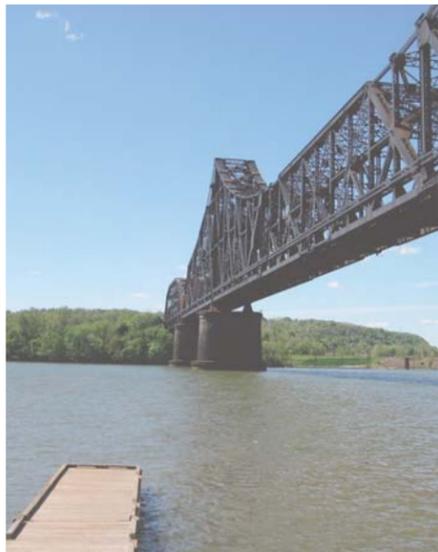


Ohio River South Shore Trail Feasibility Study



February 2011

Ohio River South Shore Trail Feasibility Study

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Ohio River South Shore Trail Feasibility Study

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Executive Summary

Project Background

The Ohio River South Shore Trail (ORSST) Feasibility Study represents a unique effort to physically connect eight municipalities located in two counties, along the southern edge of the Ohio River. The ORSST is part of a larger trail corridor that includes up to twenty-six (26) Western Pennsylvania Communities. The communities within the ORSST Feasibility Study include: Monaca Borough, Center Township, the City of Aliquippa, Hopewell Township, South Heights Borough, Crescent Township, Moon Township and Coraopolis Borough. The ORSST corridor roughly parallels today's CSX Railroad's mainline corridor from Pittsburgh to Ohio and follows the former Pittsburgh & Lake Erie Railroad's mainline. The corridor connects directly to the current milepost "0" of the Montour Trail, representing the opportunity to link the ORSST corridor with the Great Allegheny Passage and ultimately Washington, D.C. The ORSST corridor also has the potential to link to trails in Ohio, via a north shore alignment yet to be fully studied.

The Ohio River Trail Council (ORTC) 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 City of Aliquippa, on behalf of the eight South 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 ORSST Feasibility Study. Matching funds were obtained through contributions, both monetarily and through in-kind services, by each of the participating municipalities.

The ORSST Feasibility Study builds upon the tradition of community based planning that has been led and promoted by Beaver and Allegheny Counties, as well as all of the eight communities within the study area. Beaver and Allegheny Counties have 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 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.

Ohio River Trail Vision Statement:

The communities of: The City of Aliquippa, Monaca Borough, Center Township, Hopewell Township, South Heights Borough, Crescent Township, Moon Township and Coraopolis 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 existing Montour Trail to the Monaca Rochester Bridge crossing in Monaca Borough.

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.



The Ohio River's Edge in Center Township

Proposed Trail Route

As a method to divide the overall ORSST corridor into manageable pieces for detailed study, the corridor was divided into six segments denoted as 100 through 600; totaling 15.6 miles. For each segment a series of alternative routes were identified for further study through fieldwork and based on public input. The various alternatives are described in detail and a preferred ORSST route is identified. The following is brief summary of the preferred route by segment.

Section 100 – Monaca Borough

The proposed ORSST route starts at the Monaca Rochester Bridge, travels along 9th Street to Washington Avenue. It travels along Washington Avenue to 16th Street. The route travels along 16th Street towards the Ohio River to Indiana Avenue. At Indiana Avenue the route travels along a public alleyway located behind the Monaca Memorial Field complex to the edge of the Ohio River where it turns to travel underneath the Monaca East Rochester Bridge. The route travels along the edge of the PennDOT right-of-way for the bridge to an alleyway located at the eastern terminus of Indiana Avenue at the rear of the Moor Industrial Park. From the terminus of Indiana Avenue, the route travels through the perimeter of the Moor Industrial Park to Pennsylvania Avenue. At Pennsylvania Avenue the route travels along the frontage of the Moor Industrial Park to Industrial Park Road at the approach to the PA Route 51/Pennsylvania Avenue Bridge over the CSX Railroad mainline. The route travels along the railroad side of Industrial Park Road, through the Beaver Valley Industrial Park, to the Borough of Monaca/Center Township Municipal Line.

Total Length of Section 100 = 2.4 miles

Section 200 – Center Township - Hopewell Township - City of Aliquippa (West Aliquippa Neighborhood)

The proposed ORSST trail route through Section 200 would extend from Center Township/Monaca Borough Municipal Line to Section 200/300 break line just east of 7th Street in West Aliquippa. The trail through this section will consist of a continuous 10' wide side path with a 3'-5' wide planted buffer along the railroad side of Woodlawn Road.

Total Length of Section 200 = 3.2 miles

Section 300 – City of Aliquippa

The proposed ORSST trail route through Section 300 would parallel existing or future Woodlawn Road from the BCED property at the eastern portion of West Aliquippa to the Hopewell Township Municipal Line with South Heights Borough, near the Ambridge Aliquippa Bridge. The trail will consist of a continuous 10' wide side path with a 3'-5' wide planted buffer along the railroad side of Woodlawn Road.

Total Length of Section 300 = 3.3 miles

Section 400 – Hopewell Township - South Heights Borough - Crescent Township

The proposed ORSST route through Section 400 will extend from a 10' wide sidepath located along a reconstructed Woodlawn Road in the City of Aliquippa from Section 300, to North Street in South Heights Borough. At

the location where North Street travels underneath the CSX Railroad right-of-way, via a curved roadway and underpass, the trail would cross North Street to the river side of the roadway. From this point the trail would travel through a series of privately owned parcels via a new 10' wide multi-use path to the area of the existing Power Plant Road Bridge. It is believed that the trail could be located on a former rail siding roadbed that once served the Power Station in this location. From this point it would extend to Section 500, via right-of-way acquired from CSX on the Ohio River side of the existing railroad tracks.

Total Length of Section 400 = 2.1 miles

Section 500 – Moon Township

The proposed route through Section 500 would travel from Shouse Park in Crescent Township to Thorn Run Road in Moon Township via a 10' wide path through the U.S. Army Corps of Engineers (ACOE) Dashiels Lock Complex, CSX and Moon Township properties and then via a Duquesne Light utility corridor to Moon Township/Coraopolis Borough Municipal Line near Thorn Run.

Total Length of Section 500 = 2.5 miles

Section 600 – Coraopolis Borough - Moon Township to the Existing Montour Trail Milepost "0"

The proposed route through Section 600 would travel from Moon Township/Coraopolis Borough Line at Thorn Run Road to the existing Montour Trail Mile Post "0" in Moon Township, via American Bridge Way, 3rd Avenue Right-of-Way (vacant), Watt Street, Birch Avenue, Kendall Street, 1st Avenue, Broadway, Pine Alley, Montour Street, and the Montour Junction/Sports Legacy Foundation Property. The proposed trail is predominately a signed on-road route through the Borough of Coraopolis with a 10' wide multi-use trail connection at Montour Street to the existing Montour Trail, through the Montour Junction/Sport Legacy Foundation property.

Total Length of Section 600 = 2.1 miles

Phasing

Realizing that the improvements identified in this plan collectively represent approximately \$5M to \$6M in new infrastructure investments in 2010 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 ORSST route as quickly as possible. The key to this strategy is the utilization of the existing Penn-

sylvania Bicycle Route A as the current bicycle and pedestrian spine. This existing on-road route allows for individual projects to occur while providing a connector route for the overall trail corridor. This also allows for the accommodation of the disconnected trail segments as portions of the proposed ORSST route are constructed in the locations where it differs from the Pennsylvania Bicycle Route A.

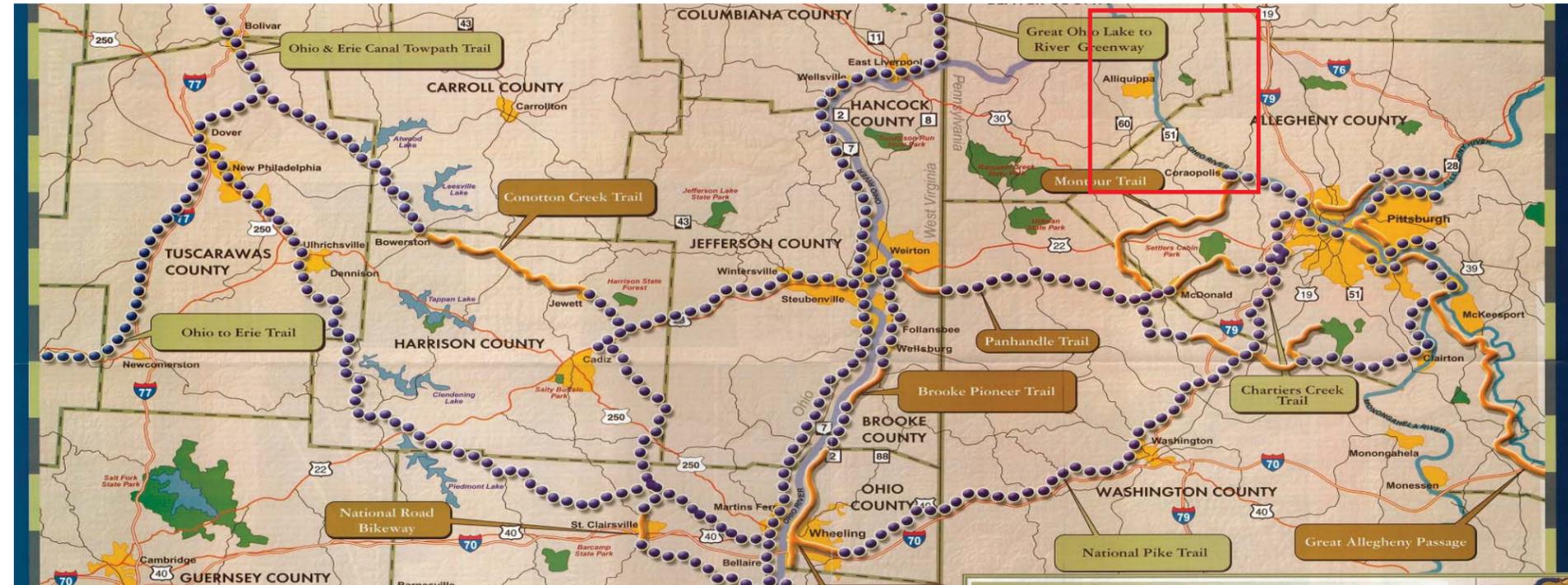
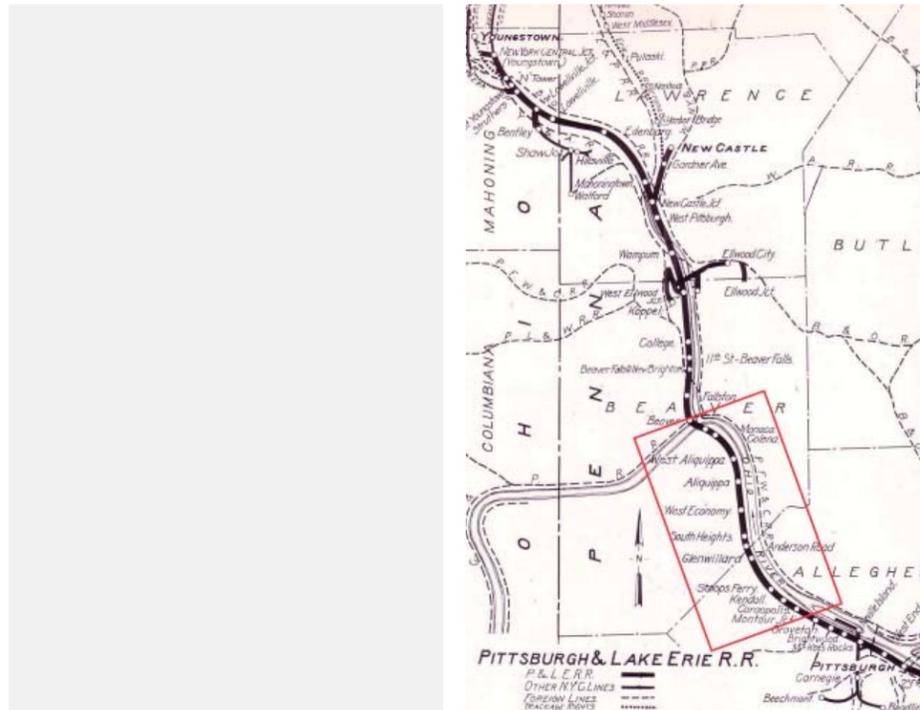
Chapter III of the Feasibility Study provides an itemized list of projects and in some cases sub projects, organized into separate phases to be achieved within a 10 to 15 year completion horizon.

Ownership, Operation and Management

While this project focuses on the eight ORSST 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 communities within the South Shore Feasibility study area span two counties, Beaver and Allegheny, and have a combined population of over 75,000 and range in population size from 542 to 22,290 residents. The level of municipal staffing, budget and capacity for maintenance and operations vary widely by jurisdiction. By working together in developing, operating and maintaining the Ohio River 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.

As one of the leaders of the ORSST study effort, the ORTC is a non-profit corporation well suited to serve as the umbrella organization for the management of the ORSST. 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 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 may not have on their own.

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



Project Background, Public Planning Process and Vision

Project Background

The Ohio River Trail Council (ORTC) proposes a multi-use trail, the Ohio River Trail (ORT), along the “La Belle Riviere” or the Ohio River and its tributaries from West Virginia and Ohio to Beaver and Allegheny County, Pa.

The Ohio River Trail Corridor is located in the foothills of the Appalachian Mountains and includes up to twenty-six (26) Western Pennsylvania Communities. There are eleven North Shore communities and nine South Shore communities. There are also four communities included in the North Shore extension and two in the Brady’s Run Extension.

The communities within the Ohio River Trail South Shore Trail (ORSST) Feasibility Study includes eight of the nine overall South Shore communities: Monaca Borough, Center Township, the City of Aliquippa, Hopewell Township, South Heights Borough, Crescent Township, Moon Township and Coraopolis Borough. The ORSST corridor roughly parallels today’s CSX Railroad’s mainline corridor from Pittsburgh to Ohio and follows the former Pittsburgh & Lake Erie Railroad’s mainline.

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.

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 City of Aliquippa, on behalf of the eight South 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 ORSST Feasibility Study. Matching funds were obtained

through contributions, both monetarily and through in-kind services, by each of the participating municipalities.

The ORSST Feasibility Study builds upon the tradition of community based planning that has been led and promoted by Beaver and Allegheny Counties, as well as all of the eight communities within the study area. Beaver and Allegheny Counties have 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 ORSST Feasibility Study effort.

Allegheny County Places, adopted in 2008, is Allegheny County's first comprehensive plan. The plan established an overall vision for the County's future and series of policies and actions to achieve the vision. The plan's unifying theme is supporting and enhancing "places" throughout the County through quality-of-life improvements. The plan specifically promotes the development of extensive greenways to connect communities with parks, trails, riverfronts and other natural amenities. In addition, *Allegheny's Riverfronts, A Progress Report on Municipal Riverfront Development in Allegheny County, 2009*, is a report prepared as a joint effort between Allegheny County, Friends of the Riverfront and the Pennsylvania Environmental Council. The document examines the diverse riverfront community development opportunities that exist, including ways to balance the industrial needs of the region's rivers with the potential to provide continual access along the four rivers in Allegheny County. It also explores the goal of providing positive non-motorized recreational experiences on and along the rivers, especially the Ohio River.

Public Planning Process

Community Participation

The trail planning process included a series of public involvement activities as part of the overall ORSST Feasibility Study preparation. The community input and education for the ORSST Feasibility Study was conducted primarily through steering committee meetings, key person interviews and two 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 project steering committee includes representative members from each of the eight 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.

Public Meetings

The first public meeting was a public open house and presentation held on March 10th, 2010 at the Community College of Beaver County Learning Resource Center in Center Township. 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 second public meeting was a public open house held on April 14th, 2010 at the Moon Township Municipal Building. The open house format of this meeting consisted of a series of information stations grouped by the six trail

planning sections established to aid in the organization of data, analysis, alternative evaluations and proposed trail recommendations. 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 South Shore Trail route presented in Chapter 2 of this document.

Municipal Leaders Survey

A four page survey was 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. The results of this survey were partly used to develop trail route recommendation as well as the ownership, management and maintenance recommendations presented in Chapter 4 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 South Shore Trail Feasibility Study as well as providing project updates and meeting notices. It can be viewed at: www.ohiorivertrail.org.

Vision Statement and Project Goals

Ohio River Trail Vision Statement: The communities of: The City of Aliquippa, Monaca Borough, Center Township, Hopewell Township, South Heights Borough, Crescent Township, Moon Township and Coraopolis 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 existing Montour Trail to the Monaca Rochester Bridge crossing in Monaca Borough.

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.

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SCALE: Not to Scale

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

the ORSST Feasibility Study Corridor. The Borough is fortunate to have retained several major industrial employers, such as Anchor Hocking Glass which employs more than 350 people. Despite the presence of this major employer, the Borough has experienced significant job loss, primarily when the former Colona Steel Mill closed.

According to 2000 U.S. Census data, the Borough of Monaca has a population of 6,286 and is 2.3 square miles in area, or 1,470 acres. Historically, the Borough has seen an average of a .68 percent decrease in population every year, from a population of 6,739 in 1990. The estimated population in 2006 was 5,886.

The racial makeup of the Borough is 97.1 percent White, 1.9 percent African American, 0.6 percent Hispanic 0.0 percent Native American and 0.01 percent Asian. The per capita income of the town is \$17,001 and 8.1 percent live below the poverty line, which is lower than Pennsylvania's rate of 12.1 percent, however, most of these households occur in the census tract which includes the proposed trail route.

History and Cultural Resources

Ephriam Blaine, a revolutionary soldier was granted a 330 acre tract of land in 1778 by the Commonwealth as payment for military service. In the years to follow, many land transactions ensued resulting in the gradual division of Appetite (as the area was originally known) to what is now known as Monaca Borough.

In 1822, Stephen Phillips and Jack Graham purchased the land from the owner at the time and began building a boat yard. To house the workmen, they began to erect a number of dwellings; soon the community was known as Phillipsburg after its namesake Stephen Phillips. In 1832 the land holdings were sold to Count De Leon and a group that seceded from the Harmony Society at Economy. The Harmony Society brought in a Germanic group taking the name "New Philadelphia Society" and Phillipsburg was known as New Philadelphia. Historians believe that 50 houses were built within the first year of the arrival of the New Philadelphia Society. The New Philadelphia Society was short-lived, however, and a little more than a year after it was established, the trustees of the Society began selling parcels of land to individual members. The municipal government of Monaca was incorporated under the name of Phillipsburg on March 6, 1840. Due to the confusion of the name, since there was another town in Pennsylvania with the same name, the Borough's name was changed to Monaca. This name was derived from the name Monacatootha, an old Indian chief that once settled in the area.

Within Monaca Borough there are no sites listed on the National Register of Historic Places. There are several locally known landmarks that are believed to have some historical significance. Locally recognized sites of historical significance include:

- *Count De Leon's House a circa 1835 home recognized as the oldest house in Monaca and is located at the orner of Atlantic Avenue and Fifth Street;*

- *Saint Peter's Evangelical Lutheran Church;*
- *Pump House Building on the site of a pending waterfront park located on the Ohio River in the vicinity of Sixth Street;*
- *Pre-Civil War Cemetery located on CSX Railroad property adjacent to Industrial Park Road;*
- *German Cemetery near the wastewater treatment plant; and the*
- *Pittsburgh & Lake Erie Railroad Station located near the intersection of Pacific Avenue and 14th Street.*

Land Use, Parks and Recreation Resources and River Access

The proposed trail route passes through the downtown area of the Borough. This area consists of a range of mixed use commercial, retail and residential land uses. There are also several areas of major industrial land uses; the largest area is located between 17th Street and the Center Township Municipal Line, along the Ohio River's edge. Pennsylvania Avenue/Route 51 is the main thoroughfare in the Borough and has a traditional "main street" character through the central business district located between 4th and 17th Streets.

Monaca Borough has 16 parks/playground facilities. Most of the recreational system is governed by the Recreation Board, Recreation Director and an Assistant Director. Despite the denser urban character and land development pattern of the downtown area, there are several parks and recreation areas that serve the population in this area and many could be linked by a trail. Existing facilities located within or close to the proposed trail route include:

- *Washington Avenue Courts;*
- *Water Works Park (major improvement project pending for this riverfront park);*
- *Monaca Memorial Field;*
- *Atlantic Avenue Boat Launch and Shelter;*
- *George Washington Park;*
- *Third Ward Park; and*
- *Veterans Memorial Park*

There are several other major park and recreation resources within the Borough including:

- *John A. Antoline Memorial Park;*
- *Beaver Avenue Playground and Court;*
- *Stone Quarry Ballfield; and the*
- *Ohio & Marshall Little League Field.*

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Section 100 – Monaca Borough

Community Character and Demographic Overview

Monaca Borough is located in the central portion of Beaver County, inside a broad bend of the Ohio River and opposite its confluence with the Beaver River. The Borough is located approximately 25 miles northwest of the City of Pittsburgh and 15 miles from the Ohio State Line. The Borough consists of two primary sections. The oldest section, consisting mostly of the downtown, older housing and a large industrial area, is located along the flat valley at the Ohio River's edge. The proposed trail route study area includes a significant portion of the downtown section of the Borough. The southern portion of the Borough is located on a plateau and is mostly residential. There is a significant elevation difference which divides the two areas and only a few roadways connect the two sections due to the topographic constraints.

As with most well established urban communities in the region, the Borough experienced steady growth in both population and development until the 1970s. Monaca Borough has experienced less economic decline in its employment base than many of the other communities included in

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

With regards to river access, the Borough has taken significant steps in recent years to expand public access to the river. As an outcome of a recommendation in the Borough 1992 Comprehensive Plan, the Borough partnered with the Pennsylvania Fish and Boat Commission to create a public boat launch with supporting infrastructure at the terminus of Atlantic Avenue, underneath the CSX Railroad's major Ohio River bridge crossing. In addition, the Borough is currently undertaking a major improvement project to improve Water Works Park, a former 1930's era Work Progress Administration facility located on the Ohio River's edge along Atlantic Avenue in the vicinity of the 5th and 6th Streets. The proposed project will include a small amphitheatre, a playground, picnic shelters, a riverfront walk, public access areas and parking facilities.



Atlantic Avenue Boat Launch

Monaca Memorial Field also represents a publicly-owned facility located on the river's edge. Today this facility consists primarily of a high school football field and stadium. With the merger of school districts, it is believed that this facility may not be needed in the future as an active recreation facility. Should the school district decide that this facility no longer serves their needs; the Borough should work with the school district to determine the future of the site, either entirely for recreation and open space or for infill development. No matter which approach is taken, the Borough should strongly advocate that a publically accessible setback be legally dedicated for the riverfront portion of the site. This requirement should be codified through zoning regulations.



Public River Access Adjacent to Monaca Memorial Field

Monaca Borough has been undertaking an effort to update its current zoning ordinance to promote riverfront economic revitalization, mostly through an overlay zoning approach. The proposed zoning includes the requirement of a dedicated public setback from the river's edge as part of any new land development project within designated riverfront districts. This approach ensures that new development can occur along the riverfront which capitalizes on the river's resource as a regional economic development asset and ensures that public access is created for all residents, not just for adjacent property owners in a new development. It is critical that as opportunities for redevelopment occur, public access to and along the river's edge be expanded. This approach will also be especially important should new non-industrial uses be developed within the current industrial area between the Monaca East Rochester Bridge and the Center Township Municipal Line, on the former Colona Steel Mill site and other adjacent parcels.

Environmental Context and Infrastructure

River's Edge and Habitat: As is the case with many of the older urbanized areas along the Ohio River, most of the river's edge has been developed either for major industrial or pockets of residential development. In the case of Monaca Borough, the river's edge is fairly well vegetated. This is partly a result of major portions being either residential or publicly owned. In addition, the coal transfer complex is currently the only active industrial use which depends on the river as a function of its operation. In addition, there is very little bulkheading of the river's edge in this area, allowing a natural river "toe" which makes for a more natural river ecosystem. There is a significant topographic change between the river's mean water elevation and the developed areas of the Borough. The 100 year floodplain elevation generally follows the 700' contour line along the Ohio River, which places most of the developed areas outside of the floodplain.

Based on field observations, areas of erosion disturbance were observed along the river's edge as well as significant areas of invasive exotic vegetation with poor soil stabilization characteristics.

Streams and Stormwater: Markey's Run is the only day-lighted stream course that drains into the Ohio River within Monaca's limits. This stream is located south of the Pennsylvania Fish and Boat Commission Boat Launch area at the western terminus of Atlantic Avenue.

As with many older urban communities, much of the Borough's sewage system consist of combined sewer outfalls (CSOs), so opportunities to reduce stormwater flowing directly into the sewer system through improved site-specific infiltration projects that help to alleviate CSO impacts on the environment should be integrated into trail design projects wherever possible.

Transportation Infrastructure

Transportation access to and from Monaca via the regional transportation network is provided primarily by two states routes, PA Route 18 and PA Route 51.

PA Route 18/Broadhead Road serves local motorists having southbound or northbound destinations and also serves as a major connection to the interstate highway system. Route 18 enters the Borough from its southern boundary with Center Township and travels along Pennsylvania Avenue to 9th Street where it travels across the Ohio River. Most of this roadway south of the downtown lacks bicycle and pedestrian facilities and has an average daily traffic volume of approximately 20,000.

PA Route 51/Pennsylvania Avenue serves motorists having eastbound or westbound destinations. PA Route 51 parallels the Ohio River from the City of Pittsburgh through Monaca, across the Monaca Rochester Bridge and to the west. PA Route 51 travels along Pennsylvania Avenue from the Center Township Municipal Line to 9th Street and it travels over the Monaca Rochester Bridge across the Ohio River. In general, most of Route 51 through Monaca has sidewalks. It travels through the traditional "main street" commercial area of the downtown. The Borough is currently studying streetscape improvement alternatives for this portion of PA Route 51/Pennsylvania Avenue. PA Route 51 is designated by PennDOT as the Pennsylvania Bicycle Route A through the Borough of Monaca. PA Route 51 along Pennsylvania Avenue has an average daily traffic volume of approximately 10,000. The intersection of PA Route 51/Pennsylvania Avenue at 17th Street can be challenging for pedestrians and bicyclists attempting to cross the roadway in either direction, due to its "Y" configuration and free-flowing turning traffic from westbound Pennsylvania Avenue onto 17th Street.

9th Street, designated as both PA Route 18 and PA Route 51, handles a significant volume of vehicular traffic. This intersection with Pennsylvania Avenue is especially challenging for pedestrians and bicyclists due to its "T" configuration which results in heavy vehicular turning movements.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

The residential streets between 9th and 17th Streets consist of mostly residential land uses and the streets could be classified as “neighborhood” streets with limited through traffic. Atlantic and Indiana Avenues between 9th and 17th Avenues are one-way pairs, with Indiana Avenue one-way from 9th to 17th Avenue and Atlantic one-way from 15th to 9th Streets. Washington Avenue is a two-way street from 9th Street to 17th Street. All of these streets in this area have sidewalks on both sides of the street and in most cases on-street parking exists on both sides as well.

Industrial Park Road is a private roadway which travels from PA Route 51/Pennsylvania Avenue near the western approach to the Pennsylvania Avenue Bridge over the CSX Railroad to the Monaca Borough/Center Township Municipal Line. The awkward intersection alignment of this roadway with Pennsylvania Avenue and the proximity of a large industrial building to the intersection creates major circulation deficiencies that would also create potential conflicts with pedestrians and bicyclists.



Industrial Park Road Near PA Route 51/Pennsylvania Avenue Bridge

Economic Development

Monaca Borough has been actively undertaking policy and project initiatives to expand its economic development potential. These efforts date back to the 1992 Comprehensive Plan which specifically recommended supporting the diversification of its commercial and retail community, including in the central business district of the downtown. In addition, the Comprehensive Plan specifically targeted the goal of directing economic development to the underutilized industrial areas along the Ohio River and increasing the recreation opportunities along the river. Increasing pedestrian and bicycle circulation throughout the downtown and along the Ohio River will expand the economic reach and convenience to the residents in the downtown area, as well as increase their access to regional resources.

Monaca Borough’s industrial brownfields area is approximately 90 acres consisting of eleven brownfields properties mostly consisting of former steel mill related industrial lands. It represents the largest areas of potential mixed use redevelopment along the Ohio River within the South Shore Trail Feasibility Study area. Private developers, community leaders and Borough officials have identified this area for potential mixed-use riverfront redevelopment with public river access. Monaca is currently working with Beaver County to explore the adoption of a new riverfront redevelopment district zoning overlay for its riverfront lands. The ability to create a new mixed use zone in this area, which accommodates complete public access along the river’s edge with a trail connection, would have a significant economic impact on Monaca and would also represent a major shift in riverfront land use along this stretch of the Ohio River. The major identified brownfields parcels in the project area include:

- *The Moor Industrial Property* was originally part of the Colona Steel Mill. This riverfront site consists of a complex of vacant or underutilized 80+ year old steel mill buildings. This site is located adjacent to the Monaca East Rochester Bridge and is located at a key gateway into the community. Private developers have expressed an interest in redeveloping this site for a mixed-use community and hotel complex with river frontage;
- *The Colona Transfer Property* is a series of large industrial buildings located along the riverfront. Originally part of the Colona Steel Mill, the property is partially utilized for small scale industrial activities and warehousing;
- *The Beaver County Corporation for Economic Development (CED) Property* is a large industrial building that was originally part of the Pittsburgh Tube Company Steel Mill and is currently owned by the County CED and utilized as a multi-tenant facility; and the
- *McClymonds Coal Transfer* is an operating river-to-truck bulk coal transfer facility. This facility is expected to close by 2014 when the single purchasers of the coal will no longer require the type of coal supplies from this facility.

Proposed ORSST Route and Alternatives

Four potential routing alternatives, including the proposed ORSST Route were identified for the 100 Section which travels through the Borough of Monaca from the Monaca Rochester Bridge to the municipal line with Center Township, along the riverfront.

Proposed ORSST Route Description through Section 100

The proposed ORSST route starts at the Monaca Rochester Bridge, travels along 9th Street to Washington Avenue. It travels along Washington Avenue to 16th Street. The route travels along 16th Street towards the Ohio River to Indiana Avenue. At Indiana Avenue the route travels along a public alleyway located behind the Monaca Memorial Field complex to the edge of the Ohio River where it turns to travel underneath the Monaca East Rochester Bridge. The route travels along the edge of the PennDOT right-of-way for the bridge to an alleyway located at the eastern terminus of Indiana Avenue at the rear of the Moor Industrial Park. From the terminus

of Indiana Avenue, the route travels through the perimeter of the Moor Industrial Park to Pennsylvania Avenue. At Pennsylvania Avenue the route travels along the frontage of the Moor Industrial Park to Industrial Park Road at the approach to the PA Route 51/Pennsylvania Avenue Bridge over the CSX Railroad mainline. The route travels along the railroad side of Industrial Park Road, through the Beaver Valley Industrial Park, to the Borough of Monaca/Center Township Municipal Line.

A feeder route could be provided to connect with the proposed ORSST route along 9th Street to parks and recreation destinations located along the Ohio River. A downriver route would travel from 9th Street, via Washington Avenue and 6th Street to Water Works Park and the Boat Launch located along Atlantic Avenue.

Route Characteristic and Issues

Monaca Rochester Bridge: From the Monaca Rochester Bridge to the Monaca Memorial Field the route consists entirely of a signed on-road route. Bicyclists would be required to ride with the flow of traffic over the Monaca Rochester Bridge or dismount and walk their bicycle over the bridge, via the sidewalk. The sidewalk on the east side of the bridge is 5’ wide which requires dismounting for bicyclists. There is a 3’ shoulder on the northbound travel lane and a 5’ shoulder on the southbound travel lane.

