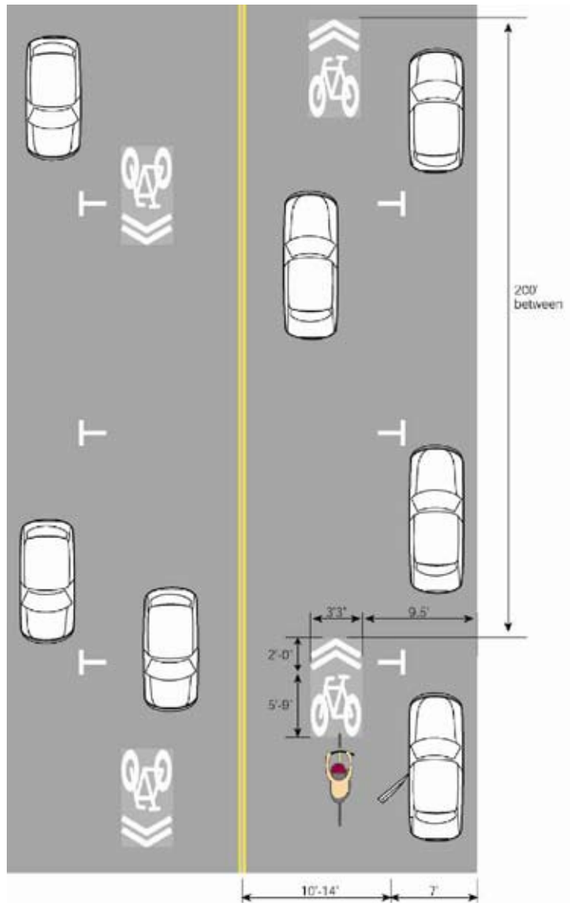


Shared Lane Marking

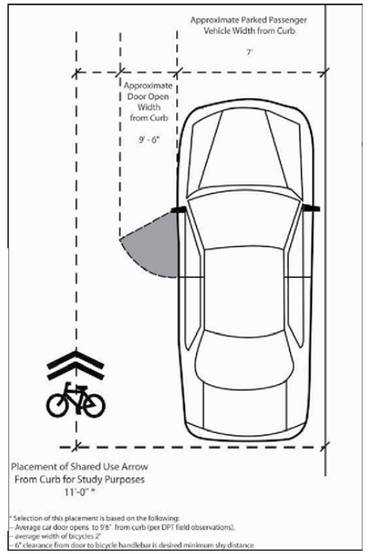
A bicycle shared lane marking (or 'sharrow') can serve a number of purposes, such as making motorists aware of bicycles potentially traveling in their lane, showing bicyclists the appropriate direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent "dooring" collisions. The shared lane marking stencil is used:

- Where lanes are too narrow for striping bike lanes
- Where the speed limit does not exceed 35 MPH
- With or without on-street parking

For one-way streets with two travel lanes, the marking should be placed in the left lane to reduce chances of a dooring collision. Even though traffic laws generally call for slower vehicles in the right-hand lane, there is an exception for bicyclists ("Any person operating a pedalcycle upon a roadway which carries traffic in one direction only and has two or more marked traffic lanes may ride as near the left-hand curb or edge of the roadway as practicable" www.dmv.state.pa.us/pdotforms/vehicle_code/chapter35.pdf)



Shared lane markings in Bethlehem, PA.

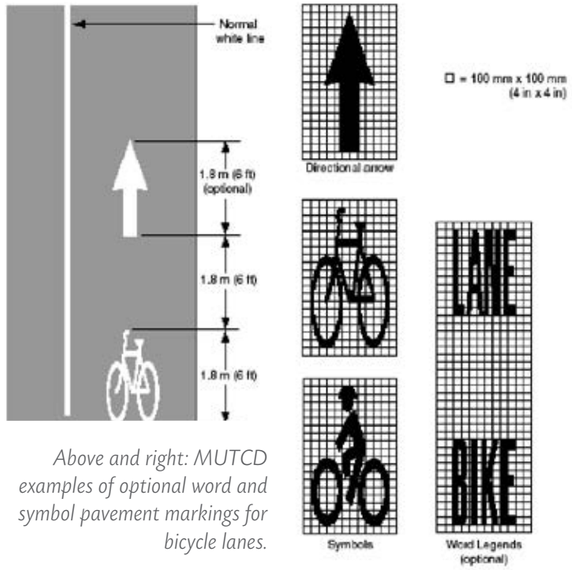


Bicycle Lanes

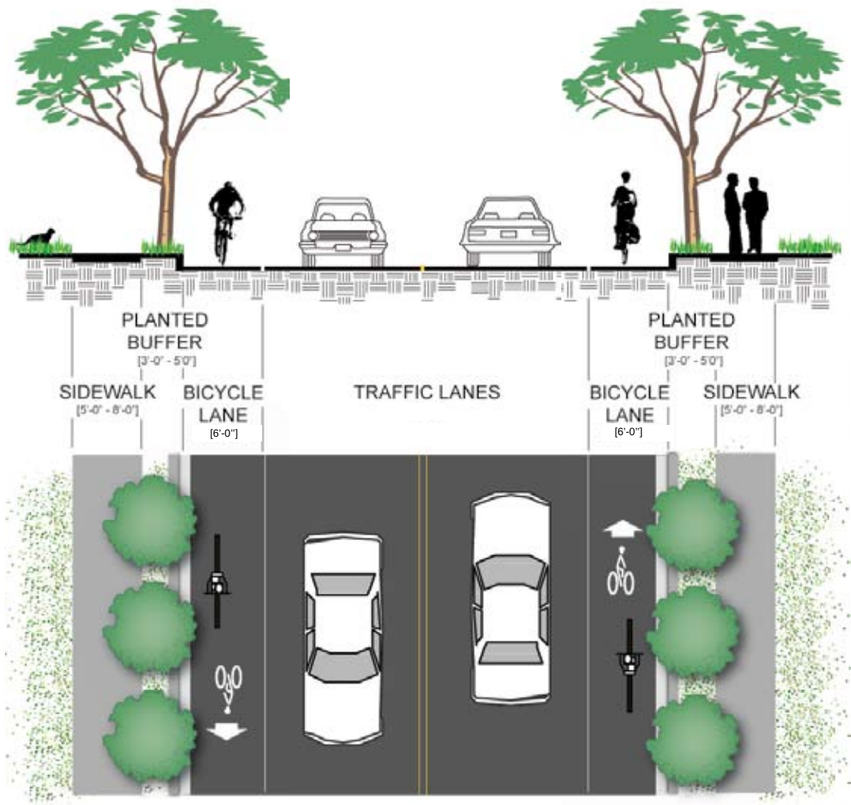
A bicycle lane is a portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential and exclusive use of bicyclists. Bicycle lanes are located on both sides of the road, except one way streets, and carry bicyclists in the same direction as adjacent motor vehicle traffic. In the City of Allentown, PA, many local cyclists have expressed the desire to use striped shoulders as an alternative to bicycle lanes (see guidelines for 'Striped/Paved Shoulders').

Recommended bicycle lane width:

- 6' from the curb face when a gutter pan is present (or 4' from the edge of the gutter pan)
- 4' from the curb face when no gutter pan is present
- Should be used on roadways with 3,000 or more ADT
- Not suitable where there are a high number of commercial driveways
- Suitable for 2-lane facilities and 4-lane divided facilities



Above and right: MUTCD examples of optional word and symbol pavement markings for bicycle lanes.

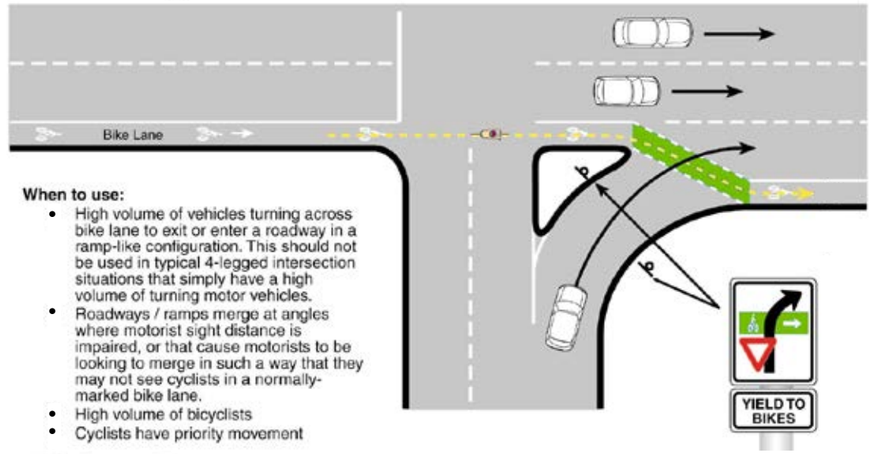


Colored Bike Lanes

In addition to markings presented in the MUTCD, the following experimental pavement markings may be considered. European countries have used colored pavement for bicycle lanes in areas that tend to have a higher likelihood for vehicle conflicts. Examples of such locations are freeway on- and off-ramps and where a motorist may cross a bicycle lane to move into a right turn pocket. In the United States, the City of Portland and New York City have colored bike lanes and supportive signing with favorable results. Studies after implementation showed more motorists slowing or stopping at colored lanes and more motorists using their turn signals near colored lanes. Green is the recommended color (some cities that have used blue are changing to green, since blue is associated with handicapped facilities).

Henry Street in Brooklyn, NY.

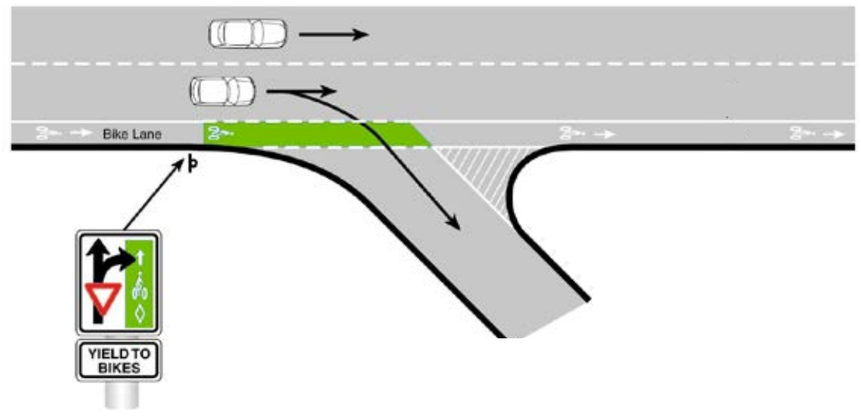
Entrance Ramp Zone



When to use:

- High volume of vehicles turning across bike lane to exit or enter a roadway in a ramp-like configuration. This should not be used in typical 4-legged intersection situations that simply have a high volume of turning motor vehicles.
- Roadways / ramps merge at angles where motorist sight distance is impaired, or that cause motorists to be looking to merge in such a way that they may not see cyclists in a normally-marked bike lane.
- High volume of bicyclists
- Cyclists have priority movement

Exit Ramp Zone

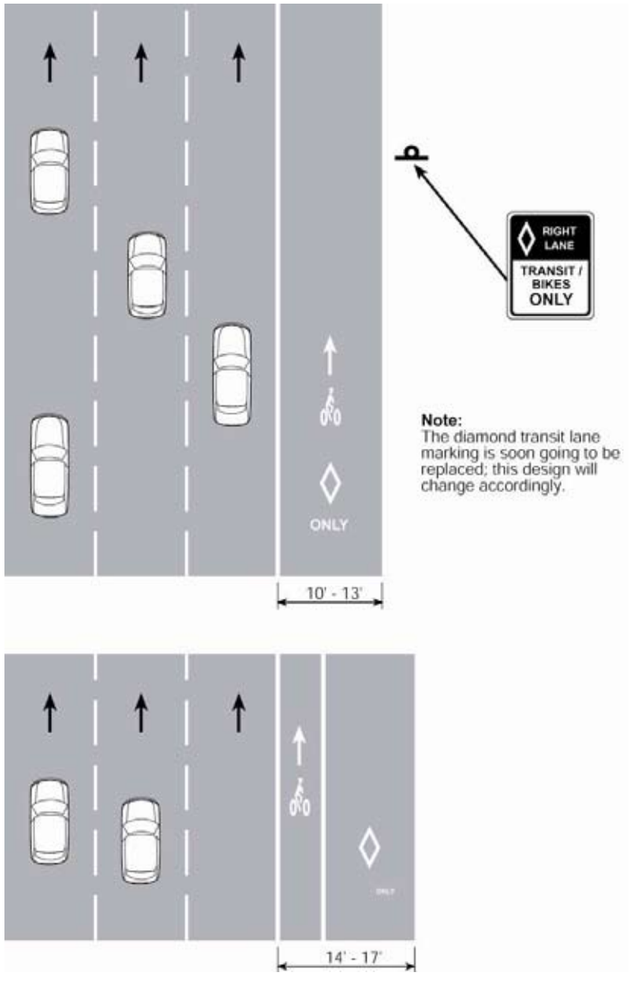


Shared Bus/Taxi/Bicycle Lane

Many cities have created multi-use lanes that accommodate bicycles and transit vehicles within the street. This innovative bikeway treatment is utilized in Phoenix, AZ; Philadelphia, PA; and Toronto, Canada.

Potential applications include:

- On auto-congested streets with moderate or long bus headways
- Moderate bus headways during peak hour
- Areas with limited alternative routes



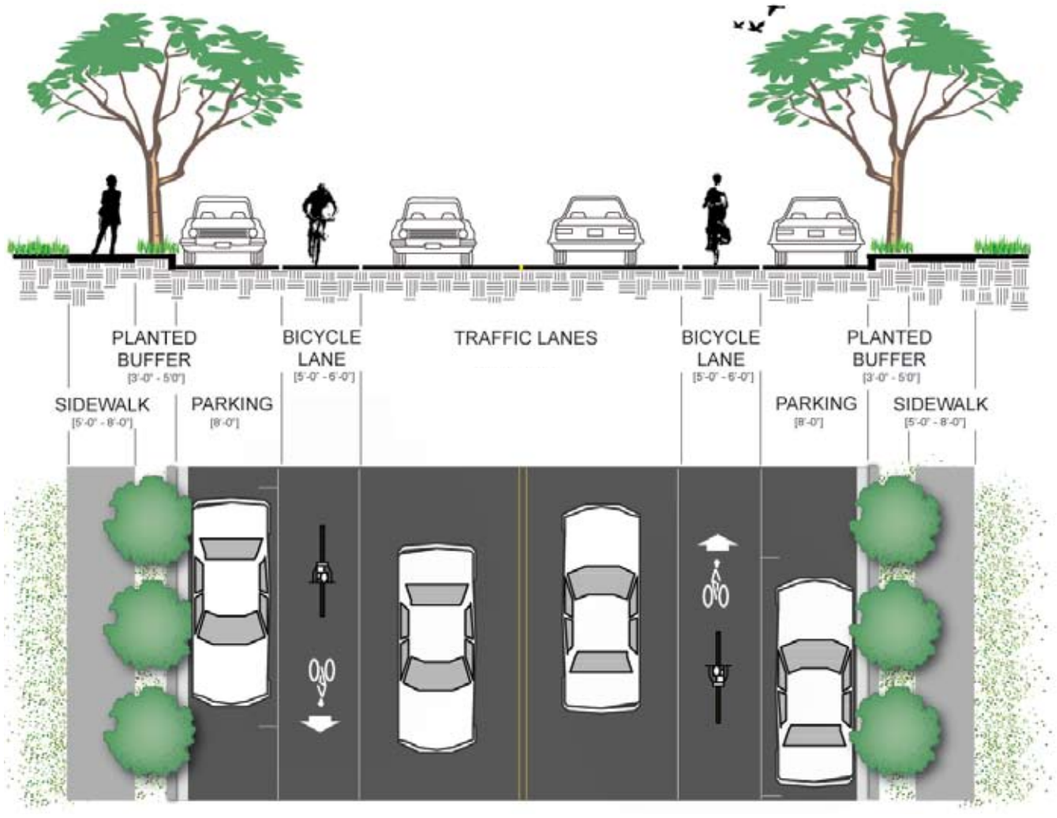
Note:
The diamond transit lane marking is soon going to be replaced; this design will change accordingly.

Bicycle Lane + Parking

Appendix B - Design Guidelines

On moderate volume roadways, such as minor collectors, on-street parking is often permitted. Where on-street parking is permitted, and a bike lane is provided, the bike lane must be between parking and the travel lane, and be a minimum of 6' wide.

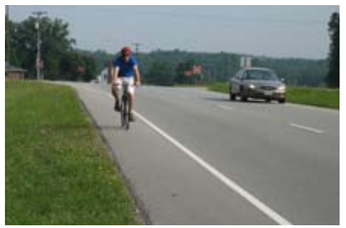
- Appropriate space must be allocated to allow passing cyclists room to avoid open car doors.
- For lanes with combined vehicle parking and bike use (as shown below, in the photo at left), a minimum width of 12' to 13' is recommended, and AASHTO recommends 11' to 13'.

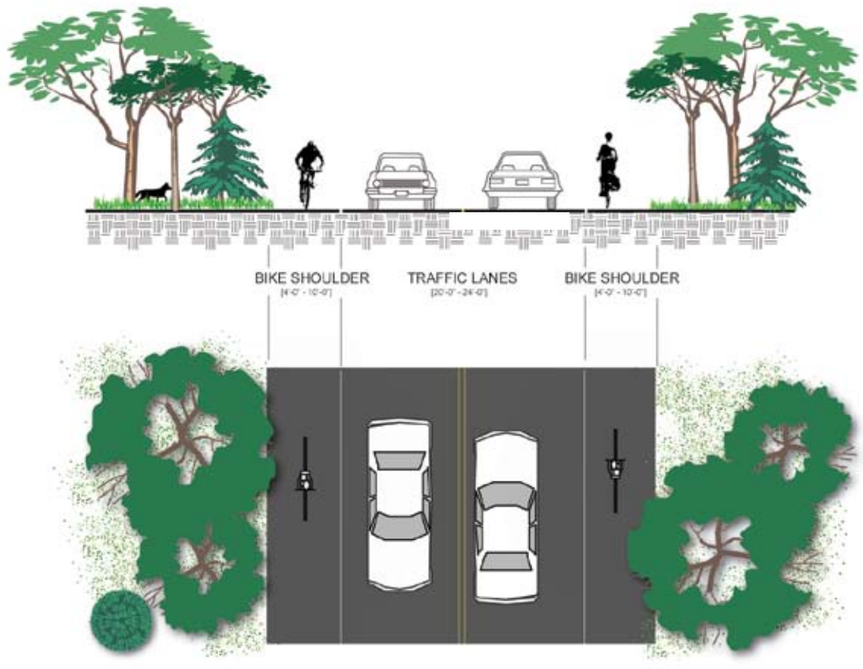


Striped/Paved Shoulder

Paved shoulders are the part of a roadway which is contiguous and on the same level as the regularly traveled portion of the roadway. There is no minimum width for paved shoulders, however a width of at least four feet is preferred. Ideally, paved shoulders should be include in the construction of new roadways and/or the upgrade of existing roadways, especially where there is a need to more safely accommodate bicycles.

- Most often used in rural environments, although not confined to any particular setting
- Should be delineated by a solid white line, and provided on both sides of the road
- Should be contiguous and on the same level as the regularly traveled portion of the roadway
- 4' minimum width; however for speeds higher than 40 MPH with high ADT, a shoulder width of more than 4' is recommended.
- Rumble strips should be avoided, but if used, then a width of more than 4' is needed.
- Paved shoulders should not be so wide as to be confused with a full automobile travel lane





Sidepath

Multi-use paths located within the roadway corridor right-of-way, or adjacent to roads, are called 'Sidepaths'. Sidepaths provides a comfortable walking space for pedestrians and enables children and recreational bicyclists to ride without the discomfort of riding in a busy street.