9th Street and Washington Avenue Corridors: This roadway has significant traffic volumes and periodic speeding was witnessed for vehicles traveling over the bridge into the downtown central business district. There are a few locations, especially on the east side of the roadway, where there are long curb-cuts which can create conflicts between bicyclists and vehicles entering or leaving the roadway. Traffic calming, curb cut consolidations, bicycle shared-lane markings, signage, and enhanced streetscaping could be considered for this entire corridor from the bridge to Pennsylvania Avenue. The corridor could also be treated as gateway area, through urban design, landscaping, and gateway treatments on each side of the bridge at the intersection of 9th Street and Atlantic Avenue.

Monaca Memorial Field at Indiana Avenue to Industrial Park Road (Private): This portion of the route travels underneath the Monaca East Rochester Bridge to Pennsylvania Avenue and Industrial Park Road.

Partnerships with school district and PennDOT will be important for the creation of the connection from Indiana Avenue on the west side of the 17th Street to the terminus of Indiana Avenue on the east side of 17th Street. In addition, an easement will need to be negotiated with the owners of the Moor Industrial Park in order to provide a 10’ wide minimum easement. This could also be an outright purchase of right-of-way along the edge of the parcel on the east side of the bridge approach and through a portion of the property (between two apparently vacant buildings) to reach Pennsylvania Avenue. It is presumed that a trail could be incorporated into the redevelopment of this site if the owners pursue redevelopment, which it is believed they are considering. Site treatments, such as landscape

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment



Potential Trail Location Underneath the Monaca East Rochester Bridge

screening or fencing along the trail, could buffer trail users from future uses of nearby sites, if necessary. Ideally, the creation of dedicated public riverfront access should be codified through modifications to ordinances and the adoption of the trail feasibility study.

Industrial Park Road (Private) from Pennsylvania Avenue Intersection through Beaver Valley Industrial Park to Center Township Line: The proposed trail will travel along what is today a private roadway that serves the Colona Transfer property as well as other properties to the east, including CSX's railyard, the McClymonds coal transfer facility and the Beaver Valley Industrial Park. The point of access near the west approach to the PA Route 51/Pennsylvania Avenue Bridge over the CSX rail line and the adjacent industrial building is very narrow and has poor site lines. The proposed trail alignment consists of a share the road condition for this area. The private roadway should be upgraded and made into a public road connection to the proposed upgraded or new Woodlawn Road through the former J&L Steel site in Center and Hopewell Townships and the City of Aliquippa. The transfer of ownership or easement agreement for Industrial Park Road, including the gated section through the Beaver Valley Industrial Park to BET-TECH's parcel will need to be negotiated for this trail segment to be created.

Should any or all of the parcels in this area be redeveloped, Alternatives 100C and 100D (described below) should be studied in more detail to

determine their engineering feasibility. These alignments should be integrated into any new development projects in this area. Alternative 100C, which creates a continuous trail along the river's edge would be the most desirable of all alternatives in this segment of Section 100, however, it would require working with numerous private landowners, as well as the likely elimination of all river based industrial activities.

Proposed Route Lengths

On-Road Portion = 1.0 miles

10' Wide Multi Use Path = 1.4 miles

Total Length of Route through Monaca Borough (all of section 100) = 2.4 miles

Identified ORSST Routing Alternatives in Section 100

Based on the set end locations of the Monaca Rochester Bridge and the terminus of the privately owned Industrial Park Road at the Monaca Borough/Center Township Municipal Line, a series of routing alternatives were identified and studied. The following is a brief summary of each of the alternatives.

Alternative 100A/100B

Description: This alternative looked at routing the trail along existing roadways as close to the river's edge as possible. Atlantic and Indiana

Avenues are residential streets between 9th and 17th Streets and could be classified as "neighborhood" streets with limited through traffic. Atlantic and Indiana Avenues between 9th and 17th Avenues are one-way pairs, with Indiana Avenue one-way from 9th to 17th Avenue and Atlantic one-way from 15th to 9th Streets. Atlantic Avenue does not extend to 16th Street as a true compliment to Indiana Avenue.

Issues: Although these roadways have limited and slow traffic, it was determined that they were not the ideal route of the proposed ORSST due to the one-way pair configuration. Bicyclists are required by Pennsylvania Vehicle Code to travel in the same direction as vehicular traffic flow. As a result the trail route would have to follow Atlantic Avenue westbound and Indiana Avenue eastbound. The biggest issue with this alternative is the result of Atlantic Avenue terminating at 15th Street which would require westbound traffic to be routed to Washington Avenue to 15th and then along 15th, towards the river, to Atlantic Avenue, creating a very circuitous route. The only apparent option to overcome this constraint would be the conversion of Atlantic and Indiana Avenues to two-way traffic roadways.

Alternative 100C

Description: This alternative proposes to create a continuous riverfront trail from the Monaca East Rochester Bridge to the proposed BET-TECH refinery site.

Issues and Opportunities: This alternative is clearly desirable; however, it is currently constrained by the presence and large number of industrial parcels. The dedication of public riverfront access, as part of any new development projects in this area should be codified through the Borough's zoning ordinance to ensure that this connection is made in the future.

Alternative 100D

Description: This alternative represents one possible method of solving the issue that exists at the intersection of Industrial Park Road at the PA Route 51/Pennsylvania Avenue Bridge approach over the CSX Railroad line. The alternative consists of a new roadway with a side path or on-road connection. The new alignment would straddle the current property line between the Colona Transfer and the Moor Industrial parcels. The roadway would extend to the river and then turn to the east to align with rail siding that currently serves the coal transfer facility. It would return to Industrial Park Road near the cemetery.

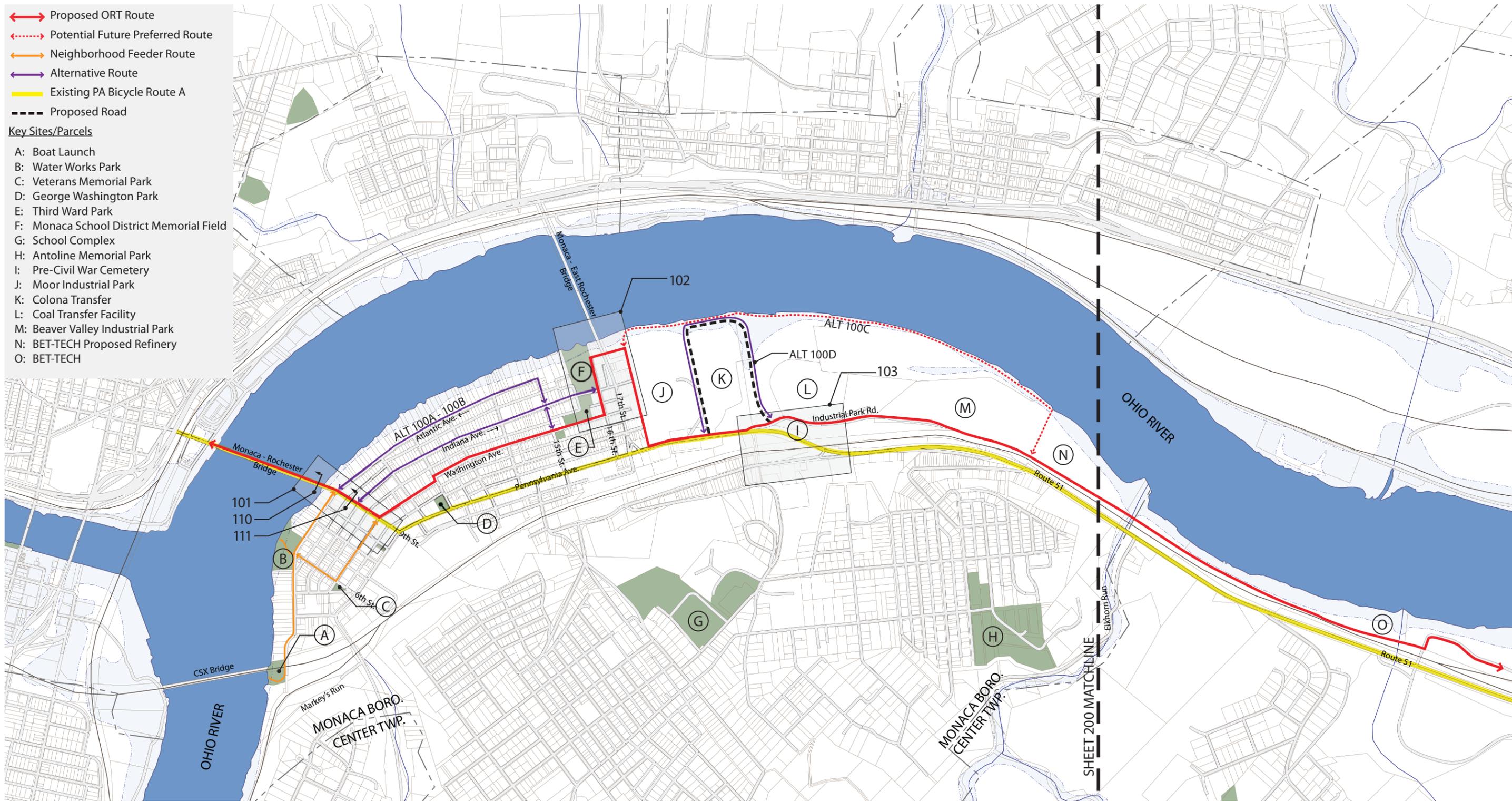
Issues: This alternative would create a new road that would meet Pennsylvania Avenue at a 90 degree angle instead of the awkward angle that exists today. This is a possible improvement that could be created if a new roadway is needed to serve the proposed refinery on the BET-TECH property and if the area would remain industrial. It would be more easily facilitated once the coal transfer facility ceases operation, which could occur sometime in the next few years. This alternative would require more detailed engineering studies to determine its feasibility.

LEGEND

- Proposed ORT Route
- Potential Future Preferred Route
- Neighborhood Feeder Route
- Alternative Route
- Existing PA Bicycle Route A
- Proposed Road

Key Sites/Parcels

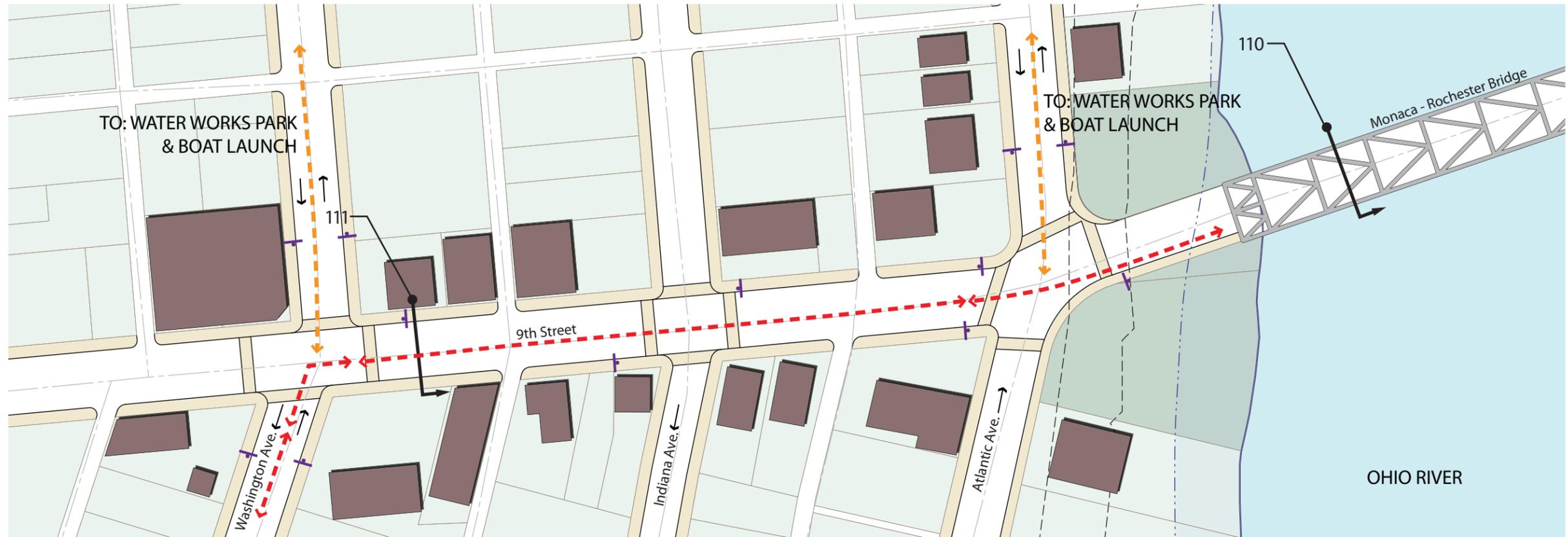
- A: Boat Launch
- B: Water Works Park
- C: Veterans Memorial Park
- D: George Washington Park
- E: Third Ward Park
- F: Monaca School District Memorial Field
- G: School Complex
- H: Antoline Memorial Park
- I: Pre-Civil War Cemetery
- J: Moor Industrial Park
- K: Colona Transfer
- L: Coal Transfer Facility
- M: Beaver Valley Industrial Park
- N: BET-TECH Proposed Refinery
- O: BET-TECH



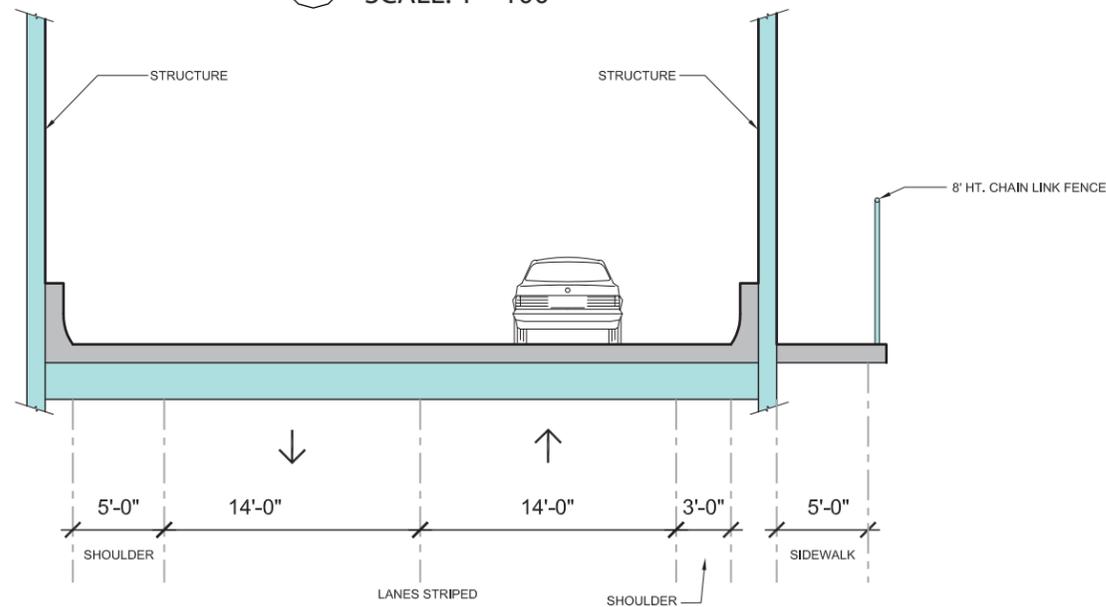
SCALE: Not to Scale NORTH

LEGEND

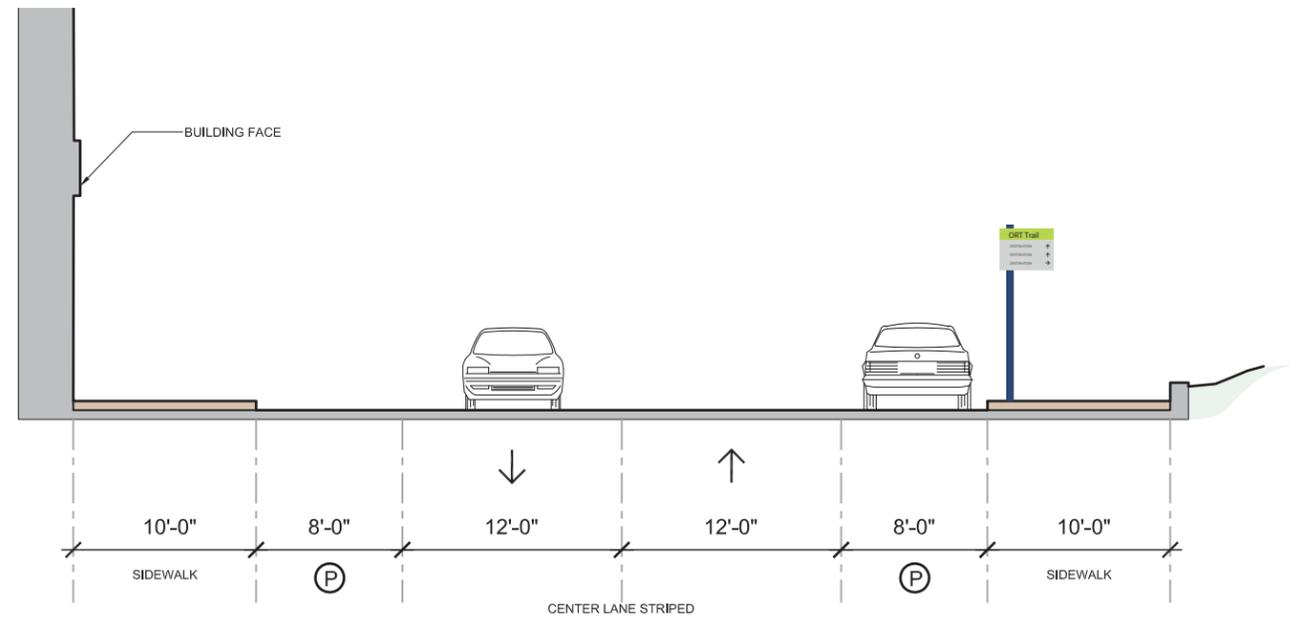
- ← - - - → Signed On-Road Route
- ← - - - → Neighborhood Feeder Route
- █ Off-Road Route
- ┆ Trail Blazer Sign



101 SCALE: 1"=100'



110 MONACA-ROCHESTER BRIDGE - MONACA APPROACH LOOKING NORTH (EXISTING)
SCALE: 1"=10'



111 BOROUGH OF MONACA - 9TH ST. LOOKING NORTH (EXISTING)
SCALE: 1"=10'

LEGEND

-  Signed On-Road Route
-  Neighborhood Feeder Route
-  Off-Road Route
-  Trail Blazer Sign

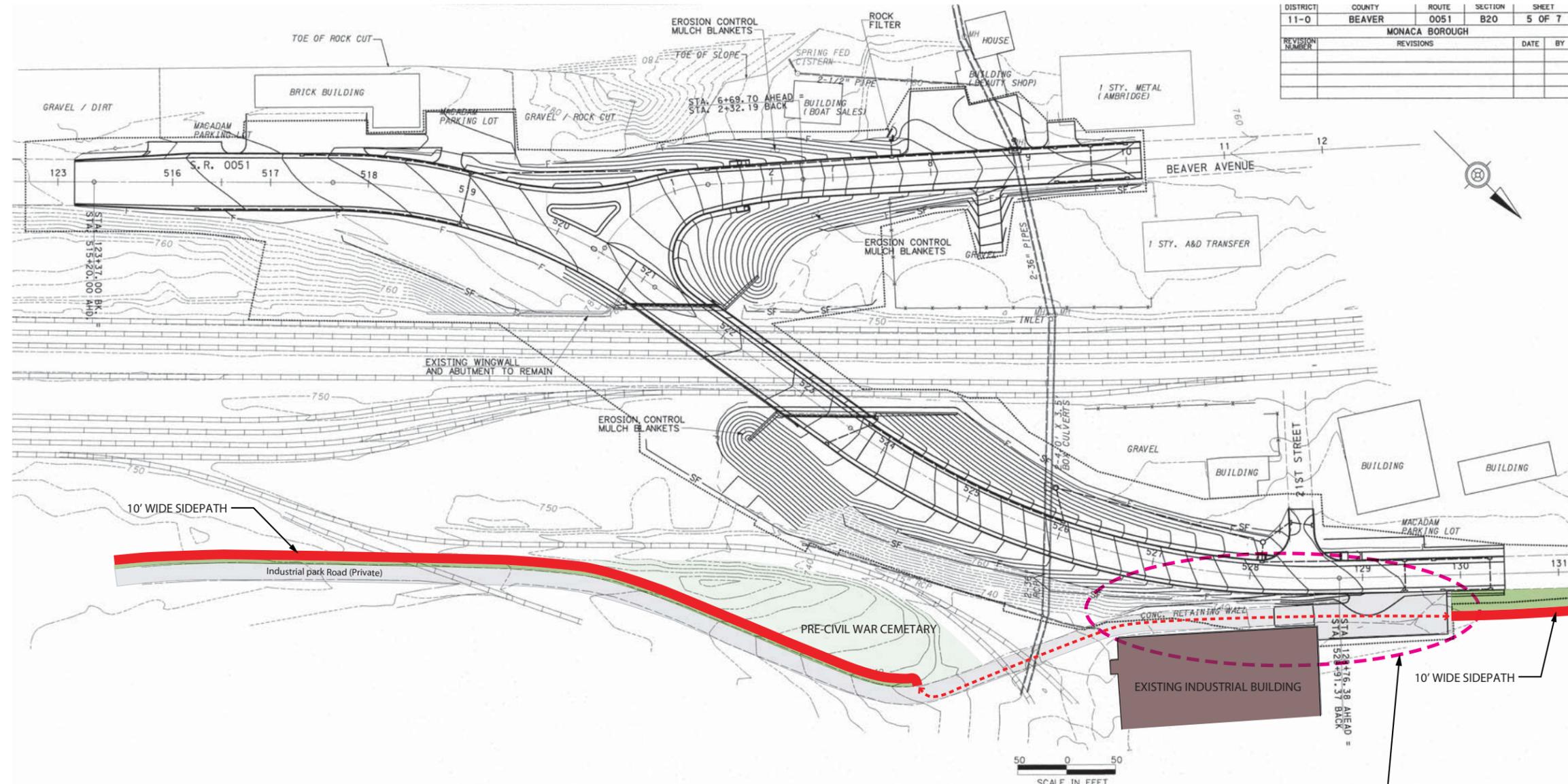


102 SCALE: 1"=100'

Colona Transfer to Beaver Valley Industrial Park - 103

LEGEND

- Signed On-Road Route
- Neighborhood Feeder Route
- Off-Road Route
- Trail Blazer Sign



DISTRICT	COUNTY	ROUTE	SECTION	SHEET
11-0	BEAVER	0051	B20	5 OF 7
MONACA BOROUGH				
REVISION NUMBER	REVISIONS	DATE	BY	

LEGEND

- DIRECTION OF TRAFFIC
- SILT FENCE
- CUT LINE
- FILL LINE
- NPDES PERMIT BOUNDARY

PHASE 4 CONSTRUCTION

1. ENSURE PREVIOUSLY INSTALLED SILT BARRIER FENCE IS INSTALLED AND FUNCTIONAL. ANY NECESSARY MAINTENANCE OR REPAIRS SHALL BE MADE AT THIS TIME.
2. REMOVE THE TEMPORARY WIDENING ON THE LEFT SIDE FROM STA. 524+00 TO STA. 130+50.
3. CONSTRUCT THE NEW CURB AND SIDEWALK AND INSTALL THE GUIDERAIL AS INDICATED. IMMEDIATELY SEED AND MULCH ANY REMAINING DISTURBED AREAS ACCORDING TO THE SEEDING SPECIFICATIONS. SEED AND MULCH THE SLOPES WITH SEEDING AND SOIL SUPPLEMENTS, FORMULA C AND INSTALL THE EROSION CONTROL MULCH BLANKETS AS INDICATED.
4. INSTALL THE WEARING COURSE ON S.R. 0051 FROM STA. 123+17BK TO STA. 130+50. APPLY THE FINAL PAVEMENT MARKINGS AND COMPLETE INSTALLATION OF SIGNS.
5. REMOVE EROSION CONTROL DEVICES ONLY AFTER THE ENTIRE SITE IS STABILIZED. AREAS WILL BE CONSIDERED STABILIZED WHEN PERENNIAL VEGETATIVE COVER HAS A UNIFORM DENSITY OR COVERAGE OF 70% OVER THE ENTIRE DISTURBED AREA AND DRIVEWAYS AND PARKING AREAS HAVE GRAVEL BASE IN PLACE.

AREA OF POTENTIAL TRUCK/ BICYCLIST CONFLICTS DUE TO NARROW ROADWAY, AWKWARD ALIGNMENT AND POOR SIGHT LINES



PHASE 4 EROSION AND SEDIMENT POLLUTION CONTROL PLAN

103 SCALE: Not to Scale

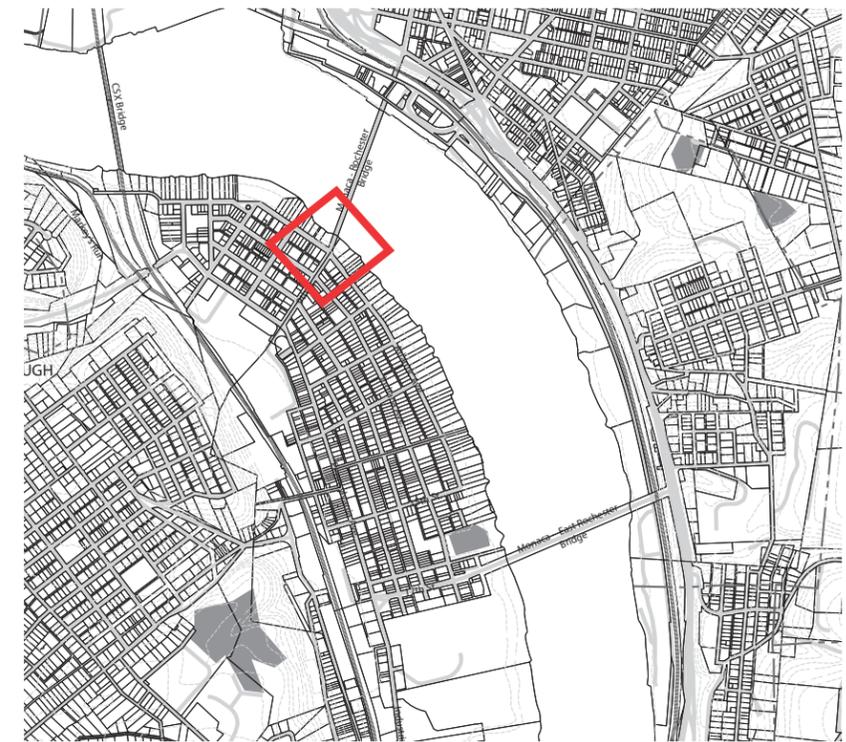
LEGEND

- Proposed 10' Wide Side Path Trail Route
- - - Proposed On-Road Signed Trail Route
- - - Alternative On-Road Signed Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route

Borough of Monaca - 120, 121



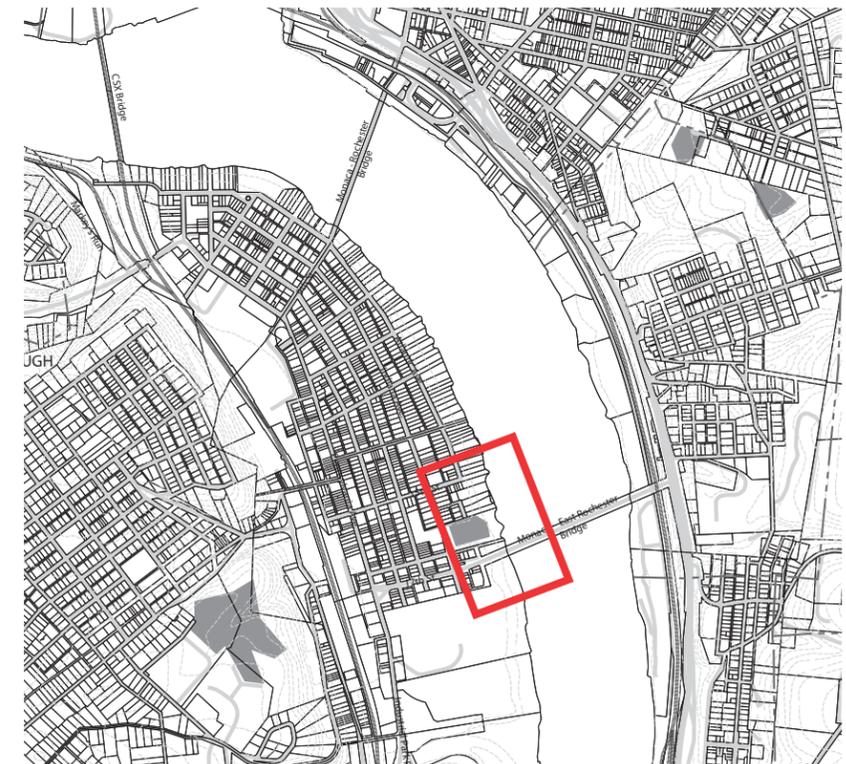
120 Proposed Trail Location
SCALE: Not to Scale



Site Photo Location



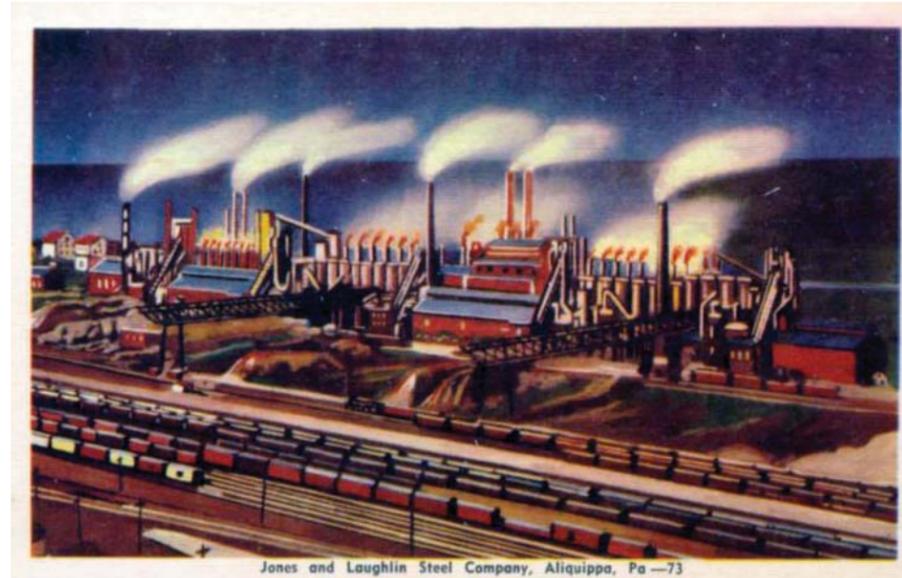
121 Proposed Trail Location
SCALE: Not to Scale



Site Photo Location

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

The City of Aliquippa's West Aliquippa Neighborhood was once its own municipality until it merged with the Borough of Woodlawn in 1928. Much of what exists today in the West Aliquippa Neighborhood was very carefully planned by the Jones and Laughlin Steel Corp. in the early 1900's. The City of Aliquippa has 1.6 miles of riverfront in Section 200 of the ORSST Study Area.



The City of Aliquippa has experienced massive job losses and a significant loss of tax base with the closure of the former LTV Jones and Laughlin Aliquippa Steel Works. This closure hit the West Aliquippa portion of the City especially hard. When this facility closed, nearly 10,000 jobs were lost at the plant alone, and hundreds of other jobs affiliated with the operation, many of which were located in this area. A detailed breakdown of the City of Aliquippa's demographic data is provided in Section 300. Some of the poorest census blocks in all of Beaver County occur in the West Aliquippa portion of the City.

History and Cultural Resources

For a detailed discussion of the history of the City of Aliquippa see Section 300. For the portions of the City of Aliquippa that are located within Section 200 there are no sites listed on the National Register of Historic Places. Most of the ORSST Study Area consists of land formerly part of the Jones & Laughlin Steel Mill. One site has been identified by Beaver County as a place of local interest and designated with a marker:

- *The Boyhood Home of Henry Mancini.*

Existing Land Use, Parks and Recreation Resources and River Access

The entire riverfront area within Center and Hopewell Townships consist of cleared industrial lands of the former Jones & Laughlin Steel Mill. Beaver County constructed a new County Prison on a riverfront parcel located within Hopewell Township and there has been some additional light industrial/office development constructed upriver from the prison. The entire riverfront area is bound by the CSX Railroad and PA Route 51.

West Aliquippa is a traditional neighborhood setting consisting of a "gridded" street pattern. Although once a mixed use community with commercial and retail activities, with the demise of the steel mill, the area is almost exclusively residential.

There is one existing park and recreation facility located within or close to the proposed trail route:

- *Paul Corsi Jr. Park*

There is currently no public river access in this area. The riverfront is lined with deep parcels that are targeted for new industrial uses, cutting off the potential for public river access in this area.

Environmental Context and Infrastructure

River's Edge and Habitat: The Ohio River's edge in this area is highly disturbed in many locations as a result of its industrial legacy and some portions have bulkheading. There is an unused barge docking facility located east of Elkhorn Run. The river edge topography in this area consists of a very gradual river "flat" extending inland 30 to 40 feet. Beyond this point the topography rises dramatically up to the elevation of the CSX Railroad.

Based on field observations, there are areas of erosion disturbance along the river's edge as well as significant areas of invasive exotic vegetation with poor soil stabilization characteristics. The highly vegetated area near the outfall of Elkhorn Run is highly disturbed but is still a nice naturalized and tranquil setting along the river.

Streams and Stormwater: Elkhorn Run is a day-lighted stream that runs down a valley located between Monaca Borough and Center Township. The stream passes through a large culvert underneath PA Route 51 and the CSX Railroad right-of-way. The outfall area is heavily eroded and exhibits severe disturbance from major storm events.

There are several stream courses, including Jones Run, running underneath West Aliquippa and its vicinity, all of which discharge directly into the Ohio River. There have been issues over the years associated with the buildup of silt and sediment in these culverts, causing backups and flooding in some areas.

Section 200 – Center Township - Hopewell Township - City of Aliquippa (West Aliquippa Neighborhood)

Community Character and Demographic Overview

Center Township is a primarily suburban township located south of Monaca Borough. The Township has approximately 1.5 miles of Ohio Riverfront located within its limits. The Township's developed area is primarily located on the plateau well above the elevation of the river. Center Township is home to three colleges, along with one of the largest retail centers in the area along PA Route 18/Broadhead Road.

According to 2000 U.S. Census data, Center Township has a population of 11,492 and is 15.4 square miles in area, or 9,846 acres. Historically the Township has seen an average of a 10 percent increase in population from the 1990 population of 10,724 to the 2006 estimated population of 11,765.

The racial makeup of Center Township is 95.4 percent White, 2.9 percent African American, 0.01 percent Native American and 0.4 percent Asian. The per capita income of the township is \$21,143 and 4.6 percent of the population lives below the poverty line, which is much lower than Pennsylvania's rate of 12.1 percent.

Hopewell Township has approximately 1.3 miles of Ohio River frontage in Section 200 of the ORSST Study Area. Hopewell Township wraps around the City of Aliquippa's West Aliquippa neighborhood along the riverfront. A detail description of the community is provided in Section 400.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Transportation Infrastructure

PA Route 51 is the main roadway that often parallels the Ohio River from the City of Pittsburgh through Monaca, across the Monaca Rochester Bridge and to the west. PA Route 51 is designated by PennDOT as the Pennsylvania Bicycle Route A through the entire ORSST Study Area, including through Section 200. PA Route 51 in Section 200 has an average daily traffic volume of approximately 10,000. Currently there is one point of vehicular access connecting PA Route 51 over the CSX Railroad to West Aliquippa and Woodlawn Road, via the Henry Mancini Street Bridge.

Woodlawn Road in Section 200 has been improved. There is also a very wide parallel, private concrete roadway in the area of West Aliquippa, from the BET-TECH gate to BCED property located near 7th Street. BCED is proposing to reconstruct Woodlawn Road from 7th Street, east, through BCED's property to the portion of Woodlawn Road that has been improved, near the USG Plant entrance roadway in Section 300.

Economic Development

All three municipalities in Section 200 have extensive brownfields properties targeted for industrial redevelopment within the ORSST study area. All of these properties were part of the former LTV Jones and Laughlin steel mill.

- *BET-TECH Property* which was originally part of the J&L Steel Mill. This riverfront site consists of a former docking facility and water intake for the mill. Portions of this property have been targeted as possible locations for new industrial development projects being promoted by the Commonwealth of Pennsylvania. Should any project be developed in this area, it will clearly require that Woodlawn Road be fully reconstructed to support the needs of a major new industrial operation. In addition, the CSX Railroad is currently studying various locations for the creation of a new intermodal freight transfer facility and this area is one of the locations under consideration. As Woodlawn Road is reconstructed, either for new industrial uses or the potential CSX intermodal facility or even for smaller reuse plans, the 10' wide sidepath should be included in its design if possible.

Proposed ORSST Route and Alternatives

There is only one ORSST routing option through Section 200, with one short alternative.

Proposed ORSST Route Description through Section 200

The proposed ORSST trail route through Section 200 would extend from Center Township/Monaca Borough Municipal Line to Section 200/300 break line just east of 7th Street in West Aliquippa. The trail through this section will consist of a continuous 10' wide side path with a 3'-5' wide planted buffer along the railroad side of Woodlawn Road.

Route Characteristic and Issues

Elkhorn Run Area: The ability to create a 10' wide sidepath along a new roadway from Monaca to Aliquippa appears to be feasible but will require more detailed engineering and coordination with BET-TECH as they develop their plans. There is a segment near Elkhorn Run where there is very limited width between the top of slope and the edge of the CSX Railroad right-of-way. This is partly due to the changes that CSX recently made to its track alignment in this area. According to information provided by the engineer from C.J. Betters Enterprises (BET-TECH), the railroad legal right-of-way agreements in this area, which date back to J&L Steel, are very complicated and open to interpretation. More detailed engineering would be required to determine if a two-lane roadway along with a 10' wide sidepath could be created in this area. If it is determined that it is not feasible, Alternative 200A should be studied and if that is not feasible the route may require on-road connection for a very short stretch of this segment.



Upper and Lower Roadways through BET-TECH Property near Elkhorn Run

BCED Future Woodlawn Road: This segment is targeted for a 10' wide gravel side path to be located on the side of the roadway closest to the railroad. BCED is actively pursuing funding to construct a new roadway in this location and if additional engineering and construction funding can be secured, the trail and the roadway could potentially be constructed concurrently.

Proposed Route Lengths

Total Length of Route through Center Township 10' Wide Multi Use Path = 1.5 miles

Total Length of Route through Hopewell Township (Section 200) 10' Wide Multi Use Path = 0.1 miles

Total Length of Route through the City of Aliquippa (Section 200) 10' Wide Multi Use Path = 1.6 miles

Total Length of Route through Section 200 = 3.2 miles

Identified ORSST Routing Alternatives in Section 200

Based on the narrow study corridor in Section 200, there was only one potential and short alternative identified for this section.

Alternative 200A:

Description: This route would connect with the trail located along the top of the river's edge slope in the area of Elkhorn Run. The route would need to extend a distance long enough to allow a moderate trail grade transition between an elevation near the river's mean water elevation and the elevation of the CSX Railroad, an estimated 25' to 30' elevation change.

Issues: This route would serve as an alternative route if the proposed ORSST route is deemed infeasible due to the available width for a new roadway with a sidepath above the culvert over Elkhorn Run. This alternative would locate the trail route at the bottom of the slope, near the edge of the river. The feasibility of this alternative alignment can only be determined once an engineered alignment for a service roadway between the proposed refinery facility and existing dock is determined. A bridge crossing of the day-lighted portion of Elkhorn Run would be required if this route is chosen since a culvert would be suitable in this location due to the nature of the stream outfall width, character and proximity to the Ohio River.



Lower Roadway Area at the Confluence of Elkhorn Run and the Ohio River

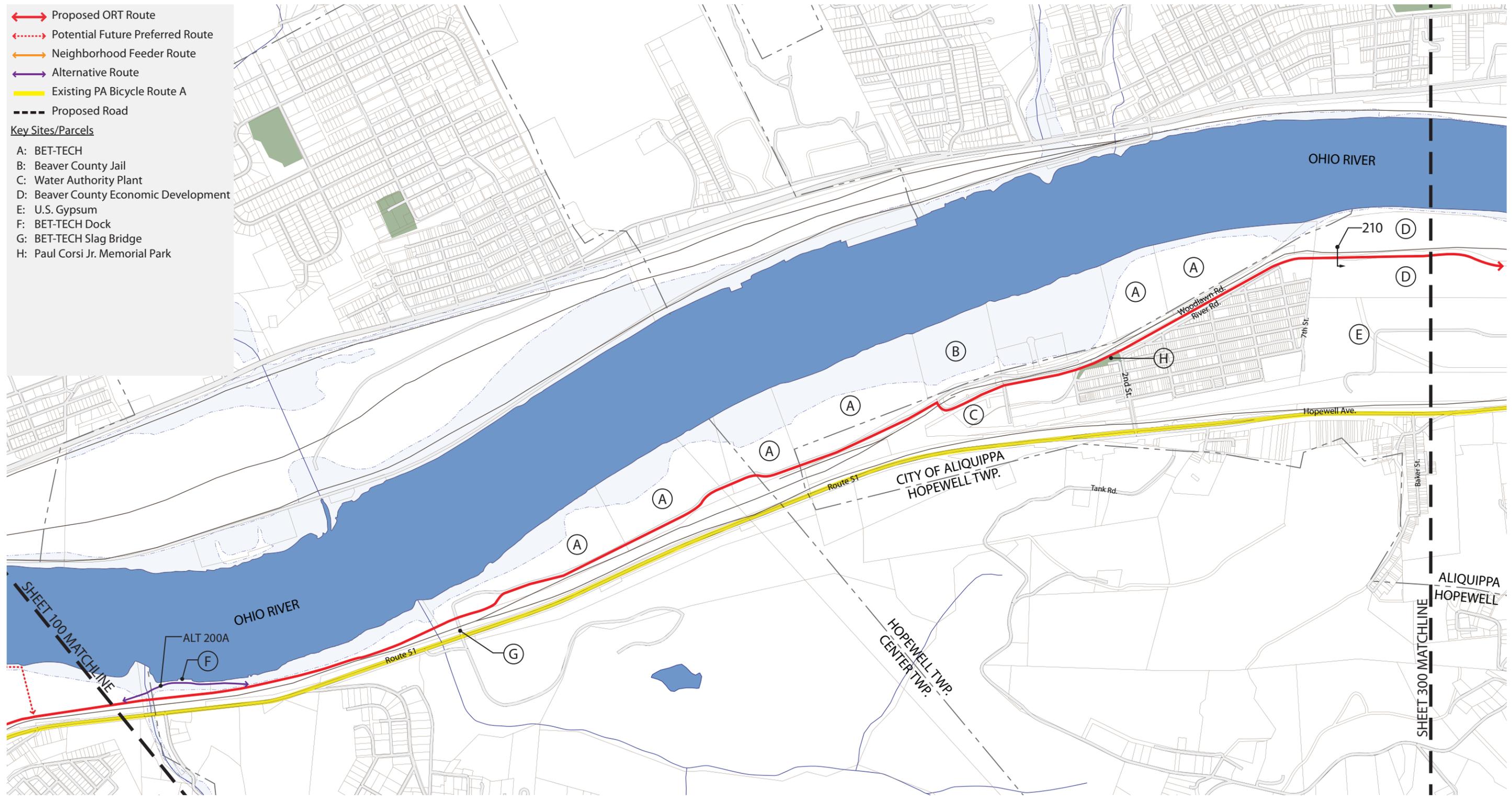
Center Township - Hopewell Township - City of Aliquippa - 200

LEGEND

-  Proposed ORT Route
-  Potential Future Preferred Route
-  Neighborhood Feeder Route
-  Alternative Route
-  Existing PA Bicycle Route A
-  Proposed Road

Key Sites/Parcels

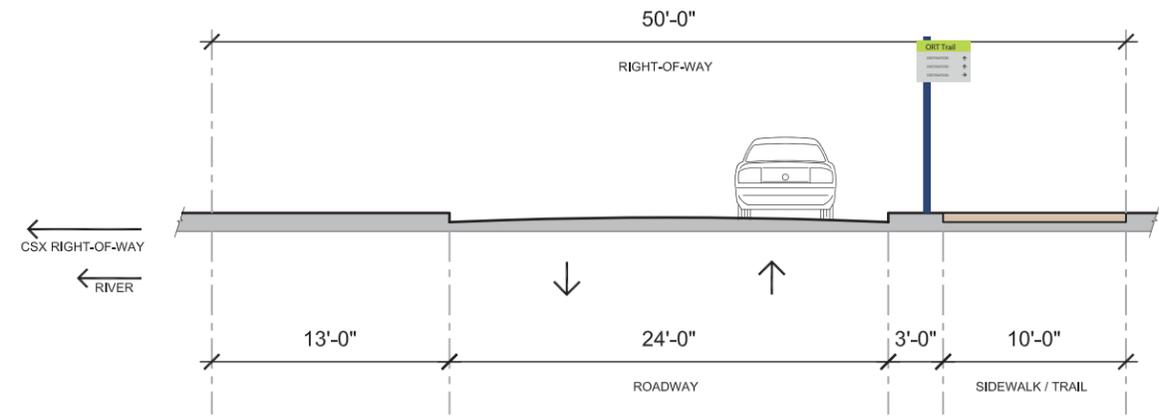
- A: BET-TECH
- B: Beaver County Jail
- C: Water Authority Plant
- D: Beaver County Economic Development
- E: U.S. Gypsum
- F: BET-TECH Dock
- G: BET-TECH Slag Bridge
- H: Paul Corsi Jr. Memorial Park



SCALE: Not to Scale  NORTH

LEGEND

Center Township - Hopewell Township - City of Aliquippa - 210



210 BCED - AND WOODLAWN RD. WITH 50' RIGHT-OF-WAY (PROPOSED)
SCALE: 1"=10'

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Iroquois and Shawnees. It would later be called “Logstown” by the British, after Logstown Run that ran past the village to the river.

After the French and Indian War (1754-63) and the takeover of the region by the British, the Indian people lost title to the land. Logstown was virtually deserted. This was the first of a series of “ups” and “downs” the town would experience under any name in its 250-year history.

It is popularly believed that Aliquippa was named after Queen Aliquippa, a staunchly pro-British Iroquois leader who ruled over what is now Greater Pittsburgh in the mid 18th Century. But that may not be altogether accurate. In the late 19th Century, Pittsburgh and Lake Erie Railroad developed an amusement park on Crows Island just offshore from Logstown, and droves of Pittsburgh residents would take the train to the park to picnic and enjoy the weekend. In keeping with its policy of naming stops on the line for prominent Indian leaders of the Colonial era, the railroad named it, “Aliquippa Park” and the adjacent railroad terminal, “Aliquippa.” So, by 1892, part of the village of Logstown incorporated itself as the Borough of Aliquippa.

In the late 1800s, when the Pittsburgh region was emerging as a major steel making hub, population upriver in Pittsburgh exploded with new European immigrants to fill steel working jobs.

By 1900, Jones and Laughlin Steel Corp., which had established itself on Pittsburgh’s South Side, sought expansion downriver. The company bought the Ohio River island and by 1909 had demolished the amusement park, filled in the back channel and began erecting what would become the largest, integrated steel mill in the world, stretching seven miles along the river. In the process, J&L expanded Woodlawn, an unincorporated village in neighboring Hopewell Township. It was incorporated as a borough in 1908, and homes and businesses were erected to accommodate a new immigrant influx of steel workers.

The new Woodlawn was in every way a company town. J&L laid out the town in a series of “plans” identified by numbers such as “Plan 6,” “Plan 11,” etc., and settled people from various racial and ethnic sources separately in each plan. That arrangement discouraged people of varied backgrounds and languages to integrate into the American society, but it was an efficient way in the short run for the company to reduce language and social conflict among neighbors. For example, Serbs and Croats were settled in Logstown which by the early 1900s had been absorbed into Woodlawn.

In 1910, Woodlawn was the jewel of Pittsburgh-area communities, according to an article in a Pittsburgh newspaper:

“There is no more active place in the Pittsburgh district today than Woodlawn with its hundreds of pretty homes, its clean paved streets, its dozens of modern stores, its churches, schools, lodges, clubs and ample transportation facilities. Its streets are paved with brick in the business section and macadam in the residence section, concrete sidewalks, shade trees, sewer and electric lighted,” the article continued. “It has every modern utility such as natural gas, electric light, a pure and potable water supply and ample police and fire protection.”

With a steel workers’ union in place at the mill and with improved wages and working conditions, Woodlawn flourished. Franklin Avenue, the borough’s main street leading down to the mill, bustled with economic activity, and stores bulged with shoppers. The railroad station had been relocated to a spot at the bottom of Franklin Avenue near the plant’s main gate, but its railroad moniker, “Aliquippa,” remained. Aliquippa and Woodlawn consolidated in 1928, and the Woodlawn name was dropped to conform to the name of the railroad depot. Curiously, the former Aliquippa became known as the neighborhood of “West Aliquippa,” although it is located at the northeastern tip of the community.

The company maintained control over the community even during the Great Depression of the 1930s. While millions were displaced by unemployment, the company kept its skilled workforce until better times by reducing work hours rather than wholesale layoffs. To help workers’ families deal with the tough times, the company promoted a system of vegetable gardens on unused company property, farmed by the under employed workers’ families.

Demand for steel to fight World War II dramatically improved the economy of the area as the Aliquippa Works pumped out millions of tons of rolled steel to build ship hulls and tank armor among other weapons needs. Steel workers boasted with justified pride that the Aliquippa Works led the nation in the logistical job of winning the war.

During the middle of World War II when demand for steel was highest to feed the victory effort, as many as 9,000 people were employed at the J&L Works, and Aliquippa had a population of 27,000.

The economy of the town became more broadly based in the mid 1900s as service businesses grew, nourished by increased workers’ wages. New middle-class and upper-middle class housing developed west of the downtown section with second-generation members of steel workers’ families taking on professional and management jobs to support the area’s economy.

The collapse came one day in 1984 when LTV Corp., the corporate successor to J&L, issued a statement that it would close most of the Aliquippa Works, almost immediately laying off about 8,000 workers.

As sudden as it was, the action was not unexpected. J&L was gone, and LTV was already in reorganizational bankruptcy. Big Steel plants all along the Monongahela and upper Ohio River valleys already had fallen like a line of giant dominoes. The Aliquippa Works was the last and greatest one to fall in Pennsylvania.

The impact was almost immediate. With the flow of workers’ daily traffic gone, downtown Aliquippa became a near ghost town. Stores along Franklin Avenue were shuttered in rapid succession as customers disappeared. The effect on the Borough’s tax base soon followed as J&L obtained drastic tax revaluations of its real-estate holdings including much of the vast plant itself. The deterioration of Franklin Avenue did nothing to improve the downward spiral of employment and local tax receipts. Budgetary woes increased to such an extent that, at one point in the mid 1980s, Duquesne

Section 300 – City of Aliquippa

Community Character and Demographic Overview

The City of Aliquippa has 3.3 miles of Ohio River frontage within Section 300 of the ORSST study area. The area is entirely industrial with many active industrial businesses and vacant industrial parcels targeted for future industrial development.

The City of Aliquippa consists of approximately 10,956 people and 4,825 households based on 2006 estimated U.S. Census data. The racial makeup of the area is 62 percent White, 36 percent African American, 0.1 percent Hispanic 0.07 percent Native American, and 0.18 percent Asian. The per capita income of the town is \$13,718 and 21.7 percent live below the poverty line, nearly twice Pennsylvania’s rate of 12.1 percent. Also nearly 22.5 percent of the population of the City is 65 years and over, compared to Pennsylvania’s rate of 15.3 percent statewide. Based on 2000 U.S. Census data, there were at the time approximately 719 vacant or abandoned residential units in the City, representing nearly 15 percent of the total housing units and some of the poorest census blocks in all of Beaver County occur in Aliquippa.

History and Cultural Resources

Aliquippa emerged around 1750 as an Indian village on the back-channel of an Ohio River island. There, French settlers traded with Delawares,

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Light Co. threatened to shut off service to the street lights in the Borough for payment delinquency.

With forced retirement of older steel workers and out-migration of younger families, Aliquippa's population began its drop to 11,734 as recorded in the 2000 Census. The final blow came in 2000 when LTV Corp., the corporate successor of Jones & Laughlin, sold the tin mill, the only remaining section of the plant that still operated, to U. S. Steel Corp. That Pittsburgh-based steel maker announced it would close the tin mill, resulting in the layoff of 400 steel workers.

One day in the late 1980s -- in one of the most poignant moments of the city's history -- veteran steel workers who had lost their jobs and then their retirement benefits gathered at the railroad tunnel at the entrance of the old plant to demonstrate their frustrations. Dubbed the "Tunnel Rats," the group of steel workers were arrested by local police for disorderly conduct. There were tears in the eyes of some of the arresting officers as they were forced to handcuff their own family members who were among the Tunnel Rats.

At about the same time, Aliquippa Borough Council in 1987 re-chartered the Borough as a city, giving the community broader tax powers under Pennsylvania municipal law.

For the portions of the City of Aliquippa that are located within or near Section 300 there are two sites listed on the National Register of Historic Places. Most of the ORSST Study Area consists of land formerly part of the Jones & Laughlin Steel Mill. A few of the administrative buildings from the complex remain in the vicinity, but none appear to pre-date the late 1940s. The City's 2009 Revitalization Plan does suggest the J&L head quarters building could be restored and reused. Identified historic resources within the study area include:

- *Pittsburgh & Lake Erie Aliquippa Railroad Station (Listed on the National Register of Historic Places);*
- *B. F. Jones Memorial Library (Listed on the National Registered of Historic Places); and*
- *Pennsylvania Historical Museum Commission Marker for the National Labor Relations Board vs. the J&L Steel Corp. U.S. Supreme Court Ruling in 1937 for Labor Rights (marker is located on the south side of the Franklin Avenue underpass).*

Environmental

River's Edge and Habitat: The river's edge in this area is highly disturbed, both from the legacy of the former steel making operation as well from current industrial activities. There are areas where bulkheading exists as well as moorings and other structures focused on marine navigation and bulk material transfer. The river edge topography changes fairly significantly in elevation within close proximity of the river. Despite the industrial activities and legacy, significant areas of vegetation cover still exist.

Based on field observations, there are areas of erosion disturbance along the river's edge as well as significant areas of invasive exotic vegetation with poor soil stabilization characteristics.



The Ohio River's Edge in Aliquippa near the Confluence of Logstown Run

Streams and Stormwater:

Logstown Run historically ran as a stream in the location of where Franklin Avenue exists today. The stream runs underground, via an underground sewer line. It runs underneath the Franklin Avenue underpass and Woodlawn Road, where an outfall exists. The City's Revitalization Plan mentioned the fact that the underpass area is a "bottle neck" for stormwater conveyance. At this point the stream is day-lighted until it reaches the Ohio River. The stream corridor portion of Logstown Run is eroded and has significant sediment loading from the sewer outfall.

As with many older urban communities, much of the City's sewage system consist of combined sewer outfalls (CSOs), so opportunities to reduce stormwater flowing directly into the sewer system through improved site-specific infiltration projects that help to alleviate CSO impacts on the environment should be integrated into trail design projects wherever possible. The City's Revitalization Plan specifically emphasizes the importance of such projects in addressing the reduction of CSO issues and water quality.

Transportation/Traffic

PA Route 51 is the main east/west roadway that parallels the Ohio River from the City of Pittsburgh through Monaca, across the Monaca Rochester Bridge and to the west. PA Route 51 is designated by PennDOT as the Pennsylvania Bicycle Route A through the entire ORSST Study Area, including through Section 300. PA Route 51 in Section 300 has an average daily traffic volume of approximately 9,300.

Franklin Avenue Underpass is the one point of vehicular access connecting PA Route 51 under the CSX Railroad and it serves more than 2.5 miles of industrial land. Once the BCED portion of Woodlawn Road that will extend from Section 200 to Section 300 is completed, vehicular traffic will have two potential routes to access PA Route 51. Currently the Franklin Avenue underpass is the only viable option and is heavily utilized by industrial truck traffic and can only handle one-lane of trucks down the centerline of the underpass due to height restrictions created by its curved ceiling. Due to the cross section of the underpass, the sidewalk widths on each side are only 5'-6" wide and have safety barriers constructed out of guiderails which creates a prison-like effect for pedestrians. Bicyclists are required to travel with vehicular traffic in the roadway which is especially harrowing since the underpass is dark and nearly 70' long.

Woodlawn Road in Section 300 varies in condition. The segment from the USG entrance roadway, past Franklin Avenue to the eastern intersection with Steel Street has been improved. The stretch of roadway west of the USG entrance roadway is proposed for reconstruction and the portion along the former Tin Mill site is also targeted for reconstruction long term. As sections of Woodlawn Road are reconstructed the ownership of the roadway has typically been conveyed to the City of Aliquippa. The portion of Woodlawn Road east of the BCED/BET-TECH Tin Mill Property to Section 400 Section Line is privately owned and currently the responsibility of the adjacent private landowners. This segment of roadway is currently in very poor condition.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Economic Development

The City of Aliquippa has recently adopted a Revitalization Plan (December 2009) for a blighted area of its downtown which includes an area that extends down Franklin Avenue, underneath the CSX Railroad to the Ohio River. This plan identifies a comprehensive series of improvement recommendations including several focused on multi-modal transportation improvements as well as increased public park access along the Ohio River. The following is a summary of the recommendations that have relevance to the ORSST Feasibility Study:

- Employ a “complete streets” approach for upgrading all roadways in the area including the entire Franklin Avenue corridor. The plan specifically outlines the importance of creating a balanced transportation and land use environment where pedestrians, bicycle and vehicular needs are all met in a fundamental way and to create a pedestrian and trail network that connects the downtown and the proposed ORSST and the Ohio River;
- Create a public park and Ohio River overlook with a boat launch and other public amenities to create new public access to the river’s edge;
- Improve the gateway appearance to the industrial park area;
- Implement “green” improvements including reducing the amount of impervious areas through the transformation of such areas with porous paving, new plantings and innovative stormwater infiltration areas to provide pretreatment of stormwater flows prior to direct infiltration and discharge into the Ohio River; and
- Renovate the historic train station building as a workforce development incubator, possibly tied to other building reuse plans in the area as well as with regional educational institutions.

Proposed ORSST Route and Alternatives

There is one main route through Section 300 and one alternative route for a short segment of the overall section.

Proposed ORSST Route Description through Section 300

The proposed ORSST trail route through Section 300 would parallel existing or future Woodlawn Road from the BCED property at the eastern portion of West Aliquippa to the Hopewell Township Municipal Line with South Heights Borough, near the Ambridge Aliquippa Bridge. The trail will consist of a continuous 10’ wide side path with a 3’-5’ wide planted buffer along the railroad side of Woodlawn Road.

Route Characteristics and Issues

Franklin Avenue Underpass Area: The truck traffic volumes and turning movements around the Franklin Avenue underpass could create conflicts between the potential high volumes of truck traffic and bicyclists. In addition, the grade of Woodlawn Road as it approaches the underpass area, from both directions, would require any dedicated trail facilities be paved with asphalt to protect against potential wash outs from stormwater

runoff. The underpass itself is very narrow and has limited pedestrian and bicycle accommodations. This underpass serves as the only access point to the ORSST from the majority of Aliquippa’s residents and is identified in the City’s Revitalization Plan as an important pedestrian and bicycle linkage between the downtown, the proposed trail and the riverfront park. Functional and aesthetic improvements will greatly enhance the real and perceived safety of the underpass. These improvements include replacing the make-shift pedestrian barriers constructed from old guiderail with a more visually open material, such as vinyl coated chain link fencing, painting the interior of the underpass, and providing ample lighting.



Franklin Avenue Underpass Sidewalk

BCED Future Woodlawn Road from the Section 200 Section Line through the BCED Property to the USG Entrance Roadway: As a continuation of the same segment located in Section 200, this segment is targeted for a 10’ wide gravel side path to be located on the side of the roadway closest to the railroad. BCED is actively pursuing funding to construct a new roadway in this location and if additional engineering and construction funding can be secured, the trail and roadway could potentially be constructed concurrently.

Unimproved Woodlawn Road from Steel Street to the Eastern Property Line of the BCED/BET-TECH Tin Mill Property: This segment is part of the Woodlawn Road that has not been improved and is targeted for a 10’ wide gravel side path on the railroad side of the roadway. Funding to include the engineering of the trail in the final roadway engineering drawings and specifications should be pursued to ensure that the trail and the roadway can be constructed concurrently. The location of the trail on the railroad side of Woodlawn Road is important since it would allow the trail to be nearly continuous and not be broken by driveway curb cuts.

Woodlawn Road from BCED/BET-TECH Tin Mill Property to Section 400 Section Line: The ability to create a public trail along the portions of existing Woodlawn Road from the eastern end of the BCED-BET-TECH Tin

Mill Property will need to be determined due to current ownership issues. Currently, this segment of roadway privately owned and the maintenance responsibilities for this stretch of roadway is the burden of the property owners. The roadway is currently in very poor condition and would require reconstruction and the conveyance of ownership to the municipality if a public trail was located in this area.

Proposed Route Lengths:

Total Length of Route through the City of Aliquippa (all of Section 300) 10’ Wide Multi Use Path = 3.3 miles

Identified ORSST Routing Alternatives in Section 300

Alternative 300A

Description: This alternative creates a bypass route around the Franklin Avenue underpass area. The route for this alternative would direct the trail over Franklin Avenue via the unused portions of the span that once served the railroad.

Issues and Opportunities: At one time the span over Franklin Avenue accommodated at least five mainline railroad tracks in this location, plus an existing siding that crosses Woodlawn Road, at-grade, west of Franklin Avenue. A trail could be built on the Woodlawn Road side of the siding, across the span and then turned to meet Woodlawn Road on the east side of Franklin Avenue near the west Steel Street intersection. The trail could possibly align with the proposed connector trail that would extend along the west side of Steel Street to the proposed riverfront park and boat launch.