- This configuration works best along roadways with limited driveway crossings and with services primarily located on one side of the roadway, or along a riverfront or other natural feature.
- A minimum 10' width is necessary on sidepaths for bicyclists to pass one another safely (12' for areas expecting high use)
- A 6' or greater vegetated buffer between the sidepath and the roadway should be provided where possible.
- Roadway corridors where side paths are recommended should also have adequate on-road bicycle facilities (such as shared lane markings, paved shoulders, or bicycle lanes), so that all levels of bicyclists are accommodated.
- Well-designed transitions from sidepaths to on-road facilities will direct bicyclists to the correct side of the roadway (see guidelines for Trail-Roadway Intersections)

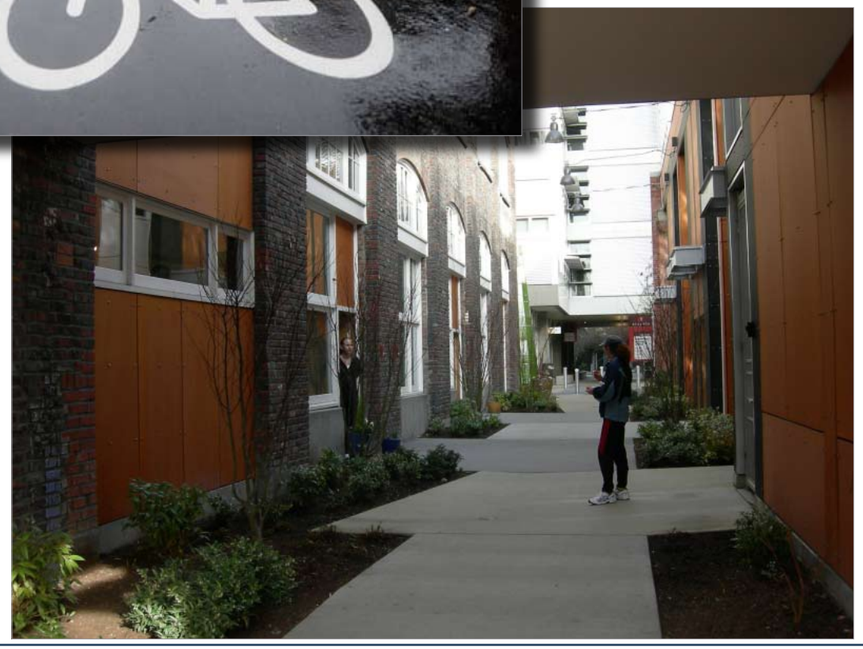
Green Alleyways

Green alley projects are being implemented in cities all over the U.S. and Canada in an effort to retrofit alleys to reduce runoff and better absorb rainwater through the use of permeable pavements, landscaping and infiltration basins. The best resource currently available (online) is the City of Chicago's 2009 Green Alley Handbook, which explains why the city is interested in sustainable alley design, illustrates the BMP techniques the City will use in green alley design, and provides sample layouts of how these elements have been combined in pilot applications. In addition, information and resources are provided for property owners interested in implementing their own environmental BMPs, ranging from recycling to installing your own rain gardens. The five main elements for green alleys outlined in the handbook include: 1) Alley Drainage Improvement through Proper Alley Pitching and Grading; 2) Permeable Pavement; 3) High Albedo Pavement; 4) Recycled Construction Materials; and 5) Dark Sky Compliant Light Fixtures.

Many cities are taking these initiatives a step further, aiming to attract pedestrians and bicyclists to these newly renovated, low-volume corridors. Considerations for using green alleyways as bicycle and pedestrian facilities include the following:

- The top consideration for using a green alley as bicycle and pedestrian corridor is whether the retrofitted alleyway would serve as a superior connection compared with nearby streets. The best candidates for alleyways as bicycle facilities are ones that provide a continuos, parallel route to a street that is both dangerous for cyclists, and is unlikely to accommodate bicycles in the future (due to costs or other constraints).
- To increase circulation space for bicycles and pedestrians in green alleys, parking in the alley should only be allowed for alley residents without driveways or garages directly off the alley. For parking under these circumstances, the alleyway should be designed with trees and/or tree planters to help organize the parking, making it a more pleasant environment for cyclists (see woonerf parking example at right).
- The green alley design option of replacing a center strip of pavement with grass is not recommended for alleys intended for bicycle use; a permeable pavement center strip is recommended as an alternative to this option.
- Automobile traffic on green alleys should be limited to alley residents accessing their property.

- Sufficient lighting should be made available at night and on dark days. See section on 'Lighting' for related guidelines.
- Where green alleys intersect streets, integrate features into the streets that would prioritize bicyclists (ie improve crossing safety) and improve driver awareness as to presence of bikes. See section on 'Bicycle Boulevards' for more related guidelines.
- Ensure that green alleys are plowed in the winter, providing year round accessibility.
- Generating funding for alley greening projects is most feasible through public-private partnerships and various stormwater-related state and federal programs.
- Surface should be smooth and clear of debris.



The concept of 'green alleyways' is varied and evolving. Many focus primarily on water infiltration (opposite-top), others slow automobile traffic and prioritize bike/ped traffic (opposite-bottom and above), while still others close automobile traffic entirely, creating areas for exclusively for vegetation and people (right).

Bicycle-Friendly Intersections

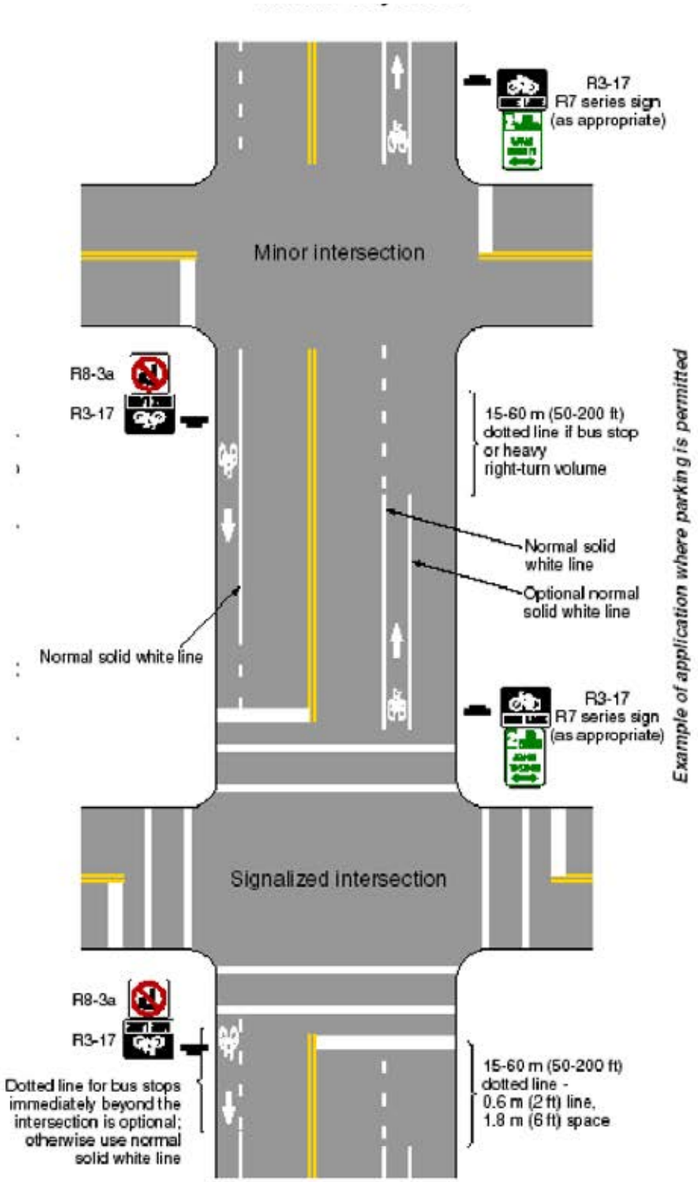
Intersections represent one of the primary collision points for bicyclists, with many factors involved:

- Larger intersections are more difficult for bicyclists to cross.
- On-coming vehicles from multiple directions and increased turning movements make it more difficult for motorists to notice non-motorized travelers.
- Most intersections do not provide a designated place for bicyclists.
- Bike lanes and pavement markings often end before intersections, causing confusion for bicyclists.
- Loop and other traffic signal detectors, such as video, often do not detect bicycles.
- Bicyclists making a left turn must either cross travel lanes to a left-turn lane, or dismount and cross as a pedestrian.
- Bicyclists traveling straight may have difficulty maneuvering from the far right lane, across a right turn lane, to a through lane of travel.

Solutions to these issues are discussed on the following pages, including intersection configurations for bicycle lanes, bike boxes, advance stop lines, bicycle-activated detector loops, bicycle specific traffic control signals.

Typical Intersection Configuration for Bike Lanes

See the Manual on Uniform Traffic Control Devices (MUTCD) for guidance on lane delineation, intersection treatments, and general application of pavement wording and symbols for on-road bicycle facilities and off-road paths (updated version to be released in 2009/2010); example from the MUTCD at right.



Bike Box / Advance Stop Line

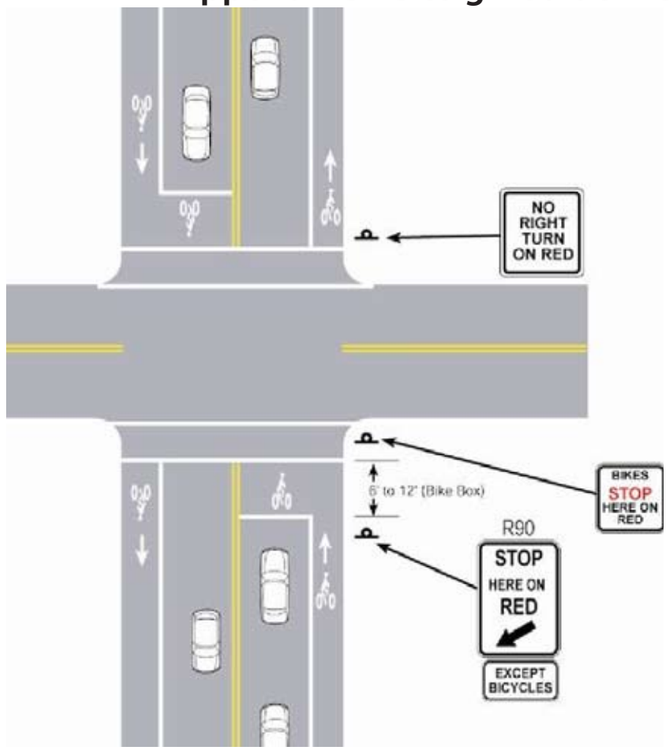
A bike box is a relatively simple innovation to improve turning movements for bicyclists without requiring cyclists to merge into traffic to reach the turn lane or use crosswalks as a pedestrian. The bike box is formed by pulling the stop line for vehicles back from the intersection, and adding a stop line for bicyclists immediately behind the crosswalk. When a traffic signal is red, bicyclists can move into this "box" ahead of the cars to make themselves more visible, or to move into a more comfortable position to make a turn. Bike boxes have been used in Cambridge, MA; Eugene, OR; and European cities.

Potential Applications:

- At intersections with a high volume of bicycles and motor vehicles
- Where there are frequent turning conflict and/or intersections with a high percentage of turning movements by both bicyclists and motorists
- At intersections with no right turn on red (RTOR)
- At intersections with high bicycle crash rates
- On roads with bicycle lanes
- Can be combined with a bicycle signal (optional)

Considerations:

- Bike boxes are not currently included in the MUTCD but there are provisions for jurisdictions to request permission to experiment with innovative treatments (and thus with successful application, future inclusion of bike boxes in the MUTCD could occur).
- If a signal turns green as a cyclist is approaching an intersection, they should not use the bike box.
- Motorists will need to be educated to not encroach into the bike box.



Plan view of a bike box.

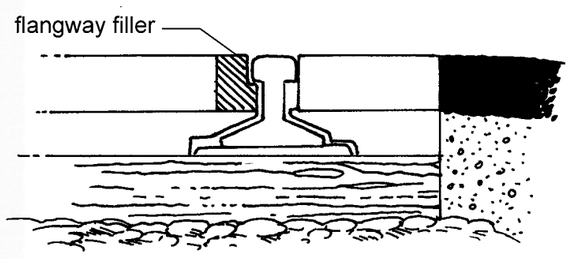
Above and below: Bike boxes filled in with color to emphasize allocation of space to bicycle traffic.

Bicycle Facilities at Railroad Crossings

Railroad crossings are particularly hazardous to those who rely on wheeled devices for mobility (railroad crossings have flangeway gaps that allow passage of the wheels of the train, but also have the potential to catch wheelchair casters and bicycle tires). In addition, rails or ties that are not embedded in the travel surface create a tripping hazard. Recommendations:

- Make the Crossing Level: Raise approaches to the tracks and the area between the tracks to the level of the top of the rail.
- Bikes Should Cross RR at Right Angle
- When bikeways or roadways cross railroad tracks at grade, the roadway should ideally be at a right angle to the rails. When the angle of the roadway to the rails is increasingly severe, the approach recommended by Caltrans (Highway Design Manual, Section 1003.6) and AASHTO (Guide for the Development of Bicycle Facilities, 1999, p.60) is to widen the approach roadway shoulder or bicycle facility, allowing bicycles to cross the tracks at a right angle without veering into the path of passing motor vehicle traffic.
- Use Multiple Forms of Warning: Provide railroad crossing information in multiple formats, including signs, flashing lights, and audible sounds.
- Clear Debris Regularly: Perform regular maintenance to clear debris from shoulder areas at railroad crossings.
- Fill Flangeway with Rubberized Material or Concrete Slab: Normal use of rail facilities causes buckling of paved-and-timbered rail crossings. Pavement buckling can be reduced or eliminated by filling the flangeway with rubberized material, concrete slab, or other treatments. A beneficial effect of this is a decrease in long-term maintenance costs.

Installing a rubber surface rather than asphalt around railroad flangeways reduces changes in level and other maintenance problems.

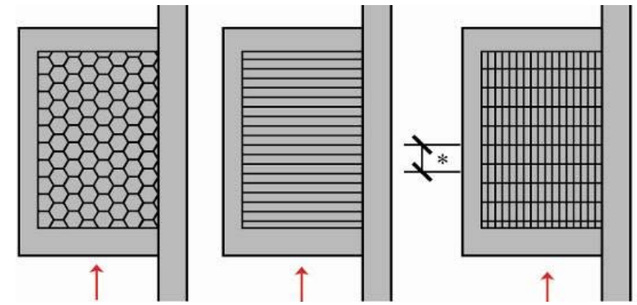


The "flangeway filler" eliminates the gap in the path of travel for pedestrians crossing railroad tracks. The filler, consisting of a rubber insert, will deflect downward withe the weight of a train and does not affect railway function.

Bicycle Friendly Drainage Grates

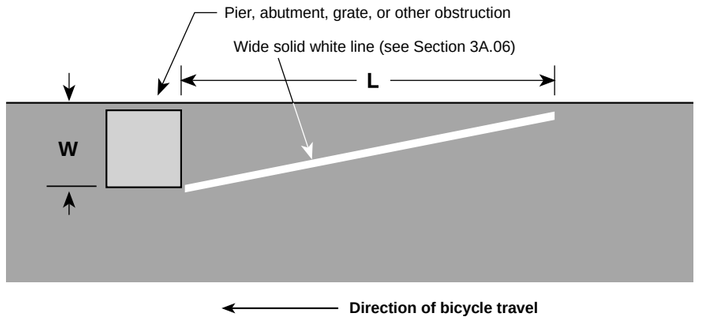
Drainage grates usually occupy portions of roadways, such as bicycle lanes, where bicycles frequently travel. Often drainage grates are poorly maintained or are of a design that can damage a bicycle wheel or in severe circumstances, cause a bicyclist to crash. Improper drainage grates create an unfriendly obstacle a cyclist must navigate around, often forcing entrance into a motor vehicle lane in severe cases. Bicycle friendly drainage grates should be installed in all new roadway projects and problem grates should be identified and replaced.

Right: Bicycle Friendly Drainage Grate Designs



**max 150 mm (6'') spacing*

Right: MUTCD example of obstruction pavement marking; if dangerous drainage grates (or other obstructions) are not to be fixed in the short term, then this pavement marking should direct cyclists away from the obstruction.



Dangerous Drainage Grate Condition; this example is dangerous due to the grate running parallel to the roadway, creating a trap for bicycle tires.

Dangerous Drainage Grate Condition; this example is dangerous due to the surrounding paving condition (when the road was resurfaced the drainage grate remained at the same height).

Bicycle-Friendly Drainage Grate

Bicycle Access on Transit

Integrating bicycle facilities with transit modes allows bicyclists to greatly expand the area accessible. Below are examples of commuter trains and bus services with customized facilities allowing for simple and secure storage of bicycles without hindering or impeding other passengers. The City of Allentown should continue to accommodate bikes on all buses, and should support similar options if and when light-rail or similar transit options become available.

1. Have your bike ready to load—always approach the bus from the curbside. Remove water bottles or other loose items.

2. Make eye contact with the driver to alert him/her to your presence.

3.If the rack is empty, lift the metal handle and pull the folded bike rack down flat.

4. Load the bike in the space nearest the bus.

If another bike is on the rack, load your bike in the open position. You are responsible for loading and securing your bike on the rack. Drivers are not allowed to load or unload bicycles.

5. Lift the support arm and hook it over the front tire.

Make sure the support arm clamps the tire and not the fender or frame. Your bike now is securely fastened in the rack.

6. Hop on and pay your fare.

7. When you reach your stop, tell the driver before you exit the bus that you'll be removing your bike.

Raise the support arm, lower it into place and lift your bike off the rack.

Fold up the rack if it is empty, and step onto the sidewalk with your bike.

NEVER cross in front of the bus—wait until the bus has left the stop.

If the rack is full, please wait for the next bus.

Instructions on how to load a bicycle onto a bus equipped with a bicycle rack, developed for a bicycle user map by Fremont, CA

Bike/Ped Treatments for Transit Stops

Integrating bicycle and pedestrian facilities with transit modes allows users to greatly expand their range of travel or "trip chain".

- At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be provided.
- Although the current buses that serve Allentown are equipped with bicycle racks, bus *stops* should also incorporate bicycle racks, and at major stops, bicycle lockers.
- Local walking and biking maps should also be provided at bus stops, so that people are aware of the nearby destinations and how best to get there without an automobile.
- Additional elements to consider include: water fountains, pedestrian-scale lighting, legible and adequate transit stop signage, shelter, seating, air compressors, and electronic signs displaying real-time bus arrival information.
- At bus stops, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus.

This typical transit stop features a shelter, ample seating, bicycle parking, landscaping, and trash bins (Image from http://www.walkinginfo.org).

Appendix B - Design Guidelines

Sidewalks and Walkways

Sidewalks and walkways are extremely important public right-of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street.

There are a number of options for different settings, for both downtown and more rural and/or suburban areas. From a wide promenade to, in the case of a more rural environment, a simple asphalt or crushed stone path next to a secondary road, walkway form and topography can vary greatly. In general, sidewalks are constructed of concrete although there are some successful examples where other materials such as asphalt, crushed stone, or other slip resistant material have been used. The width of the walkways should correspond to the conditions present in any given location (i.e. level of pedestrian traffic, building setbacks, or other important natural or cultural features). FHWA (Federal Highway Administration) and the Institute of Transportation Engineers both suggest five feet as the minimum width for a sidewalk. This is considered ample room for two people to walk abreast or for two pedestrians to pass each other. Often downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for much wider sidewalks.

A well designed residential sidewalk will have a width of at least five feet. (Image from http://www.walkinginfo.org)

Sidewalk with a vegetated buffer zone. Notice the sense of enclosure created by the large canopy street trees. (Image from http://www.walkinginfo.org)

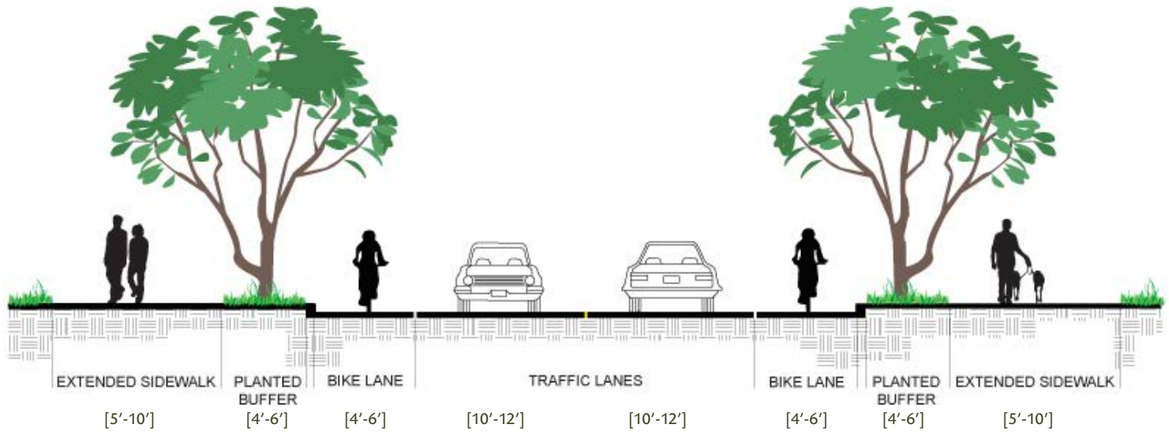
Sidewalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

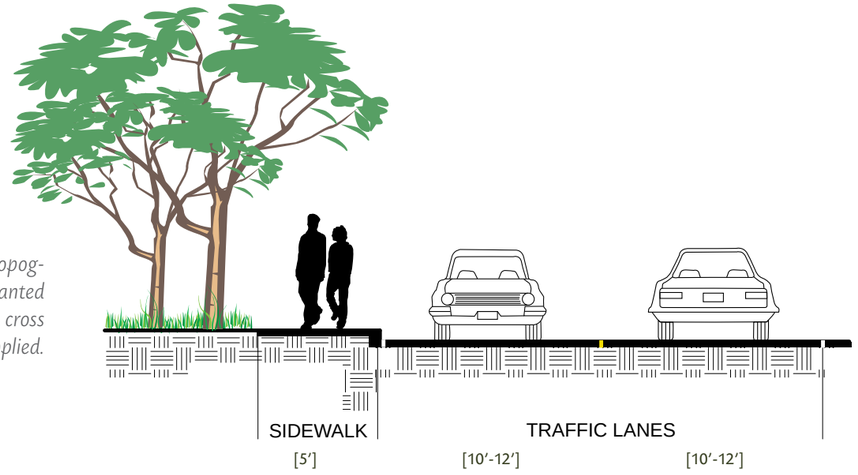
Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov

- Concrete is preferred surface, providing the longest service life and requiring the least maintenance. Permeable pavement such as porous concrete may be considered to improve water quality.
- Sidewalks should be built as flat as possible to accommodate all pedestrians; they should have a running grade of five percent or less; with a two percent maximum cross-slope.
- Concrete sidewalks should be built to minimum depth of four inches; six inches at driveways.
- Sidewalks should be a minimum of five feet wide; sidewalks serving mixed use and commercial areas shall be a minimum of 8 ft in width (12–15 feet is required in front of retail storefronts).
- Buffer zone of two to four feet in local or collector streets; five to six feet in arterial or major streets and up to eight feet in busy streets and downtown to provide space for light poles and other street furniture. See the Vegetation section later in this chapter for shade and buffer opportunities of trees and shrubs.
- Motor vehicle access points should be kept to minimum.
- If a sidewalk with buffer on both sides is not feasible due to topography and right-of-way constraints, then a sidewalk on one side is better than no facility. Each site should be examined in detail to determine placement options.