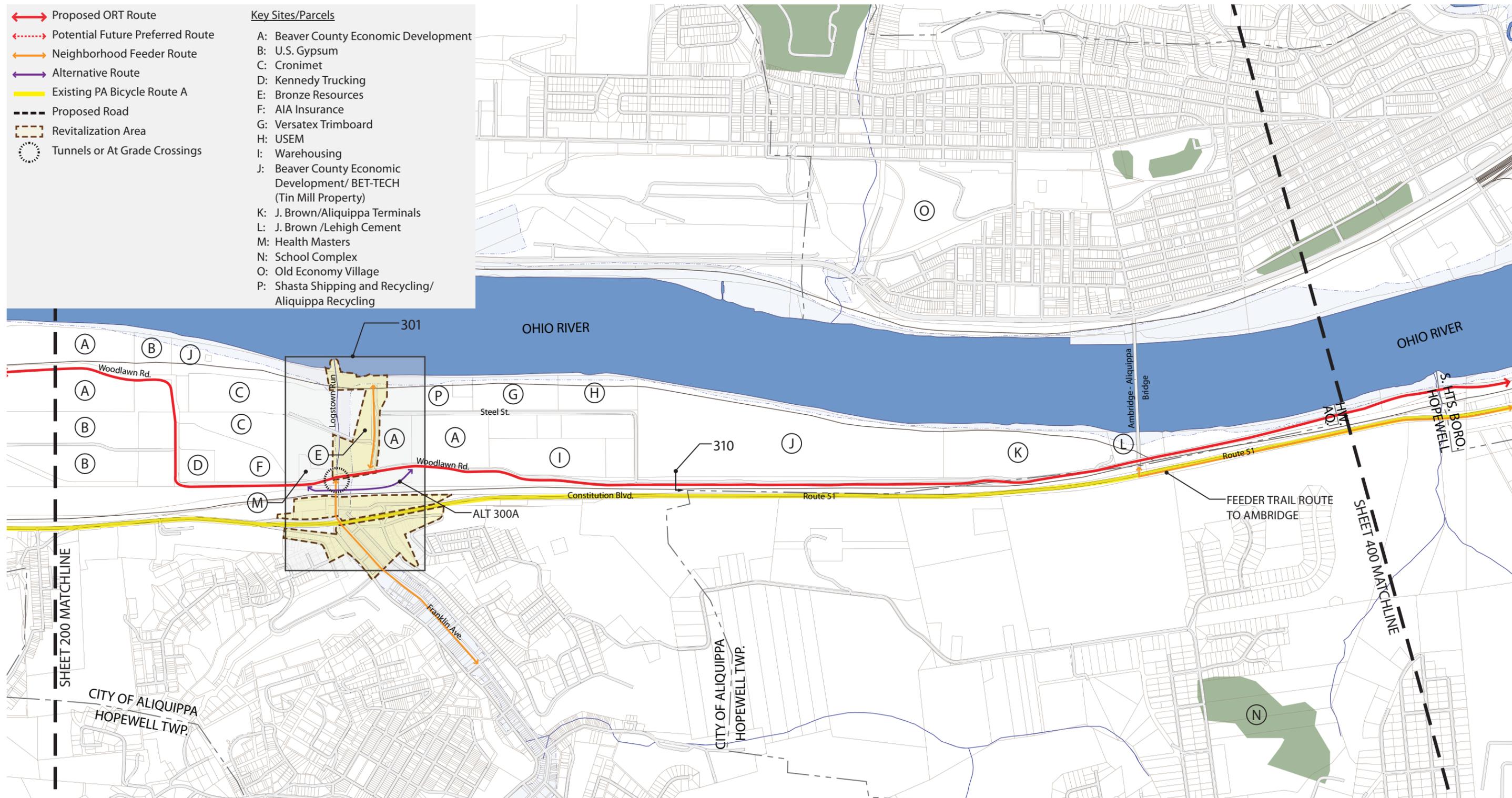
Franklin Avenue Underpass Area Showing Potential Alternative 300A Route Above

LEGEND

- Proposed ORT Route
- Potential Future Preferred Route
- Neighborhood Feeder Route
- Alternative Route
- Existing PA Bicycle Route A
- Proposed Road
- Revitalization Area
- Tunnels or At Grade Crossings

Key Sites/Parcels

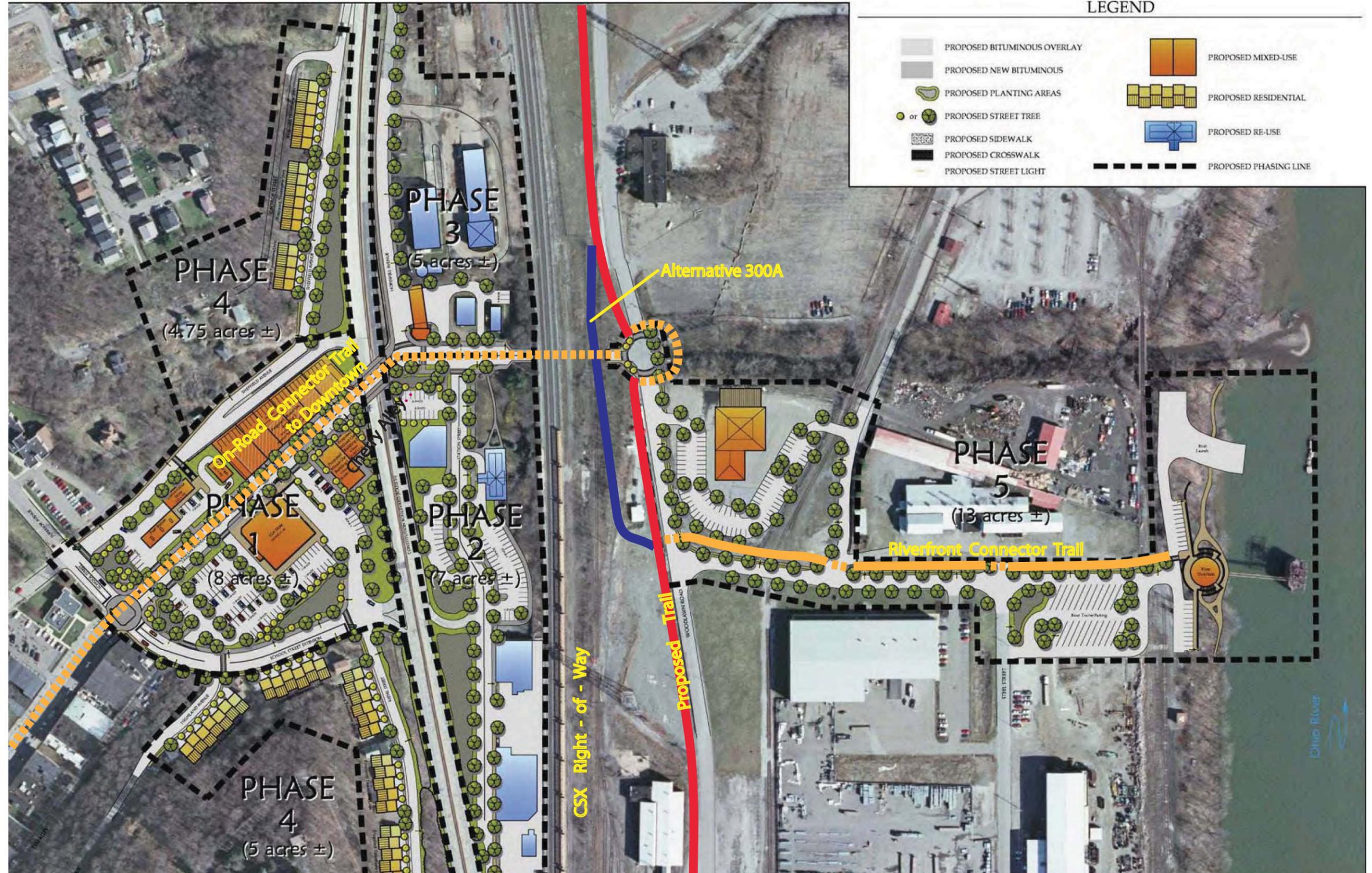
- A: Beaver County Economic Development
- B: U.S. Gypsum
- C: Cronimet
- D: Kennedy Trucking
- E: Bronze Resources
- F: AIA Insurance
- G: Versatex Trimboard
- H: USEM
- I: Warehousing
- J: Beaver County Economic Development/ BET-TECH (Tin Mill Property)
- K: J. Brown/ Aliquippa Terminals
- L: J. Brown /Lehigh Cement
- M: Health Masters
- N: School Complex
- O: Old Economy Village
- P: Shasta Shipping and Recycling/ Aliquippa Recycling



SCALE: Not to Scale NORTH

LEGEND

- Proposed 10' Wide Side Path Trail Route
- Alternative Side Path Trail Route
- Neighborhood Feeder 10' Wide Side Path Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route

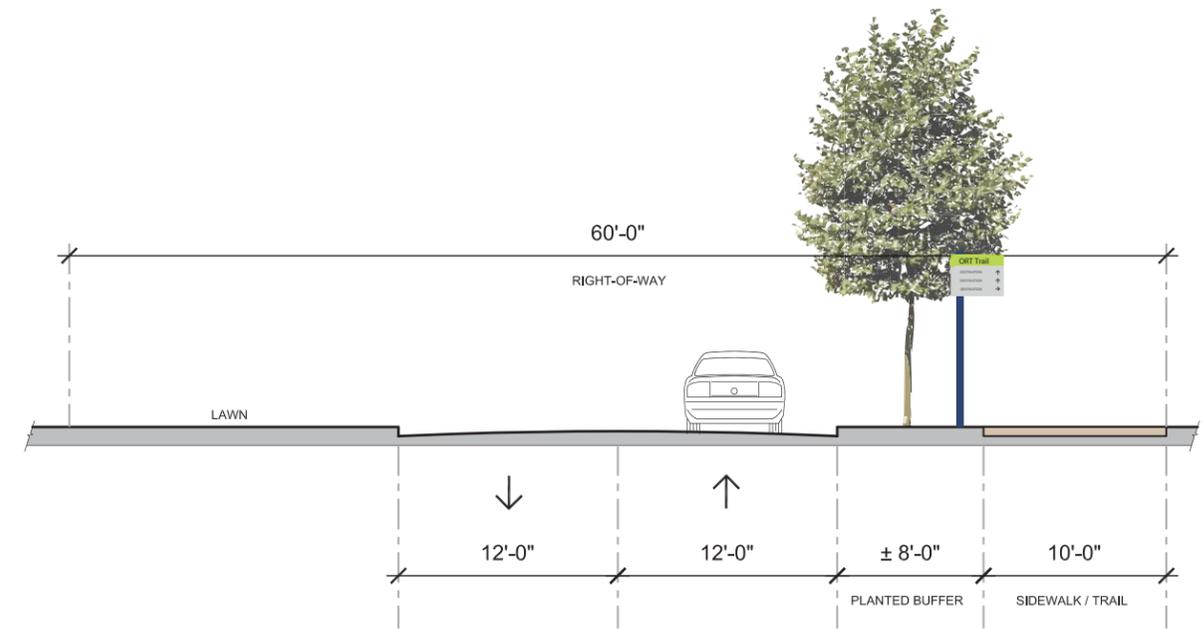


LEGEND

- PROPOSED BITUMINOUS OVERLAY
- PROPOSED NEW BITUMINOUS
- PROPOSED PLANTING AREAS
- or ● PROPOSED STREET TREE
- PROPOSED PHASING LINE
- PROPOSED MIXED-USE
- PROPOSED RESIDENTIAL
- PROPOSED RE-USE
- PROPOSED PHASING LINE
- PROPOSED PHASING LINE

301 SCALE: Not to Scale

Base Plan: Revitalization Plan for the City of Aliquippa, December 2009



310 BCED - AND OTHER WOODLAWN RD. AREAS WITH 60' RIGHT-OF-WAY OR GREATER (PROPOSED)
SCALE: 1"=10'

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

the town is \$19,472 and 5.1 percent of the population live below the poverty line, below Pennsylvania's rate of 12.1 percent. The estimated population in 2006 was 506, representing a 22 percent drop from the 1990 population of 647.

Crescent Township is also primarily a suburban township with a total area of 2.3 square miles. The Township has approximately 1.4 miles of Ohio River frontage, all within Section 400 of the ORSST study area.

Crescent Township consists of approximately 2,314 people and 886 households. The racial makeup of the area is 97.2 percent White, 1.3 percent African American, 0.7 percent Hispanic, 0.3 percent Native American, and 0.9 percent Asian. The per capita income of the town is \$16,400 and 9.6 percent live below the poverty line, below Pennsylvania's rate of 12.1 percent.

History and Cultural Resources

Hopewell Township was once a much larger municipality, the center of original development activity was in the upper elevation areas of what is today Broadhead Road. All of what constitutes Aliquippa today was carved out of Hopewell Township in 1893. The portions of the Township that are included in the ORSST study area are industrial areas located between the City of Aliquippa and South Heights Borough, which was once part of Hopewell Township as well. It is believed that the name of the Township is derived from a Presbyterian church organized around 1790 or 1800.

South Heights was first known as Ethel's Landing, a docking point on the Ohio River. The name of the town was changed to Shannopin reputedly after an Indian warrior. In the 1880's, oil fields were discovered and that brought an influx of people to the village. The Pittsburgh and Lake Erie Railroad came to the area in 1872 and originally ran where Jordan Street/PA Route 51 exists today. In the early 1900s a brick factory and the Keystone Torpeda and Power Company were located there. In 1910, the 150 inhabitants of the town voted to incorporate as a Borough and change the name of the town to South Heights.

Crescent Township's history on the Ohio River dates back to 1784-1785, when warrants were recorded for "Fortune", Limerick" and "Strabane" riverfront properties. An old English law required that any sold property must be named. Each property consisted of 400 acres. The area was settled by Revolutionary War soldiers who bought their land from the Commonwealth of Pennsylvania.

A son of German emigrants, Peter Shouse came here with his family in 1822 after he had built boats in Monongahela and Pittsburgh, and after he had served in Ohio during the War of 1812. Intending to operate his own boatyard, he purchased "Limerick Landing", which was the location of a pool in the Ohio River approximately 20 feet deep. This spot provided an exceptional location for launching new boats. The boatyard brought many workers who cut timber from the thick virgin forests that covered nearby hillsides.

Limerick Landing and the boatyard were incorporated into Shousetown when that new community was established by Peter Shouse, and the entire area was part of Moon Township, one of the first seven townships designated when Allegheny County was formed in 1788. Muddy roads made getting to the polls in Moon Township difficult, so a petition was prepared, asking that the Quarter Session Court in Allegheny County establish a separate Township. This was granted in 1855, and the new municipality was named "Crescent" because it was a small part of Moon.

The steamboat hulls built and launched at Shousetown by Peter Shouse and later boatyard owners were towed up the shallow Ohio River to Pittsburgh for rigging and furnishing before going into service. Many became famous, such as the "Buckeye State", which broke the speed record going from Cincinnati to Pittsburgh in 43 hours in 1850 - - a record that still stands.

The first home ports of these boats varied - ten went to New Orleans: the "Freeman Rawden" went to New York City for service between there and Washington D.C. The "Chamois" went to Apalachicola, FL, nine went to St. Louis, Mo. and 76 were originally assigned to Pittsburgh. Some saw action in the Civil War after conversion to gun boats by the Federal government. A total of 102 boats were launched from Shousetown - the grand finale was the 1727 ton "Great Republic", the biggest ship built there, constructed shortly before the boatyard was closed.

Railroad service on the northeast side of the Ohio River tied Pittsburgh to Sewickleyville (Leetsdale) and points west in 1856. On the southwest side of the river, train service from Pittsburgh to Beaver Falls started in 1879. A railroad station, a station agent and railroad siding eventually were added at Crescent. Commuting trains ran from Beaver Falls to Pittsburgh. Since the school in Crescent went only to eighth grade, high school students had their choice of attending Ambridge, Aliquippa or Coraopolis high schools. Transportation was at their own expense, with many using a train to Coraopolis or taking a commercial bus to Ambridge or Aliquippa. Going to Coraopolis on the train was a common Saturday occurrence - to shop, dine or attend a movie.

Before the train came through Shousetown, a need to transport passengers, mail and freight across the river caused the establishment in 1845 of ferry service connecting the community to Sewickleyville from Ferry Street. A bridge was built in Sewickley in 1911 and when one was built in Ambridge in 1929, the ferry service ended.

Another thriving business, established in 1894, was a brickyard at Briggston on the main line of the Pittsburgh and Lake Erie Railroad, situated about 100 feet back from the Ohio River, near the current location of Shouse Park. Owned by Pittsburgh Brick Company, the business employed 22 men and boys and produced about 30,000 bricks daily, using clay and shale found at the site.

Brigadier General Lachlan McIntosh, who was named Commander of the Western Department in 1778, supervised the construction of a military supply road from Fort Pitt in Pittsburgh to Fort McIntosh in what is today

Section 400 – Hopewell Township - South Heights Borough - Crescent Township

Community Character and Demographic Overview

Hopewell Township is primarily a suburban township with a total area of 17 square miles. The Township has .24 miles of Ohio River frontage in Section 400. This area is entirely industrial and has active industrial uses operating there today.

Over the past ten years, the population of Hopewell Township has declined slightly from 13,274 in 1990 to an estimated 12,598 in 2006. The number of households has increased as a result of its growing suburbanization. The racial makeup of the area is 91.8 percent White, 7.4 percent African American, 0.04 percent Hispanic, 0.01 percent Native American, and 0.32 percent Asian. The per capita income of the town is \$20,802 and 6 percent of the population live below the poverty line.

South Heights Borough is a small municipality with a total area of 0.4 square miles. The Borough has approximately 0.7 miles of Ohio River frontage all of which is located within Section 400 of the ORSST study area.

South Heights Borough consists of approximately 542 people and 239 households based on the 2000 census. The racial makeup of the area is 98.5 percent White, 0.74 percent African American, 0.3 percent Hispanic, 0.0 percent Native American, and 0.18 percent Asian. The per capita income of

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Beaver County, along a ridge on the south side of the Ohio River. Colonel Daniel Brodhead succeeded to the command of Fort McIntosh in 1779, and the road was named after him. Brodhead Road serves as a boundary of Crescent Township. Along with the Ohio River and the railroad, it brought settlers to the area as well as pioneers passing through on their way to new lives in the West.

The town formerly called “Wireton” was originally named “Anderson Road” and was located along the south side of the Ohio River, adjacent to the Beaver County line. Its major industry was the Phillips Power Station of Duquesne Light.

There are no sites listed on the National Register of Historic Places within Section 400. As described above, the area historically had many small industrial businesses. The identified historic resources within the study area include:

- *The Pennsylvania Historical Museum Commission Marker for the Shouse Boat Yard and its founder, Peter Shouse, who built the “Kentuckian,” its first steamboat, in 1829. Sold in 1837 to E. & N. Porter. By 1866 over 80 steamboats had been launched. The last was the 1727-ton “Great Republic,” famed on the Mississippi River for its size and elegance; and*
- *Allegheny County Marker for the “Place of Beginning” where the survey of Allegheny Commence from Washington County and Westmoreland County on September 24, 1788. (This marker is located at the terminus of Ferry Street at the Ohio River).*

Land Use, Parks and Recreation Resources and River Access

The land uses within Section 400 are very mixed. The area in Hopewell Township is mostly vacant or not developable industrial lands. South Heights Borough is mostly a residential “village” with some minor commercial uses. The major industrial land use in the South Heights Borough is mostly located in Crescent Township and extends into the South Heights Borough. That use is the former Frank R. Phillips Coal-Fired Power Station, which is no longer in operation and is being fully decommissioned and moth-balled. The administration building from the Power Station is located in South Heights Borough and is being reused for commercial uses. The future of the remainder of the land is not known.

Beyond the Power Station, most of the Crescent Township riverfront consists of a mix of heavy industrial uses, including small steel making, aggregate processing and scrap metal related business. The area from Main Street to Ferry Street is residential, including several properties along the riverfront. McGovern Boulevard/PA Route 51 through Crescent Township has small pockets of retail businesses mixed in with stretches of residential dwellings. It is important to note that many of the residential dwellings that front on McGovern Boulevard do not have off-street parking, so on-street parking in the location is critical.

South Heights Borough has one public park and recreation facility located within or close to the proposed trail route within the ORSST study area:

- *South Heights Municipal Park.*

The Crescent Township Fire Department also owns a lawn area located next to the South Heights Borough Park that the Borough has expressed a desire to merge into their park to form a larger public space at the core of the community.

Crescent Township has two public parks located within the ORSST study area:

- *Shouse Park, which is located on a bluff overlooking the Ohio River; and*
- *Riverview Park.*

Currently there is no direct public river access in Section 400. Although Shouse Park is located on the Ohio River, its elevation is well above the height of the river and there is no access from the park down to the river’s edge. Most of the riverfront is lined with active industrial parcels, several of which have active marine transfer operations making public river access challenging.

Environmental Context and Infrastructure

River’s Edge and Habitat: Based on field observation, there are areas of erosion disturbance along the river’s edge as well as significant areas of invasive exotic vegetation with poor soil stabilization characteristics. The riverfront area in South Heights Borough has significant vegetated areas from the river’s edge to the CSX Railroad right-of-way. This area has not been disturbed recently, especially since the Power Station stopped rail siding service. The riverfront areas around Iron City Steel and West Penn Aggregates, in Crescent Township, are highly disturbed and there is active barge service to West Penn Aggregates.

Streams and Stormwater: It was very difficult to determine the status of the stream outfalls in the Hopewell Township and South Heights Borough area. One stream course outfall was identified on the Crescent Authority Property located adjacent to the South Heights Borough Park. This area was filled with debris as a result of dumping and was heavily vegetated with invasive plant species. This stream flows through a culvert underneath the CSX Railroad and discharges close to the Ohio River’s edge.

There is a stream course that has an outfall in the area between Porter and Maple Streets. This area is a deep cut adjacent to a residential neighborhood and is also an area that is heavily wooded and could become a small community park. Debris and dumping were observed as well as severe erosion on the site. The stream also enters a culvert underneath the CSX Railroad before discharging into the Ohio River.

Spring Run and Flaugherty Run are both mostly day-lighted streams for most of their courses. The two streams converge in Riverview Park. At this point Flaugherty Run travels underneath the CSX Railroad and then meanders through the Glenwillard Boat Club to the Ohio River. The portion of the stream from the railroad to the river is privately owned and the route appears to have been significantly altered as a result of the many years of various development activities in this area.

As with many older urban communities, much of the municipal sewage system consists of combined sewer outfalls (CSOs). Opportunities to reduce stormwater flowing directly into the sewer system through improved site-specific infiltration projects that help to alleviate CSO impacts on the environment should be integrated into trail design projects wherever possible.

Transportation Infrastructure

Jordan Road/McGovern Boulevard/PA Route 51 is the main east/west roadway that parallels the Ohio River and the CSX Railroad right-of-way from the City of Pittsburgh through Crescent Township, Hopewell Township and South Heights Borough to Monaca, across the Monaca Rochester Bridge and to the west. PA Route 51 is designated by PennDOT as the Pennsylvania Bicycle Route A through the entire ORSST Study Area, including through Section 400. PA Route 51 in Section 400 has an average daily traffic (ADT) volume of approximately 7,800 in South Heights Borough and 7,200 in Crescent Township. Interestingly, these volumes are lower than both the downtown center of Monaca where the ADT is 10,000 and Coraopolis, on 5th Avenue, where the ADT is 9,000, yet traffic safety and speeding appears to be more of an issue on the Crescent Township portion of PA Route 51.

The community in this portion of the ORSST study area expressed concerns over the safety of the current transportation system. Specific concerns were raised regarding the physical attributes of the roadways and intersections as well as the overall maintenance of the network. One key maintenance concern that was especially emphasized was the need to clean the roadway shoulders to remove cinders and debris, especially since PA Route 51 is designated as a bike route. Since this roadway passes through what could be described as a “village-like” setting an engineering approach that enhances the community character and creates a safer setting for pedestrians and bicyclists could be employed. In this area streetscaping with traffic calming measures, improved sidewalks, enhanced ladder-style crosswalks, street trees and architectural lighting could be employed to create a stronger sense of a place as well as signaling to motorists that it is a setting that requires that they travel slowly and not speed. Improved coordination between the local municipalities, Allegheny County and PennDOT will be important in ensuring that the infrastructure is properly maintained for local residents and trail users.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment



PA Route 51 in South Heights Borough

McGovern Boulevard/PA Route 51, as it turns to the south near the intersection of Spring Run Road, changes character again. At this point the roadway becomes more suburban in character with a mix of larger lot residential dwellings and small scale commercial uses. In this area there are very narrow shoulders ranging from 1' to 3' in width. There are also numerous driveway curb cuts and intermittent sidewalks. PA Route 51 diverges from McGovern Boulevard at the intersection of Stoops Ferry Road where it turns to the east at this intersection. PA Route 51 has an average daily traffic volume of approximately 11,000 at this intersection.

Economic Development

None of the municipalities in this section have specified economic development strategies or plans which might impact the planning, design or future economic impact of the ORSST route. Crescent Township has expressed a desire to see the Power Station demolished and the site be redeveloped in some manner. It would appear that the site's PA Route 51 frontage alone would allow for a new walk-able mixed-use development with ground floor "main street" type retail and multi-family residential behind and above the retail. The site could serve as a location to stimulate new public and private investment in the area as well as a way to expand the municipal tax base. The portion of the site that is located between the CSX Railroad and the Ohio River should be dedicated for a public riverfront park including a riverfront trail and promenade, which would be accessible to all residents as well as provide added economic benefit to the adjacent mixed-use infill development project. In order for such a project to advance, Crescent Township, South Heights Borough and Allegheny

County would need to work in partnership with the current owners of the Power Station site as well as with state and federal agencies to develop a feasible redevelopment strategy.

Proposed ORSST Route and Alternatives

Seven potential routing alternatives, including the proposed ORSST route were identified for Section 400. Due to the complex parcels arrangement, land use context and existing characteristics of PA Route 51, this section has several potentially viable options; however, most of these options have complexities that need to be studied in more detail to determine their ultimate viability. Furthermore, due to other municipal priorities, it is the current position of Crescent Township that the preferred route continues to be the existing Pennsylvania Bicycle Route A along PA Route 51, at least for the foreseeable future. The Township acknowledges that the long term goal should be a route which locates the trail off of PA Route 51; once more immediate community priorities in this area are addressed.

Proposed ORSST Route Description through Section 400

The proposed ORSST route through Section 400 will extend from a 10' wide sidepath located along a reconstructed Woodlawn Road in the City of Aliquippa from Section 300, to North Street in South Heights Borough. At the location where North Street travels underneath the CSX Railroad right-of-way, via a curved roadway and underpass, the trail would cross North Street to the river side of the roadway. From this point the trail would travel through a series of privately owned parcels via a new 10' wide multi-use path to the area of the existing Power Plant Road Bridge. It is believed that the trail could be located on a former rail siding roadbed that once served the Power Station in this location. From this point it would extend to Section 500, via right-of-way acquired from CSX on the Ohio River side of the existing railroad tracks.

Route Characteristics and Issues

At the bridge on Power Plant Road, the trail would move to the edge of the CSX Railroad's right-of-way, on the right-of-way would need to be acquired from the railroad. The trail would then travel parallel to the railroad to McCutcheon Way, at the entrance to Shouse Park. In addition to negotiations with the CSX Railroad over the acquisition of the right-of-way, a detailed engineering study, along with metes and bounds survey will be required to determine if ample setback exists. The Federal Highway Administration recommends a setback range from the centerline of the closest rail line of 25' to 50' or more depending on site conditions. A physical separation will be required with a minimum of right-of-way fencing or other more substantial forms of a physical barrier and in some cases a vertical separation. Currently there is little to no right-of-way fencing along the railroad in this area.



CSX Right-of-Way and Undevelopable Land along Riverfront

Proposed Route Lengths

Total Length of Route through Hopewell Township (Section 400) 10' Wide Multi Use Path = .2 miles

Total Length of Route through South Heights Borough 10' wide Multi Use Path = .8 miles

Crescent Township On-Road Portion = .3 miles

Crescent Township 10' Wide Multi Use Path = .8 miles

Total Length of Route through Crescent Township (Section 400) = 1.1 miles

Total Length of Route through Section 400 = 2.1 miles

Identified ORSST Routing Alternatives in Section 400

Alternative 400A

Description: This route would be a signed on-road route through the North Street underpass to Cherry Alley. The on-road would travel along Cherry Alley past the South Heights Municipal Park. It would then travel through a Borough owned right-of-way located next to the auto repair facility located adjacent to Bradbury Drive. This would create a connection from Cherry Alley to Jordan Street/PA Route 51. From this point the trail would consist of a 10' wide sidepath along the north side PA Route 51 past the Borough Hall and the former Power Station administration building to Power Plant Road, where it could travel over the Power Plant Road Bridge to one of the other indentified alternatives, or continue along PA Route 51.

Issues and Opportunities: The on-road portions of this alternative are simple to establish and should be considered as a feeder trail to connect the South Heights Municipal Park to the proposed ORSST route. There are potential property boundary issues related to the parcel connecting Cherry Alley and PA Route 51 which would need to be resolved if the trail was

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

constructed in this location. The portion of the trail that would be created along PA Route 51 would require determining the width of PennDOT's right-of-way to determine if a 10' wide sidepath could be created within the existing right-of-way. If available right-of-way doesn't exist additional right-of-way or access easements would need to be obtained from each of the four property owners. The portion along PA Route 51 could also be signed as an on-road route. This segment of PA Route 51 is designated as Pennsylvania Bicycle Route A. Recent crosswalk improvements were made in this segment of PA Route 51. Trailblazer signing and additional safety improvements, such as traffic calming, could be considered as well as curb bump outs for key crossing locations and enhanced roadway striping and markings.

Alternative 400B

Description: This alternative focuses on locating the trail as close to the river as possible. It would consist of 10' wide multi-use path that would extend through Power Station property and five large industrial parcels to the western end of Main Street in Crescent Township.

Issues and Opportunities: This alternative considers the option of running the trail parallel to the CSX Railroad just outside of the railroad's right-of-way. All of the industrial parcels, with the exception of the Power Station have active industrial uses. Many of the operations have buildings located near the railroad right-of-way. A detailed engineering study of the property boundaries would need to be performed as well as the acquisition of rights-of-way or easement through each of the parcels would need to be negotiated to be able to construct this segment.

Alternative 400C

Description: This alternative consists of extending the 10' wide sidepath described in Alternative 400A along the frontage of the Power Station property. The trail would travel as a signed on-road route along PA Route 51 from Jeanette Street to McCutcheon Road. The trail would travel as a signed on-road route along McCutcheon Road across the CSX Railroad at-grade crossing to Dashields Lock Road and then via this roadway to the U.S. Army Corps of Engineers Parking Lot located in Section 500.

Issues and Opportunities: If the 10' wide sidepath for the portion of the trail along the Power Station frontage is not feasible, for reason as described in Alternative 400A, it could be signed as an on-road route. Trailblazer signing and additional safety improvements, such as traffic calming, could be considered as well as curb bump outs for key crossing locations and enhanced roadway striping and markings.

This segment of PA Route 51 from Jeanette Street to McCutcheon Road also serves as a major gateway through the Township with residential and commercial uses and should be considered for streetscape and safety improvements including traffic calming, curb bump-outs, crossing warning signals and architectural lighting and landscaping.

The portion of the trail along McCutcheon Way from PA Route 51 to Dashields Lock Road would also be an on-road route. This small segment consists of a relatively low-traffic roadway. The roadway, however, has significant horizontal and vertical constraints and poor site lines. The roadway has a horseshoe curve/switchback that rises from the low elevation of Riverview Park to the significantly higher elevation of Shouse Park. Based on field observations it appears that a side path could be created along the outside of the curve with a switch-back boardwalk to address current constraints. More detailed engineering studies would be required to determine what design options are feasible.



CSX Right-of-Way at McCutcheon Way

The trail would travel as a signed on-road route along Dashields Lock Road from McCutcheon Way to the Crescent Township Line and U.S. Army Corps of Engineers Parking Lot.

Alternative 400D

Description: This alternative consists of an on-road route south of PA Route 51. The route would travel from PA Route 51 south on Bocktown Road to Prospect Street and back to PA Route 51.

Issues and Opportunities: This route was identified in a public meeting as a potential alternative for study. It was determined, based on field observations, that the route had several fatal flaws, including steep grades, narrow roadway widths and poor site lines and wasn't studied further.

Alternative 400E

Description: This alternative is linked to Alternative 500A and consists of the current Pennsylvania Bicycle Route A, which travels on PA Route 51/McGovern Boulevard to Stoops Ferry Road.

Issues and Opportunities: This segment of PA Route 51 links to the segment in Section 500 which has the highest traffic volumes within the ORSST study area. McGovern Road has an average traffic volume of 11,000. Stoops Ferry Road has an average daily traffic volume of approximately 14,000. Stoops Ferry Road also has a significant topographic change that would create a major barrier for recreational bicyclists to climb. Stoops Ferry Road does have 10' wide average shoulders on each side. The bridge crossing of Flaugherty Run is also very narrow and its sidewalks are not ADA compliant and it is located at an intersection with "free" northbound right turns which increases the potential for safety conflicts for pedestrians and bicyclists.

Alternative 400F

Description: This alternative consists of a signed on-road route from PA Route 51, north along Jeannette Street to McKae Street, Division Street, Porter Street, Maple Street and returns to PA Route 51.

Issues and Opportunities: This route relies on several small neighborhood streets that are in poor condition and requires a significant amount of weaving through the neighborhood. The connection between Porter Street and Maple Street has major topographic changes and the ownership of a right-of-way connection along the CSX Railroad right-of-way is not known.

Alternative 400G

Description: This alternative routes the trail on-road via Main Street from PA Route 51, past Ferry Street, underneath the CSX Railroad to McCutcheon Road.

Issues and Opportunities: Main Street has low traffic volumes and is a neighborhood street and can easily serve as a share-the-road condition. Site lines through the CSX underpass are not optimal and safety improvements and signing would need to be studied in this area.

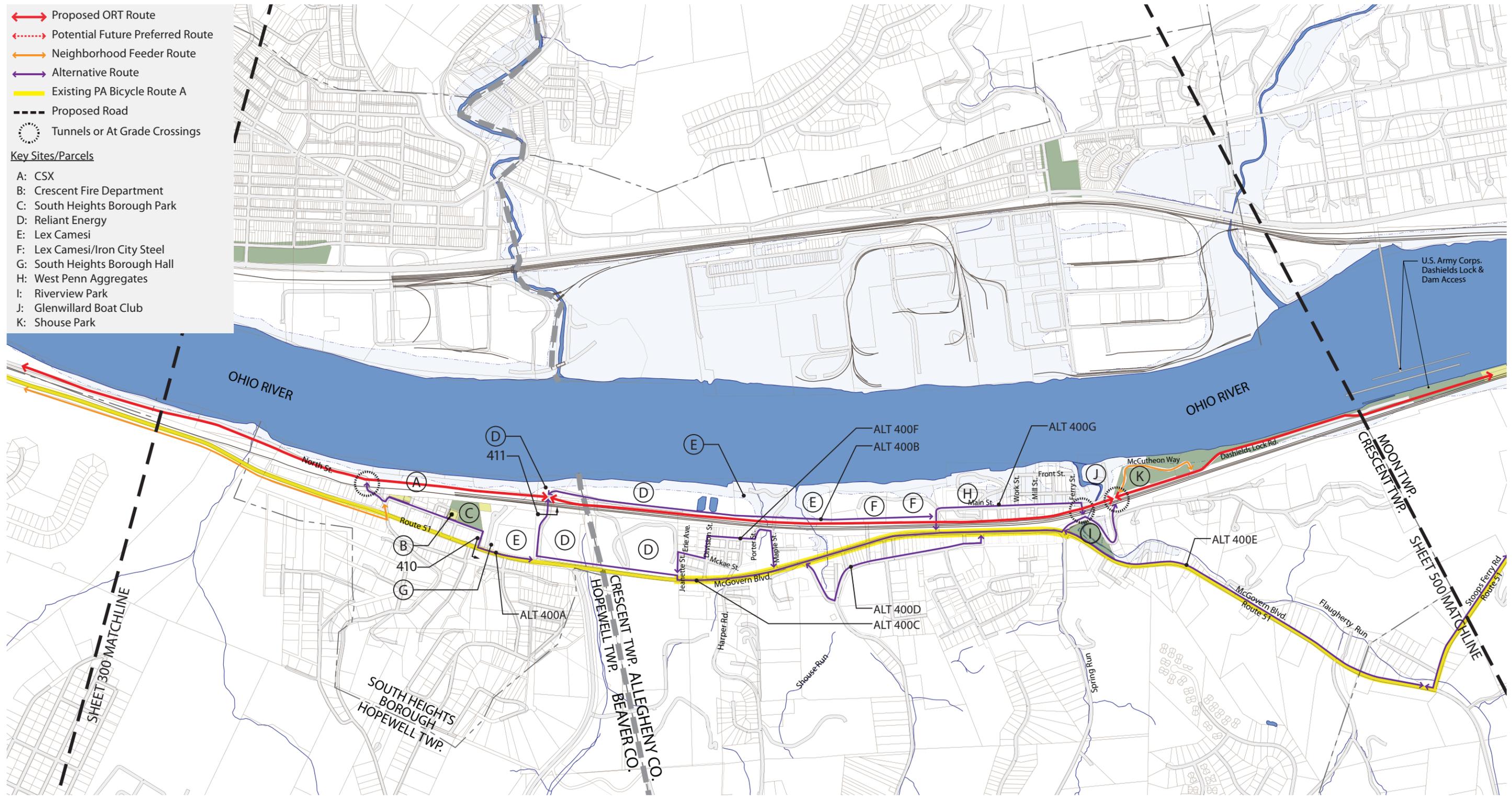
Hopewell Township - South Heights Borough - Crescent Township - 400

LEGEND

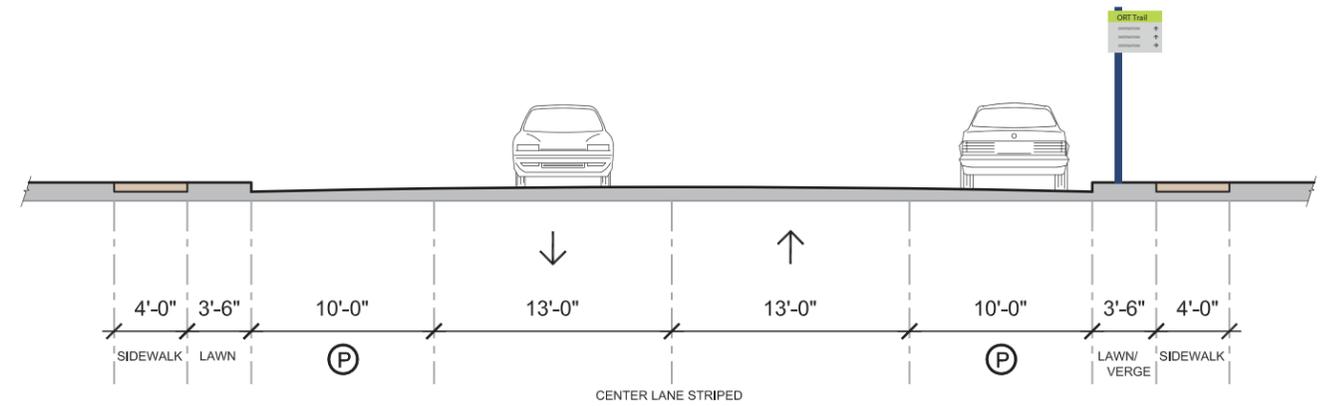
- Proposed ORT Route
- Potential Future Preferred Route
- Neighborhood Feeder Route
- Alternative Route
- Existing PA Bicycle Route A
- Proposed Road
- Tunnels or At Grade Crossings

Key Sites/Parcels

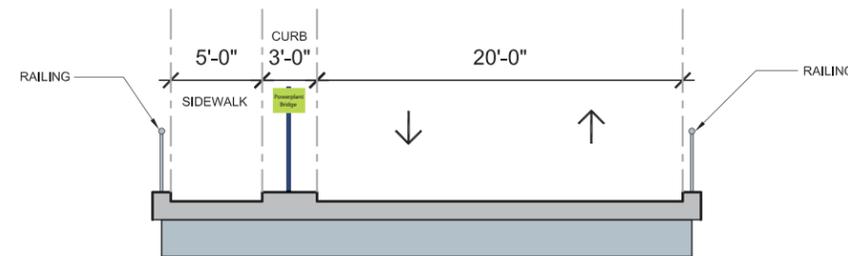
- A: CSX
- B: Crescent Fire Department
- C: South Heights Borough Park
- D: Reliant Energy
- E: Lex Camesi
- F: Lex Camesi/Iron City Steel
- G: South Heights Borough Hall
- H: West Penn Aggregates
- I: Riverview Park
- J: Glenwillard Boat Club
- K: Shouse Park



SCALE: Not to Scale NORTH



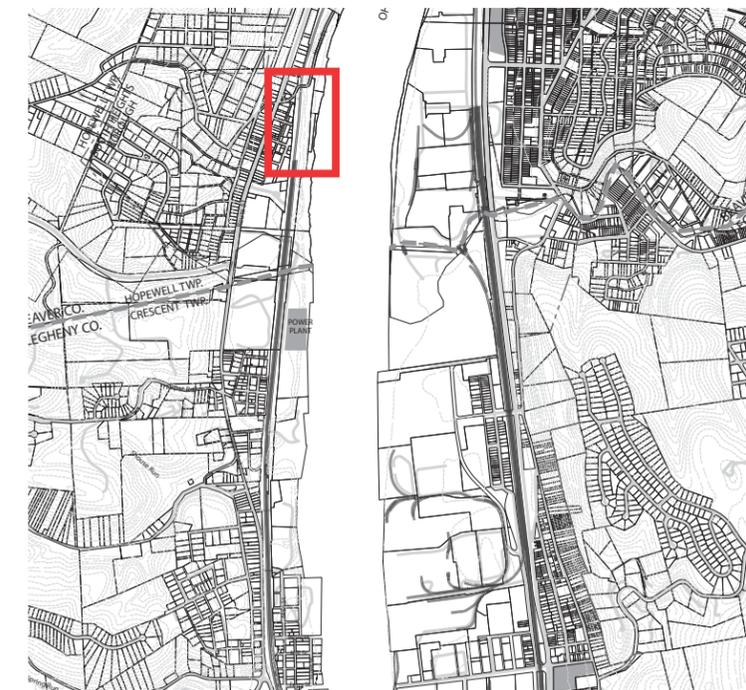
410 RT 51 AT SOUTH HEIGHTS BOROUGH HALL LOOKING EAST (EXISTING)
SCALE: 1"=10'



411 POWERPLANT BRIDGE OVER CSX RIGHT-OF-WAY LOOKING NORTH (EXISTING)
SCALE: 1"=10'

LEGEND

- Proposed 10' Wide Multi-Use Path Route
- - - Alternative On-Road Signed Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route

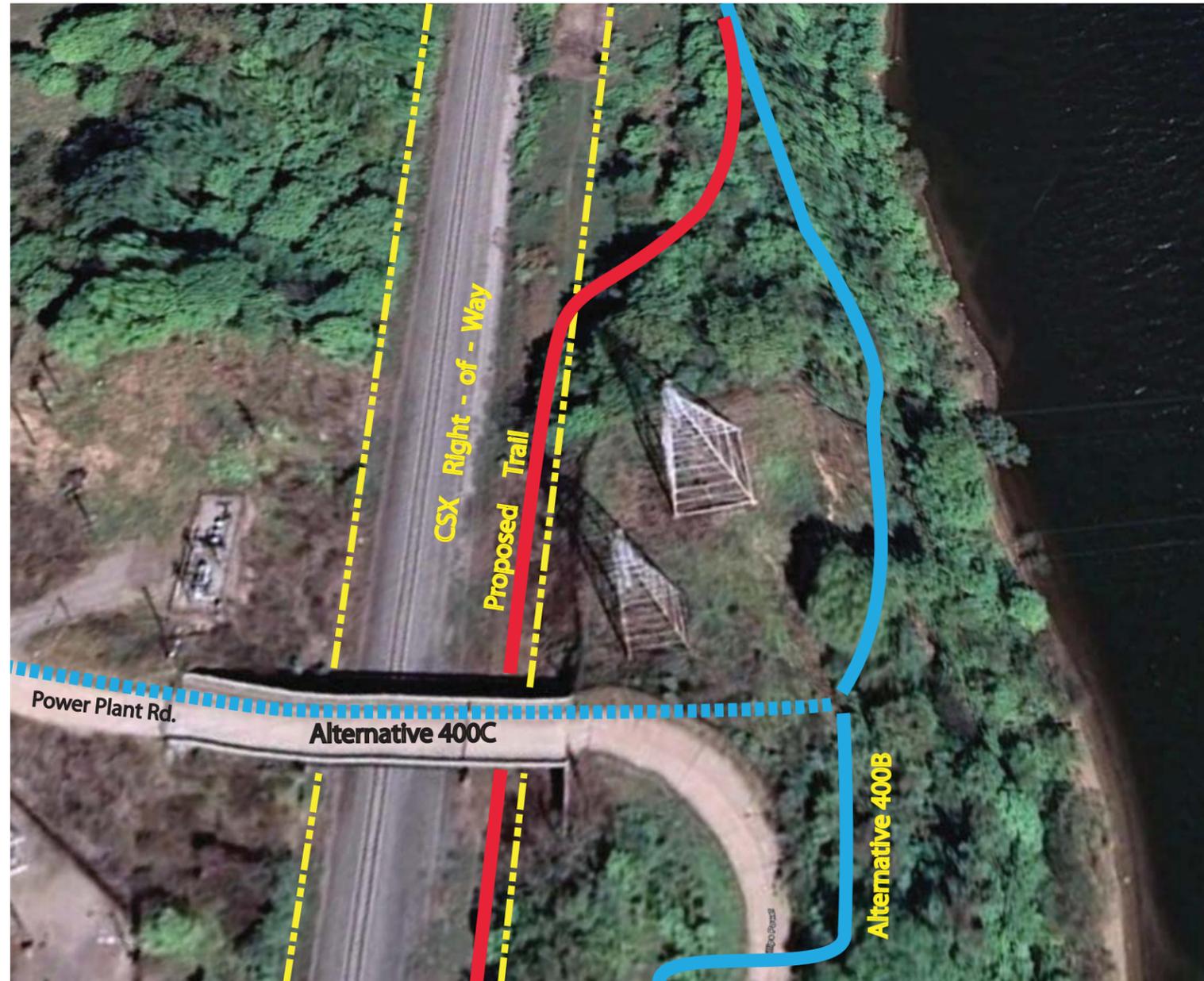


420 Proposed Trail Location
SCALE: Not to Scale

Site Photo Location

LEGEND

- Proposed 10' Wide Multi-Use Path Route
- - - - Alternative On-Road Signed Trail Route
- Alternative 10' Wide Multi-Use Path Route



421 Proposed Trail Location
SCALE: Not to Scale



Site Photo Location

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Moon Township has approximately 2.8 miles of Ohio River frontage, all within Section 500.

History and Cultural Resources

Moon Township has evolved significantly since its beginnings as a farm-based community. As the oldest township in Allegheny County, founded in 1788, Moon Township had a total area of 143 square miles. Moon Township is named from the crescent-like bend of the Ohio River on its northern boundary. Some reports indicate that it would take one man on horseback two days to travel from one end of the community to the other. This geographically large township eventually spawned into 55 smaller municipalities, including the current neighboring townships of Fayette, Findlay, Crescent and the Borough of Coraopolis.

In its early days, settlers in Moon Township depended heavily on the hunting and farming economy for survival. The excess of farm production at the end of the 18th century brought about a need for industries such as gristmills and sawmills. The Township continued to experience significant economic growth into the 20th century when roadways and railroads opened up the gates to Moon, making it an attractive place for people to settle and raise their families. Both the Sewickley Bridge, which was originally constructed in 1911, and the Pennsylvania & Lake Erie (P&LE) Railroad contributed significantly to Moon Township's tremendous population growth.

During World War II, the industrial plants located within Moon Township and the surrounding communities became major suppliers of armor plates and munitions. This boom in production created a great housing need for workers who were stationed at factories in Neville Island and along the Ohio River.

Moon Township's largest percentage of growth came in 1952, when the Greater Pittsburgh Airport was completed, dedicated and opened for business in Moon Township. One year later, construction on the Penn Lincoln Parkway was complete, making the commute to downtown Pittsburgh from Moon Township possible in about 20 minutes. These two large development projects not only contributed to a population increase of 24 percent between 1950 and 1957, but also led to a housing boom that created more than 1,250 homes in a decade-long time span.

The construction of the Greater Pittsburgh Airport, which was later named Pittsburgh International Airport, is perhaps the most significant contributing factor to the economic growth Moon Township experienced. The growth was challenged in the early 1990s, however, when the airport relocated to Findlay Township. At that time, the Moon Township Board of Supervisors developed a forward-thinking plan that would help sustain growth in the Township. Although Moon lost a great source for business development, the Township has continued to experience growth and today is home to a number of high-profile national corporations, such as FedEx Ground and GlaxoSmithKline. In addition, Moon Township also serves as the home of Robert Morris University, which has a very strong business curriculum and educates nearly 5,100 students annually.

Within the portions of Moon Township located in the ORSST study area there are no sites on the National Register of Historic Places or locally designated sites.

Land Use, Parks and Recreation Resources and River Access

The land use within the Township's portion of the ORSST study area is mostly industrial or major roadway infrastructure. The stretch of riverfront in this area is predominately oil tank farms used for the storage and distribution of various commercial and residential petroleum products.

The Township has more than a dozen dedicated parks and recreation sites and facilities ranging in size from tot lots to the 236 acre Moon Park. None of the Township's park and recreation facilities are located within the ORSST study area. The Township has, however, acquired the former RB&W Bolt Plant; a brownfields site located along the Ohio Riverfront. The Township is intending on creating a new waterfront park on this and adjacent parcels. The Township is in the process of remediating the environmental issues on the site in compliance with the Pennsylvania Department of Environmental Protection's Voluntary Cleanup Program. The Township has applied for grant funding from DCNR to support a master planning effort for this park. This proposed park and recreation facility along with the proposed Ohio River Trail, will create a new 2.5 mile public stretch of Ohio River frontage, where none exists today.

Moon Township is fortunate to contain a major portion of the Montour Trail. This 47 mile long trail connects 14 municipalities through southwestern Pennsylvania. Future trail plans anticipate that the Montour Trail will connect directly to downtown Pittsburgh and to Washington, D.C. via the Great Allegheny Passage.

The Township adopted a Sidewalks and Trails Master Plan in 2006. This plan, along with the Township's 2000 Comprehensive Plan and the 2005 Comprehensive Parks, Recreation and Open Space Plan, provides a comprehensive analysis of the existing sidewalk and trails network. It also identifies areas where existing infrastructure needs to be upgraded and where new infrastructure is needed. The plan makes the following specific recommendations:

- Complete missing gaps in the existing sidewalk network to greatly enhance interconnectivity;
- Connect new trails and sidewalks to the Montour Trail;
- Integrate the riverfront area into the community-wide trail system and the Montour Trail; and
- Develop new transportation, urban design and infrastructure strategies into improvement plans for the University Boulevard Corridor.

Section 500 - Moon Township

Community Character and Demographic Overview

Moon Township is a large suburban township located 20 Miles west of downtown Pittsburgh and is bordered by the Ohio River, Coraopolis Borough and Crescent Township on the North and Robinson Township on the east. Today, Moon Township is approximately 23 square miles following the creation of seventeen boroughs and townships from the original 143 square miles size of the original Moon Township.

Moon Township's population has been steadily growing since 1960. This growth can be attributed in large part to the construction of the Pittsburgh International Airport in 1952. The last four decades have brought a lot of change to Moon Township. It was once a rural farming community and it is now a thriving suburban township with a large population. Moon Township has developed into a diverse community that offers many different types of housing and the Township has extensive commercial areas along with green spaces and is in close proximity to major regional transportation infrastructure.

Moon Township consists of approximately 22,290 people and 8,445 households. The racial makeup of the area is 93.2 percent White, 3.6 percent African American, 0.99 percent Hispanic, 0.06 percent Native American, and 1.9 percent Asian. The per capita income of the township is \$26,457 and 2.2 percent of the population live below the poverty line, significantly lower than Pennsylvania's rate of 12.1 percent.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

The community survey results taken during the preparation of the 2005 Comprehensive Recreation, Parks and Open Space Plan indicated that 66.7 percent of the respondents felt that developed trail are very important or important. A follow up survey performed for the preparation of the 2006 Sidewalks and Trails Master Plan supported this previous result with 79 percent of the respondents reporting that a connected system of sidewalks and trails is either very important or important.

Environmental Context and Infrastructure

River's Edge and Habitat: The Ohio River's edge in Moon Township has some unique qualities when compared to other stretches within the ORSST study area. The area of the proposed waterfront park and the Moon Township Authority's supply wells consists of a relatively gradual slope from the Ohio River's mean water elevation to the CSX Railroad right-of-way. Some of these areas exhibit characteristics of wooded wetlands, with larger canopy trees and signs of periodic inundation. This is a valuable habitat that could be enhanced as part of a new park landscape.

The Ohio River's edge between the Sewickley Bridge and the U.S. Army Corps of Engineers Dashiels Lock Complex exhibits steep topography and the area of the former P&LE Stoops Ferry train station exhibit very steep slopes. There is rich and dense vegetative cover in this area, most likely since it has experienced minimal disturbance beyond the impacts of major flood events, since the construction of the railroad in the 1870s.

Streams and Stormwater:

Narrows Run is a major day-lighted stream which travels down a steep valley, parallel to University Boulevard. The stream passes underneath University Boulevard/PA Route 51 and the CSX Railroad right-of-way via a long culvert. This culvert outfall is located near the former Stoops Ferry train station area of the Ohio River further complicating the ability to locate a trail in this area.

Thorn Run is a stream course that travels down a valley located along the perimeter of Coraopolis Borough. It travels underneath PA Route 51 near its intersection with Thorn Run Road. The stream passes through several box culverts to get to the north side of PA Route 51 near American Bridge Way. At this point the stream appears to pass underneath an old warehouse building and a parking lot. It then travels through a newer box culvert underneath the CSX Railroad right-of-way. Next it travels through the Petroleum Products tank farm site in a culvert or rip-rap channel until it discharges into the Ohio River.

Transportation Infrastructure

PA Route 51 in Section 500 is a very wide roadway with a median. It is a higher speed roadway with a limit-access design condition between the intersection of University Boulevard/Stoops Ferry Road and Thorn Run Road. PA Route 51 in Section 500 from Stoops Ferry Road to Thorn Run

has an average daily traffic volume of approximately 22,000. This high volume is partly a function of the convergence of several major arterial roadways, as well as traffic generated by the access to the Sewickley Bridge. The roadway has shoulders along most of this segment.



High Speed Environment along PA Route 51 in Moon Township

Economic Development

Since its inception in 1954, the Pittsburgh International Airport has played an important role in the economic growth of Moon Township. One area of Moon Township that is seeing a great deal of renewed commercial development is the University Boulevard Corridor, which was previously known as Beers School Road and Narrows Run Road. With the opening of numerous restaurants, hotels and other airport-related businesses, University Boulevard began to see a significant increase in traffic. This growth continued until 1992 when the Pittsburgh International Airport terminal relocated to the adjacent township of Findlay, taking with it a great deal of airport-related traffic and thus altering the boulevard's identity as an airport service corridor. Today, those businesses have developed to reflect the needs of Moon Township's corporate businesses, office parks and Robert Morris University's student body.

In order to be proactive and abate the consequences of Pittsburgh International Airport's relocation, township officials developed a forward-thinking plan that would maintain the corridor's commercial success. The first step in ensuring stability was to develop a strategic plan that would guide the future growth and sustainability of development in this thoroughfare. The key action identifying this strategic plan was the renaming of Beers School Road/Narrows Run Road to University Boulevard, a name that reflect the road's main anchor, Robert Morris University. This plan also included a conceptual design for improvements to University Boulevard to improve traffic flow, enhance pedestrian access and mobility and develop streetscape improvements. In addition, the plan recommended how to implement urban design changes to the corridor such as landscaping, sidewalks, building facades, public amenities and a gateway. The plan was presented and approved by the Moon Township Board of Supervisors in 2003.

Since that time, the plan has been further enhanced with the approval of an overlay district, designed as a tool to implement the recommendations included in the strategic plan. Over the past five years, vast improvements have been made to University Boulevard. Nearly \$25 million in developments have been added, including a Double Tree Hotel, Sheetz convenience store and a Primanti Brothers Restaurant, one of Pittsburgh's cultural icons. Robert Morris University has also enhanced the beauty and appearance of their campus with the addition of an iron archway entrance and a multi-million dollar football stadium, which sits above University Boulevard. Moon Township is now also home to a 14,000 square-foot Walgreens pharmacy/drug store. Additionally, Wal-Mart Corporation has also submitted plans to build a 150,000 square-foot supercenter where the West Hills Shopping Plaza currently exists. Those plans are currently being reviewed by the Moon Township Board of Supervisors.

The redevelopment along University Boulevard and the continual addition of new businesses allows Moon Township officials to continue to pursue funding for the improvements that are outlined in the plan.

Proposed ORSST Route and Alternatives

Proposed ORSST Route Description through Section 500

The proposed route through Section 500 would travel from Shouse Park in Crescent Township to Thorn Run Road in Moon Township via a 10' wide path through the U.S. Army Corps of Engineers (ACOE) Dashiels Lock Complex, CSX and Moon Township properties and then via a Duquesne Light utility corridor to Moon Township/Coraopolis Borough Municipal Line near Thorn Run.

Route Characteristics and Issues

U.S. Army Corps of Engineers Dashiels Lock Area: The ORSST route through Section 500 would consist of a continuous 10' wide side path along the CSX Railroad side of the ACOE Dashiels Lock access roadway and a 10' wide multi-use trail (including a boardwalk portion) along the river side of ACOE and CSX Railroad right-of-way to the Moon Township Authority's riverfront parcels.

Several conversations were held with representatives of the ACOE as part of the ORSST study effort, including with the Project Manager of the Upper Ohio River Navigation Study. The ACOE is currently studying improvement alternatives to the Dashiels Lock and environs as part of the larger Navigation Study. Discussions were also held with the ACOE Reality Specialist involved with determining ACOE property ownership and related land matters. Based on feedback provided by the ACOE, the possibility of extending the trail along the Dashiels Lock property exists, but will require a formal request to the ACOE along with ongoing coordination.

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment



Army Corps of Engineers Dashields Lock Area adjacent to the CSX Railroad

Stoops Ferry Area: The existing topography along the river in the Stoops Ferry area consists of a narrow shelf wide enough to accommodate the railroad right-of-way; there is limited space for additional facilities. A boardwalk will be required in the area of Stoops Ferry to provide for the width of the trail and to achieve the required setback from the railroad. It is anticipated that the boardwalk will need to be approximately 2,270 feet (.4 of mile) in length in this area. CSX Railroad right-of-way will need to be acquired in the area of Stoops Ferry where CSX's right-of-way extends beyond its typical width to the Ohio River's edge. The construction of the boardwalk will likely be handled via barge from the river in order to eliminate or minimize any operational impact to railroad operations.



CSX Railroad with Former Stoops Ferry Station Platforms Visible

Moon Township Riverfront Area to Thorn Run: The Moon Township Authority's property includes land utilized by the Authority for water supply wells and a former brownfields parcel targeted for a new waterfront park by the Moon Township Department of Parks and Recreation. The Authority also owns, or is in the process of acquiring, several other parcels to the west of the proposed park parcel. From this area the proposed trail would extend from the western parcel boundary, parallel to the river and the CSX Railroad right-of-way to the proposed park parcel. The trail is proposed to be a 10' wide gravel path in this segment. A portion of the trail through the proposed park property would be located on a concrete building slab from the former industrial building where a railroad siding once entered the industrial facility. The trail is proposed to be asphalt in the location of the concrete slab to the at-grade railroad crossing at Valley Ambulance Drive.

The trail will cross the existing at-grade railroad crossing and then travel parallel to the CSX Railroad on a 30' wide utility corridor right-of-way from Valley Ambulance Drive to 4th Avenue, just west of Thorn Run. A bridge span or culvert will be required to cross Thorn Run, behind the PennDOT guiderail, in this location.

In the area between Valley Ambulance Drive and Thorn Run, the ability to acquire an easement on the 30' wide Duquesne Light utility corridor will need to be determined including addressing existing landscape/nursery operation located across the utility right-of-way in the area of Thorn Run Road. It is not know whether this operation has an agreement with Duquesne Light or if it is an encroachment.

There will need to be utility relocation coordination near the intersection of 4th Avenue and American Bridge Way/Tri State Hose & Supply as well as the creation of a structure to cross Thorn Run.

All of the trail segments in Section 500 that are located immediately adjacent to the CSX Railroad right-of-way are proposed to be fenced.



Sewickley Bridge with Future Moon Township Parkland Parcel in Foreground

Proposed Route Lengths

Total Length of On-Road Route through Crescent Township (Section 500) = .2 miles

Moon Township 10' Wide Multi Use Path = 2.1 miles

Moon Township 10' Wide Multi Use Path on Boardwalk = .4 miles

Total Length of Route through Moon Township (all of section 500)= 2.5 miles

Identified ORSST Routing Alternatives in Section 500

Alternative 500A

Description: This alternative is linked to Alternative 400E and consists of the current Pennsylvania Bicycle Route A, which travels on PA Route 51/ Stoops Ferry Road/University Boulevard from the Section 400 section line to Valley Ambulance Drive.

Issues and Opportunities: This segment of PA Route 51 has the highest traffic volumes within ORSST study area. Stoops Ferry Road has an average daily traffic volume of approximately 14,000 and University Boulevard has an average daily traffic volume of approximately 22,000. Stoops Ferry Road also has a significant topographic change that would create a major barrier for recreational bicyclists to climb. Stoops Ferry Road does have 10' wide (average) shoulders on each side. University Boulevard is a very wide, four-lane highway designed with a limited access character and is not a pedestrian or bicycle friendly setting.