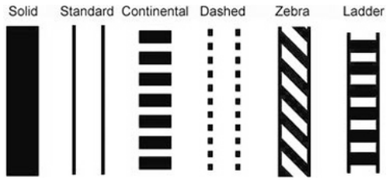
Below: Typical street with bike lanes and adjacent sidewalk.



Right: Where space and topography are limiting and a planted buffer is not possible, this cross section may be applied.



Marked Crosswalks



A variety of patterns are possible in designating a crosswalk; an example of a 'continental' design is shown above.

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings). Every attempt should be made to install crossings at the specific point at which pedestrians are most likely to cross: a well-designed traffic calming location is not effective if pedestrians are instead using more seemingly convenient and potentially dangerous location to cross the street. Marked pedestrian crosswalks may be used under the following conditions: 1) At locations with stop signs or traffic signals, 2) At non-signalized street crossing locations in designated school zones, and 3) At non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable.

There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise difficult to maneuver by any person including those with physical mobility or vision impairments. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Potential materials can be vetted by requesting case studies from suppliers regarding where the materials have been successfully applied. Also, as some materials degrade from use or if they are improperly installed, they may become a hazard for the mobility or vision impaired.

Crosswalk Guidelines:

- Should not be installed in an uncontrolled environment [at intersections without traffic signals] where speeds exceed 40 mph. (AASHTO, 2004)
- Crosswalks alone may not be enough and should be used in conjunction with other measures to improve pedestrian crossing safety, particularly on roads with average daily traffic (ADT) above 10,000
- Width of marked crosswalk should be at least six feet; ideally ten feet or wider in downtown areas.
- Curb ramps and other sloped areas should be fully contained within the markings.
- Crosswalk markings should extend the full length of the crossings.
- Crosswalk markings should be white per MUTCD.
-
- Either the 'continental' or 'ladder' patterns are recommended for intersection improvements for aesthetic and visibility purposes. Lines should be one to two feet wide and spaced one to five feet apart.

Crosswalk Guideline Sources:

American Association of State Highway and Transportation Officials. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov

Curb Ramps

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcarts, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. In accordance with the 1973 Federal Rehabilitation Act and to comply with the 1990 Federal ADA requirements, curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist (Pedestrian and Bicycle Information Center: http://www.walkinginfo.org/engineering/roadway-ramps.cfm). In addition, these federal regulations require that all new constructed or altered roadways include curb ramps.

Two separate curb ramps should be provided at each intersection (see image below). With only one large curb ramp serving the entire corner, there is not safe connectivity for the pedestrian. Dangerous conditions exist when the single, large curb ramp inadvertently directs a pedestrian into the center of the intersection, or in front of an unsuspecting, turning vehicle.

Curb Ramp Guidelines:

- Two separate curb ramps, one for each crosswalk, should be provided at corner of an intersection.
- Curb ramp should have a slope no greater than 1:12 (8.33%). Side flares should not exceed 1:10 (10%); it is recommended that much less steep slopes be used whenever possible.

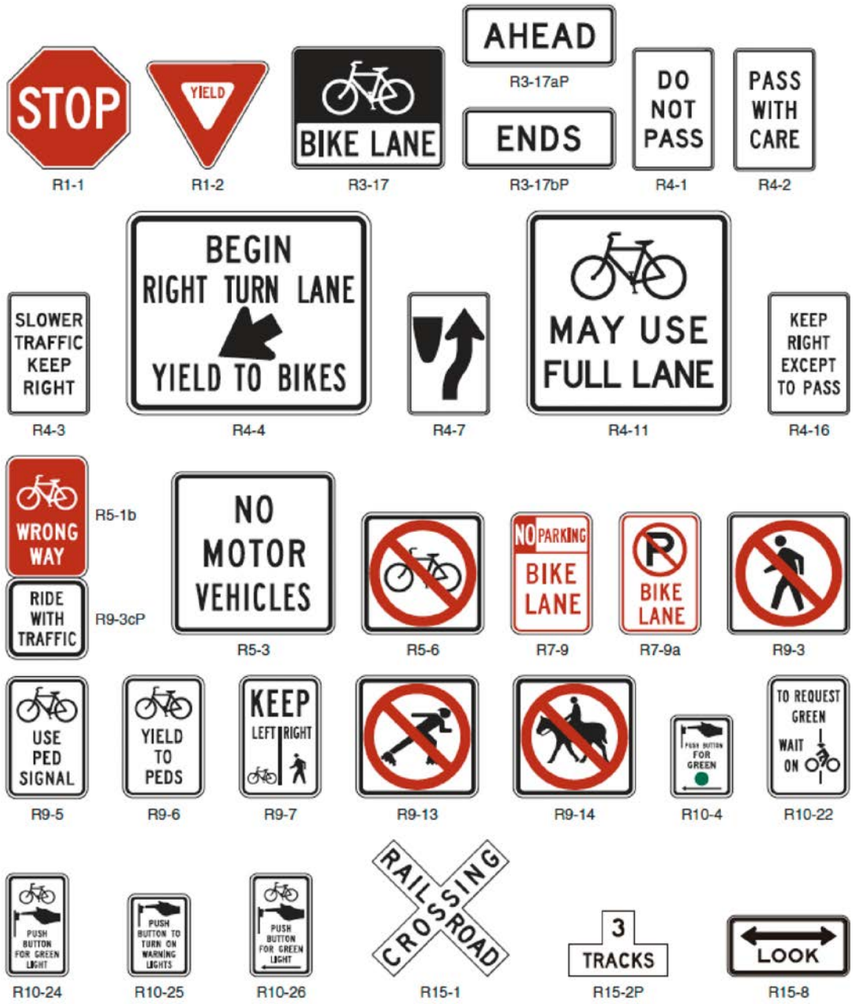
Curb Ramp Guideline Sources:

Metro Regional Government. (2005). Portland, Oregon: Transportation Information Center. http://www.oregonmetro.gov

Left: The curb ramps shown have two separate ramps at the intersection (visable across the street) (Image from http://www.walkinginfo.org).

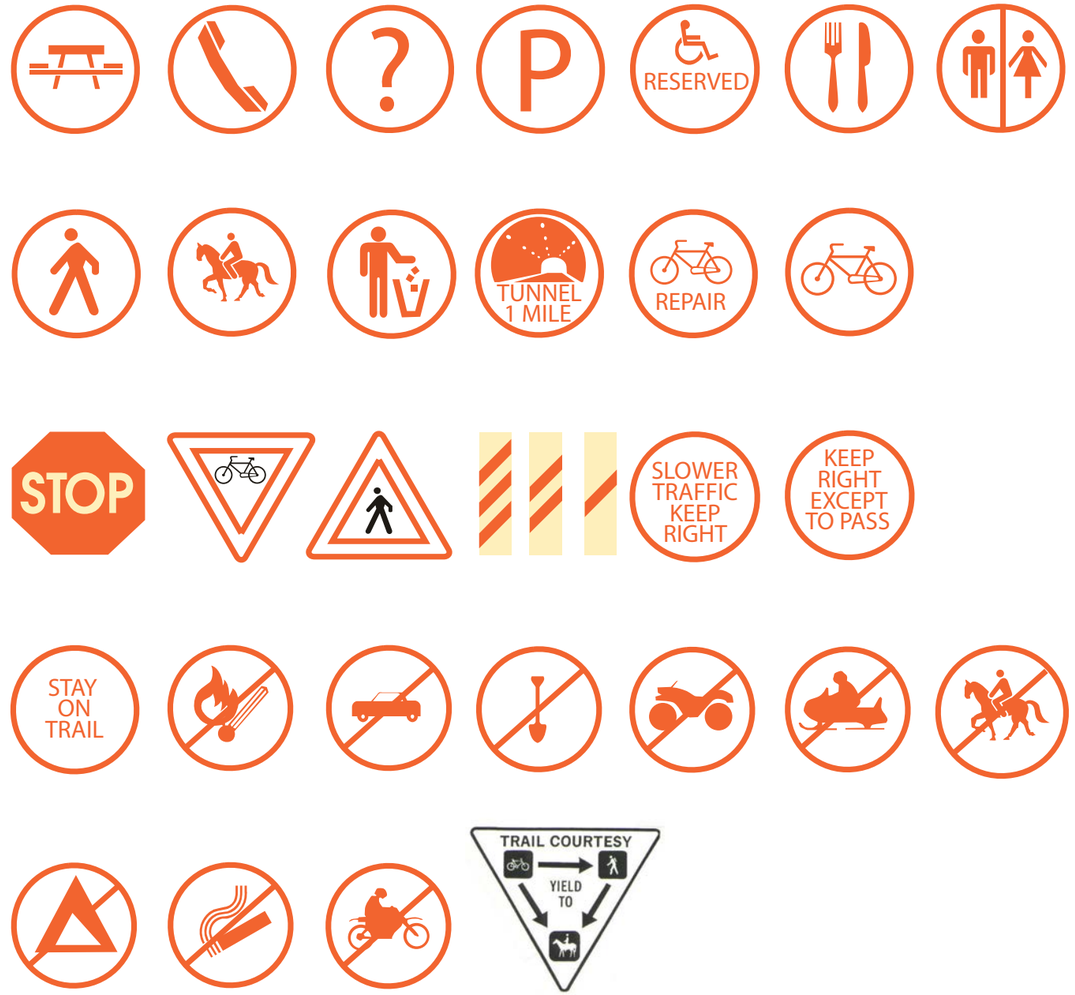
For additional information on curb ramps see Accessible Rights-of-Way: A Design Guide, by the U.S. Access Board and the Federal Highway Administration, and Designing Sidewalks and Trails for Access, Parts I and II, by the Federal Highway Administration. Visit: www.access-board.gov for the Access board's right-of-way report.

Figure 9B-2. Regulatory Signs and Plaques for Bicycle Facilities



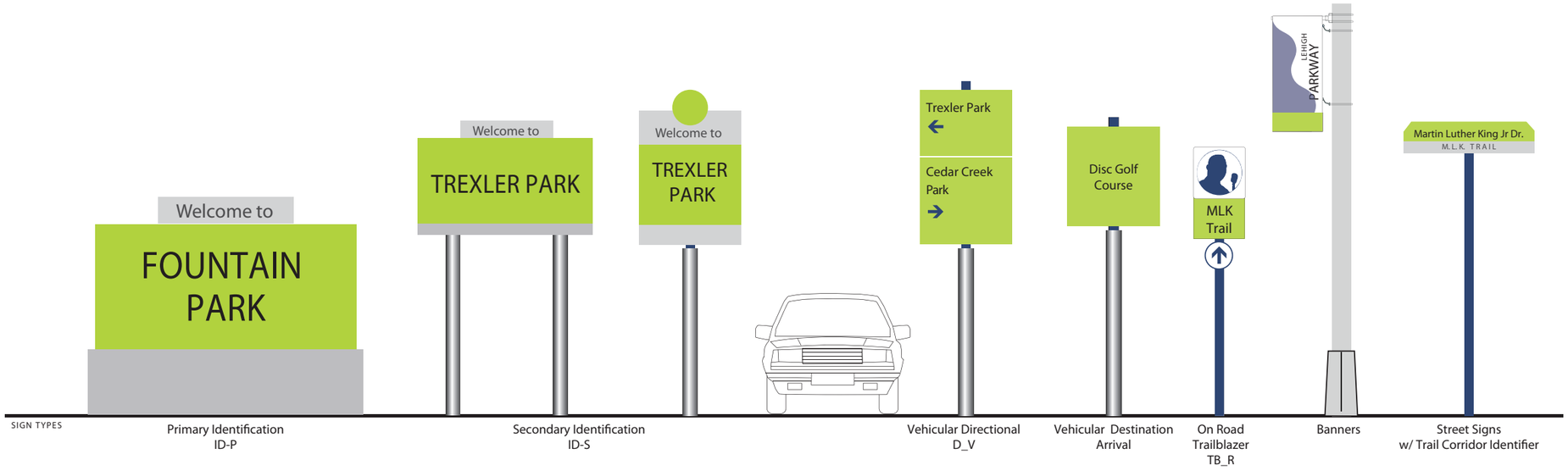
On-Road Regulatory Signs for Bicycle Facilities - Manual of Uniform Traffic Control Devices for Streets anvd Highways (MUTCD) 2009 Edition

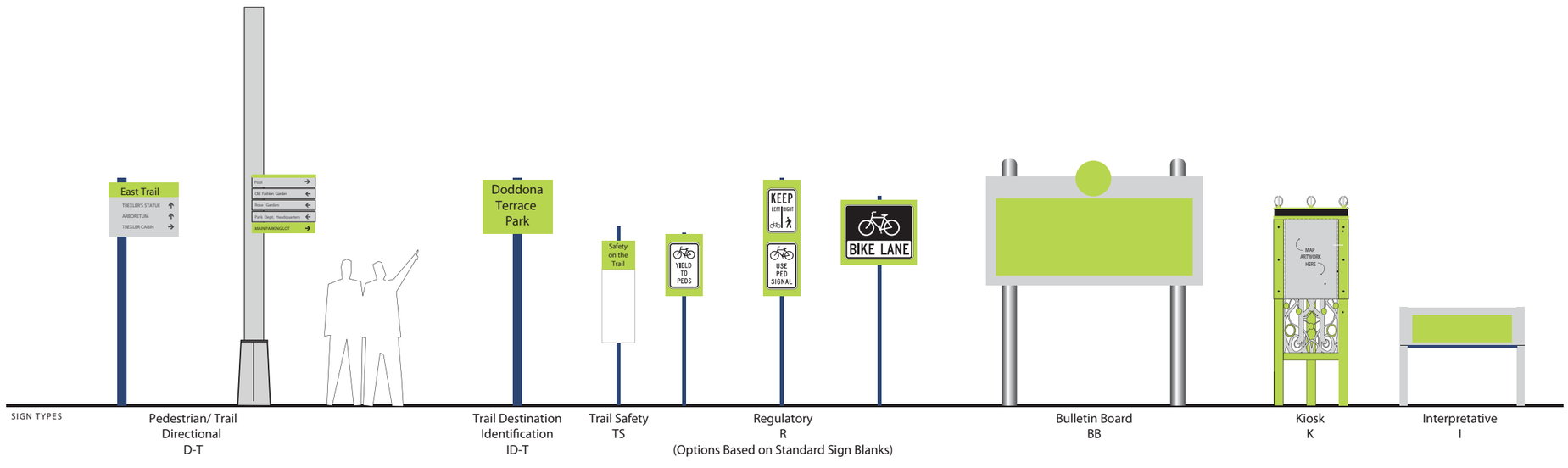
The Federal Highway Administration's MUTCD has a palette of regulatory signs for utilization of bicycle and pedestrian circulation with motor vehicles. In general, these devices should be used in conjunction with approve striping techniques. As a general rule some of these signs, such as R9-3, should not be used if possible because they do not present a pedestrian and bicycle friendly image to the general public.



Potential Off-Road Trail Signing Icons:

Off-road trail signing allows for greater design flexibility. One option to reduce the size of the signs and to minimize text, is to utilize icons as a way to provide basic information. Any icons that are utilized should be simple and their intent should be very obvious and universal. The above is an example palette that covers typical messages for trail users.





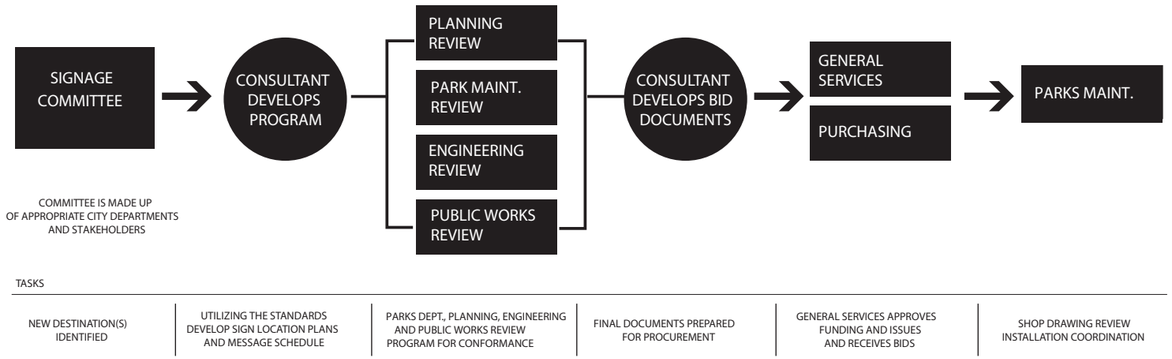
Appendix B - Design Guidelines

The Value of a Comprehensive Signing System

One of the primary results of a coordinated sign program is that it naturally reduces clutter by presenting a consistent design and organized information. The sign program will reduce the need for multiple signs at congested decision points. One sign holds multiple messages, rather than three signs arbitrarily mounted to a pole(s). Consistent design: Standard colors, graphics, typefaces and size help to present a well-planned park system and trail network and a uniform identity for the City as a whole. Sign placement is planned as part of a comprehensive system, taking into consideration both the environment and type of circulation and targeted audience. Placement is also logical and based on a coordinated trail or park-wide sign system. Signs can be sized depending on their context and pedestrian and trailblazer sign types can be mounted to existing poles whenever possible. This will reduce the quantity of poles added to current conditions as well as reduce obstacles for cyclist and pedestrians. With regards to regulatory signs, standard sign blanks can be used for the panels in order to keep costs manageable and ease replacement, however, they should be mounted onto a consistent system backing panel that are painted the same color on both front and back, as well as the pole and mounted bracket. This will provide a high-level of consistency even though regulatory signs will vary dramatically in terms of size and color, etc.

Additional Recommendations:

Purge and Repair: All unnecessary, damaged or inappropriate park/street furniture should be removed or replaced. If not already established a "Design Standard Manual" should be set (and utilized) for all park/street furniture. This would provide a variety of coordinated options throughout the park system based on individual park aesthetics and environments. Elements may include: lamp posts, bike racks, benches, trash cans, tree grates, etc.



The Sign

Foundations: Choose the foundation system that fits the environment. Embedded for soil and park conditions. Slip Base or Sleeve for high traffic areas. Remember to have a clear foundation removal and replacement plan in place before selecting a foundation system.

Pole: Pole color and paint should be selected based on location. Use of existing poles is possible in very select conditions and only with clear structural engineering drawings. Poles get the most graffi ti damage so have a continuous cleaning and repainting program in place.

Panel: Should have a higher-level professional cleaning program in place. Panels in high sun or tougher areas should be coated with a film, (Tedlar, mylar) to protect against ultraviolet rays. Cleaning should be carefully done with a lemon soap for stickers, and a mild paint thinner for graffiti. Professionals or highly trained staff should complete panel cleaning.

Special Considerations

Windloads:The signs should be engineered to withstand Monsoon force winds of a minimum of 90 mph.

Availability of Materials: All sign components are made of industry standard materials and fabrication techniques. These include: 1/4 thick aluminum sheet, 4" tube poles, reflective vinyl, automotive grade paint.

In-House Fabrication: Will likely be limited to graphics and lettering for changing messages, poles, foundations, and installation. Initial "attic stock" of parts should be included in the base bid of each phase of the project. Attic stock can include poles (painted), sign panels (painted/no lettering), brackets finished and painted and other parts .

Historic Compatibility: Signs are designed to coordinate with the historic nature of the area. Design considerations include size, scale, color, placement, and quantity of signs. Future signage additions should adhere to the design philosophy established by the sign program.

Best Cleaning Practices

Maintenance Schedule: Signs should be cleaned at lest annually, twice a year is preferred.

Dirt and Grime: A mix of Simple Green and water

Removing Graffiti: Mild Enamel Thinner

Removing Stickers: Goof Off / Goo Gone

Lettering: For gateways or panels that will not be changed often a complete fi lm coating or silk-screening works best. For signs that will change a durable vinyl lettering with a clear program for changing information. Panels and letter placement should be designed to permit ease of changing information (Standard message heights, etc.)