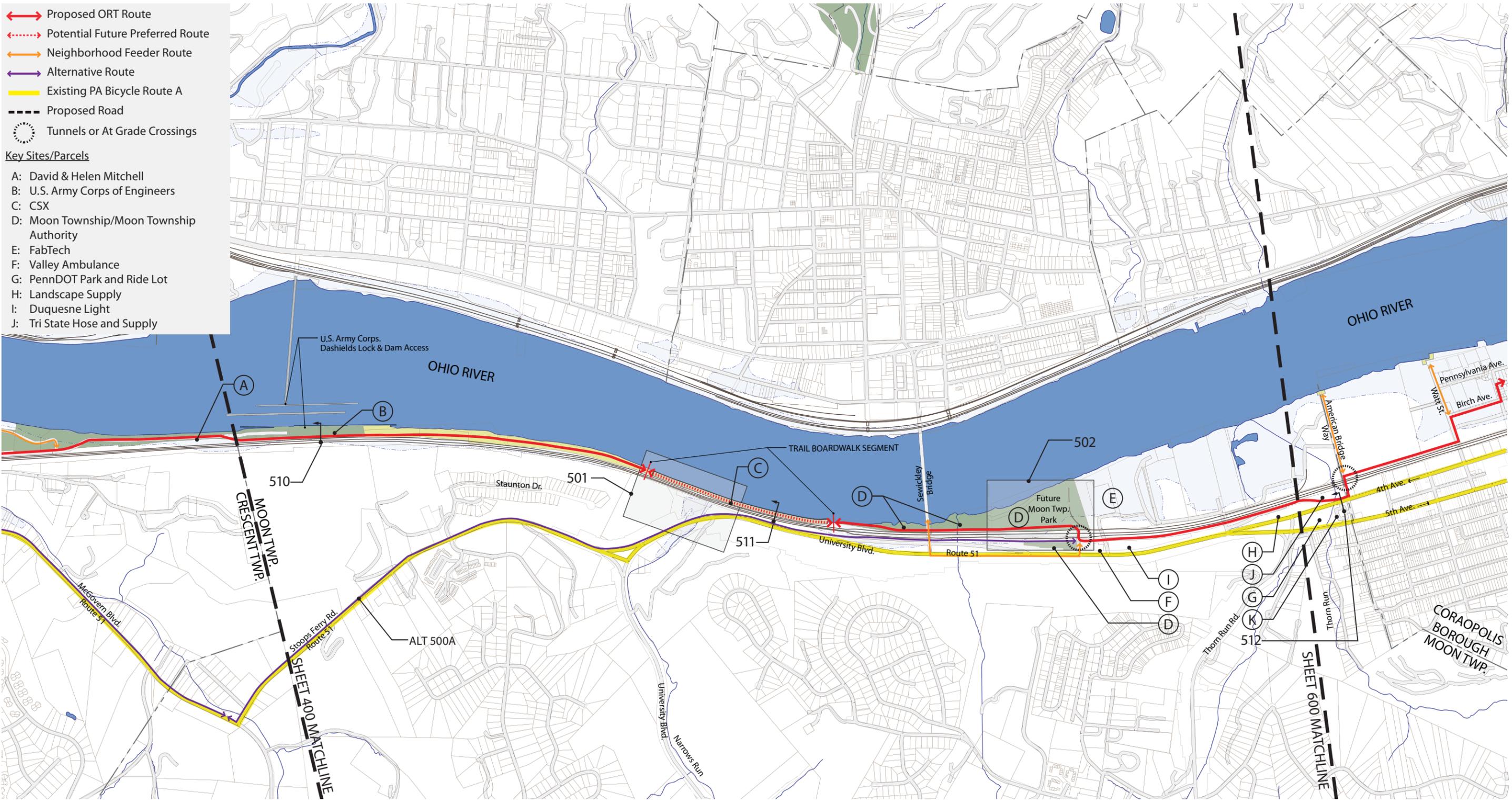
Crescent Township - Moon Township - Coraopolis Borough - 500

LEGEND

- Proposed ORT Route
- Potential Future Preferred Route
- Neighborhood Feeder Route
- Alternative Route
- Existing PA Bicycle Route A
- Proposed Road
- Tunnels or At Grade Crossings

Key Sites/Parcels

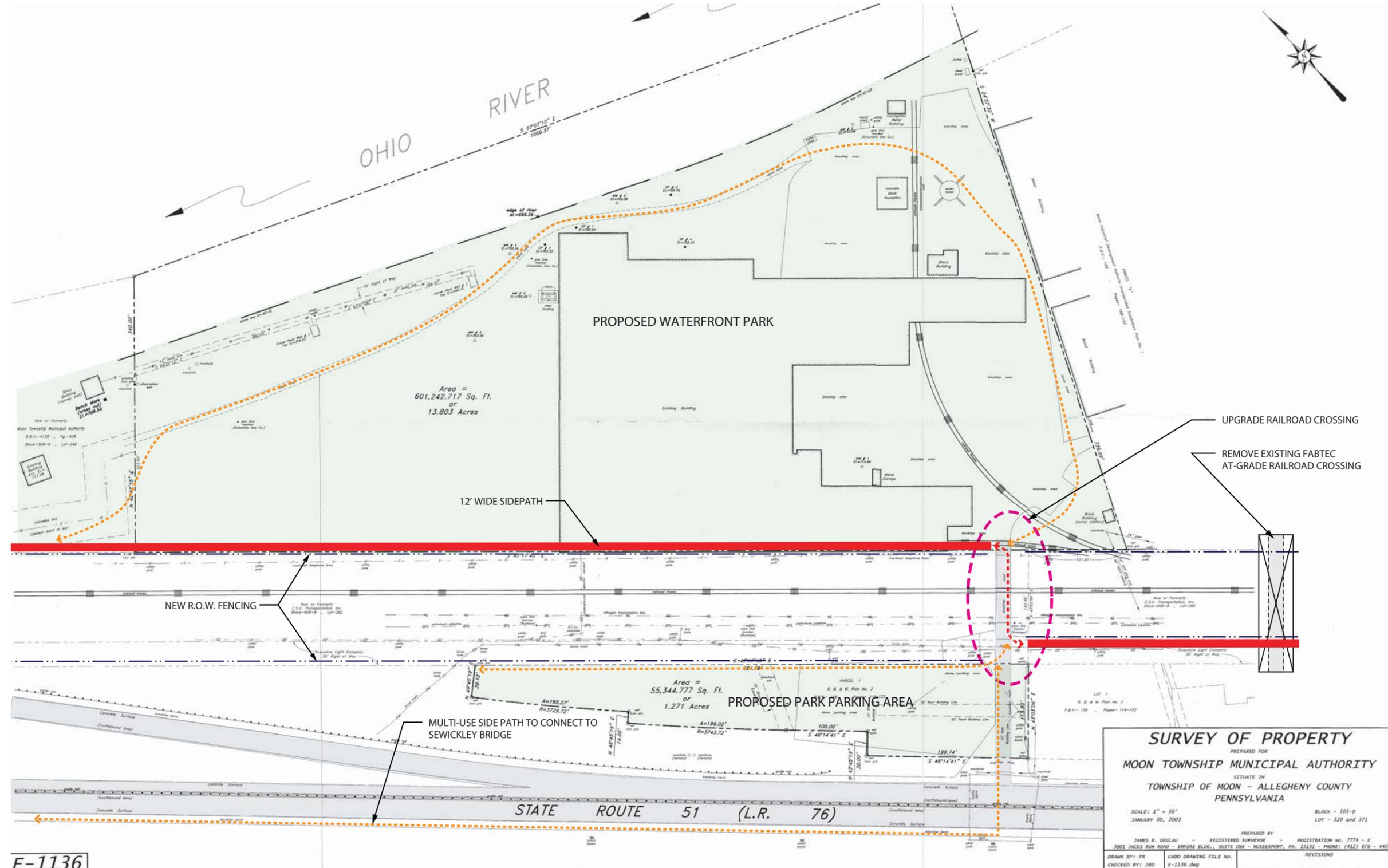
- A: David & Helen Mitchell
- B: U.S. Army Corps of Engineers
- C: CSX
- D: Moon Township/Moon Township Authority
- E: FabTech
- F: Valley Ambulance
- G: PennDOT Park and Ride Lot
- H: Landscape Supply
- I: Duquesne Light
- J: Tri State Hose and Supply



SCALE: Not to Scale NORTH

LEGEND

- Signed On-Road Route
- Neighborhood Feeder Route
- Off-Road Route
- Trail Blazer Sign



E-1136

502 SCALE: Not to Scale

SURVEY OF PROPERTY
 PREPARED FOR
MOON TOWNSHIP MUNICIPAL AUTHORITY
 SITUATE IN
 TOWNSHIP OF MOON - ALLEGHENY COUNTY
 PENNSYLVANIA

SCALE: 1" = 50'
 JANUARY 30, 2003

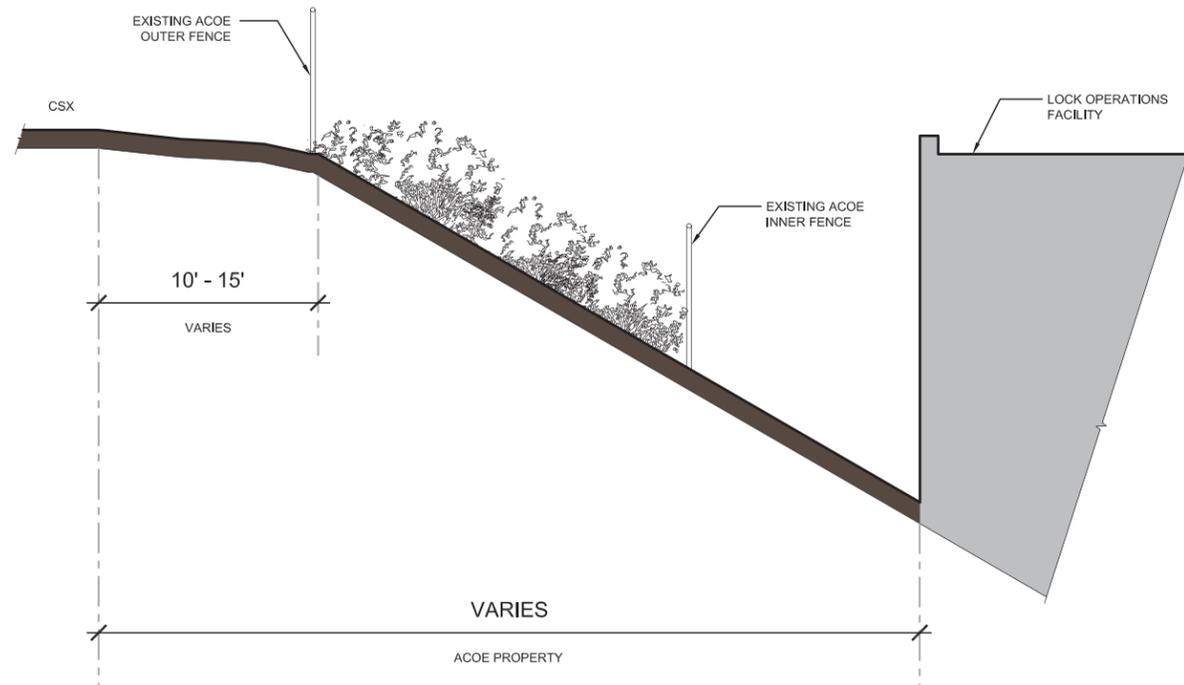
PREPARED BY
 JAMES R. DEGLAU - REGISTERED SURVEYOR - REGISTRATION NO. 7774 - E
 3003 JACKS RUN ROAD - EMPIRE BLDG., SUITE ONE - MCKEESPORT, PA. 15131 - PHONE: (412) 678 - 8403

BLOCK - 505-D
 LOT - 320 and 371

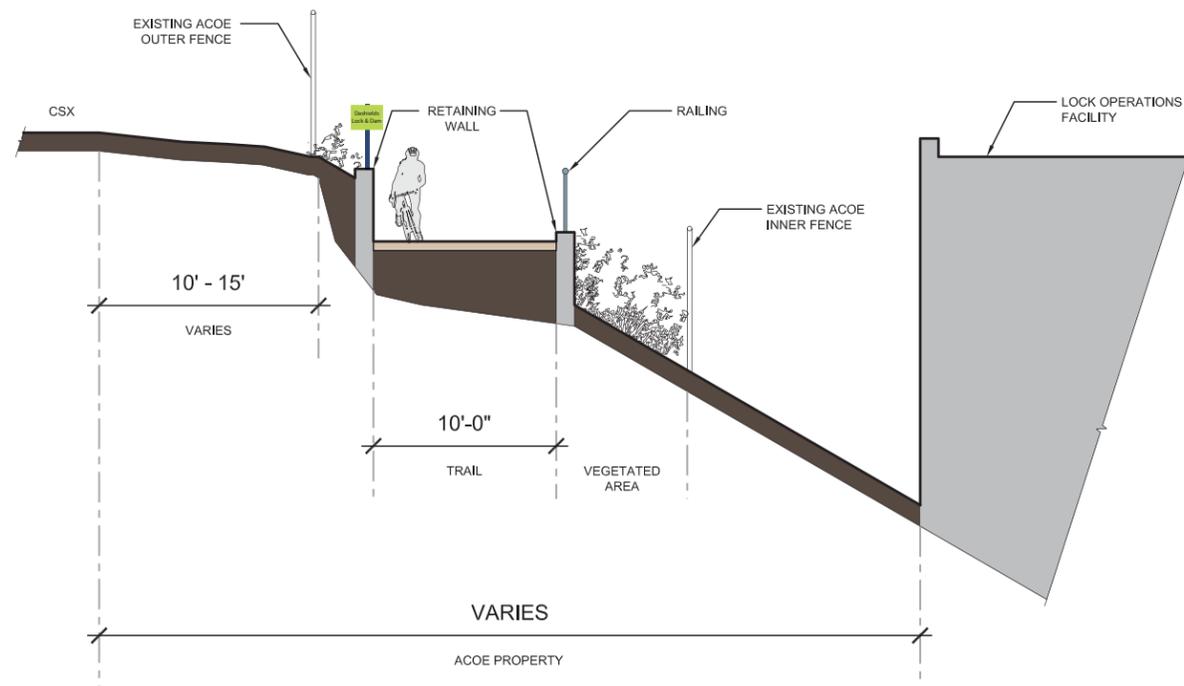
DRAWN BY: FR
 CHECKED BY: JRD

CADD DRAWING FILE NO.
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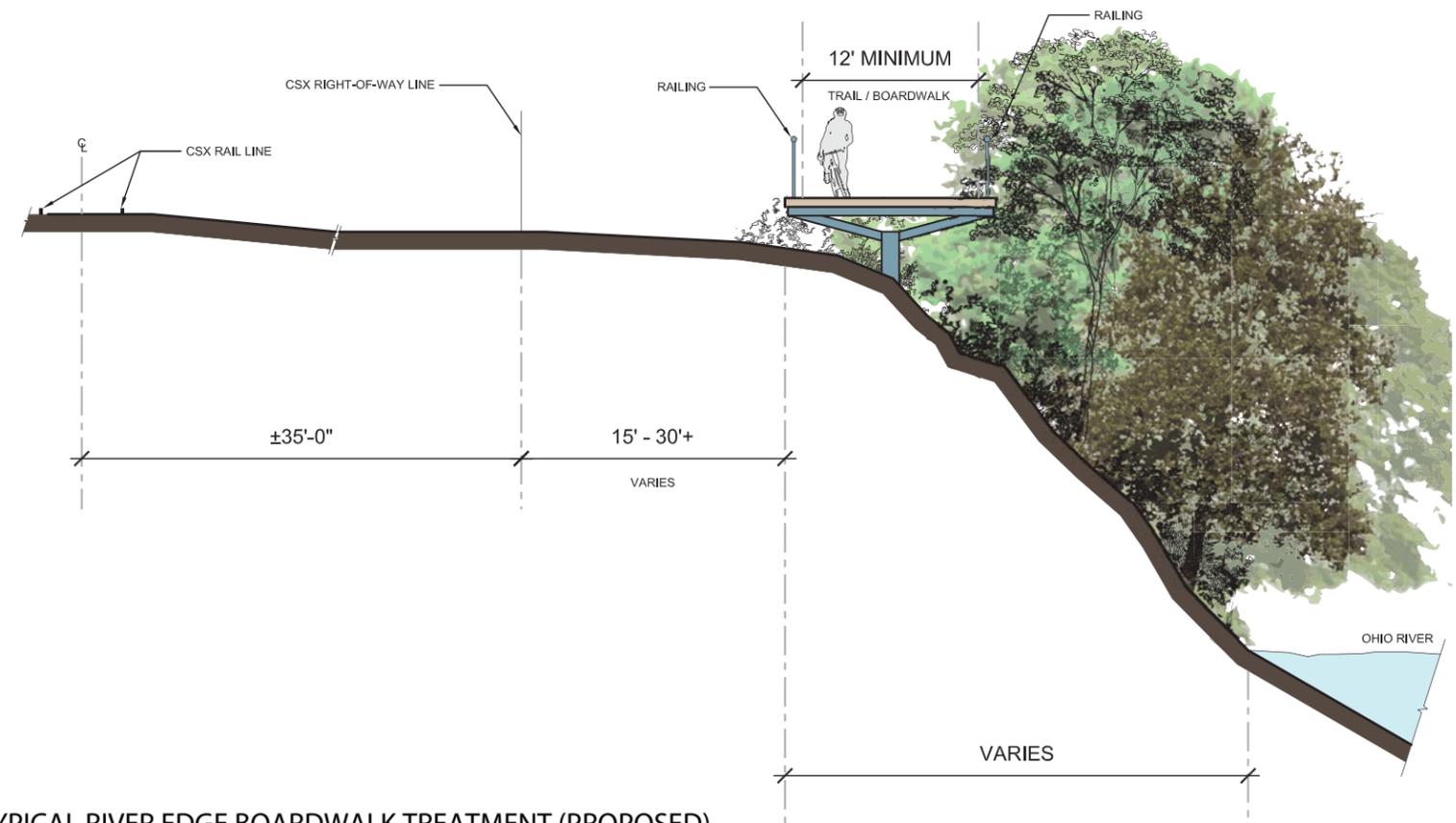
REVISIONS



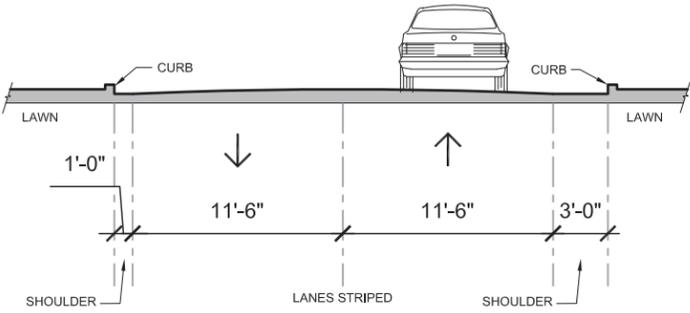
510 ACOE DASHIELDS LOCK AREA (EXISTING)
SCALE: 1"=10'



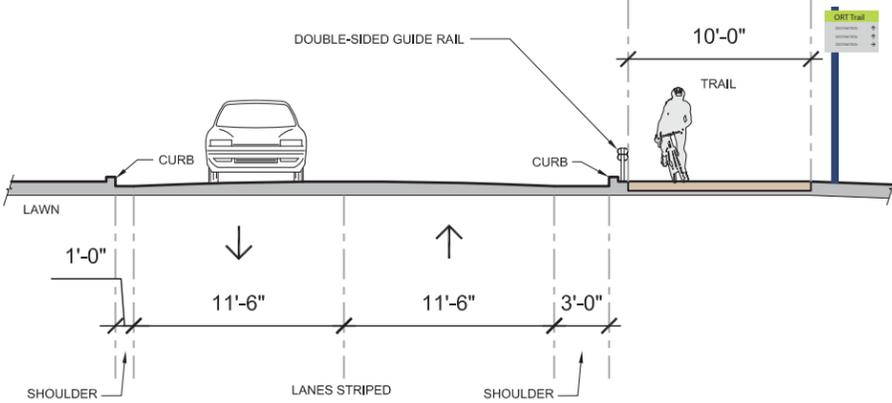
510 ACOE DASHIELDS LOCK AREA (PROPOSED)
SCALE: 1"=10'



511 TYPICAL RIVER EDGE BOARDWALK TREATMENT (PROPOSED)
SCALE: 1"=10'



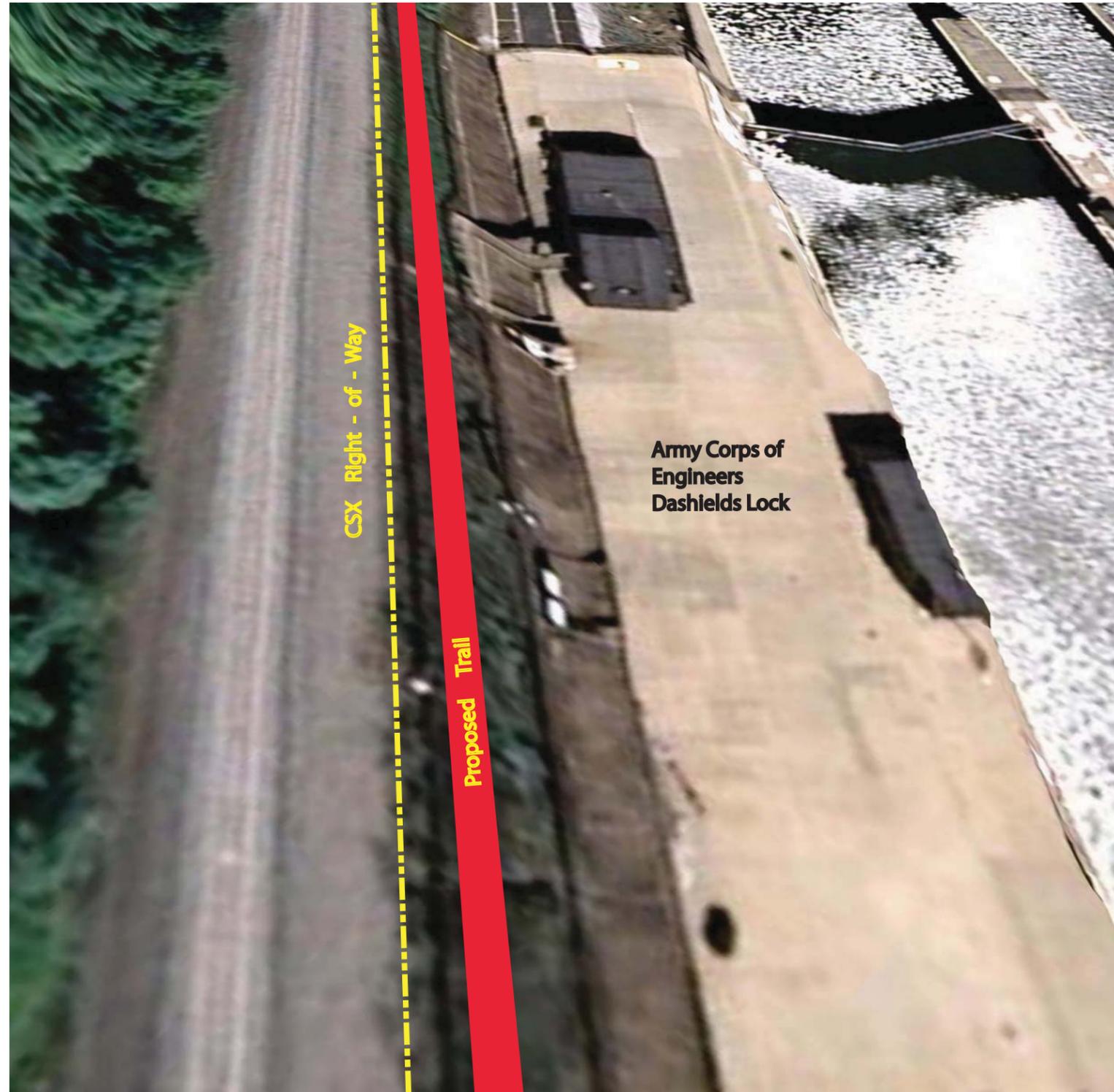
512 MOON TWP. 4TH AVENUE IN THE VICINITY OF THORN RUN LOOKING WEST (EXISTING)
SCALE: 1"=10'



512 MOON TWP. 4TH AVENUE IN THE VICINITY OF THORN RUN LOOKING WEST (PROPOSED)
SCALE: 1"=10'

LEGEND

Proposed 10' Wide Multi-Use Path Trail Route



CSX Right-of-Way in the Vicinity of Dashields Lock



Site Photo Location

520 Proposed Trail Location
SCALE: Not to Scale

LEGEND

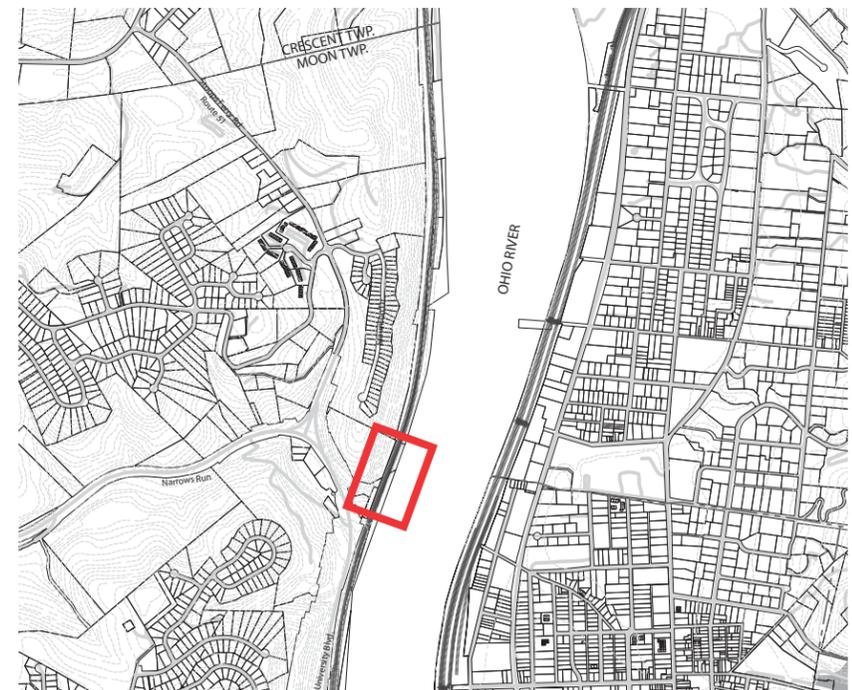
Proposed 10' Wide Multi-Use Path Trail Route



521 Proposed Trail Location
SCALE: Not to Scale



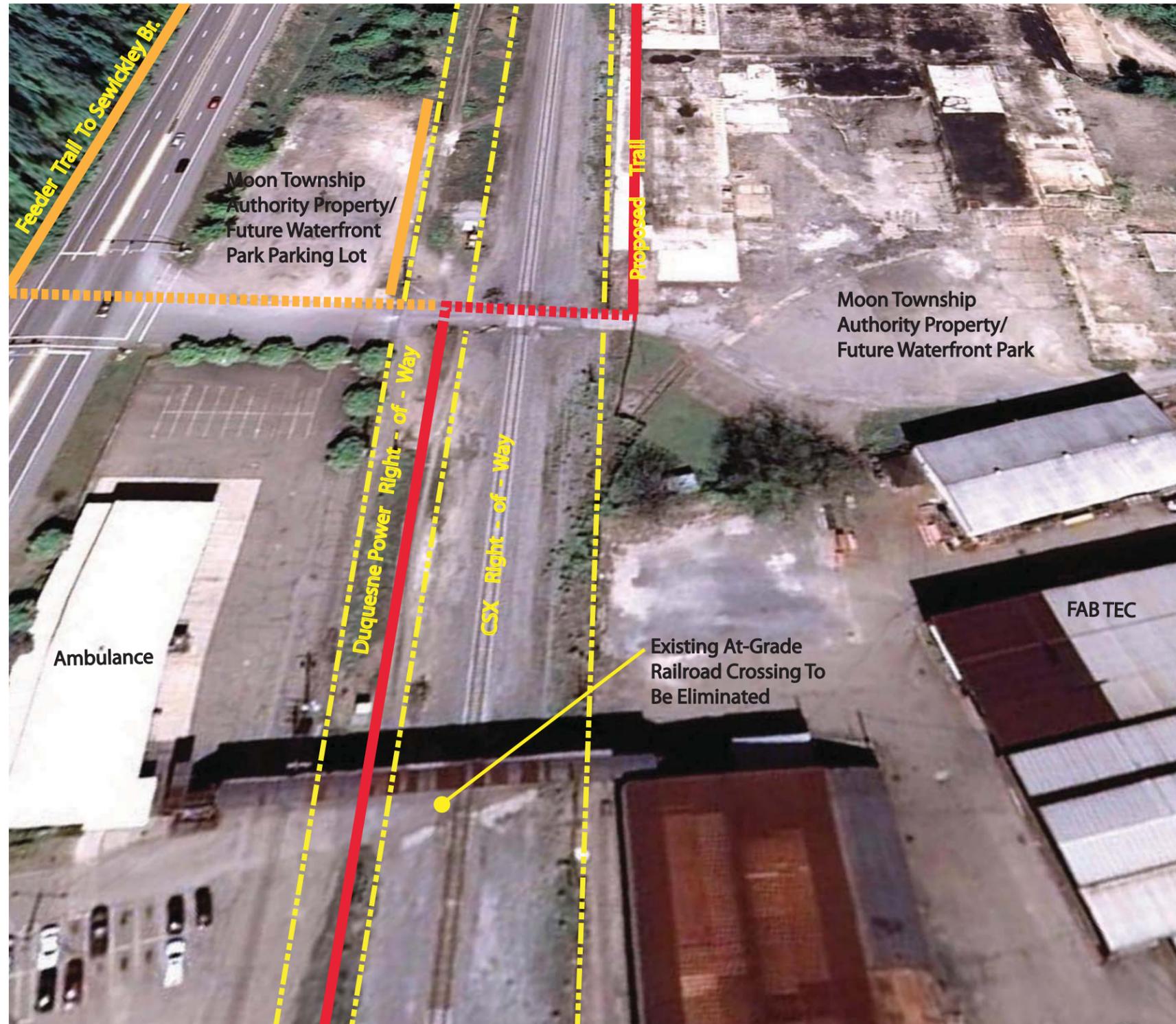
CSX Right-of-Way in the Vicinity of Former P&LE Stoops Ferry Station



Site Photo Location

LEGEND

- Proposed 10' Wide Multi-Use Path Trail Route
- - - Proposed On-Road Signed Trail Route
- Neighborhood Feeder 10' Wide Side Path Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route



521 Proposed Trail Location
SCALE: Not to Scale



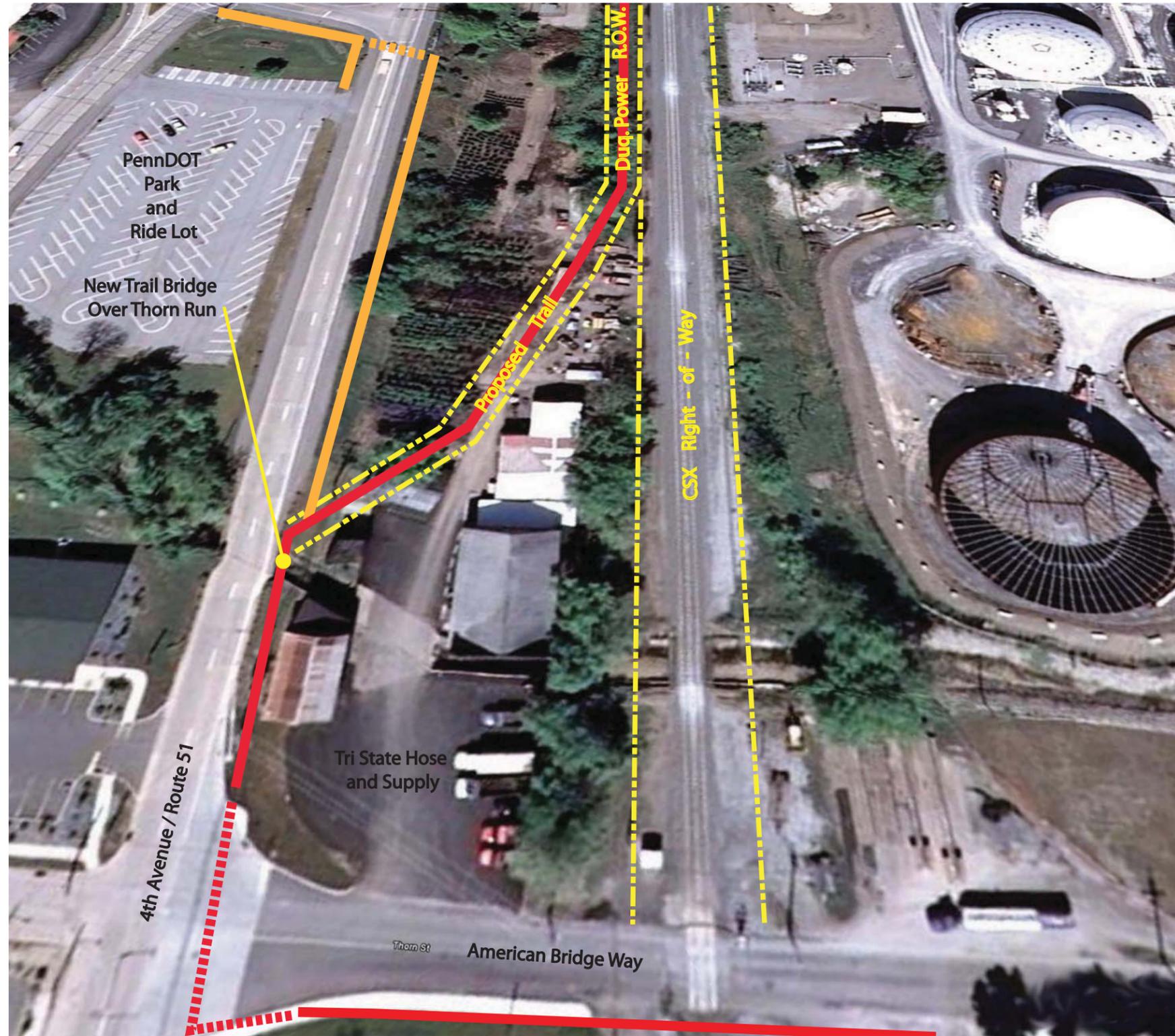
Existing At-Grade Crossing at Valley Ambulance Drive



Site Photo Location

LEGEND

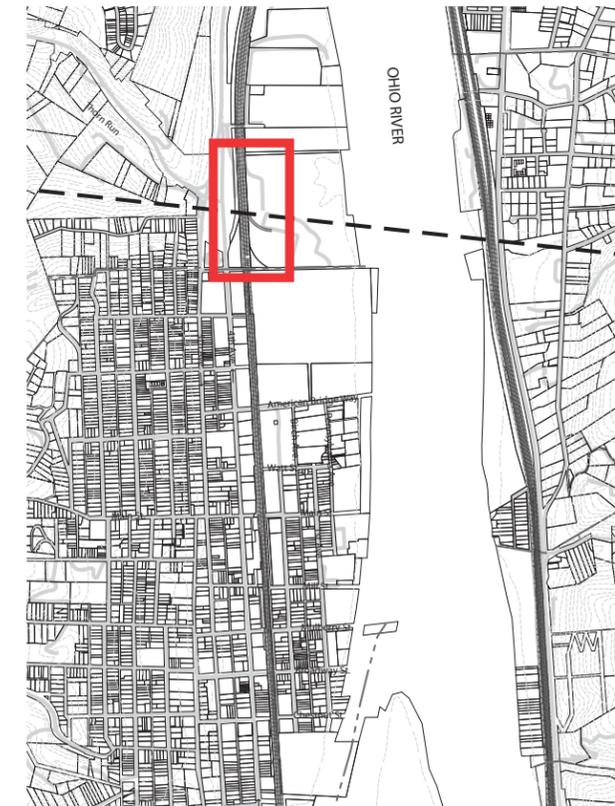
- Proposed 10' Wide Multi-Use Path Trail Route
- - - Proposed On-Road Signed Trail Route
- Neighborhood Feeder 10' Wide Side Path Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route



523 Proposed Trail Location
SCALE: Not to Scale



PennDOT Right-of-Way at Thorn Run



Site Photo Location

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

situated midway between Pittsburgh and Beaver) and Fort Vance. Robert Vance, a Virginian, had been a member of the regiment commanded by George Washington at the Braddock expedition during the French and Indian War. For the protection of himself and his neighbors, of whom several arrived within a few years, Vance had a log stockade built with a stone blockhouse to protect the area against Indian raids. Vance's Fort was located in the area of Broadway and Chestnut Street near Second Avenue. As the Borough grew and flourished the Reverend Josiah Dillon, a pioneer clergyman, suggested the name to be changed to Coraopolis. Dillon knew Greek and was also the first burgess (mayor) at the time. It is believed that he suggested combining *Kore* meaning 'maiden' and *opolis* meaning 'city' ('maiden city') to achieve *Koreopolis*. When the Greek letters and pronunciation were turned to English, however, it is said that the spelling accidentally got changed to its adopted form.

Community development in Coraopolis moved along gradually with the building of the Pittsburgh and Lake Erie Railroad in 1877. Several Coraopolis residents were stockholders in this enterprise. In 1890, oil was discovered at both ends of the borough, which briefly stimulated a population boom. The effects did not last long, however, as the oil supplies were found to be rather modest.

In 1892 Pittsburgh, Neville Island and Coraopolis Railway Company was established in Coraopolis for electric street railways. Coraopolis continued to grow and many industries were constructed in the town. Along with the railway came the Consolidated Lamp and Glass Company. Consolidated Glass employed up to 350 people. Other Coraopolis residents worked for the new industries established on Neville Island. Like other heavy industrial towns, Coraopolis ultimately felt the impacts of the decline of the steel industry and many businesses closed or moved.

The portion of Coraopolis Borough that is located within the ORSST study has two sites listed on the National Register of Historic Places. Most of the ORSST Study Area consists of a very urban context in and around the central business district. Identified historic resources within the study area include:

- *Coraopolis Armory; and*
- *Coraopolis Bridge at Ferree Street and Grand Avenue (replaced in 1994 with the existing Neville Island Bridge)*

Land Use, Parks and Recreation Resources and River Access

Coraopolis Borough is a dense urban community with a traditional street grid that extends from the Ohio River's edge, south, up to slope to the higher elevations of Moon Township. There is a mixed use area located between the CSX Railroad right-of-way which includes residential, commercial and industrial uses. The riverfront area from American Bridge Way to approximately Main Street consists of heavy industrial activities, such as petroleum tank farms and pre cast concrete component manufacturing. The area from Main Street to Chestnut Street is mostly residential, including senior, multi-family and single housing. The Borough also has its public

works facility is this area, between Bliwas Field and the Ohio River. The area east of Chestnut Street to the Neville Island Bridge consists of small scale industrial or vacant land.

Coraopolis Borough has several small parks and playgrounds facilities. The three park sites exist within this segment of the ORRST study area are all located along the Ohio River's edge. Existing facilities located within or close to the proposed trail route include:

- *Ronald L. Bliwas Field;*
- *Riverfront Park; and*
- *Litteria Park.*

A joint effort between The Friends of the Riverfront, the Pennsylvania Environmental Council and The 3 Rivers 2nd Nature Project studied the potential of creating a network of water trails along the rivers of the Pittsburgh Region. The study recommends that at least one new public river access point for boating be created in the vicinity of the Neville Island Bridge. The proposed water trail would extend downriver to the boat launches in Sewickley and other access points along the Ohio River up river from Coraopolis.

There are several small blighted residential properties located between Riverfront Park and Litteria Park along 1st Avenue. Allegheny County owns or is in the process of acquiring these parcels. The structures on these properties should be removed and the two parks linked together, along with Bliwas Field located west of Riverfront Park, to create a continuous two-and-a-half block-long riverfront park area.

Most of the north-south streets in the Borough terminate at the Ohio River's edge, creating potential small public riverfront access points along the Ohio River. These areas could be designed to create small riverfront overlooks or mini-parks as well as visual focal points for each of the streets.

There is a vacant former industrial parcel located along the Ohio River's edge, near the terminus of Montour Street. It is rumored that the current owners of this parcel would like to develop a marina on the site. The site has access issues; it was once accessed via an at-grade railroad crossing along Montour Street which was removed by the CSX Railroad. The Borough could partner with the owners of this property and the owners of the adjacent Montour Industrial Supply to create a new public access road which extends 3rd Avenue into in the proposed marina site. As part of this project, trail access through this parcel to several undevelopable riverfront parcels east of the Neville Island Bridge could be acquired as well as having a piece of the marina site dedicated for river access. A future trail connection could extend east to Royal Avenue, adjacent to the CSX Railroad right-of-way, creating a long linear riverfront public park. This is described in more detail under Alternative 600B.

Coraopolis Borough – Moon Township (Existing Montour Trail Milepost "0")

Community Character and Demographic Overview

Coraopolis Borough comprises an area of 1.36 sq. miles and lies along the Ohio River, about 15 miles Northwest of Pittsburgh. The Borough has approximately 1 mile of Ohio River frontage, all within Section 600.

Coraopolis Borough consists of approximately 6,131 people and 2,880 households. The racial makeup of the area is 84.9 percent White, 12.4 percent African American, 0.98 percent Hispanic, 0.08 percent Native American, and 0.02 percent Asian. The per capita income of the town is \$17,595 and 9.7 percent of the population lives below the poverty line, slightly lower than Pennsylvania's rate of 12.1 percent.

History and Cultural Resources

On April 3, 1769, Andrew Montour, an Indian interpreter who had provided service to English settlers during the French and Indian War, was granted a land patent for approximately 350 acres of what would later become the Borough of Coraopolis and Neville Island. Andrew Montour is the namesake of Montour Run which runs along the eastern boundary of the Borough.

At one time Coraopolis had two other names, Middletown (because it was

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment

Environmental Context and Infrastructure

River's Edge and Habitat: As is the case with many of the older urbanized areas along the Ohio River, most of the river's edge has been developed either for major industrial or pockets of residential development. In the case of Coraopolis Borough, the Ohio River's edge is fairly well vegetated. This is partly a result of major portions either being residential or publicly owned. Much of the riverfront area also serves as the Borough's water supply well access area. Reducing development, especially industrial activities in this area is extremely important for well-head protection.

There is very little bulkheading of the Ohio River's edge in this area, allowing for a natural river "toe" which makes for a more natural river ecosystem. There is a moderate topographic change between the Ohio River's mean water elevation and the developed areas of the Borough, making potential water edge access easier here than along other portions of the ORSST study area.

Streams and Stormwater: McCabe Run is a day-lighted stream course that drains into the Ohio River within Coraopolis Borough. The stream is located along Montour Street. It travels down a narrow valley through a residential area to 5th Avenue. It travels towards Arch Street and then through culverts located under 5th and 4th Avenues with a small day-lighted portion between the two streets that could be enhanced as part of a small mini-park and stormwater infiltration area. From 4th Avenue, the stream travels through a culvert under the CSX Railroad and is again day-lighted until it reaches the Ohio River.

Montour Run is a major regional stream that serves a large sub watershed area. This stream runs parallel to the Montour Trail through a broad valley. The lower portion of the stream passes through the Montour Junction/Sports Legacy property. This large property consists of a series of parcels that were formerly a railroad maintenance facility. Allegheny County is in the process of acquiring these properties with the intention of creating a large multi-use park and recreational complex. The stream through this area shows signs of major disturbance as a result of the former industrial activities. In addition there are large low areas within this overall parcel that appear to be wetlands which experience flooding on a regular basis. Any development on this site should integrate the ability to retain stormwater that runs down the valley from the upland developed areas, prior to discharging into the Ohio River. In addition, future recreational facilities, such as sport fields could be designed to accommodate stormwater in the event of major floods. The extension of the Montour Trail to Montour Street through this area may not be best located on the former railroad rail bed, since it is located very close to Montour Run in many locations. This may be a location that is more prone to flooding and washouts. Montour Run travels through a very large culvert underneath the CSX Railroad before discharging into the Ohio River.

As with many older urban communities, much of the Borough's sewage system consists of combined sewer outfalls (CSOs). Opportunities to reduce stormwater flowing directly into the sewer system through improved site-specific infiltration projects that help to alleviate CSO impacts on

the environment should be integrated into trail design projects wherever possible.

Transportation Infrastructure

PA Route 51 travels through the Borough primarily via 4th and 5th Avenue. These two roadways function as one-way pairs, with 4th Avenue serving westbound traffic and 5th Avenue serving eastbound traffic. 4th Avenue has an average daily traffic volume of approximately 9,400. 5th Avenue has an average daily traffic volumes ranging from approximately 9,000 to 11,000 depending on the segment. PA Route 51/State Avenue, located on the eastern edge of the Borough, has an average daily traffic volume of 12,000.

PA Route 51 is designated by PennDOT as the Pennsylvania Bicycle Route A through the Borough of Coraopolis. Both 4th and 5th Avenues have sidewalks on both sides throughout the downtown, and in many cases they are wider than 10'.

The streets located between the CSX Railroad and the Ohio River's edge could all be classified as a neighborhood street network with little through traffic. Nearly all of the streets have sidewalks and on-street parking on both sides.

Some of the roadways in the western industrial area, such as Birch Avenue, are in poor condition and are in need of improvement, including reconstruction, curbing, drainage and streetscaping.

Economic Development

Allegheny County Economic Development (ACED) is the lead economic and residential development agency for Allegheny County. ACED provides a variety of services such as loan programs and site selection services in addition to sponsoring a variety of State and Federal funding programs.

Over the past few months, Coraopolis has held three community Key Issue Workshops. These workshops are a component of the Allegheny Together Program, a program offered through ACED to support and assist in the revitalization of traditional downtown-based business districts throughout the County. Coraopolis is one of the 43 business districts located within Allegheny County that are eligible for the Allegheny Together Program. In 2009, Coraopolis was one of two new community applicants selected by the County to be added to the program-- bringing the current number of participating towns to eight. All of the participating communities are being provided a host of planning and management services through Town Center Associates (TCA) and the Pittsburgh History and Landmarks Foundation (PHLF) and their planning consultants, via the Allegheny Together Program.

Allegheny Together endeavors to encourage well-planned, well-designed and geographically-focused investment in the established, urban commercial districts of Allegheny County while respecting the unique history, character, and built environment of each. The program aims to help

organize and empower each community to fulfill its collective vision.

The creation of the Ohio River Trail through Coraopolis, connecting the Borough to the future Allegheny County Regional Park on the Montour Junction/Sports Legacy site, the 47 mile Montour Trail to the east, and the Moon Township's proposed waterfront park and further trail extensions to the west have been designated by Coraopolis as a top priority initiatives through the Allegheny Together Program workshops.

Proposed ORSST Route and Alternatives

Proposed ORSST Route Description through Section 600

The proposed route through Section 600 would travel from Moon Township/ Coraopolis Borough Line at Thorn Run Road to the existing Montour Trail Mile Post "0" in Moon Township, via American Bridge Way, 3rd Avenue Right-of-Way (vacant), Watt Street, Birch Avenue, Kendall Street, 1st Avenue, Broadway, Pine Alley, Montour Street, and the Montour Junction/Sports Legacy Foundation Property. The proposed trail is predominately a signed on-road route through the Borough of Coraopolis with a 10' wide multi-use trail connection at Montour Street to the existing Montour Trail, through the Montour Junction/Sport Legacy Foundation property.

Route Characteristics and Issues

3rd Avenue: The ownership of the right-of-way for 3rd Avenue between the American Bridge property and the CSX Railroad right-of-way from American Bridge Way to Watt Street needs to be clarified. There is



Existing 3rd Avenue Right-of-Way

conflicting information regarding the existence of the public right-of-way along this segment.

Birch Avenue: This roadway is in poor condition and will need to be fully reconstructed. The need for businesses which have frontage along Birch Avenue to have access via their rear gates for vehicular traffic should be determined. If access is not needed this segment could become a bicycle

Planning Context and Proposed Ohio River South Shore Trail (ORSST) Alignment



Birch Avenue

dedicated segment with a 10' wide trail and urban stormwater rain garden facility between Watt Street and Kendall Street.

1st Avenue: 1st Avenue is the main residential street that is closest and parallel to the Ohio River in Coraopolis. It is targeted as an on-road route and will only require trailblazing signing and possibly some traffic calming measures since some vehicular speeding was witnessed during



1st Avenue

field observations. Broadway Street is a residential street and will only require on-road trailblazer signing.

Pine Alley: A key component of the ORSST route through Coraopolis is an on-road "green alley" route through the downtown, via Pine Alley. Pine Alley will feature safety improvements including striping and lighting as well as improved streetscaping and site specific stormwater

management improvements to promote better urban stormwater runoff management. The on-road route through this segment could be initially signed with trailblazer signing, however, this segment also represents an excellent route for the core of Coraopolis to access the pending Montour Junction Recreation Complex located at the east end of the Borough. Any streetscaping and/or urban design recommendations as part of the



Pine Alley

Allegheny Together Program Plan for the Borough should be incorporated into this corridor as an important pedestrian/bicycle spine.

Montour Street from 4th Avenue to the Montour Junction Access Point Adjacent to the CSX Railroad Mainline. This small segment is a critical link between the core downtown area of the Borough and the future park on the Montour Junction property. This route should be signed once the Montour Junction property is publicly accessible. The area is targeted as an on-road route, however, additional safety improvements should be considered for the intersection of 4th Avenue and Montour Street. These improvements could include curb bump outs, enhanced crosswalk striping and crossing warning signals.

Proposed Route Lengths

Coraopolis Borough On-Road Portion = 1.2 miles

Coraopolis Borough 10' Wide Multi Use Path = .86 miles (this segment through the Montour Junction Property may be owned and maintained by Allegheny County)

Total Length of Route through Coraopolis Borough (all of Section 600) = 2.1 miles

Identified ORSST Routing Alternatives in Section 600

Alternative 600A

Description: This alternative consists of routing bicycle traffic along 4th and 5th Avenue.

Issues and Opportunities: 4th Avenue is currently a wide one-way roadway

with two through-travel lanes and parking on both sides. After multiple site visits and field observations were performed, cross section studies were developed for the possible integration of bicycle facilities along each roadway. It appears that the parking along this roadway is rarely utilized. One option considered included the removal of the parking lane on the river's side of the roadway and replacing it with a 6' wide bike lane and 3' shoulder.

In contrast, 5th Avenue has one wide through-lane and parking on both sides. The roadway is not wide enough to accommodate a dedicated bike lane and it appears that parking is well utilized on both sides of this street. This route could be designated as a "sharrow" with special roadway marking down the middle of the travel lane to make motorists aware of the shared roadway conditions. One issue with this alternative is the short one-way segment of Mill Street between 4th and 5th Avenues. The proposed on-road route would travel south on Mill Street towards 4th Avenue. Currently Mill Street is one-way in the opposite direction. This one-way segment would need to be reversed; otherwise the on-road route would need to travel along Main Street. It was determined that Alternative 600A was feasible but the not desirable due to the high traffic volumes on both streets as well as implications of the one-way street network.

Alternative 600B

Description: This alternative consists of a short on-road segment and a 10' wide multi-use path along the riverfront from Chestnut Street to Royal Avenue in Robinson Township.

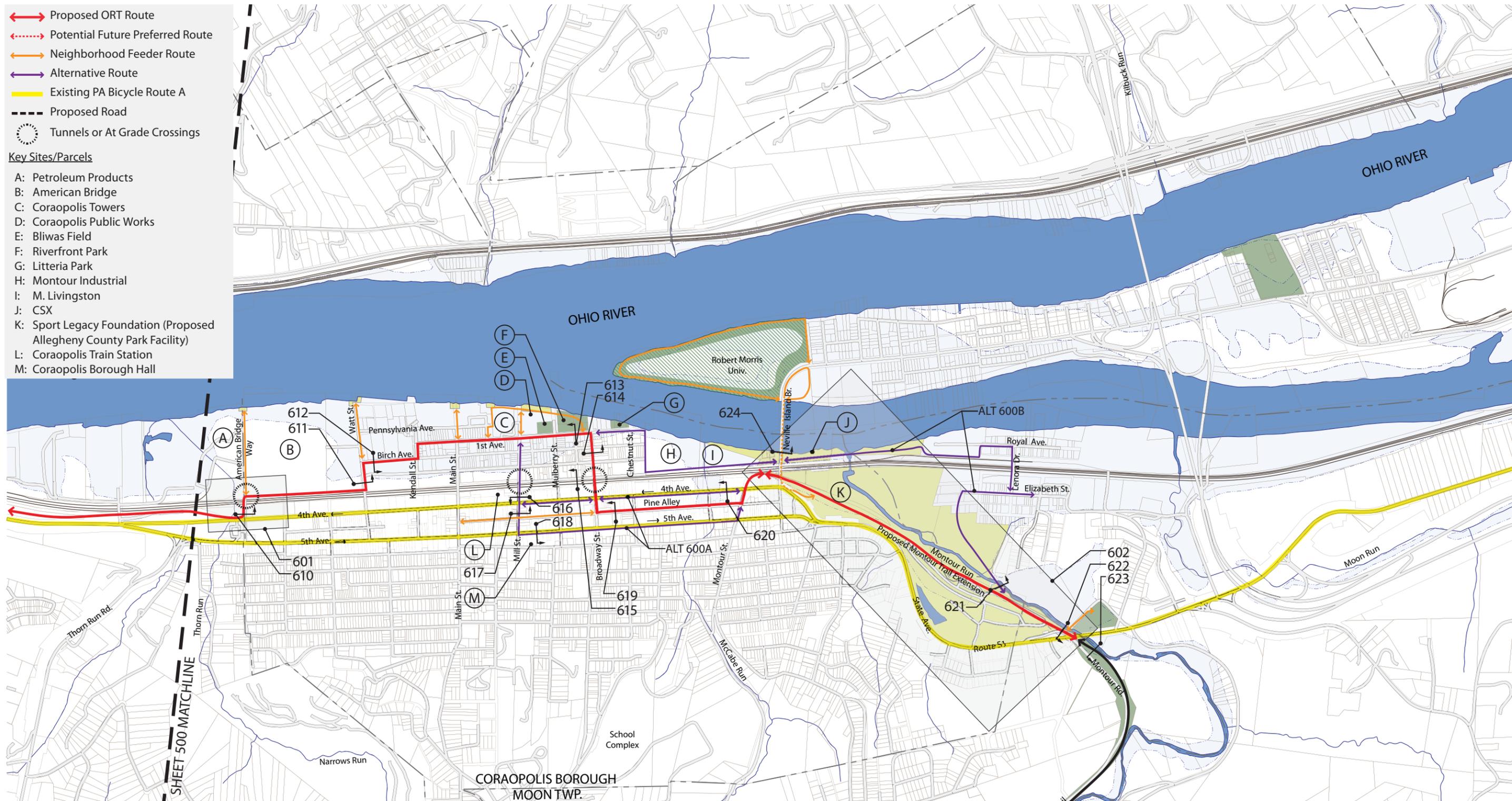
Issues and Opportunities: Alternative 600B represents a very desirable trail connection along the River's edge and the opportunity to compliment the proposed Montour Junction/Sports Legacy Recreation Complex on Ohio River side of the CSX Railroad. There are several complicated issues with this alternative which make it less desirable as a near-term alternative route; however, opportunities exist to create this very desirable route long-term. It is believed that the current owners of Parcel "I" as shown on the Section 600 Routing Plan are exploring ways to develop a marina and boat launch on the site. There are access issues to the property which currently limits the ability to develop the parcel. If 3rd Avenue, as a public roadway, could be extended from Chestnut Street to the site, it would provide the access needed for the development of the parcel and allow the creation of a key trail connection through two major parcels along the riverfront. Once access to the potential marina site is achieved, it opens up several additional properties owned by the CSX Railroad and PennDOT that are not suitable for railroad or other development activities. These parcels could be the location of a new linear riverfront park creating an area with parkland on both sides of the Ohio River channel, with Robert Morris University's recreation complex located on the opposite side of the Ohio River's back channel.

LEGEND

- Proposed ORT Route
- Potential Future Preferred Route
- Neighborhood Feeder Route
- Alternative Route
- Existing PA Bicycle Route A
- Proposed Road
- Tunnels or At Grade Crossings

Key Sites/Parcels

- A: Petroleum Products
- B: American Bridge
- C: Coraopolis Towers
- D: Coraopolis Public Works
- E: Bliwas Field
- F: Riverfront Park
- G: Litteria Park
- H: Montour Industrial
- I: M. Livingston
- J: CSX
- K: Sport Legacy Foundation (Proposed Allegheny County Park Facility)
- L: Coraopolis Train Station
- M: Coraopolis Borough Hall



SCALE: Not to Scale NORTH

LEGEND

- Signed On-Road Route
- Neighborhood Feeder Route
- Alternative Route
- Off-Road Route
- Trail Blazer Sign

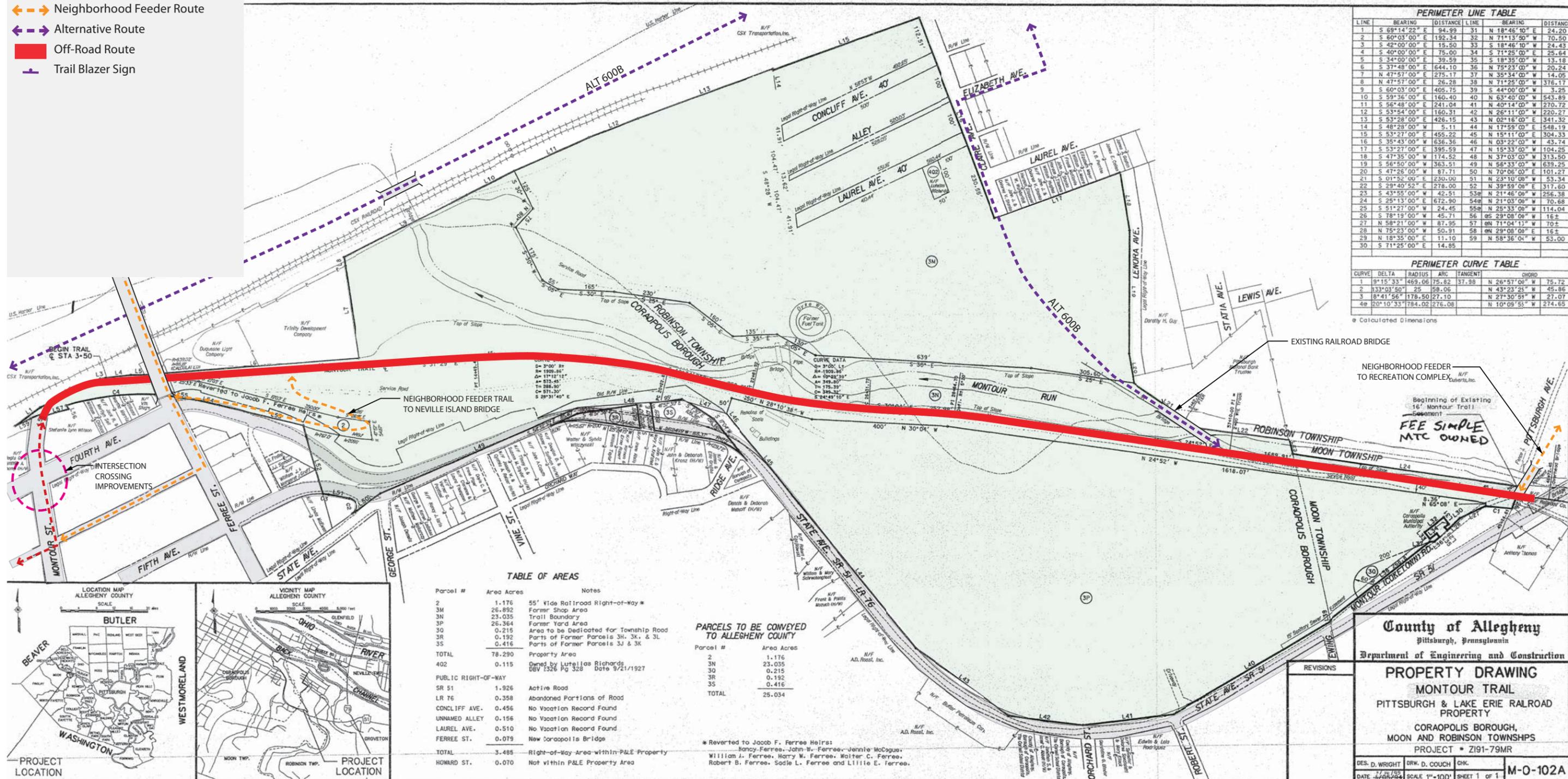


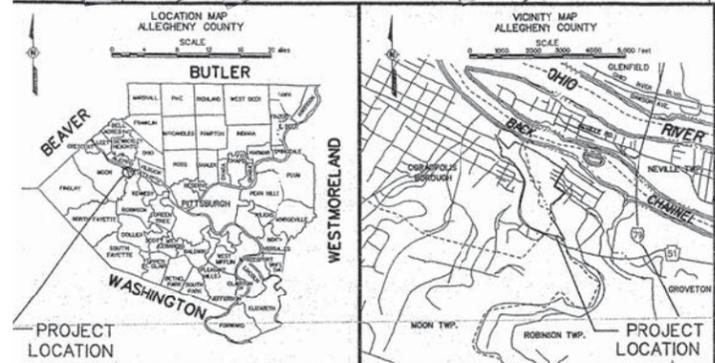
TABLE OF AREAS

Parcel #	Area Acres	Notes
2	1.176	55' Wide Railroad Right-of-Way *
3M	26.852	Former Shop Area
3N	23.035	Trail Boundary
3P	26.364	Former Yard Area
3Q	0.215	Area to be Dedicated for Township Road
3R	0.192	Parts of Former Parcels 3K, 3L & 3L
3S	0.416	Parts of Former Parcels 3J & 3K
TOTAL	78.290	Property Area
402	0.115	Owned by Lorraine Richards DEV 1329 Pg 328 Date 9/21/1927
PUBLIC RIGHT-OF-WAY		
SR 51	1.926	Active Road
LR 76	0.358	Abandoned Portions of Road
CONCLIFF AVE.	0.456	No Vacation Record Found
UNNAMED ALLEY	0.156	No Vacation Record Found
LAUREL AVE.	0.510	No Vacation Record Found
FERREE ST.	0.079	New Coraopolis Bridge
TOTAL	3.485	Right-of-Way Area within P&E Property
HOWARD ST.	0.070	Not within P&E Property Area

PARCELS TO BE CONVEYED TO ALLEGHENY COUNTY

Parcel #	Area Acres
2	1.176
3N	23.035
3Q	0.215
3R	0.192
3S	0.416
TOTAL	25.034

* Reverted to Jacob F. Ferree Heirs:
Nancy Ferree, John W. Ferree, Jennie McCague,
William J. Ferree, Harry W. Ferree, Walter C. Ferree,
Robert B. Ferree, Sadie L. Ferree and Lillie E. Ferree.