Maintenance Matrix for Permanent Signs

Sign Longevity	0-4 Years	5-9 years	9-25 years
Design and Planning	Extensive design and planning program continues even after sign system in place. Client plays a crucial role	Moderate amount of design and planning. Less input needed from the client.	One time design and planning costs.
Sign System	Light attachment details. Flexible System. Extensive computerized system schedule.	Attachment details allow for some replacement. Computer database for sign changes	Durable attachment. Very difficult to remove. No database needed for system.
Materials	Low grade materials	Medium Grade materials.	High quality materials
Changeability	Limited Changeability. Signs need little demountability of parts but signs must be easy to remove.	Moderate Changeability. Extensive demountability of sign parts especially the sign face.	Complete Changeability. Every part of the sign must be fitted with removable parts for changes in the system
Cleaning	No major investment in cleaning	Major cleaning schedule	Major cleaning schedule
Replacement	Replacement schedule on a month-by-month basis.	Yearly replacement schedule	Bi-yearly replacement schedule
Management	Extensive daily interplay between client and fabricator	Monthly interplay between client and fabricator	Monthly interplay between client and fabricator

This information was developed with assistance from Craig Berger of the Society for Environmental Graphic Design and MERJE Environments and Experiences.

Ohio River Water Trail

In addition to land-based trails the ORTC is also promoting the development of water-based trails, primarily suited for canoes and kayaks. The Ohio River Water Trail will provide safe access to the region's waterways while also providing connections to historic, ecology, geology and heritage sites and wildlife.

Both Beaver and Allegheny Counties are developing water trails along the Ohio River. The most up-to-date information can be obtained from:

The Beaver County Greenways and Trails Plan:

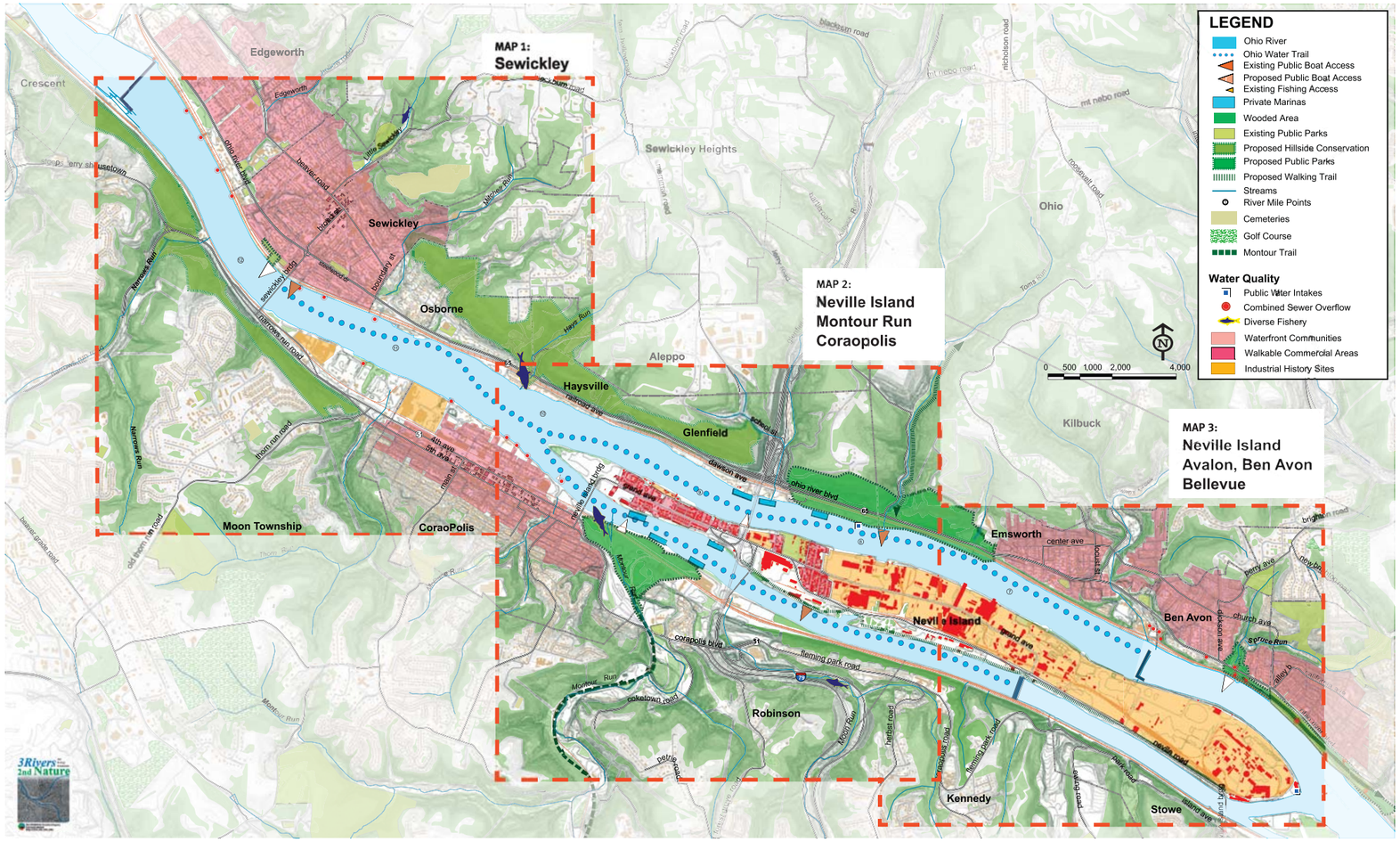
http://www.beavercountypa.gov/PublicServices/PlanningCommission/PlanningHome.aspx

Allegheny Places, Active Allegheny, The County's Active-Transportation Comprehensive Plan Component:

http://www.activeallegheny.com/theplan.aspx

The ORTC has been awarded a $10,000 Port of Pittsburgh Commission (PPC) grant for the Ohio River Water Trail Project. The mission of the Port of Pittsburgh Commission is to "promote the commercial use and development of the waterway-intermodal transportation system and to integrate that system into the economic, recreational, environmental and intermodal future of the residents and industries of Southwestern Pennsylvania."

The PPC grant will provide canoe, kayak and rowing access to the Ohio River, Beaver River and the Little Beaver Creek in the Ohio River Trail Corridor communities of Bridgewater, Monaca, Ohioville and Rochester, Pa. The grant will support the design, construction and the installation of four kayak/canoe launch sites with storage racks and other amenities including signage, picnic tables, benches and bike racks.



MINUTES OF MEETING

STROMBERG™ GARRIGAN & ASSOCIATES, INC.
Landscape Architects & Planners
102 E. Main St., Suite 300, Somerset, PA 15501
Ph: 814.443.1073 Fax: 814.444.0484

PROJECT: **Borough of Midland ORT North Shore**
SGA PROJECT #: 11009
DATE: **September 29, 2011**

ATTENDING: **Sean Garrigan**
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Kickoff Meeting**

❖ General Comments

- CSX would like to abandon a rail line into Koppel, however, hesitations exist regarding the acceptance of said parcel because it may contain unknown contaminants. This began a discussion regarding the liability of Ohio River Trail (ORT) Board Members with regard to accidents that may occur along any portion of the ORT. A vote was held and a movement passed to further investigate liability insurance options for the Board Members.
- It was mentioned that if the ORT North Shore Trail eventually crosses the border into Ohio and then proceeds into an Ohio State Forest, the Forestry service should welcome such a trail assuming it is constructed of a pervious material (i.e. crushed gravel).
- Mr. John Szatkiewicz of Ohioville Borough has started a butterfly preserve with a $1,000 grant he received. The planting was carried out by Boy Scout volunteers.
- Mr. Nathan Peluso of the local cycling club mentioned that the club has “had some good rides.” This was mentioned in reference to several weekend rail-trail rides that the club facilitates.
- The target date for completion of the new Veteran’s Bridge that will cross the Beaver River is sometime in 2012. It has been fully planned and the construction documents are available for review. This bridge will eventually include sidewalks for pedestrians and bike lanes for cyclists. Doniele has these construction documents and can make them available.

❖ Key Issues

- The federal Transportation Bill is being revised for 2012. These pending revisions make funding that may become available currently unknown.
- A question was raised – What are the next steps for funding the South Shore Trail? The South Shore planning project grant is closed out in DCNR’s system and must use the ORTC to phase some of the total $6.2 million in cost.

Next Steps & Post Meeting Action Item List

1. A committee should be comprised that would go after further funding for the projects. This should be a cross-county committee.
2. A steering committee should be comprised that would help facilitate contact with shoreline community members. Meetings should be held with these community members. 4pm was agreed upon as a time that could work best for these meetings.
3. Congressman Jason Altmire of the 4th Congressional District should be informed of the ORT South Shore and North Shore plans.
4. PENNDOT should be brought into these discussions.

PROJECT: Borough of Midland ORT North Shore
SGA PROJECT #: 11009
DATE: September 29, 2011

ATTENDING: Sean Garrigan
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Kickoff Meeting**

Ohio River Trail North Shore Steering Committee List

	Name	Representing	Email	Phone	Alternate
1	Diane Kemp	Midland Borough	mrg@midlandboro.org		
2	John Szatkiewicz	Ohioville Borough	57tbird@comcast.net	724-643-8422	
3	Sue Catanzarita	Industry Borough	scatanzarita@westernbeaver.org	724-643-3554	
4	Gary Craig	Glasgow Borough			
5	Alexander Andres	Beaver Borough			
6	Tex Smakosz	Fallston Borough			
7	Bill Rains	Bridgewater Borough			
8	Harold Harvey	Rochester Borough			
9	Larry Morely	New Brighton Borough			
10	Bryan Dehart	Brighton Township			
11	Mario Leone	Monaca Borough	manager@monacapa.net	724-775-9600	
12	Laura Rubino	BC Corporation for Economic Development	lrubino@beavercountyced.org	724-728-8610	
13	Vincent Troia	Ohio River Trail Council	dvtroia@troiaeye.net	724-774-8765	724 728 2626
14	Doniele Andrus	Beaver County Planning	dandrus@beavercountypa.gov	724-968-0793	
15	John VanJura	ORTC	JEVANJURA@yahoo.com	412-507-8754	
16	Chad McMillen	ORTC - Solicitor	cmcmillen@yourlawfirm.net	724-375-6683	
17	LINDA DeTIEE	ORTC OHIOVILLE	57tbird@comcast.net	7246-43-8422	
	Advisory Member	**Representing**	**Email**	**Phone**	**Alternate**
1		Beaver County Conservation District		724-378-1701	
2		Cyber School			
3		Penn Dot District 11			
4		Lincoln Park Preforming Arts			
5		Midland School District			
6		Beaver School District			
7		Kinder Morgan			
8		First Energy			
9	Mike Aurich	YMCA			
10		New Brigton School District			
11	Patricia Majors	Monaca Volunteer Community Outreach	patriciamajors@comcast.net	724-775-3501	
	NATHAN PELUSO	ORTC & Town Center Associates	npeluso@hotmail.com	412-874-3444	
	Jasha Battalie		jbattalie@hotmail.com	724-573-4724	

MINUTES OF MEETING

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Landscape Architects & Planners
102 E. Main St., Suite 300, Somerset, PA 15501
Ph: 814.443.1073 Fax: 814.444.0484

PROJECT: Borough of Midland ORT North Shore
SGA PROJECT #: 11009
DATE: November 7, 2011

ATTENDING: Sean Garrigan
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Progress Meeting**

❖ General Comments

- An overview of the project to date was given by Mr. Garrigan of Stromberg Garrigan and Associates (SGA). The trail design thus far was explained from the eastern-most portion (Rochester) to the westernmost (Midland). It was mentioned that the trail is becoming a series of connections linking to other trails and parks in the area.
- Since the last meeting the study area has expanded to include Bradys Run Park in Brighton Township. Being able to make a connection from Beaver to Bradys Run Park would allow for many additional miles of existing bicycle networks to be brought into the Ohio River North Shore Trail system. However, some connecting points need further study such an alternate path along the existing Rt. 51 park entrance.
- In Beaver, the trail would be directed north from the river into the town and then west behind the Beaver Cemetery. This would help bring foot and bicycle traffic to downtown Beaver which already supports this type of movement with its ample cafes, restaurants and bicycle shops.
- The current plan for Midland is to have the trail enter the town from the north, avoiding the industrial sites along the Ohio River and increasing pedestrian traffic in town. This also helps to avoid congestion/safety issues along the riverfront industrial sites. The brick streets of north Midland, Lincoln Park and the Carnegie Free Library all help to make this route through Midland a desirable option.
- West Midland along Rt. 68 could be a pinch point in the trail and could benefit from the discussion of alternatives.

❖ Key Issues

- The connection between Rochester and Beaver should be worked out at a location closer to the Ohio River. This could perhaps be along the existing rail bridge. Making such a connection could strengthen the relationship between the two communities and also help to create an unbroken section of linear park space along the Ohio.

Next Steps & Post Meeting Action Item List

1. A meeting will take place on December 5, 2011 to present work to date. The meeting will be tentatively be held in Beaver from 5:30pm to 7:30pm and will be open to the public. Prior to the public meeting at 5:30pm, a 4:00pm steering committee will be held to brief committee members on what will be presented during the 5:30pm open house.

2. With regard to the December 5th meetings, SGA will provide text for distribution so that the event may be advertised in the community.

3. Surveys should also be available at the December 5th meeting so that those attending can give feedback and join in on the design discussion.

4. There was a meeting in the spring of 2011 discussing the ORT once it crosses into Ohio. Plans have been considered and attaining the meeting minutes for that meeting would be beneficial.

PROJECT: **Borough of Midland ORT North Shore**
SGA PROJECT #: 11009
DATE: **November 7, 2011**

ATTENDING: Sean Garrigan
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Progress Meeting**

Ohio River North Shore Trail Feasibility Study
Steering Committee Meeting · November 7, 2011
SIGN IN SHEET

IF YOU ATTENDED THE SEPTEMBER STEERING COMMITTEE MEETING YOU ONLY NEED TO SIGN-IN

Name	Municipality/Organization	Address	Email address
Diane Kemp	Midland	936 Midland Ave, Midland 15059	mgn@midlandboro.org
Daniele Russell	Beaver Cnty	810 3rd Street Beaver, PA	dandrus@beavercountypa.gov
Vince Troia	ORTC	1100 Penn. Av Monaca Pa	ortc@ohioriver-trail.org
Bryan Dehart	Brighton Twp	1300 Brighton Rd, Beaver PA 15009	bryand@brightontwp.org
John Szatkiewicz	Ohioville	6429 Tuscaro Rd. Midland, PA 15059	57tbird@comcast.net
Linda Patice	Ohioville	6429 Tuscaro Rd. Midland PA 15059	57tbird@comcast.net
Laura Rusino	BCCRO	250 Insurance St Suite 300 Beaver PA 15009	lrusino@beavercountyco.org
Chuck Jones	Mackin Eng.		
Larry Morley	New Brighton Boro	610 3rd Ave New Brighton PA 15066	morley@newbrightonborough.org
Alexander Andres	Beaver	420 College Ave Beaver PA 15009	xandres@comcast.net
Maureen T. Bostwick	Vanport Twp.	477 State Ave Vanport PA 15009	vanporttwp@comcast.net
Nathan Peluso	Beaver	1147 Third St., 15009	npeluso@hotmail.com
Mark Peluso	Beaver	1147 Third St. 15009	mpeluso@towncenter.info

LANDSCAPE ARCHITECTURE PLANNING
STROMBERG/GARRIGAN & ASSOCIATES

MINUTES OF MEETING

STROMBERG™ GARRIGAN & ASSOCIATES, INC.
Landscape Architects & Planners
102 E. Main St., Suite 300, Somerset, PA 15501
Ph: 814.443.1073 Fax: 814.444.0484

PROJECT: **Borough of Midland ORT North Shore**
SGA PROJECT #: 11009
DATE: **December 5, 2011**

ATTENDING: **Sean Garrigan**
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Steering Committee & Public Meeting**

❖ General Comments from Steering Committee Meeting

- We are currently ahead of schedule which is good as it will allow for greater mobility further along in the project. Several on site studies have been conducted and Chuck Jones of Mackin Engineering has been collecting PENNDOT drawings and plans which have been reviewed.
- A draft plan for the Ohio River Trail North Shore is tentatively on schedule to be done by March, 2012. Once this is ready, the local community leaders will have an opportunity to review the plan and make comments on the material.
- Another day of field work is needed. In particular, the old trolley line north of Route 68 in Ohioville needs to be examined further as a possible section of the Ohio River Trail. The portion of Route 68 that parallels what once was the trolley line is a section that has tight shoulders and high traffic volumes, not ideal for a bike land/share the road path.
- Opinions and comments from some local officials and community leaders are still needed. Brett Hollern of Stromberg Garrigan and Associates will be conducting interviews via phone to complete this information. A municipality survey will also be sent out to ascertain community opinions regarding the North Shore Trail. All of these opinions, including those voiced at the public meetings held on December 5th and January 23rd, will be compiled and used to influence further trail design.
- West Midland along Rt. 68 could be a pinch point in the trail and could benefit from the discussion of alternatives.

❖ Key Issues from the Steering Committee Meeting

- A discussion regarding implementation of this trail network should be begun. This discussion would address who is initially going to fund the project and also who will be responsible for the trails maintenance and upkeep in the future. Those who handle the implementation do not necessarily have to be the same group who handles the maintenance and upkeep.
- One of the key issues moving forward is that the Ohio River Trail Council is opposed to acquiring land. This is where another conservancy group may be able to step in.

Next Steps & Post Meeting Action Item List

1. The next public meeting is to occur on January 23, 2012. This will give the public an opportunity to respond to several trail alignment possibilities imagined thus far.

2. There are new federal funding opportunities that could help to move this project along such as the Transportation, Community, and System Preservation (TCSP) Program. However, the funding would need to be matched with something other than federal money. The breakdown would be approximately 80% funding from the federal level and a 20% match from state or local agencies. The deadline to apply for this funding is in early January so action should be taken soon if this is something that the committee is interested in pursuing.

3. The Ohio River Trail Council should establish a committee dedicated to acquiring funding for the project. Jason Reyes of Alta Planning and Design mentioned that this committee should be multi-faceted.

4. Diane Kemp would like a progress report to be able to send to DCNR.

Comments from the Public Meeting

- Concerns were raised regarding how trail organizers would address community members who are apprehensive about having a portion of the trail cross their property. SGA replied by saying that the best way to handle these situation is to get to the root of the issue and determine what it is in particular that is causing the hesitation. If the issue is privacy or security, there are studies showing how typical trail users are college educated, middle class law-abiding citizens who enjoy community recreation opportunities. Safety can also be designed for by decreasing the number of "hidden corners" and places for mischievous activities. In extreme cases, fencing could be established though, as Brett Hollern pointed out, this is not desirable as it quickly spreads along the trail. If neighbor "A" wants a fence, then neighbor "B" wants a fence, and soon the cost of the project becomes much higher than originally anticipated. If property value is a concern, there are studies showing how property values actually increase when a trail is located nearby as it is seen as an amenity in the real estate market.

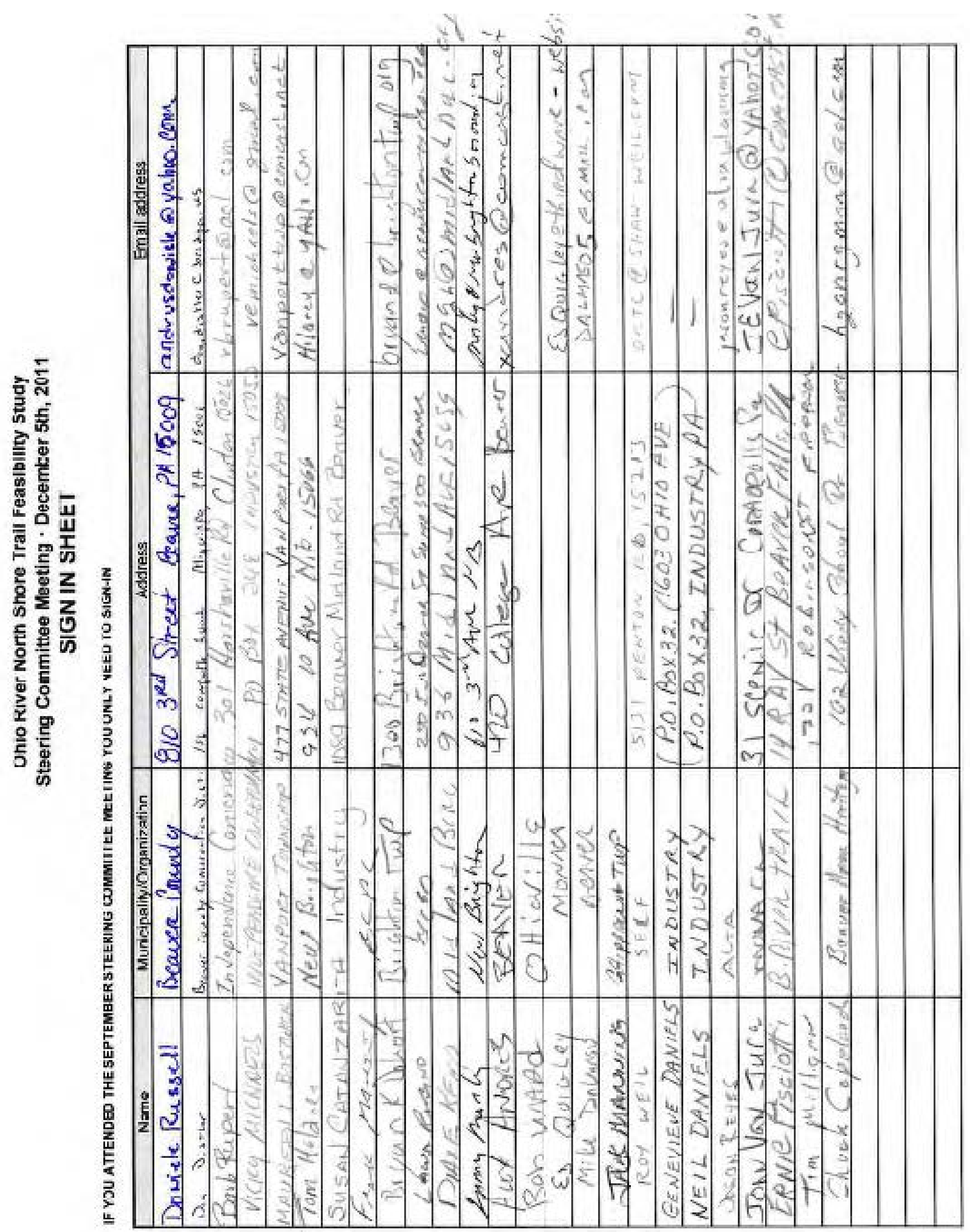
- There was public interest in whether or not the local police departments have come out in support of this project. SGA replied by saying that while they have not specifically written any sort of statement in support, they are aware of the project. In terms of trail safety, emergency vehicle access is being considered in the design. What general happens in these circumstances is that local police will begin to include the trail in their routine patrols. Sometimes this patrol includes the support of bicycle police along the trail.

- Concerns were raised by a representative from Industry Borough related to several of the indentified potential trail alignment through the Borough. The major concerns that were expressed related to safety issues along PA Route 68 and the location of some of the potential routes in terms of private property ownership and impacts on adjacent uses. A special meeting in Industry Borough was requested.

PROJECT: Borough of Midland ORT North Shore
SGA PROJECT #: 11009
DATE: December 5, 2011

ATTENDING: Sean Garrigan
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Steering Committee & Public Meeting**



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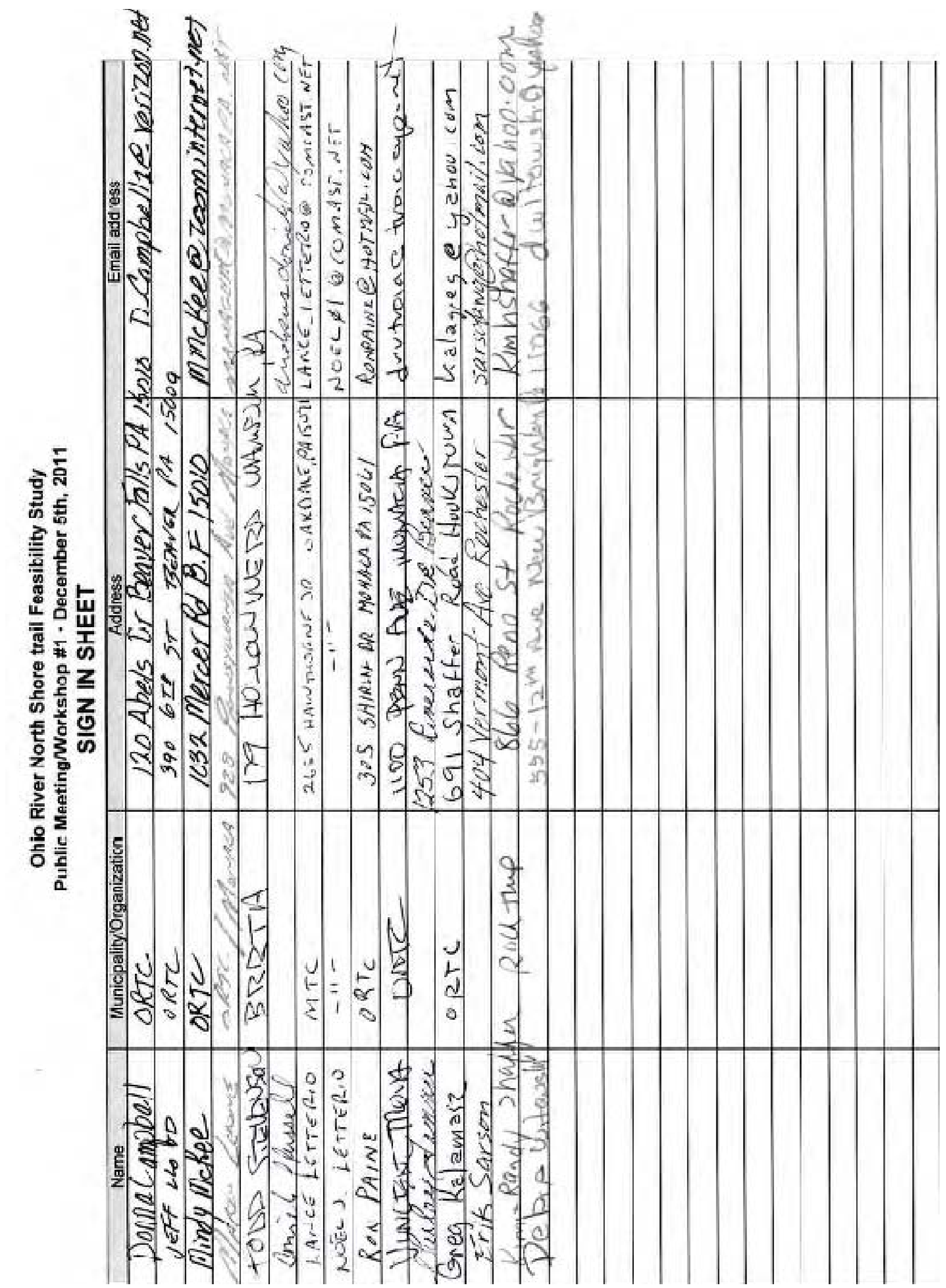

Ohio River Trail North Shore Feasibility Study
Public Workshop December 5th, 2011
Exit Survey RESPONSES

Please take a moment to fill out this survey. Thank you.

1. **In which of the municipalities do you reside?**
(3) Beaver, (3) N. Sewickley Twp., (2)Rochester Twp., (1) Rochester Borough, (1) Center Twp., (1) New Brighton (1) Chippewa Twp.

_____

If none, what is your interest in the project?
(3) Bike riding & exercising, (1) work in Beaver, (1) recreation, (1) on board of Beaver River Rails to Trails, (1) Quality of life economic development

_____

2. **Who lives in your household?** (circle all that apply)

   a. Pre-schoolers
   b. Elementary students (1)
   c. Middle school students (1)
   d. Junior high students (1)
   e. High school students (2)
   f. Young adults (1)
   g. Working adults (10)
   h. Retired adults (6)
   i. People with disabilities

3. **Which of the topics are the most important to you in relation to the project planning process?** (circle no more than three)

   a. Connecting to regional trails (11)
   b. Creating local community (9) trails/paths or circuits
   c. Making parks and destinations(7) within your community more accessible by walking or bicycling
   d. Connecting your neighborhood to the Ohio River's or the Beaver River's edge (7)
   e. Promoting economic development (5)
   f. Other passive recreation opportunities(3)
   g. Safer routes to schools (1)
   h. Historic interpretation (4)

4. **Which from question #3 is the most important to you and why?**
(10 A) Connecting regional trails
Very little access and need to travel out to ride
Need more trails in Beaver County
(1 B.) Because it is so inaccessible now
(2.C.) Economic Development,
Job growth
Environmental
More opportunities for fitness
Will boost local businesses

5. **If we could do one thing to make your community safer for bicyclists or pedestrians, what do you think that should be?**
Eliminate cars
Really safe marked trails and bike lanes along with education
Safe bike path
Connect the trail from Coraopolis to Monaca
Off-road trail access
Good parking trail heads
Widen & mark bike path on major routes like 51 & 18
Publicize the location of the bike with info on these trails
Maybe use trails more and road less
Trails that interconnect
Share the road signing

6. **Is there a location in your community that you feel should be safely accessible for bicyclists and pedestrians, via a trail, and is not today?**
Beaver River Valley,
North of Beaver Falls
Junction stretch to Riverside Park
Rochester Riverfront Park
The stretch along the Beaver River from Beaver Falls to Koppel
Raccoon Park from one end to the other a trail from the old valley picnic area to the beach and so on.

The following is a list of recreation activities. *Please indicate if members of your household participate or would like to participate in the following activities.*

		Yes	No	Would like to			
a.	Walking as an activity	Y	N	WL	(14 Y)		
b.	Bicycling	Y	N	WL	(14 Y)		
c.	Mountain Biking	Y	N	WL	(3Y)	(2N)	(1WL)
d.	Roller Blading	Y	N	WL		(2N)	
e.	League sports (e.g. baseball, soccer, etc.)	Y	N	WL	(1Y)	(3N)	
f.	Non-league sports (e.g. golf, tennis, etc.)	Y	N	WL	(3Y)	(1N)	
g.	Exercise and fitness (such as gym, Y)	Y	N	WL	(3Y)	(1N)	
h.	Enjoy nature	Y	N	WL	(8Y)		
i.	Bird watching	Y	N	WL	(5Y)	(2N)	
j.	Fishing	Y	N	WL	(3Y)	(2N)	
k.	Organized recreation programs	Y	N	WL	(1Y)	(1N)	
l.	Local special events (concerts, fairs)	Y	N	WL	(4Y)	(1N)	(1WL)
m.	Volunteerism	Y	N	WL	(5Y)	(2N)	
n.	Day camp	Y	N	WL	(1Y)	(2N)	
O.	Playgrounds	Y	N	WL	(1Y)	(1N0)	(1WL)
p.	Other (please specify)	Y	N	WL			

10 **Any additional comments or questions**:

- (2) Thank you. Keep the views from the trail in mind.
- Could we get the county/commissioners and planners behind trails?
- I'm a Beaver Co. bicyclist and I travel to Allegheny & Westmoreland Counties to ride bike trails and I buy supplies, meals, overnight lodging. We should have that economic development in Beaver Co.
- I would like to see a trail from 11th street in Beaver Falls, follow 11th St. to 3rd Ave, crossing 7th Ave along 5th street and onto Beaver Falls, New Brighton Bridge, and along 2nd Ave. in New Brighton, and continuing to the YMCA Rochester

OHIO RIVER NORTH SHORE TRAIL FEASIBILITY STUDY

December 5, 2011 Public Meeting

PRELIMINARY REVIEW OF ROUTING ALTERNATIVES OPTIONS AND FINDINGS

Section 100

Constraints

1. The portion of Midland Road (Route 68) entering Ohio is heavily trafficked with a speed limit of 45 mph and not conducive to a shared bicycle path. Steep embankments on either side of the existing road make this situation more problematic. Rockslides could leave debris on the roadway that would be harmful to both motorists and cyclists.
2. Smiths Ferry Road provides ramped access from Glasgow Borough, underneath the railroad and Route 68, then wraps around and onto Route 68. However, as the shared bicycle lane would require bicycle travel in both directions, eastbound traffic would need to cross Route 68 at grade to continue towards Midland.
3. The varying topography along this portion of Route 68 makes the prospect of split bicycle and vehicular paths challenging. Route 68 and its paralleling railroad are cut into a hillside that slopes steeply down to the Ohio River.

Options/Alternatives

1. Alternative A – Glasgow Borough could be used as an alternate trail route to Route 68. The trail could diverge from Route 68 along Main Street in Glasgow, travel under the train tracks via an existing tunnel, and then continue east along Liberty Avenue to Smiths Ferry Road.
   Alternative B – Extending the trail into Ohio via Tuscarawas Road just north of the Main Street tunnel in Glasgow could help to remove bicycle traffic from Route 68 and could provide a direct linkage to the Great Ohio Lake Greenway which begins just over the state line in Ohio.
2. A street crossing with flashing signage and on road painting could help make the crossing from Smiths Ferry Road to Route 68 eastbound a safe and viable option for cyclists.
3. There is another ledge cut into the topography above Route 68 away from the Ohio River. However, this ledge, which could become a dedicated bicycle path, travels through several private parcels of land between Smiths Ferry Road and the Ohioville/Midland border. While this ledge presents a more desirable trail alternative, it could be difficult to achieve due to land ownership.

Section 200

Constraints

1. Route 68 entering Midland from the west is a narrow stretch of road between 20’ and 24’ wide with varying and at times nonexistent shoulders isolated by steep topography in both directions.
2. In Midland, the Ohio River bends away from existing thoroughfares. The land between the towns main road (Route 68) and the Ohio River is privately owned and is still being used for industrial purposes. Though paralleling the Ohio River as much as possible is at the core of this projects vision, achieving this design in Midland could prove challenging.
3. In Midland, following the Ohio River closely could jeopardize potential revenue generation for the downtown. This potentially missed opportunity is due to the fact that the Ohio River is separated from the downtown portion of Midland by several large, operating, industrial sites.
4. Railroad Avenue, which is being considered as an alternate trail alignment for this section of the Ohio River Trail, is a one-way street eastbound.
5. Shipping Port Bridge connecting Midland to its industrial sites across the Ohio River presents some circulation challenges. Traffic speeds increase here as vehicles leave downtown Midland. This portion of Route 68 is also heavily traveled by trucks from various industrial sites in Midland heading east.

Options/Alternatives

1. While the uphill or north side of Route 68 into Midland presents construction complications the south side or Ohio River side could be expanded into a two-way bicycle path. However, this is not the ideal situation as it would then lead to a greater number of road crossings for bicyclists.
2. Having the trail parallel the Ohio River could cause unwanted interference with industry still active in Midland. This could also lead to missed economic opportunities for Midland Borough. Therefore, one alternate trail alignment would be along Railroad Avenue just north of the industrial sites and south of downtown Midland. The low traffic, 25 mph speed limits and long sightlines make this alternate an attractive option.
3. The Railroad Avenue alternate path is close enough to downtown to foster economic growth in downtown Midland. Ideally, cyclists and pedestrians using the trail would stop into town for refreshments and services. Being only one block south of the main thoroughfare, Railroad Avenue makes this economic spillover possible.
4. Railroad Avenue being a one-way street makes the idea of a split eastbound / west -bound bicycle route an appealing one. The westbound route could occur along Beaver Avenue, one block north of Midland Avenue. Utilizing Beaver Avenue or one of the other northern avenues would also help to connect the Ohio River Trail to Midland’s cultural assets such as the historic Carnegie Library and the adjacent Lincoln Park. These northern avenue options are also appealing because of their existing characteristics. Their historic brick paving patterns help to calm vehicular traffic. This calming is

further enforced by a 25 mph speed limit. That being said, brick paving is not ideal for bicycle traffic and portions may have to be paved for the bicycle trail.

5. The trail could follow existing vehicular traffic patterns around Shipping Port Bridge, splitting eastbound and westbound lanes. The eastbound portion of the trail could go under the bridge while the westbound portion could utilize the 7’ shoulder abutting the hillside to the north.

Section 300

Constraints

1. There is a pinch point along Route 68 just east of Wabash Road heading towards Industry. Rout 68 becomes 22’ wide with a 2’ paved shoulder on north side and an 8’ unpaved shoulder on the south.
2. Beyond this pinch point heading east Route 68 becomes 24’ wide with 5-6’ paved shoulders. The shoulders are not ideal for bicycle traffic as they currently exist.
3. To the east of Barclay Hill Road Route 68 bridges the railroad. Though the bridge has wide, designated shoulders, it is curved reducing sight distances and not currently conducive to pedestrian traffic.

Options/Alternatives

1. Alternative A – To avoid this pinch point the trail could be directed away from Route 68 along Wabash Road. Heading south along Wabash Road the trail could then take Canton Street, a low traffic neighborhood street, until it rejoins with Route 68 past the pinch point.
   Alternative B – The trail could travel north along Wabash Road and link with Pleasant Street eastbound, then to Industry Drive and Terrace Lane. This alternate option becomes the more viable of the two if the trail is to continue to run to the north of Route 68 along Six Mile Run, into Industry.
2. Route 68 through Industry could be redesigned to be more bicycle safe. Designating the shoulders as dedicated bicycle lanes with paint markings and ruble strips would help to make the most of this linear section of Route 68 that already provides great sigh distances.
3. Alternative A – The bridge over the railroad could be adapted to support bicycle traffic. The shoulders could be protected from the road by guard rails and then turned into dedicated bicycle lanes. There would also need to be some sort of fencing protecting pedestrians from a fall over the edge of the bridge to the railroad below.
   Alternative B – The trail could go under the vehicular bridge and cross the railroad at grade. This would raise other issues such as adding an at grade crossing but should still be considered an alternative to the vehicular bridge crossing.
   Alternative C – The trail could stay to the north of Route 68 and avoid crossing the railroad all together. This alternative would mean the construction of a path solely dedicated to bicycles and would require more planning than a shared path along Route 68 would. However, it would also solve another constraint further east along Route 68 where the road crosses back over the railroad, again via a bridge.

Section 400

Constraints

1. There is a pinch point approximately 100' east of the Route 68/railroad bridge mentioned in the Constraints portion of Section 300. Here, Route 68 narrows to 23' with a 5' shoulder on the north side and a 3' shoulder with a guardrail on the south. Both shoulders are separated from the traffic lanes by rumble strips.
2. One of the narrowest portions of Route 68 occurs west of Vanport near the Lockhouse 6 Restaurant. The road becomes 23' wide with 1' shoulders on either side. The shoulders are framed by curbs, a slope to the north and a series of utility lines to the south.
3. East of the Lockhouse 6 Restaurant there is another pinch point. Here, in front of Interstate Chemical, Route 68 is 23' wide with a 1' shoulder and sloped hill to the north and a 1' shoulder and 3' span to a chain linked fence on the south. This situation would not leave much room for bicycles if this were to become a shared portion of the path.

Options/Alternatives

1. Halfway between the two Route 68/railroad bridge crossings there is a tunnel to the north that passes beneath the existing railroad. This tunnel could be used as a safe and unobtrusive bicycle crossing point. Other issues would then need to be addressed such as how the trail would continue north of the railroad through what is largely private property.
2. This section of Route 68 could be avoided by running the trail to the north of the railroad from the existing tunnel into Vanport. The trail could then rejoin the existing street network at Sebring Road.
3. Alternative A – This second pinch point to the east of Lockhouse 6 Restaurant could be avoided by running the trail to the north of Route 68 then eventually onto Sebring Road.
   Alternative B – Although currently constrained by various features such as the slope to the north and the chain linked fence to the south, these features are not necessarily permanent. It may be possible, through various negotiations, to move the fence further south allowing for the shoulders on either side to open wider. Currently they do expand closer to the Lockhouse 6 Restaurant to 4' on the north and 10' on the south.

Section 500-A

Constraints

1. Bringing the North Shore Trail into Vanport via Division Lane is ideal as it avoids the traffic that occurs when Route 68 intersects with the Beaver Valley Expressway (Interstate 376). However, traveling along Division Lane moves the trail farther north away from the Ohio River.
2. Buffalo Street, resting on the Vanport/Beaver line and running north/south, is a thoroughfare of relative traffic that would need to be crossed in order for the North Shore Trail to reach central Beaver Borough.
3. In Beaver there exists a strong network of low traffic neighborhood streets ideal for cyclists. These streets are laid out in a rectilinear fashion roughly following cardinal directions, making movement from east to west and north to south possible. The constraint in this situation is that certain streets are one-way.
4. Making the connection between Beaver and Rochester over the Beaver River bicycle safe is a pivotal aspect of this project. Without it, a direct connection to the proposed Ohio River South trail would be lost. That being said, this connection is not easily made within the framework of the existing infrastructure.
5. Having a North Shore spawn trail run north along the Beaver River through the Rochester River Front Park would be ideal for connecting to communities such as New Brighton, Beaver Falls and Patterson. This portion of the trail would need to cross McKinley Run which currently is not possible for bicyclists.

Options/Alternatives

1. Alternative A – To bring the trail south again from Division Lane it could travel south along Spring Lane around the Vanport Ballfields, then connect with Georgetown Lane north of the Beaver Cemetery. Portions of this segment could be shared paths along roads with light vehicular traffic. The portion north of the cemetery could be a dedicated bicycle path separated from Georgetown Lane by an existing swale. Site observations have made it apparent that what would become a dedicated bicycle path adjacent to the cemetery is already in use as a footpath connecting the Vanport Ballfields with other community resources such the Beaver County High School.
   Alternative B – Another option would be to have the trail enter as it does in Alternative A, along Division Lane, then travel south along Spring Lane and continue weaving its way southeast via Route 68 and Sassafras Alley, eventually connecting with River Road which runs east/west paralleling the Ohio River. However, this creates a similar situation as to the one described in Midland where the trail would be directed away from the main commercial center of the town in order to parallel the Ohio River. As described in the Midland situation, this could result in the potential loss of economic gains for Beaver.
   Alternative C – The trail could enter Vanport along Route 68 (which becomes 3rd Street in Beaver). This would help to keep the trail closer to the Ohio River. However, this alternative would also mean

that the intersection of Route 68 with Interstate 376 would need to be reengineered. Reengineering this section presents its own issues as it is already a complicated network consisting of a bridge with several on and off ramps.

2. Assuming that the North Shore Trail enters Beaver north of the Beaver Cemetery, a shared path along Tuscarawas Road becomes an appealing option for crossing Buffalo Road. Currently, where Tuscarawas Road intersects with Buffalo Road there is a traffic light. Keeping this traffic light and adding a signal for cyclist sharing Tuscarawas Road with motorist makes the connection into downtown Beaver possible and safe.
3. Alternative A – The one-way street network in Beaver is conducive to one-way bicycle paths. The Ohio River Trail could become a series of shared road paths working with the existing circulation directions. Canal Street could carry cyclists westbound as could Corporation.
   Alternative B – This issue could be avoided by keeping the trail as a shared path from Tuscarawas Road to 4th Street which is a two-way street. 4th Street is also a 40' wide street with 6' sidewalks on either side. These existing dimensions make adding bicycle lanes possible.
4. Alternative A – The new Veterans Memorial Bridge is under construction along the northern section of the Beaver River near New Brighton. This new bridge will have a shared bicycle/pedestrian path along its southern edge. It terms of connecting Beaver with Rochester this is not the ideal solution because it is too far north to be considered convenient.
   Alternative B – Latching onto or creating a shared path along an existing Beaver/Rochester bridge is worth considering. It would provide direct crossing and could do so without a great deal of additional expense. While this may be possible for the Rochester/Beaver Bridge and the Rochester/Bridgewater Bridge, doing this along the existing railroad bridge is questionable. Using such an active rail bridge as the backbone of an attached bicycle bridge does not create the most enjoyable bicycling experience, though it is the closest existing bridge to the Ohio River.
   Alternative C – Building a pedestrian/bicycle bridge spanning the Beaver River, though perhaps ideal, would be costly. One alternative to a spanning bridge would be to create some sort of pontoon or floating bridge that would rest upon the Beaver River. The issue then becomes boat traffic moving from the Ohio River to the Beaver River.
5. A safe crossing for McKinley Run could be resolved with a prefabricated bridge. Such a bridge could facilitate pedestrian and bicycle traffic.

Section 500-B

Constraints

1. Along the eastern shore of the Beaver River is the Rochester River Front Park. This park has the potential to serve as a bicycle path linking the Rochester portions of the North Shore Trail to other communities further north along the Beaver River such as New Brighton, Beaver Falls and Patterson. This section of trail is constrained by the topographic conditions that exist between the river and the surrounding towns.
2. Crossing the Beaver River to connect New Brighton and Beaver Falls would also connect the proposed Ohio River Trail to an existing bicycle trail that begins near Morrell Field. However, 7th Street Bridge is the only existing pedestrian crossing point.
3. While Beaver Falls has many existing streets that could support a shared bicycle path system, choosing the right one is important. Many of the streets have wide traffic lanes and wide sidewalks but are less than ideal due to poor lighting and surrounding context.
4. A connection between the proposed Ohio River Trail and Bradys Run Park is important as the park is one of the region's largest natural resources and a place visited often by hikers and cyclists. To make that connection under current conditions involves a dangerous journey along Constitution Boulevard (Route 51). Route 51 has very narrow shoulders (nonexistent in some places), a high volume and speed of vehicular traffic and limited sight lines.

Options/Alternatives

1. There are ramping options that would allow for a riverside trail to overcome the riverbank topography and meet with existing town roads such as YMCA drive in Rochester. One of these ramping options would also connect a riverside trail with the future Veterans Memorial Bridge, currently under construction.
2. The existing 7th Street Bridge that connects New Brighton and Beaver Falls has a pedestrian crossing separated from traffic by a concrete guardrail. While this provides safe crossing once on the bridge, getting onto and off of the bridge remains an issue for cyclists. To resolve this issue in New Brighton, a bicycle trail could be wrapped along 4th Street and then down 2nd Avenue. From 2nd Avenue, the trail could connect with Big Rock Park and Fishing Park.
3. 6th Avenue seems to be one of the best options for a shared bicycle path through Beaver Falls as it is one of the main streets in the community. The trail could run along 6th avenue from the 7th Street Bridge until turning east on 11th Street. At the end of 11th Street it would be able to connect to Morrell Field and the existing bicycle system to the north. This option would also help to connect several of the smaller pocket parks found in Beaver Falls.
4. Alternatives are still being considered to bring the proposed Ohio River North Trail into Bradys Run Park. One option is to use another road as a shared bicycle path avoiding any cycling along Route 51.

Section 500-C

Constraints

1. One of the primary objectives for this section of the proposed Ohio River Trail is to connect surrounding communities with one of the regions greatest inland assets, Bradys Run Park. Located primarily in Brighton Township, Bradys Run Park is over 2000 acres and features a Recreation Facility with an ice area, four tennis courts and an indoor walking and jogging track. Other recreational facilities at this park include one baseball and five softball fields, a horse rink, horseshoe courts, walking and hiking trails, a 22-acre lake to fish year round, non-motorized boating, with picnic tables and playgrounds at various sites throughout the park. There is also an outdoor activity center which features an in-line skating rink, action/skate park, two basketball and four tennis courts. Because it is such a wonderful amenity to the region its connectivity constraints must be overcome. One of the most daunting of these constraints is how to connect a bicycle path from the surrounding communities to the park. Steep hills and narrow roads with high traffic volumes make such a connection difficult.
2. Just north of Wright Pontiac Constitution Boulevard (Route 51) enters a tunnel that takes it underneath an active railroad. This is also a transitional section where the road changes from 4 lanes to 2. These lane changes coupled with the tunnel make this section difficult to navigate and unsafe for cyclists.

Options/Alternatives

1. Alternative A – The most direct route from southern communities to the eastern park entrance is along Route 51. Some cyclist already use this road to enter the park however it is dangerous and not preferred by the average recreational cyclists. The most dangerous portion of this road is between Wright Pontiac and the Grand Valley Inn near Circle Street. This section is curvilinear with short sight distances and high traffic speeds. The existing shoulders are held against the road by guardrails, concrete barriers and curbs. Their widths vary from 8’ to 0.’ To better facilitate bicycle travel these shoulders could be redesigned and repainted to clearly mark a cycling path. However, this should not be done alone, but rather coupled with a redesign of the elements bordering the shoulders. Some curbs could be removed and guardrails pushed away from the road to make the cyclist feel less contained.
   Alternative B – Entirely removing the trail from this portion of Route 51 is an option that should be considered. Parcel data, aerial analysis and onsite studies suggest that there may be an alternate route just west of Route 51 behind the roadside infrastructure. If this alternate route could be navigated and is attainable by the trail association, bicyclist could travel from Wright Pontiac to the Grand Valley Inn on their own dedicated path, separate from Route 51. This path could potentially extend to even further north to Woodward Drive which abuts Bradys Run Park.
   Alternative C – This alternative explores the possibilities of accessing Bradys Run Park from an access point other than the parks east entrance along Route 51. This entrance may still be the preferred entrance point for communities east of the park such as Patterson Heights and Beaver Falls. These communities may be able to follow an old road that connects Davidson Drive in Patterson Heights to the Bradys Run Park entrance. The southern communities of Vanport, Beaver and Bridgewater could gain access via the parks southern border. Shared bicycle lanes along Tuscarawas Road and Gipsy Glen Road could be used to make this connection. Though these roads present some topographic challenges, they carry less vehicular traffic than Route 51. Making this connection via Gypsy Glen Road would also connect Beaver and the Beaver Area High School to Gypsy Glen Park and Two Mile Run Park along the way. From Gipsy Glen Road the trail could cross Dutch Ridge Road before entering Bradys Run Park along Park Road.
2. To avoid this tunneled portion of Route 51 the trail could continue north from Bridgewater through what is now the Wright Pontiac parking lot and then cross under the railroad where Bradys Run deposits into the Beaver River. Though there is currently no public access to this point, a bridge does exist carrying the railroad over Bradys Run. This would provide cyclist with their own dedicated tunnel and avoid safety issues that would arise from a shared tunnel on Route 51.

Ohio River North Shore Trail Feasibility Study
Municipality Survey

Will you please help us by giving us your opinions? Please take a moment to fill out this survey and return it in the enclosed envelope as soon as possible. Thank you!
SURVEYS SHOULD BE RETURNED BY January 31st, 2012

Response summaries based on completed surveys and verbal interview responses from: Industry Borough, Glasgow Borough, Vanport Township, New Brighton Borough and Crescent Township (not part of Feasibility Study area)

1. **How important is the creation of a continuous trail along the Ohio River?**
   (circle one)
   Not Important (2) Important (4) Very Important

   Please Comment:_____
   We have series concerns regarding location of proposed trail, safety issues, financial burden to borough, etc.
   We do not possess direct access to the Ohio River, but support the concept of a trail.
   I believe people who live in urban area expect these types of amenities.
   Because residents can walk & ride to get healthy, and stay off traffic.
   For community activity.

2. **Have residents in your community expressed a desire for the creation of new trails, bicycle and/or pedestrian facilities and/or specific bicycle and pedestrian safety improvements?** *(circle one)* Yes (3) No (3)

   If yes, please list the specific projects or locations?
   Bike paths along Brighton Road and shoulder improvements on Dutch Ridge & Tuscarawas Road have been implemented.
   Location – along river from Industry through Vanport through Beaver.

3. **Do you consider your community to be bicycle and pedestrian friendly?**
   (circle one) None of it Some of it (4) All of it (2)

   Please Comment:_____
   Roads, lanes, streets cannot safely accommodate this type of travel.

4. **Does your community have bicycle racks in its downtown or commercial areas?**
   (circle one) Yes (1) No (5)

5. **Does your community have any existing bicycle trails or on-road bicycle lanes?**
   (circle one) Yes (3) No (3)

   If yes, please list the specific locations or routes.
   Brighton Road, Dutch Ridge Road (portions) & Tuscarawas Road (portions)
   Brighton Road has a bike lane.
   PA Route 51 is existing.

COMPLETED SURVEYS

6. **Are the schools in your community safely accessible for pedestrians and bicyclists?**
   (circle one) All of them (1) Some of them (1) None of them (2)
   *Does not apply, no schools (2)

   Please list some of the major barriers for safe pedestrian and bicyclist access to your schools?
   We only have one school and it has sidewalks & pedestrian crossing markings with a crossing guard in the am/pm, peak travel times.
   Hills, narrow roads, minimal shoulder, no sidewalks.
   Lack of bike lane and safe berms.

7. **Are the parks and public spaces in your community safely accessible for pedestrians and bicyclists from a minimum of a ¼ mile radius?**
   (circle one) All are (2) Some are (3) None are
   *Does not apply (1)

8. **The following is a list of recreation activities. *How available are facilities for these activities in your community?*** *(circle all that apply)*

		Plentiful	Enough	Need More	Don't Want Any
a.	Walking as an activity	P (2)	E (3)	NM (1)	DW
b.	Bicycling	P (1)	E (2)	NM (3)	DW
c.	Mountain Biking	P (1)	E (2)	NM (1)	DW (2)
d.	Roller Blading	P (1)	E (1)	NM (1)	DW (1)
e.	League sports (e.g. baseball, soccer, etc.)	P (1)	E (2)	NM (1)	DW (3)
f.	Non-league sports (e.g. golf, tennis, etc.)	P	E (2)	NM (1)	DW (3)
g.	Exercise and fitness (such as gym or Y)	P	E (1)	NM (3)	DW (2)
h.	Enjoy nature	P (4)	E (2)	NM	DW
i.	Bird watching	P (3)	E	NM (3)	DW
j.	Fishing	P (4)	E (1)	NM	DW (1)
k.	Organized recreation programs	P (1)	E (3)	NM (1)	DW (1)
l.	Local special events (concerts, fairs)	P	E (2)	NM (3)	DW (1)
m.	Boating	P (3)	E (1)	NM (1)	DW (1)
n.	Day camp	P	E (2)	NM (1)	DW (3)
o.	Playgrounds	P (2)	E (3)	NM	DW (1)
p.	Other (please specify) Basketball	P	E (1)	NM	DW

9. **How important is the river to your community's economic vitality or for the quality-of-life of your residents?** *(circle one)*

   Minimal Importance (3) Some Importance (2) Very Important (1)

   Why?_____
   People like to get to the river's edge at the Monaca, recently improved waterfront (Pump House) park.
   Very few businesses are located directly along the riverfront; our community does not own access to river property.

10. **How important is public accessibility to the river to your community?**
(circle one)

Minimal Importance (3) Some Importance (2) Very Important (1)

Why?_____
No access
Some access, lots of industry
No boat access
Privately-owned frontage
People want to walk and enjoy the river views & fish.

11. **Are there any recreation, historic or cultural sites in your community that should be directly linked to a regional trail along the river?**

(circle one) Yes (2) No (4)

If you answered yes can you provide a brief description of the specific location(s)?_____
Lock 6 Restaurant
The Islands in the Ohio River
Crescent Township Historical Society
Monaca Pump House Park
Lincoln Highway (Liberty Ave), Pictograms (Ohio River)

12. **Have residents in your community specifically expressed the value of environmental and/or water quality or natural resource protection as important aspects which need improvement within your community?**

(circle one) Yes (1) No (5)

If you answered yes can you provide a brief description of the specific topic(s)?
Need to protect Ohio River island habitats and water that flows into the river.
We have actively perused purchases of lands along the Four Mile Creek corridor.

13. **Are there any privately-owned parcels within your community along the riverfront that would be desirable for public acquisition or public uses?**

(circle one) Yes No (6)

If you answered yes can you provide a brief description of the specific location(s)?_____
"Ohioview Peninsula" in Industry
Parcels near treatment plant in Midland

COMPLETED SURVEYS

14. **Does your community have ordinances which require a public setback from the river as part of any new land development application?**

(circle one) Yes (2) No (4) NA (1)

If no, how likely would your municipality be to consider such a requirement?

(circle one) Not at All (2) Somewhat Likely (1) Very Likely

15. **If a regional trail were created along the river through your community, what economic impact would you foresee as a result?**
(circle one)

Negative Impact No Impact (1) Positive Impact (2) Very Positive Impact (3)

Please Comment:
Property values could increase and people would be more aware of our community and its assets
Could become a destination for trail users to come into town for a coffee
Concerns over cost to support project/maintain trail annually
Great Allegheny Passage and Montour Trails are very popular
Positive impact of quality of life.

16. **Are there any specific businesses or properties (such as vacant buildings) you feel might benefit from the creation of a regional trail through your community?**

(circle one) Yes (1) No (5)

If yes, please provide the name of the business or location?
Bike shop in Beaver
Shops in downtown Beaver and downtown Midland
B&B's
Empty businesses along PA Route 51 corridor

17. **Do you feel that employers within your community would feel that providing trails and improved bicycle and pedestrian facilities near their businesses would be beneficial to their employees for transportation and/or recreation?**

(circle one) Yes (1) No (3) NA (2)

18. **How supportive would your residents be in the creation of trails in the community?** *(circle one)*
a. Very supportive and would be willing to support dedicated funding
b. Supportive but not willing to pay anything (3)
c. Don't care either way (1)
d. Opposed to any trails and any financial support (2)

COMPLETED SURVEYS

Your Turn: Please add your comments:

I think this should be found favorable because the walking/biking trail would get used a lot.
New Brighton Township Park & Recreation board generally supports any improvements that create additional opportunities for recreational activity.
*See attached letter from Industry Borough.

Please return completed surveys to:
Doniele J. Andrus
Beaver County and Lawrence County
Shared Greenways and Environmental Planner
810 Third Street
Beaver, PA 15009
Phone: 724-770-4428 Fax: 724-775-3915
dandrus@beavercountypa.gov

LETTER FROM INDUSTRY BOROUGH

RECEIVED
JAN 09 2012
BCPC

December 29, 2011

To Whom It May Concern:

I attended the ORT Open House earlier this month as a representative from the Industry Borough Council and assumed the responsibly of compiling the information and submitting the Feasibly Study Municipal Survey as requested by your committee.

Since I serve as a member of council, I also assume the responsibility of reporting the status of the project as discussed at the ORT meetings to the council members at our local monthly meetings. At our December meeting, council members continued an ongoing discussion of this project and the proposed path of the trail through our community. We also thoroughly discussed the impact this project will have on our small borough.

I regret to inform you that on behalf of our community Industry Council members are not willing to commit to this project financially. There are also several major safety issues regarding the proposed trail and its possible impact to local traffic patterns. Due to budget restraints, the position of the trail in respect to private property, and the concern for public safety, we voted unanimously to no longer support this project. Our budget is very tight again this fiscal year and we do not foresee the ability to financially commit to this type of project now or in the future.

The survey is enclosed and completed to best of our ability. It did not provide us with the ability to properly communicate our concerns. We would be very willing to meet with ORT committee members to further discuss these issues. Please feel free to contact any of us at your convenience. I have included the names and phone numbers of several additional borough council members for your review.

Sincerely,

Susan Catanzarita

Susan Catanzarita, Council Member
724.643.3554

Nicholas Yanosich, Industry Mayor
724. 643.9869

Andrew Zachodni, Council Member
412.287.3569

MINUTES OF MEETING

STROMBERG™ GARRIGAN & ASSOCIATES, INC.
Landscape Architects & Planners
102 E. Main St., Suite 300, Somerset, PA 15501
Ph: 814.443.1073 Fax: 814.444.0484

PROJECT: **Borough of Midland ORT North Shore Feasibility Study**
SGA PROJECT #: 11009
DATE: **January 23, 2012**

ATTENDING: **Sean Garrigan**
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Steering Committee & Public Meeting**

❖ General Comments and Concerns from Steering Committee Meeting

A preliminary section by section overview of the study corridor alternatives identified in the December 2011 public meeting was provided. The presentation focused on the alternatives which appear to be most viable and which areas would require more extensive study.

- Potential alternatives through Industry Borough were still being identified and not easily indentified viable route has been identified to-date. A discussion was held focused on the issues with PA Route 68 through the Borough as well as those routes which parallel PA Route 68 and require crossings of the PennDOT roadway. The possible of using existing roadways which deviated further north from the river was discussed. It was explained that they have be field reviewed and most have significant right-of-way, sight-line and topographic limitation.

- It was explained that a separate meeting will be scheduled with the District offices of PennDOT to discuss current policies and design parameters as well as establish coordination procedures.

- Representatives from New Brighton Township expressed a desire to improve and signalize the intersection of Delaware Avenue (PA Route 18) at 3rd Avenue and Penn Avenue Extension.

- There as a discussion of potential feeder routes to Bradys Run Park and the connection to the primary ORHST route in this area.
- Indentifying the correct key contact person on each of the elected boards was discussed. Interviewing these individuals is ongoing.

Next Steps & Post Meeting Action Item List

1. Finalize all alternatives to be included in the feasibility study.
2. Refine those alternatives that have been identified as most viable.
3. Perform special meetings, including with PennDOT.
4. Complete elected official interviews.
5. Prepare a draft alternative analysis for review by the steering committee.

Comments from the Public Meeting

The format of this meeting was an open house workshop with presentation boards depicted the various alternatives indentified by Study Section. Alternatives that have been identified as being most viable were identified on color-coded mapping. Areas were further studied is required we noted. The community had the opportunity to comment on findings to-date as well as provide additional recommendations on potential alternatives not yet identified.

- There were several questions regarding the location of the trail route through Midland Borough. Several people asked about the alternative which utilizes Beaver Avenue. Several community members asked about bike lanes and parking issues in the Borough, especially along Beaver Avenue. It was explained that if that route is designated as the primary trail or a feeder route, it would be as a “sharrow” and not as stripped bike lanes.

- Representatives from Beaver Falls reviewed revised on-road sharrow routes and requested information on design specifications for striping and signing. They were intending to implement their portion of the feeder trail (Beaver River Rail Trail) extension in mid-2012.

- There were questions regarding the scheduled PennDOT improvements to the Lewis Way/New York Avenue ramp and bridge from the Pleasant Avenue intersection to the Harrison/Railroad Avenue at the river level in Rochester Borough.

- Questions were raised about the ability to create bike lanes along PA Route 68 from a safety and maintenance perspective, especially between Midland Borough and Vanport Township.

PROJECT: Borough of Midland ORT North Shore Feasibility Study
SGA PROJECT #: 11009
DATE: January 23, 2012

ATTENDING: Sean Garrigan
Note: See attached sign-in sheet for list of steering committee and their contact info.

SUBJECT: **North Shore Trail Feasibility Steering Committee & Public Meeting**

Ohio River North Shore Trail Feasibility Study
Steering Committee Meeting · January 23rd, 2012
SIGN IN SHEET

IF YOU ATTENDED THE SEPTEMBER STEERING COMMITTEE MEETING YOU ONLY NEED TO SIGN-IN

Name	Municipality/Organization	Address	Email address
Gary Craig	Glasgow	174 RT 68 Midland	GTCCRAIG@COMCAST.NET
John Szatkiewicz	Ohioville	6929 Tusca Midland	57TBIRDR@COMCAST.NET
Linda Tict	"	"	"
Mike Harich	Vanport	2236 Third Ave NB PA 15066	harichmym@[illegible]
Tom Holzer	New Brighton	924 10 Ave New Brighton	tblazer8@yahoo.com
Frank Mancini Jr	Beaver Co Planning		fmancini@beavercountypa.gov
Mark Piccirilli	Brighton Twp		mpiccirilli@friendshipridge.org
Bryan K. Dehart	Brighton Twp	1300 Brighton Rd, Beaver PA 15009	bryand@brightontwp.org
Diane Kemp	Midland Boro	936 Midland Ave 15059	mgn@midlandbeaver[illegible]
Larry Morley	New Brighton	610 Third Ave NB 15066	morleye@newbrightonborough[illegible]
Danielle Russell	Beaver County	810 3rd Street 15009	andrusdanielle@yahoo.com
Vincent Troia	ORTC	1100 Penn Av Monaca PA 15061	dvtroia@[illegible].net
Nathan Peluso	ORTC	—	npeluso@hotmail.com
Peggy Pings	NPS-RTCA	PO Box 6125, Morgantown WV 26506-6125	mpings@wvu.edu
Dan Karaczun	Bethel Park	321 Chessbriar Dr BP 15102	dankaraczun@me.com

Ohio River North Shore Trail Feasibility Study
Public Meeting/Workshop #2 · January 23rd, 2012
SIGN IN SHEET

Name	Municipality/Organization	Address	Email address
Sam Rosatone	Midland	560 Ohio Ave Midland 15059	N/A
Gregory Kalamasz	Hookstown	691 Shaffer Rd, Hookstown 15050	kalagreg@yahoo.com
Brian Freund	Hookstown	400 Shuler Road, Hookstown 15050	btfreund@yahoo.com
Bill Weber	Monaca		WilliamHWeber@comcast.net
Robert Freund	Hookstown	480 Shuler Rd Hookstown 15050	robertafreund@gmail.com
Terry Porter	New Brighton	641 Route 68 New Brighton PA 15066	
Larry Rambo	Rochester	186 Brighton Ave Rochester PA 15074	
Donna Campbell	Beaver Falls	130 Abels Dr B.F.	D_Campbell1@verizon.net
Ernie Pisciotti	Beaver River Rails-Trails	14 Ray Street B.F.	episciotti@comcast.net
Randy Shaffer	Rochester	866 Reno St. Roch. 15074	N/A
Bernard Halpin	Montour Trail	124 Valley View Dr. Wash. Pa 15301	Thunderbird_68@msn.com
Denise Cox	Ohioville	113 Hummel Drive Industry PA 15052	denisesciu@msn.com
Jack Manning	Self	3350 37th St. Ext Beaver Falls	jack.pcc@verizon.net
Mike Blair	Rochester	148 Lyon Ave Rochester PA	M1134BBlair@gmail.com
Hank Koczynski	Midland/Ohioville Teamplayo	2419 Fairview Road Midland PA 15059	

MINUTES OF MEETING

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Landscape Architects & Planners
102 E. Main St., Suite 300, Somerset, PA 15501
Ph: 814.443.1073 Fax: 814.444.0484

PROJECT: **Borough of Midland ORT North Shore Trail Feasibility Study**
SGA PROJECT #: 11009
DATE: **February 21, 2012**

ATTENDING: **Doniele Andrus (Beaver County), Sean Garrigan (SGA)**

SUBJECT: **North Shore Trail Feasibility Special Meeting with Industry Borough Council and Residents**

❖ Major Comments and Concerns

- Safety and property rights.
- Golf Course is a potential except the short trail connection through the course may be in conflict with one of the fairways.
- Because PA Route 68 is the escape route for the power plants there are many hurtles to deal with from a safety standpoint. The Borough has asked PennDOT to reduce the speed and has been denied in the past.
- The Borough has for a few key crosswalks in the core development area and they have been denied by PennDOT in the past.
- They would like a crosswalk at the post office and possibly near the general store located further north.
- Ohioview Drive extension is NOT a paper street it is private street. This street is not a viable option as it is used by the local youth for basketball and other sports it is also used for additional parking for the property owners in close proximity.
- Maintenance is a concern. Questions such as: who would be picking up the trash? Who would be dealing with graffiti? Who would be dealing with other trail related issue (sexual assault, emergency vehicle access, crime, etc.)?

- Since several of the alternative routes being studied go through private properties they have major concerns with impacting individual properties. The Borough will not pursue any trail projects that force private properties to participate.
- There were questions regarding how the project was funded. Doniele explained that the project was partly by all the communities participating in the study, Dominion Gas, and DCNR. Midland was the grant applicant on behalf of all the communities that passed a resolution in support of it. The grant was to DCNR it was a 50/50 matching grant. When the Grant was awarded the steering committee got together and released an RFP to retain a contractor SGA was selected and awarded the project from that RFP.
- How long is the project? It was explained that the project is currently in the planning and design phase. We have held two public meetings and four steering committee meetings. The plan will hopefully be in draft form in late spring or summer and at that time a steering committee meeting and another public meeting will be held. Public and committees should be responding to all items they agree with and or disagree with.
- There were concerns regarding what the Borough was committing to in terms of implementation. They explained that they don't have a budget to implement any of the recommendations and that they are currently having issues with existing park and maintenance of existing facilities. The elected officials said they won't and can't raise taxes for a trail because they have a shrinking tax base.
- It was explained that the Borough is only committed to what you agreed to in the resolution you passed to participate in the planning process. Their financial commitment has been paid. It was explained that they make sure they are attending committee meetings, and making sure the plan addresses Industry's Community views and desires.
- How were the meetings advertised? Response: they are in the local paper and the meeting notice is sent to their representative on the steering committee for distribution.
- A question was raised regarding the process moving ahead. It was explained that the consultant team is tasked with making recommendations based on public input, sound engineering, and practical implementation. Once the draft is prepared it is then the task of the communities to respond as appropriate to the draft. The Consultant then makes the changes and sends to DCNR for their review and comment.

Mackin **Memorandum**

To: Sean Garrigan
From: Chuck Jones
Re: Ohio River Trail – North Shore, Meeting with PennDOT 02/21/12
Date: February 24, 2012

Meeting at PennDOT District 12-0 on Tuesday, February 21, 2012.

The following people were in attendance:

- Kathryn Power – PennDOT Pedestrian & Bike Coordinator
- Matt – PennDOT Highway Occupancy Permits
- Seth Michaels – PennDOT Signing & Pavement Markings
- Doniele Andrus
- Sean Garrigan
- Chuck Jones

Mackin described the project to PennDOT and showed them some maps with alternatives. Stated that we have several locations where the only reasonable alternative is to start with the trail on SR 68. However, there are tight locations with no or minimal shoulder.

Kathryn stated bicycles are permitted on all state roads, as long as they are not limited access or Interstate.

"Share the Road" Signs in PennDOT Publication 236 are put within PennDOT ROW but require maintenance by local municipality or trail group. PennDOT must approve their placement.

Trail guide signs are installed out of PennDOT ROW and maintained by municipality or trail group, not PennDOT.

Mid-block crossings require an HOP. We currently have 4 of these crossings of SR 68.

Sharrows (Shared Lane Markings) are allowed by PennDOT on roads with a speed limit 35 MPH or lower. The standards are shown in the MUTCD (2009). They recommend using thermoplastic opposed to waterborne paint as it lasts about 5 years compared to 1.

Contact Beaver County Maintenance Manager.

Mackin **Memorandum**

Regarding bike lanes, if installed on PennDOT road, the municipality or trail group would actually take the road over, including ownership, maintenance, paving, snow removal, etc. This will lead to few bike lanes on state roads.

PennDOT does not permit HAWK signals, although they are in the MUTCD 2009 (Ed Miller, PennDOT). Instead, overhead or ground mounted flashing warning devices are used. Trail detection was also mentioned as a possibility, although solar power isn't the greatest option in Pennsylvania.

PennDOT bridge project SR 4033 B03 – Wildwood Road over Brady Run. Plans requested on 2/23/12

MINUTES OF MEETING

STROMBERG™ GARRIGAN & ASSOCIATES, INC.
Landscape Architects & Planners
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PROJECT: **Borough of Midland ORT North Shore Feasibility Study**
SGA PROJECT #: 11009
DATE: **August 8, 2012**

ATTENDING: **Diane Kemp (Midland Borough), Doniele Andrus (Beaver County) Sean Garrigan (SGA) and Chuck Jones (Mackin)**

SUBJECT: **North Shore Trail Feasibility Preliminary Draft Plan Review Meeting**

The primary focus of this meeting was to review the preliminary draft of Chapter II of the ORNST Feasibility Study which reviews the alternatives identified and studied throughout the planning process. The document provided specific trail, bicycle and pedestrian facility/circulation recommendations along with other recreation and river access-related recommendations. Major barriers to achieving the overall goal of creating a single inter-connection trail route along the North Side of the Ohio River from Rochester Borough to the Ohio State Line are also identified.

As with the South Shore Feasibility Study, the attached document provides a detailed explanation of, not only the proposed route, but a detailed discussion of the various alternative studied and including those are determined to be unfeasible. The following is a list of summary items to specifically discussed at the meeting:

Overall Project – What can be achieved?

Twp phasing plan sheets were included. The first showed the proposed ORTNS Route and the Feeder Routes. It also illustrated the gap areas where no viable alternative could be identified. The second plan depicted likely First Phase Trail Segments. This plan illustrated that a significant amount of connectivity can be achieved utilizing existing and retro-fitted infrastructure.

1. The proposed recommendations included in the document provide for the potential to achieve extensive regional trail and greenway connections, including between two states and major development core areas and downtowns. The value of having these connections was discussed.

2. Specific trail segments have been identified for implementation projects that can be achieved in a relatively short period of time since they rely heavily on existing roadways or require only minimal gap construction or improvements. As the First Phase Segments Plan shows, there is a potential to formally connect Vanport Township, Beaver Borough, Bridgewater Borough and New Brighton Borough through to the City of Beaver Falls; in essence completing the southern end the Beaver River Trail.

3. Key parcels or areas for preservation easements have been identified, mostly utilizing currently undeveloped or under-utilized lands which could greatly increase public access to the Ohio River and/or create enhanced recreation opportunities for the local community and the region as a whole.

Overall Project – What are the Major Hurdles?

1. There are two stretches of study segments, specifically in Sections 300 and 400, between Midland Borough through and into Vanport Township, mostly within Industry Borough, where no viable trail route alternatives could be identified at this time. The details of the various alternatives studied were discussed and it was agreed that there are no reasonably viable routes, at this time.

2. The ability to utilize on-road routes, even in the most limited fashion as a signed share-the-road route are precluded by PennDOT requirements and physical constraints along many segement of roadways, especially major portions of PA Route 68. Although segments of PennDOT roadways were identified as having the potential to accommodate bike-lanes within the existing shoulders or rights-of-way, PennDOT's policy states that all proposed bike lanes on PennDOT highways must have the ownership of the shoulders, along with all maintenance responsibilities, transferred to the local municipality. As a result this policy viability of this approach is essentially eliminated on existing PennDOT roadway as result of the resultant economic impact on local governments. This was discussed at length and it was agreed that no municipality included in this study was likely to take-on such responsibility.

Summary of the Study Findings by Section
Section 100 – Ohioville and Glasgow Borough's

+ Several key trail connectivity opportunities can be achieved in this Section. At the local level a safer connection between Glasgow Borough and the Ohioville Lock 57 Community Park can be achieved capitalizing on recent improvement investments made at the park.

+ A direct connection can be achieved to the planned and partially completed Great Ohio Lake Greenway which allows for a future connection to a 100 mile greenway which travels north ultimately reaching Lake Erie in Ashtabula, Ohio. If the complete multi-state connection could be completed, Glasgow Borough is very well located to become a significant trail-town destination at the cross-road of the two major trail corridors.

+ The ability to utilize PA Route 68 within this Section as a signed share-the-road designation appears to be feasible although the former trolley line shelf is a more desirable trail route for the majority of its length from Glasgow Borough to Midland Borough. Both are shown considering the short and long term approaches to this Section.

- The former trolley line shelf (no actual former trolley right-of-way exists as separate parcels along this segment in the Section 100) disappears and fades into the alignment of PA Route 68 a few hundred feet east of Smith's Ferry Road, eliminating the ability to provide a direct connection between the former trolley line shelf and Smiths Ferry Road. Only through major re-grading and engineering, along with the acquisition of a private residential property at the intersection could a direct, off-road connection be achieved. After a lengthy discussion it was agreed that a long-term approach which included a retaining wall in this area to increase the width of shoulder or to allow for a dedicated trail on the north side of the roadway should be recommended.

- A mid-block crossing that would connect the on-road route with a dedicated multi-use trail on the former trolley right-of-way could be a method to overcome the issue mentioned above; however, it appears that due to the speed limit of 45 MPH, PennDOT will not allow a un-signalized mid-block pedestrian crossing (per PennDOT PUB 46). After a discussion regarding this issue it was agreed that this is the primary reason to recommend the long-term improvement of a retaining wall along a portion of PA Route 68.

+ If all of the vacant parcels along the former trolley shelf can be acquired either outright or as subdivided parcels with sufficient width to provide for the trail, a linear greenway/park could be created to connect Ohioville, Glasgow and Midland. Many portions of this area are deep enough to accommodate active recreation facilities such as ball courts, etc. and a formal trailhead could be constructed. This area could also become a regional park and recreation destination since it affords spectacular views of the Ohio River. It was agreed that this would be a desirable long-term strategy if a way to acquire the property and maintain it could be developed.

Section 200 – Midland Borough

+ A significant portion of the trail can be designated as an on-road sharrow route utilizing existing roadways through Midland Borough.

+ An opportunity exists to enhance the connection of the West End Neighborhood to the core of the Borough's Downtown as well as to Spring Lane Park and a proposed Midland Ohio River Overlook Park and near the Borough's Treatment Plant. These connections would require creating a new multi-use path parallel to the active rail siding that serves the steel mill area. The proposed trail could be created on a slightly elevated "bench" created by a low retaining wall. A connector trail could be extended as a switch-back up to the elevation of the Spring Lane Park.

+ In order to provide a connection to both sides of PA Route 68 as a share-the-road condition or to the ultimate dedicated multi-use trail on the former trolley shelf, a trail/pedestrian crossing will need to be created at the intersection of the Treatment Plan Road. This intersection should be improved to create a formal roadway intersection and the speed limit along PA Route 68 should be reduced from 45 MPH to 35 MPH from this point and east, as the roadway enters the developed portions of the Borough.

The route along Beaver Avenue would be designated as a sharrow from 3rd Street to 13th Street to connect the community to its own parks. The designated ORTNS would extend along the entire length of Railroad Avenue, including via the new Railroad Avenue extension to the Borough Line with Industry Borough.

Section 300 – Industry Borough

+ There are opportunities to create enhanced bicycle and pedestrian connectivity within the core developed area of Industry Borough, specifically creating direct connections between residential neighborhoods and Industry Community Park.

+ The community has been pursuing pedestrian crossing improvements along PA Route 68 to allow for residential neighborhoods to be safely connected to the community facilities and retail opportunities on both sides of PA Route 68. Our plan proposes that crosswalk enhancement, including prominent striping, be implemented at Engle Road/SR 4032 and Pine Grove Road/SR 4039 since sight distances are good at these locations and the speed limit is 35 MPH.

- The areas of PA Route 68 from Midland Borough to Six Mile Run have multiple constraints including: segments with 45 MPH or higher posted speed limits; limited shoulder widths; sight-line constraints; topographic barriers; multiple very heavily utilized driveway access points for industrial uses; and compounding these issue there are limited routing alternatives. In addition, PA Route 68 east of the development core is limited in its ability to provide any share-the-road opportunities due to the posted speed limits for the segment of roadway being 45 MPH or higher.

+ Industry Borough has what the U.S. Fish and Wildlife considers "the most ecologically significant area on the Pennsylvania portion of the Ohio River," which is the Ohio View Peninsula. The study shows how the peninsula could be protected along with the creation of a riverfront trail that could create a major Ohio Riverfront Peninsula Park. One item that should be discussed for inclusion in this study report is "who" might take the lead on the protection of this property since Industry Borough clearly expressed its concerns regarding its ability to undertake any new Borough initiatives based on its current revenue and staffing capacity. In order for this element of the plan to be achieved it will likely include numerous regional partners potentially including, the ORTC, Beaver County, the Independence Conservancy, the Western Pennsylvania Conservancy and PADCNR.

Section 400 – Industry Borough and Vanport Township

- As is the case in Section 300, the portion of PA Route 68 from Section 300 boundary, through to the I-376 Interchange includes stretches of roadway with 45 MPH or greater posted speed limits; limited shoulder widths; sight-line constraints; topographic barriers; industrial uses which include fencing up to the PennDOT right-of-way; and limited routing alternatives to consider.

- Although the former trolley shelf itself appears to be a viable route in Alternative 410, there is no way to access it from the west since the PA Route 68 Bridge over the Norfolk Southern Railroad has cut off the ability to make a through-connection. Alterative 400D may be viable but it is fenced off and posted as private property and has some industrial activity occurring within it. As a result we were not able to access it legally and determine is full viability.

- Due to the posted speed limits along PA Route 68 at the Four Mile Run underpass under the Norfolk Southern Railroad, a mid-block crossing that could connect a trail on the former trolley shelf across PA Route 68 to a potential multi-use trail along the Ohio River doesn't appear to be possible as result of PennDOT's policy of not allowing a un-signalized mid-block pedestrian crossing (per PennDOT PUB 46) for roadway with these conditions.

+ The opportunity does exist to extend a multi-use trail directly along the Ohio River's edge through several large undeveloped properties, potentially connecting the Ohio View Peninsula to the Lockhouse 6 Restaurant. If designed in a manner that created a promenade setting close to the restaurant, potentially with expanded and improved parking accommodations, it could provide additional economic benefit to the restaurant. We understand that the restaurant recently closed and as a result we do not know how this might impact the viability of this recommendation.

- The area between Sebring Road and Mud Lick Run Road would require the acquisition of an easement of right-of-way along the rear of several properties. It was agreed that this connection would be shown as a long-term recommendation.

+ The opportunity exists to create a multi-use path via the current utility right-of-way (on the former rail siding that served the Curtiss-Wright Plant now Eaton) to create a direct connection into the proposed indoor recreation complex which was recently studied to determine its feasibility to be located on the former parking lot of Eaton. The proposed trail would continue through the facility and into Section 500 and the Beaver High School Complex. Much of the alignment could utilize exist asphalt surfaces that would at most require re-surfacing.

Section 500A – Vanport Township, Beaver Borough, Bridgewater Borough and Rochester Borough

+ There are multiple viable alternatives. What is proposed as the ORTNS Trail Route was determined to best meet the project criteria.

± The Beaver Riverfront area from the Rochester Beaver Bridge to Fulton Street appears to be able to provide public access along the Beaver River since it is currently private open space; however, an access easement, possibly including a maintenance agreement will be required to gain official access through this privately held portion of riverfront.

± The gap Segment 500S is the only hurdle from also connecting the First Phase Trail Route south, along the east side of the Beaver River, to Rochester Borough's Riverfront Park. As described in the document, there are several aspects of this segment which will likely require a significant amount of time to complete, including an easement access, grading, and a bridge span over McKinley Creek.

Section 500B-C – Rochester Township, New Brighton Borough, City of Beaver Falls, Brighton Township and Fallston Borough

± The Beaver River Trail and the Bradys Run Park access trail routes are depicted solely as Feeder Trail Routes since they are not part of the Ohio Trail proper.

+ Viable alternatives exist to create a trail route that connects from the pending Veterans Bridge north through Rochester Township, New Brighton Borough and the City of Beaver Falls to connect to the existing Beaver River Trail.

- The most significant improvement needed to make the Beaver Trail connection is located at the intersection of PA Route 65/18, 3rd Avenue and Penn Avenue. This intersection should be improved with a traffic signal that includes pedestrian signal heads and prominent crosswalk striping.

± A potentially viable Feeder Route to Bradys Run Park was identified; however, it will require the acquisition of an access easement agreement along the rights-of-way of a major utility corridor and the former P&LE Brady's Run Branch, roughly parallel to Bradys Run as shown in Segment 5F11.

- A separate bicycle/pedestrian bridge span will be required to cross Brady's Run at Wildwood Road to obtain direct access into Bradys Run Park, since the current PennDOT Wildwood Road Bridge rehabilitation project does not include adequate bicycle/pedestrian facilities based on the current Wildwood Road roadway classification.

Next Steps & Post Meeting Action Item List

1. Finalize the draft report for distribution the first week of September.
2. A tentative date of Sept 17th, 2012 was indentified for the public meeting to present the complete draft report.

MINUTES OF MEETING

S/G/A STROMBERG™ GARRIGAN & ASSOCIATES, INC.
Landscape Architects & Planners
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PROJECT: **Ohio River North Shore Trail**
SGA PROJECT #: 11009
DATE: **September 17, 2012**
ATTENDING: **Sean Garrigan**
SUBJECT: **Final Draft Presentation/Public Meeting/Open House**

❖ General Comments from Meeting

- The ability for the trail to connect to larger trail networks in Ohio and along the Beaver River in Beaver Falls is something that the community is excited about.
- The revised route via 3rd Avenue in Beaver Falls was determined by the community as the best path for a proposed route and is delineated as the preferred Feeder Route trail to link to the existing Beaver River Rail Trail.
- The trolley shelf along PA Route 68 entering Midland Borough from the west would be a great trail though it is understood that this is a long term option that would require site engineering.
- Community expressed interest in Lockhouse 6 perspective rendering which shows an idealized trail route acting as a riverfront promenade along the Ohio River west of the restaurant, which is now closed.
- It was pointed out by participants that the community continues to be behind this project as expressed through several positive comments

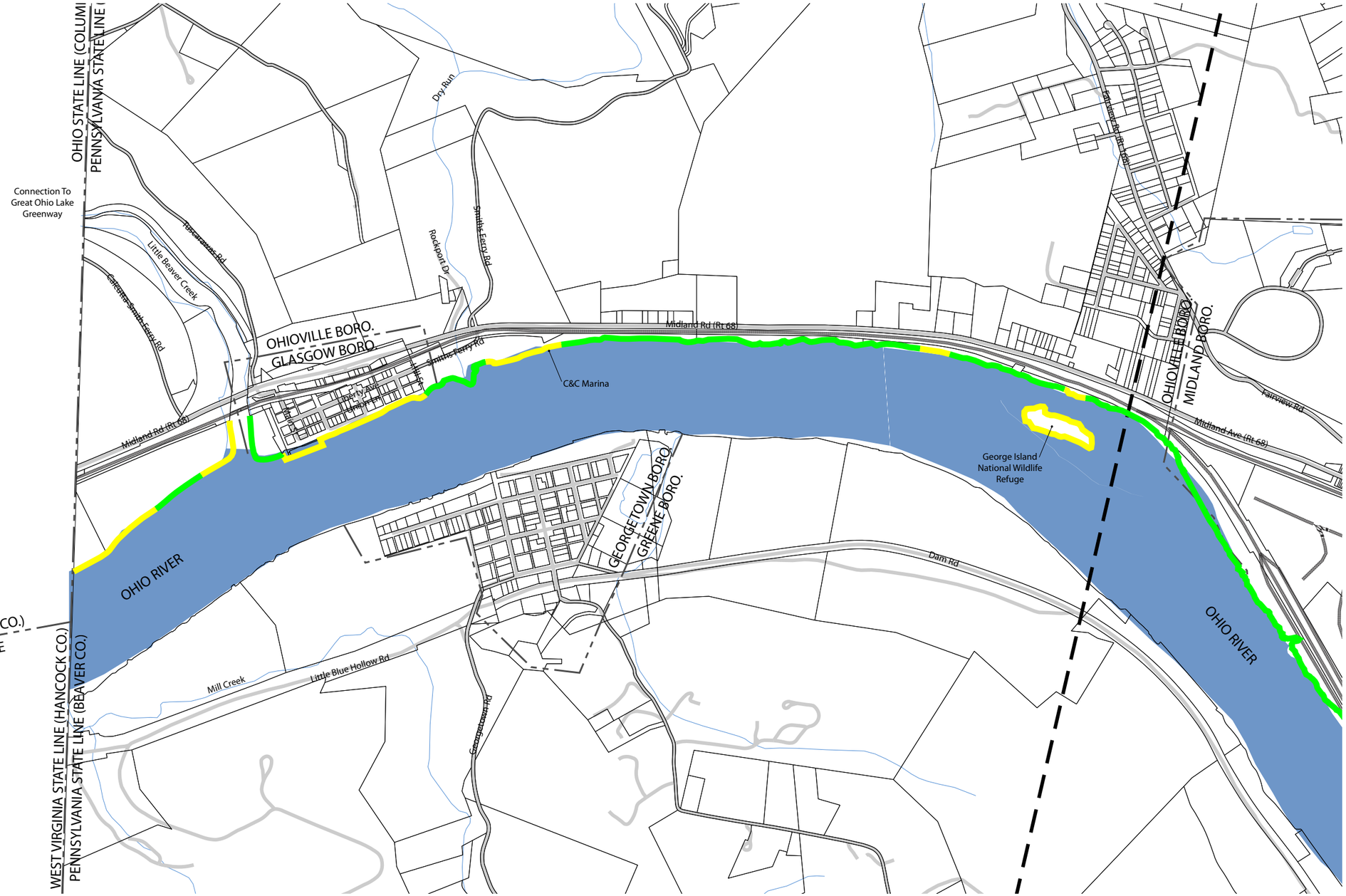
❖ Key Issues from the Meeting

- There was a discussion and clarification of PennDOT's policies on adopting responsibility for bicycle lanes within PennDOT rights-of-way as well as PennDOT's midblock crossing policies which limits potential trail routes with the study area.
- Draft documents supplied by design team in hardcopy and digital form need to be circulated and reviewed for final critiques.
- Representative from New Brighton Borough emphasized their desire to see a permanent traffic signal, with pedestrian signal facilities, located at the intersection of PA Route 65/18 and 3rd Avenue. The current traffic signal was installed only as a temporary facility by PennDOT during the construction period of the Veterans Memorial Bridge.
- It is understood that at this time there are locations along the Ohio River corridor that have been deemed unsuitable for viable bicycle routes either due to availability of rights-of-way or PennDOT safety standards and policies. These portions are highlighted on feasibility study section maps, primarily in Industry Borough and Vanport Township. The discussion also focused on the fact that although this connectivity could not be achieved at this time, there was significant bicycle and pedestrian connectivity that could be achieved along the overall Ohio River North Shore study area.

Appendix E - River's Edge Condition Section 100

Legend

- Good or Better landscape/slope conditions/major tree canopy/limited erosion and invasive plant species
- Distressed landscape/slope conditions/significant open tree canopy/ potential for erosion and invasive plant species
- Highly Disturbed landscape/slope conditions/ no tree canopy/heavy erosion or engineered landscape with high invasive plant species potential



SCALE: Not to Scale NORTH

Appendix E - River's Edge Condition Section 200

Legend

- Good or Better landscape/slope conditions/major tree canopy/limited erosion and invasive plant species
- Distressed landscape/slope conditions/significant open tree canopy/ potential for erosion and invasive plant species
- Highly Disturbed landscape/slope conditions/ no tree canopy/heavy erosion or engineered landscape with high invasive plant species potential

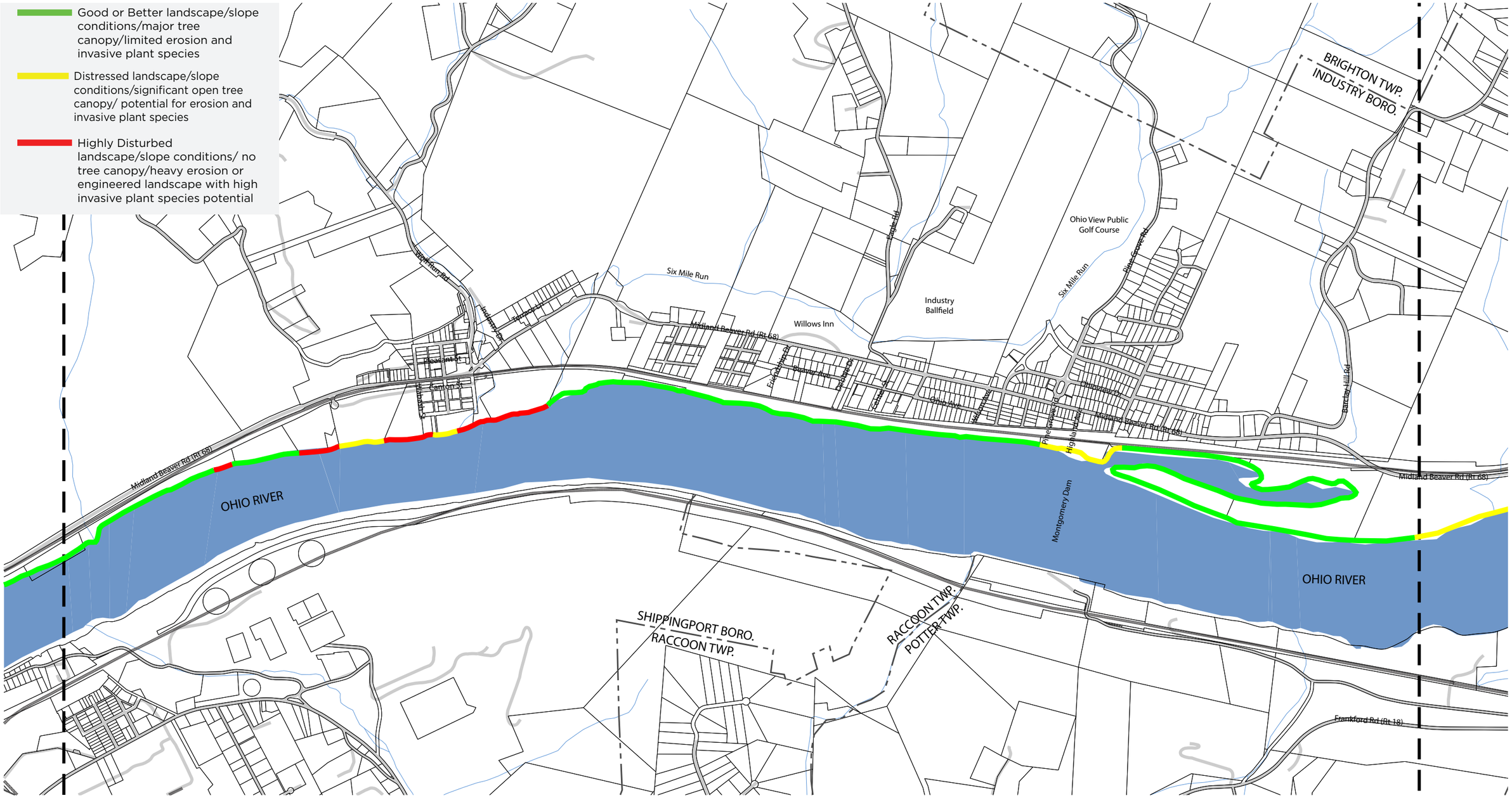
OHIOVILLE BORO.
MIDLAND BORO.
OHIO RIVER
Midland Beaver Rd (Rt 68)
Midland Treatment Plant
Fairview Rd
Midland Municipal Park
Lincoln Park
INDUSTRY TWP.
Midland Athletic Field
Kinder Morgan
Allegheny Ludlum
Beaver County Corp. for Economic Development
Dam Rd
Water Intake Plant
Phillis Island National Wildlife Refuge
Shippingport Bridge
Shippingport Rd (Rt. 168)
SHIPPINGPORT BORO.
GREENE TWP.

SCALE: Not to Scale NORTH

Appendix E - River's Edge Condition Section 300

Legend

- Good or Better landscape/slope conditions/major tree canopy/limited erosion and invasive plant species
- Distressed landscape/slope conditions/significant open tree canopy/ potential for erosion and invasive plant species
- Highly Disturbed landscape/slope conditions/ no tree canopy/heavy erosion or engineered landscape with high invasive plant species potential

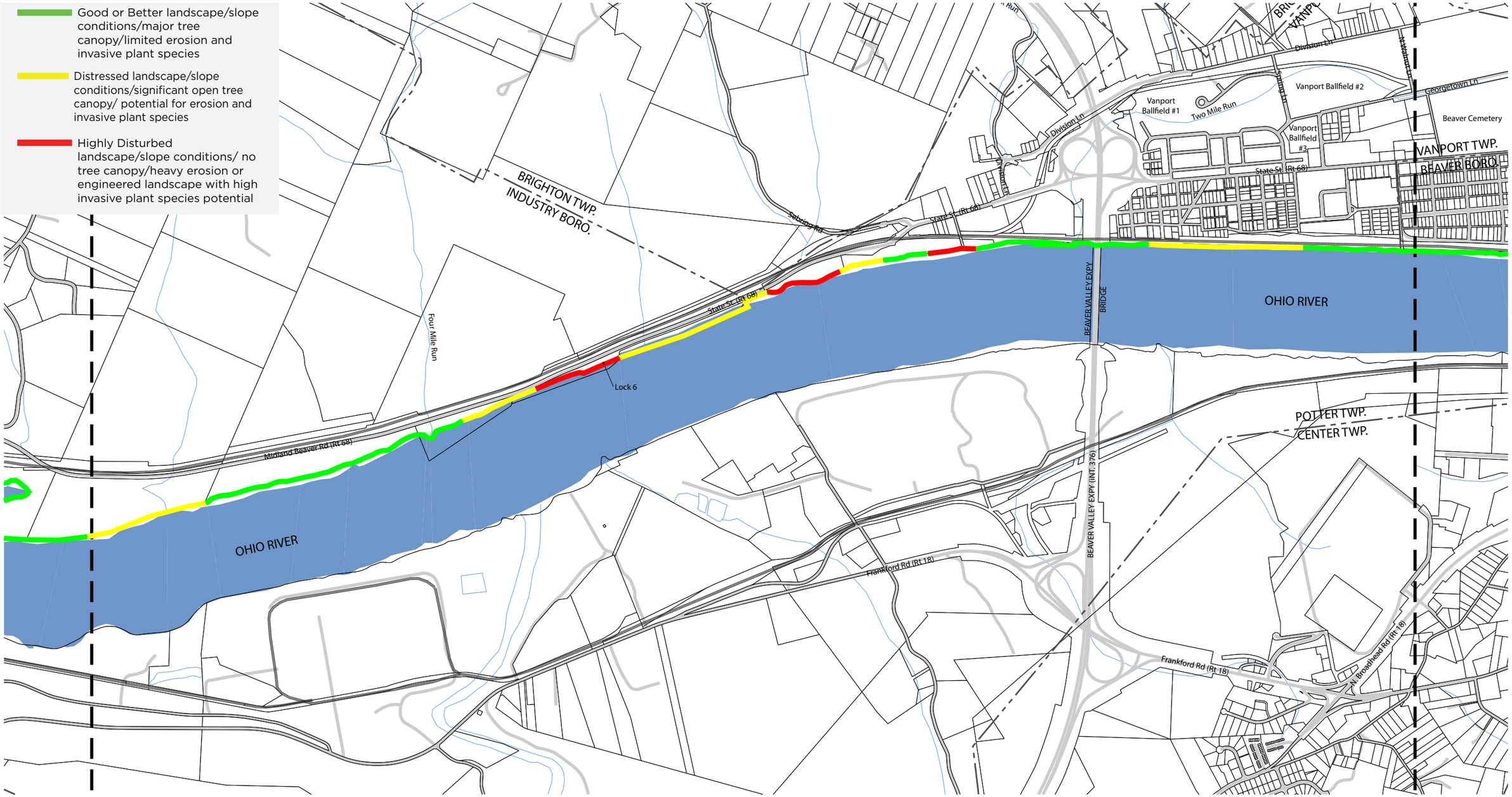


SCALE: Not to Scale NORTH

Appendix E - River's Edge Condition Section 400

Legend

- Good or Better landscape/slope conditions/major tree canopy/limited erosion and invasive plant species
- Distressed landscape/slope conditions/significant open tree canopy/ potential for erosion and invasive plant species
- Highly Disturbed landscape/slope conditions/ no tree canopy/heavy erosion or engineered landscape with high invasive plant species potential

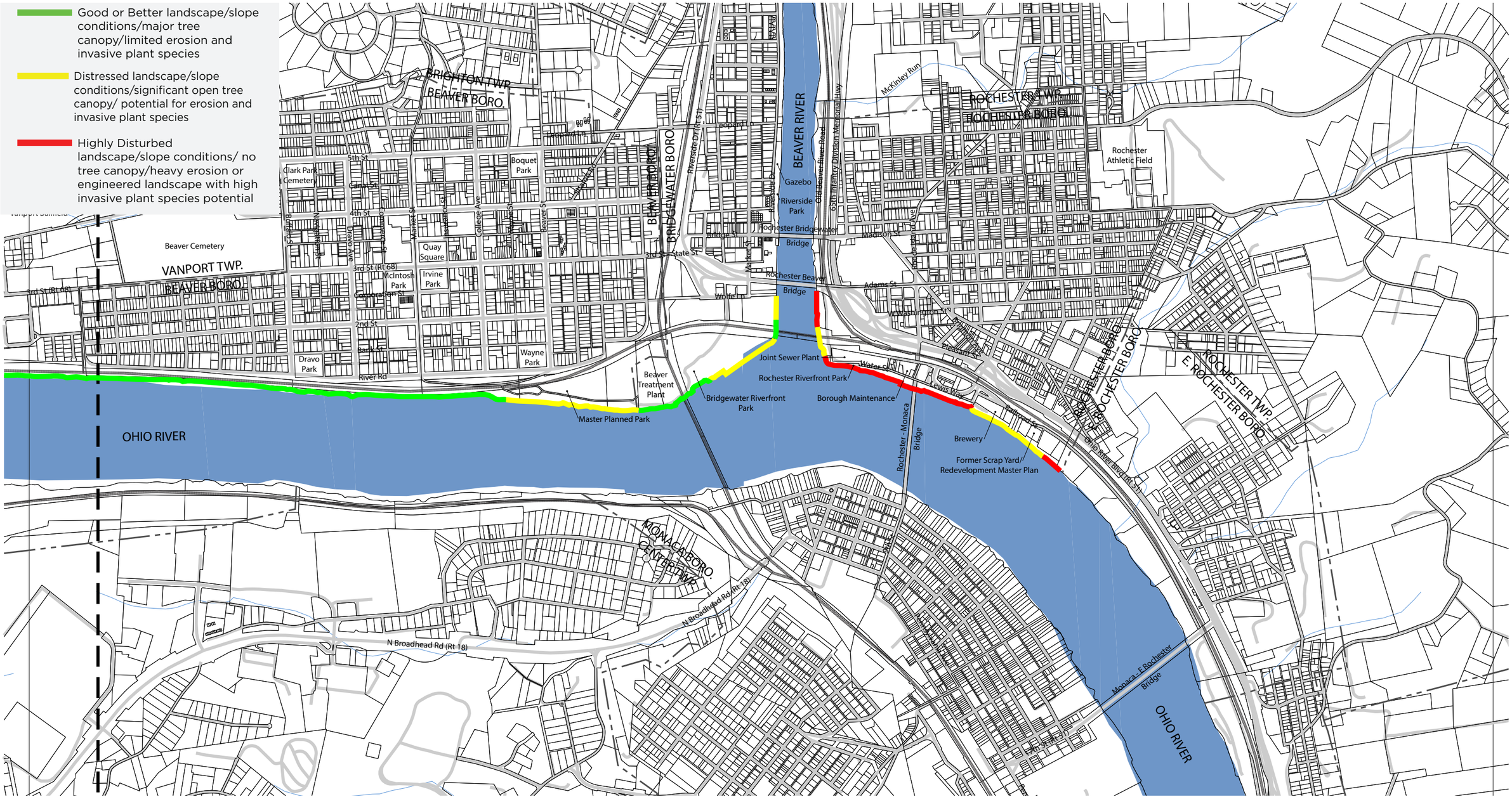


SCALE: Not to Scale NORTH

Appendix E - River's Edge Condition Section 500-A

Legend

- Good or Better landscape/slope conditions/major tree canopy/limited erosion and invasive plant species
- Distressed landscape/slope conditions/significant open tree canopy/ potential for erosion and invasive plant species
- Highly Disturbed landscape/slope conditions/ no tree canopy/heavy erosion or engineered landscape with high invasive plant species potential



SCALE: Not to Scale NORTH

The Pennsylvania Natural Diversity Inventory (PNDI)

Introduction

The Pennsylvania Natural Heritage Program (PNHP) is an international network of natural heritage programs that gather and provide information on the location and status of important ecological resources (plants, vertebrates, invertebrates, natural communities and geologic features). The Pennsylvania Natural Diversity Inventory (PNDI) is an environmental review function of the PNHP. Environmental review refers to the review of projects (e.g. development, restoration) for potential impact to Species of Special Concern (SOSC) which are defined as "Ecologically significant species and communities that are State and/or Federally listed as Endangered, Threatened, Rare, Candidate, Imperiled or Vulnerable."

Process

The PNDI reports were generated through the PNHP website which cross references project type and mapped project area with SOSC data and point/polygon GIS data to generate a receipt of analysis. A 'hit' occurs when the two overlap. A hit does not necessarily mean that the species is known in the project area. Additionally, the lack of a hit may indicated that this area has not been surveyed in the past. Lack of information does not equal a lack of species/habitat.

The ORNST has been broken into its respective sections (100-500A) and submitted for PNDI review. The resulting hits are discussed by section.

Section 100 – Glasgow Borough – Ohioville Borough

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Baptisia australis

Common Name: Blue False-indigo

Current Status: Special Concern Species*

Proposed Status: Threatened

Scientific Name: Potamogeton tennesseensis

Common Name: Tennessee Pondweed

Current Status: Endangered

Proposed Status: Endangered

Section 200 – Midland Borough

Agency	Results	Response
PA Game Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

PA Game Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s).

PGC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Pandion haliaetus

Common Name: Osprey

Current Status: Threatened

Proposed Status: Threatened

Section 300 – Industry Borough

Agency	Results	Response
PA Game Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Department of Conservation and Natural Resources	**Avoidance Measure**	**See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

PA Game Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s).

PGC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Protonotaria citrea

Common Name: Prothonotary Warbler

Current Status: Special Concern Species*

Proposed Status: Special Concern Species*

PA Department of Conservation and Natural Resources

RESPONSE: Avoidance Measure: Avoid removal or introduction of soil and organisms, keep repeated access to a minimum, remove all project materials at the end of the project. If the site includes wetland habitats, avoid disrupting hydrology or compromising water quality, and consider relocating any permanent trails or pedestrian accesses outside the wetland boundary.

Section 400 – Industry Borough – Brighton Township – Vanport Township

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

Section 500A – Beaver Borough – Bridgewater Borough – Rochester Borough

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

PA Game Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s).

PGC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name: Scutellaria saxatilis

Common Name: Rock Skullcap

Current Status: Special Concern Species*

Proposed Status: Endangered