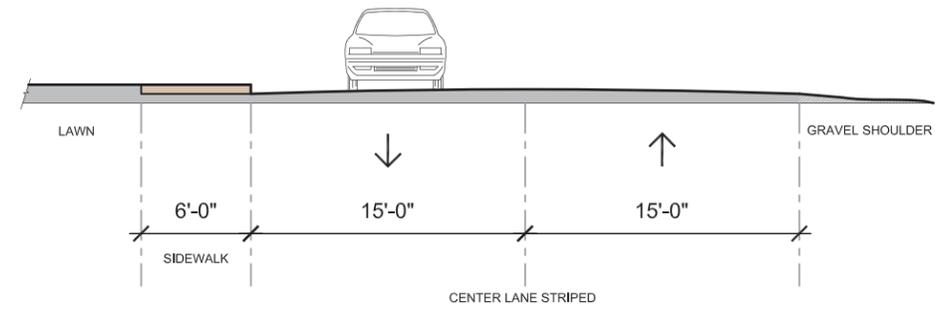
County of Allegheny
Pittsburgh, Pennsylvania
Department of Engineering and Construction

PROPERTY DRAWING
MONTOUR TRAIL
PITTSBURGH & LAKE ERIE RAILROAD
PROPERTY

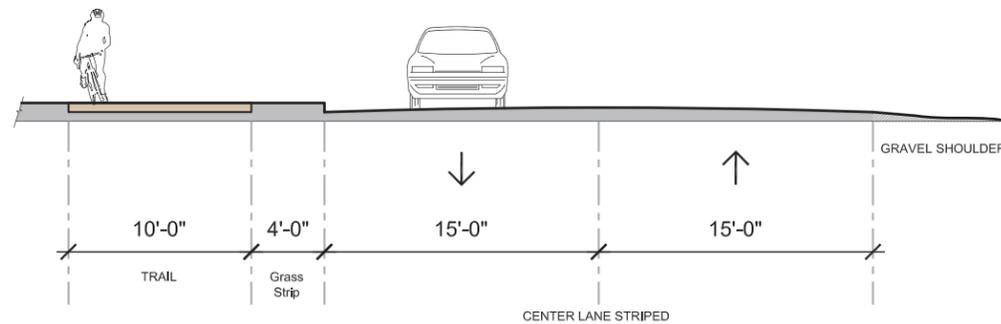
CORAOPOLIS BOROUGH,
MOON AND ROBINSON TOWNSHIPS
PROJECT # ZI91-79MR

DES. D. WRIGHT DRW. D. COUCH CHK. _____
DATE 2/16/11 SCALE 1"=100' SHEET 1 OF 1 M-O-102A

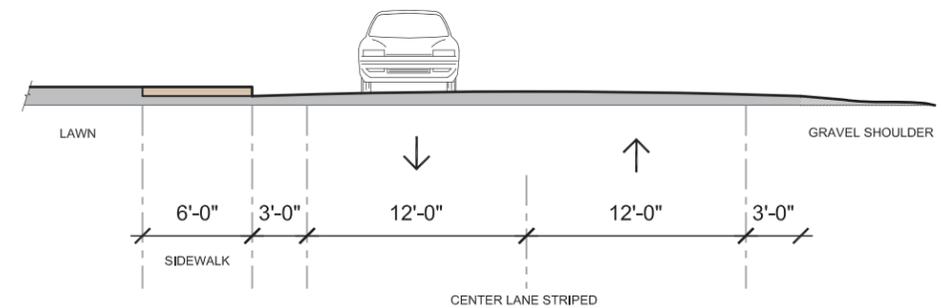
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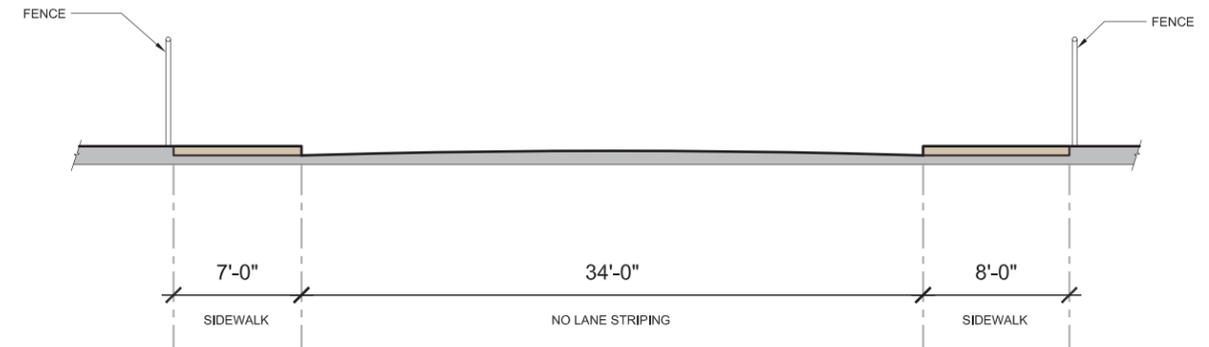
610 CORAOPOLIS BORO. - AMERICAN BRIDGE WAY LOOKING TOWARD 4TH AVE. (EXISTING)
SCALE: 1"=10'



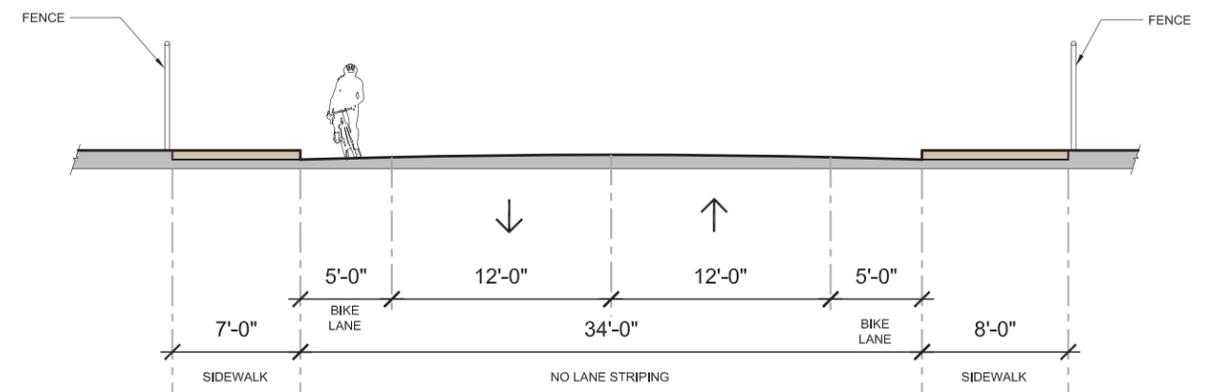
610 CORAOPOLIS BORO. - AMERICAN BRIDGE WAY
LOOKING TOWARD 4TH AVE.
SCALE: 1"=10' (PROPOSED OPTION A)



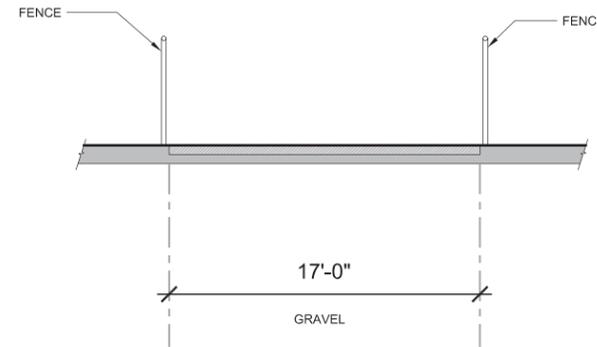
610 CORAOPOLIS BORO. - AMERICAN BRIDGE WAY
LOOKING TOWARD 4TH AVE.
SCALE: 1"=10' (PROPOSED OPTION B)



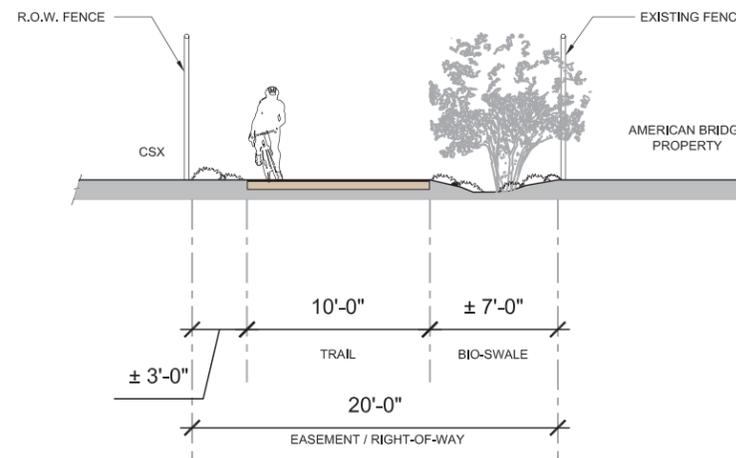
611 CORAOPOLIS BORO. - WATT ST. LOOKING NORTH (EXISTING)
SCALE: 1"=10'



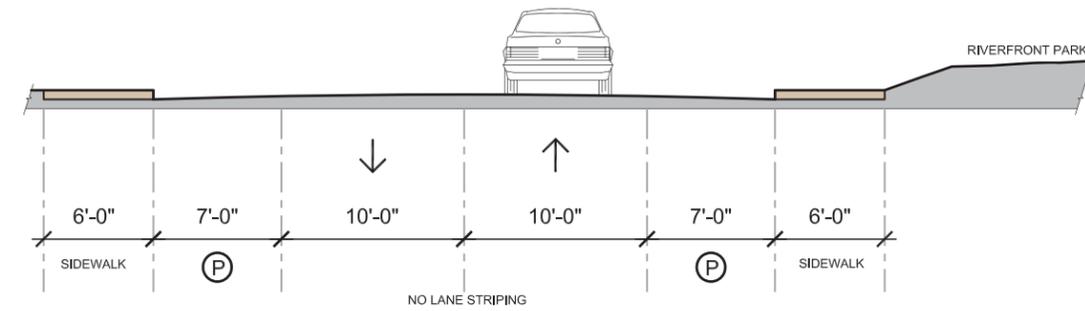
611 CORAOPOLIS BORO. - WATT ST. LOOKING NORTH (PROPOSED)
SCALE: 1"=10'



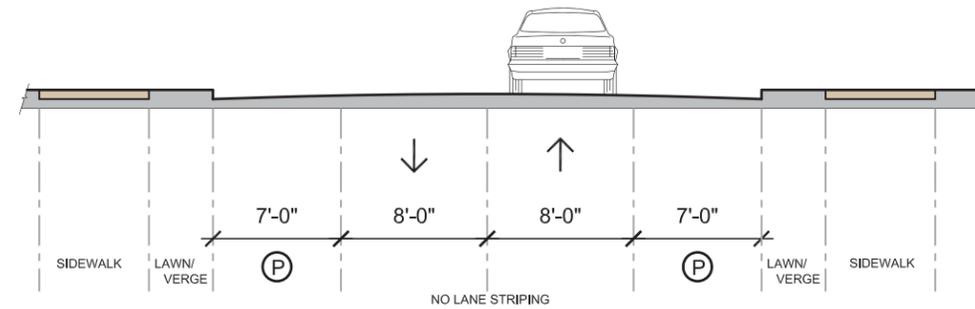
612 CORAOPOLIS BORO. - BIRCH WAY BETWEEN WATT ST. & MAIN ST. (EXISTING)
SCALE: 1"=10'



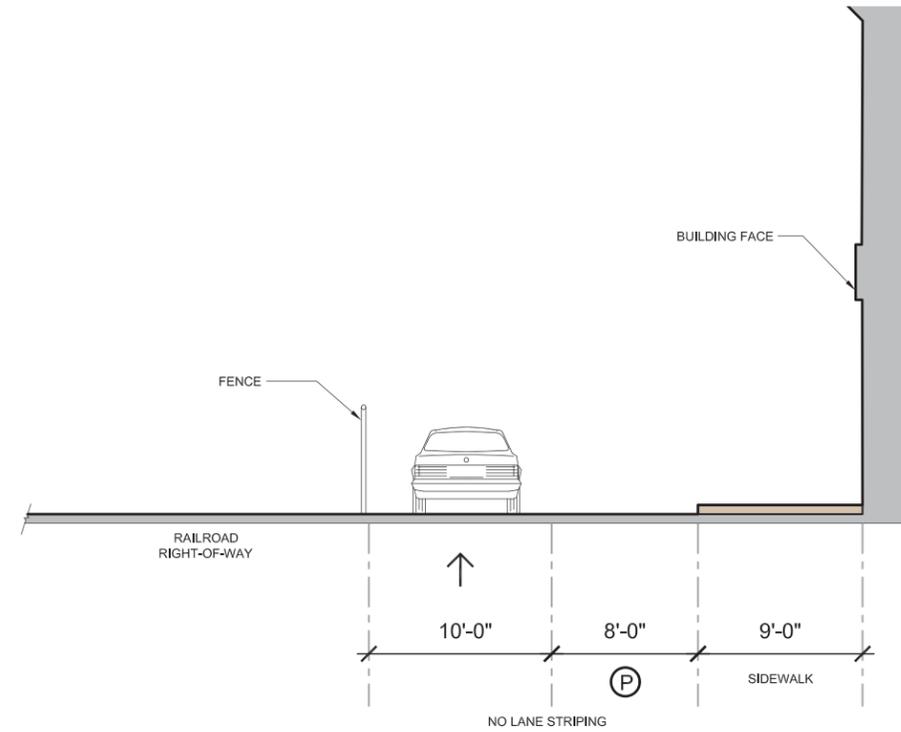
612 CORAOPOLIS BORO. - BIRCH WAY BETWEEN WATT ST. & AMERICAN BRIDGE WAY - LOOKING WEST (PROPOSED)
SCALE: 1"=10'



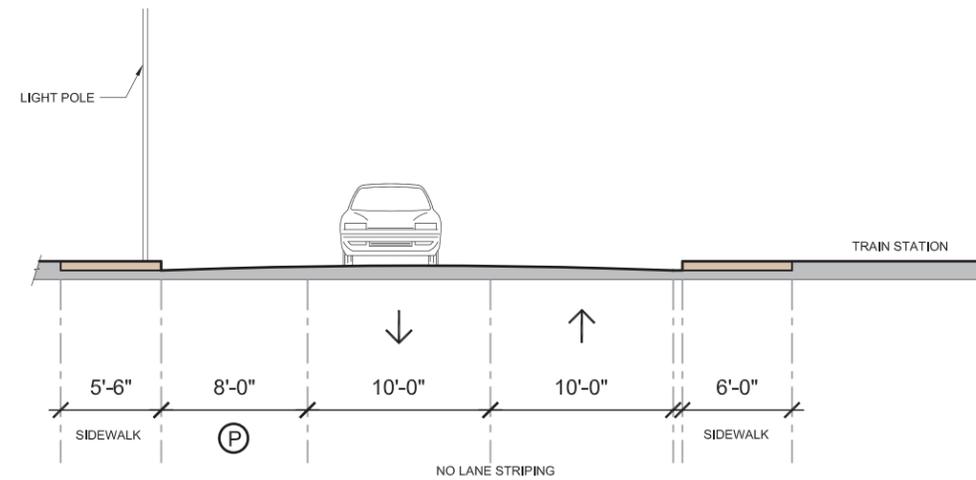
613 CORAOPOLIS BORO. -1ST AVE AT BROADWAY ST. LOOKING WEST (EXISTING)
SCALE: 1"=10'



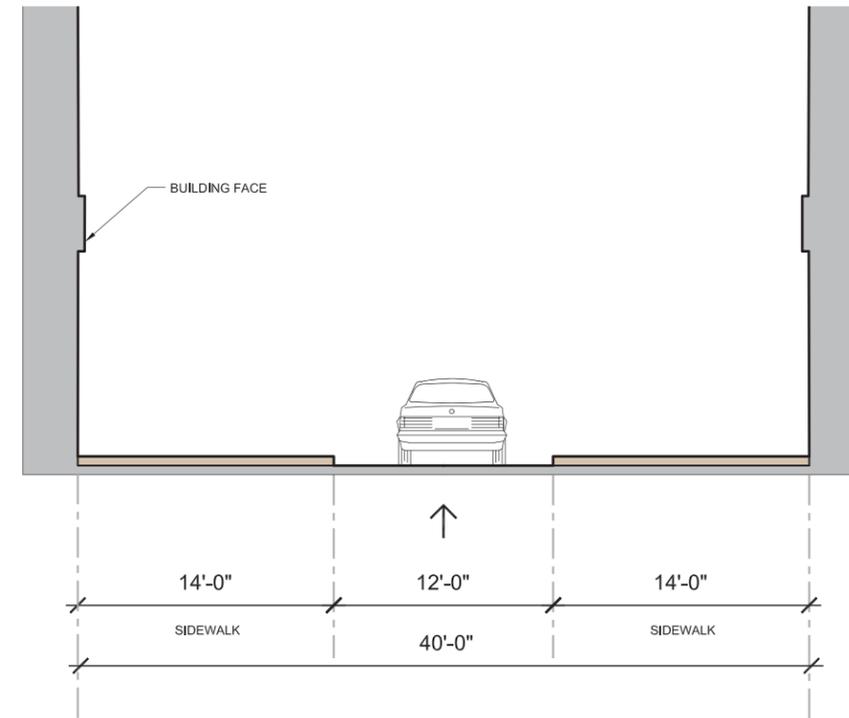
614 CORAOPOLIS BORO. - BROADWAY ST. LOOKING NORTH (EXISTING)
SCALE: 1"=10'



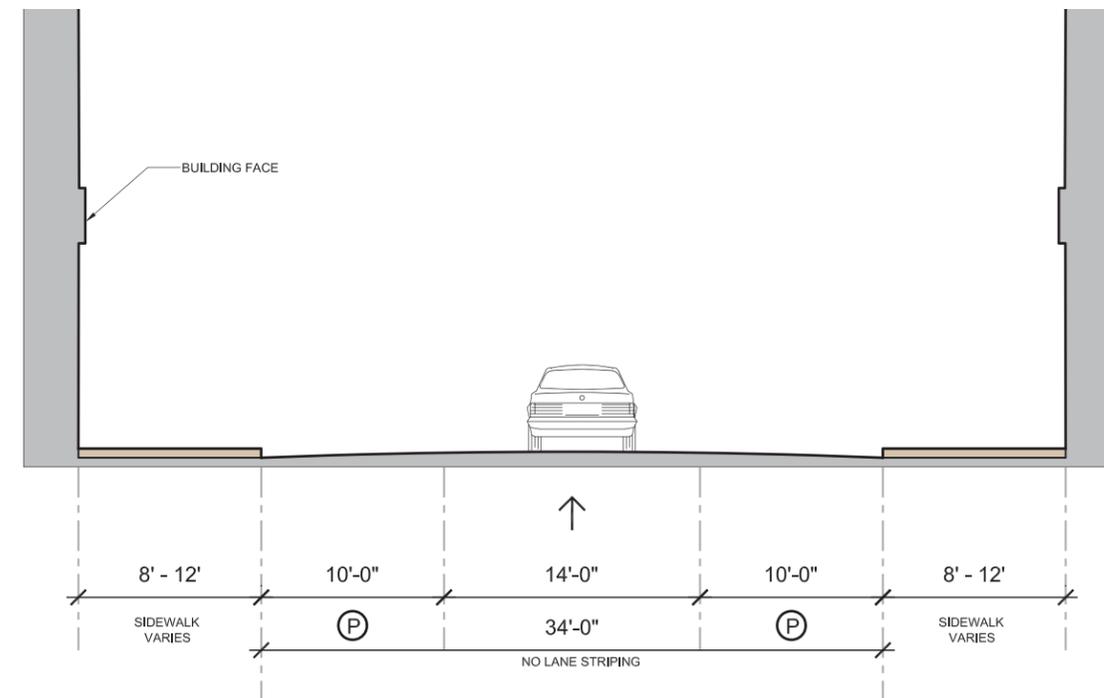
615 CORAOPOLIS BORO. - 3RD AVE AT MULBERRY ST. LOOKING WEST (EXISTING)
SCALE: 1"=10'



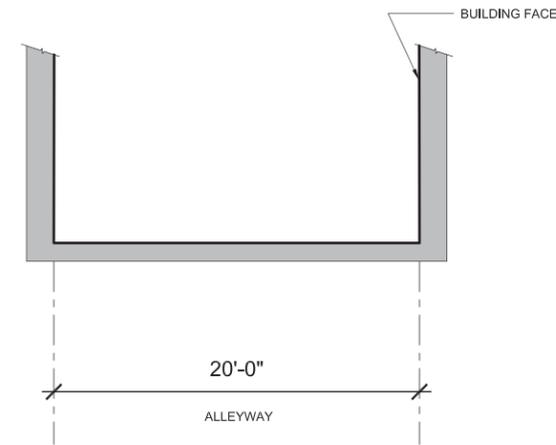
616 CORAOPOLIS BORO. -MILL ST. AT TRAIN STATION LOOKING TOWARDS 4TH AVE. (EXISTING)
SCALE: 1"=10'



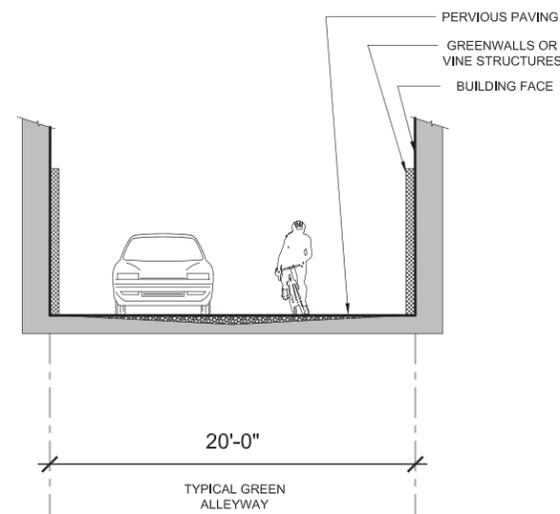
617 CORAOPOLIS BORO. - MILL ST. AT INTERSECTION WITH 4TH AVE. LOOKING NORTH (EXISTING)
SCALE: 1"=10'



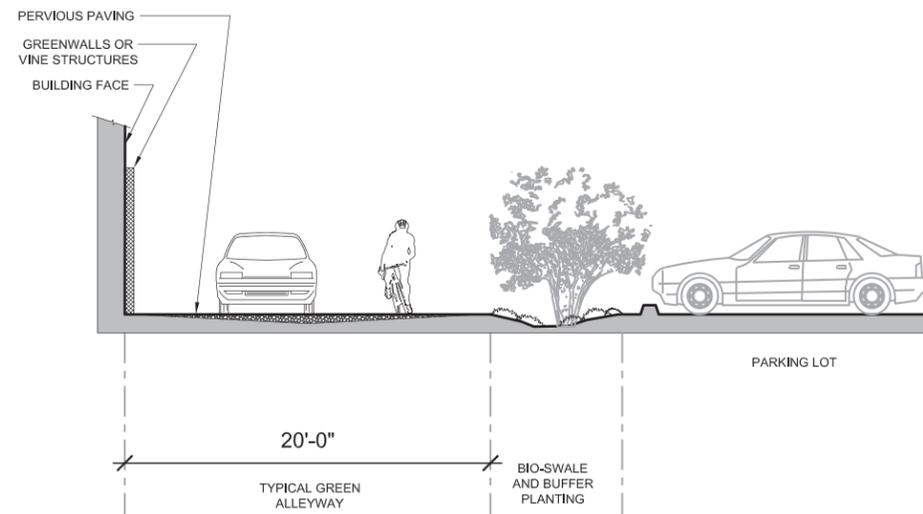
618 CORAOPOLIS BORO. - 5TH AVE AT MILL ST. LOOKING EAST (EXISTING)
SCALE: 1"=10'



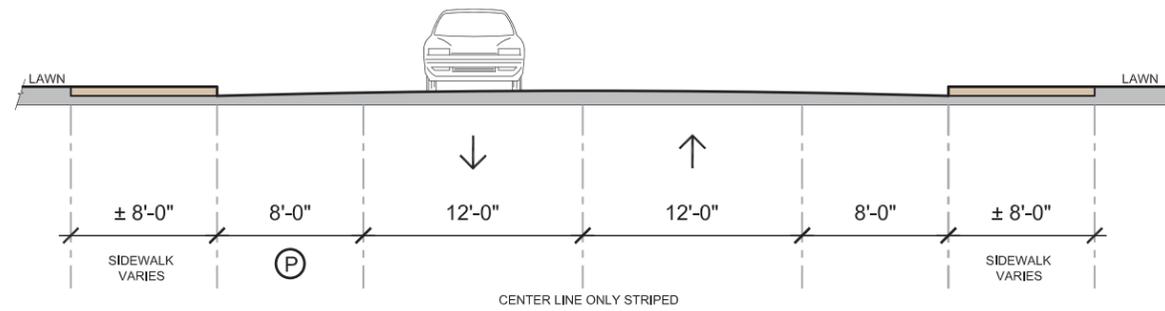
619 CORAOPOLIS BORO. - TYPICAL ALLEYWAY BETWEEN 4TH & 5TH AVENUE (EXISTING)
SCALE: 1"=10'



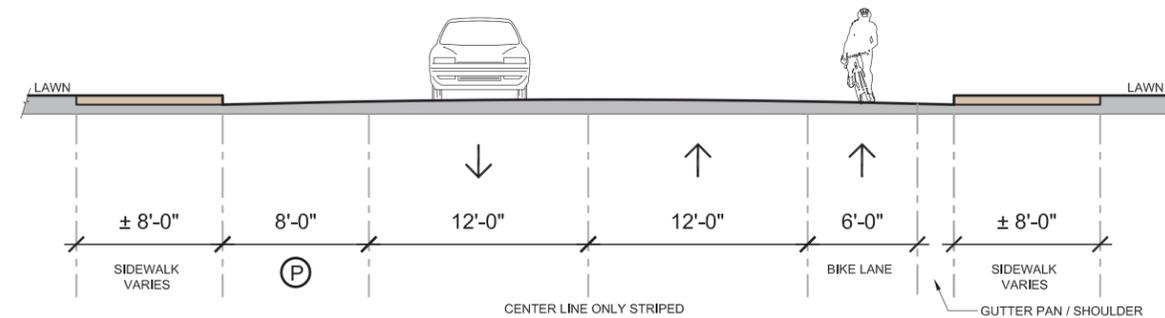
619 CORAOPOLIS BORO. - TYPICAL ALLEYWAY BETWEEN 4TH & 5TH AVENUE (PROPOSED)
SCALE: 1"=10'



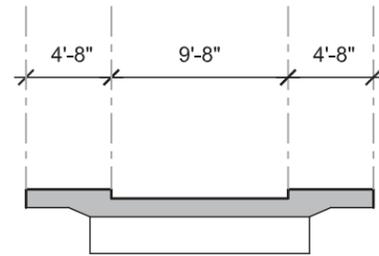
619 CORAOPOLIS BORO. - GREEN ALLEYWAY WITH PARKING LOT (PROPOSED)
SCALE: 1"=10'



620 CORAOPOLIS BORO. - 4TH AVENUE AT MONTOUR ST. LOOKING WEST (EXISTING)
SCALE: 1"=10'

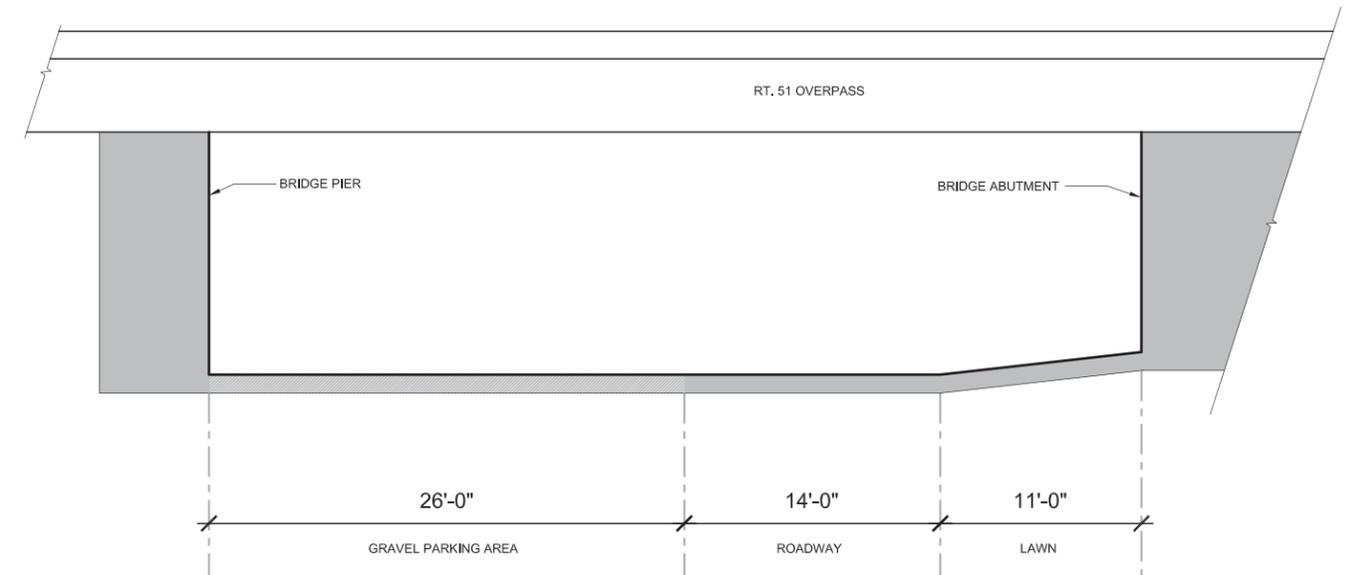


620 CORAOPOLIS BORO. -4TH AVENUE AT MONTOUR ST. LOOKING WEST (PROPOSED)
SCALE: 1"=10'



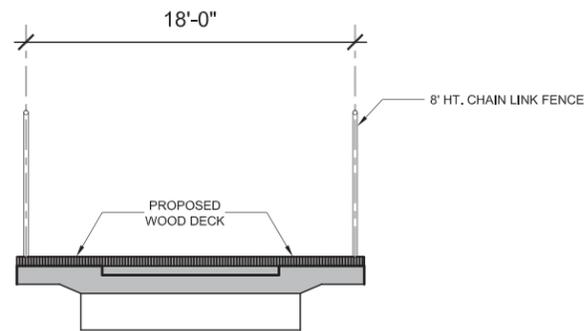
621

MONTOUR JUNCTION. - STEEL AND CONCRETE BRIDGE SPAN OVER MONTOUR RUN (EXISTING)
SCALE: 1"=10'



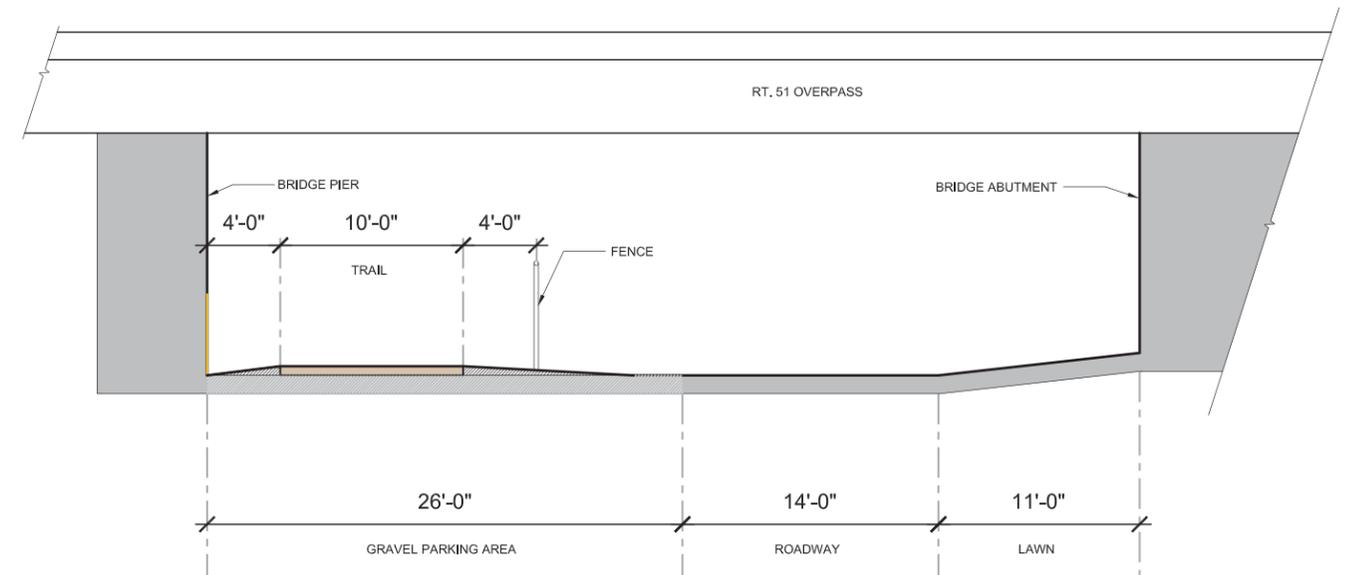
622

MONTOUR JUNCTION - MONTOUR RD. UNDER RT 51 LOOKING SOUTH (EXISTING)
SCALE: 1"=10'



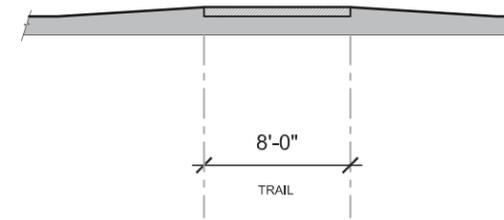
621

MONTOUR JUNCTION. - STEEL AND CONCRETE BRIDGE SPAN OVER MONTOUR RUN (PROPOSED)
SCALE: 1"=10'



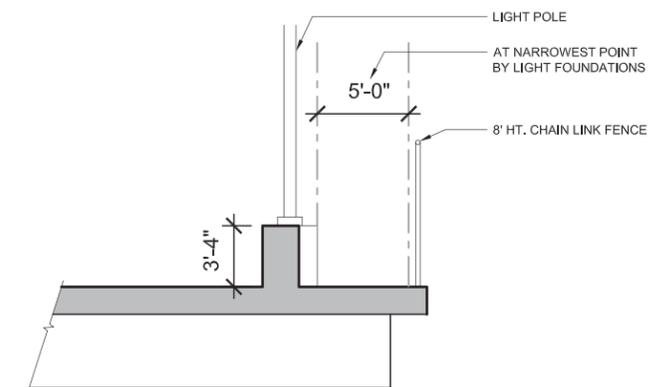
622

MONTOUR JUNCTION - MONTOUR RD. UNDER RT 51 LOOKING SOUTH (PROPOSED)
SCALE: 1"=10'



623

MONTOUR JUNCTION. - MONTOUR TRAIL
MILEPOST "0"(EXISTING)
SCALE: 1"=10'

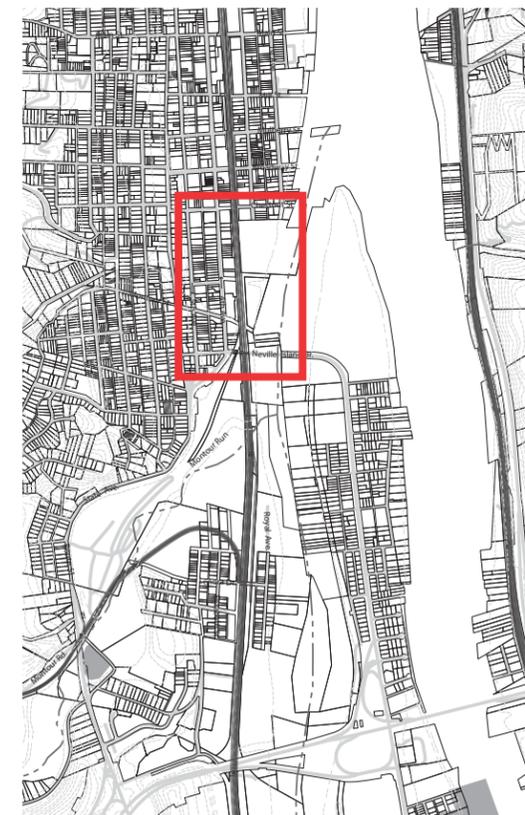


624

MONTOUR JUNCTION. - NEVILLE ISLAND BRIDGE SIDEWALK
EAST SIDE (EXISTING)
SCALE: 1"=10'

LEGEND

- Proposed 10' Wide Multi-Use Path Trail Route
- - - Proposed On-Road Signed Trail Route
- Neighborhood Feeder 10' Wide Side Path Trail Route
- - - Neighborhood Feeder On-Road Signed Trail Route
- Alternative 10' Wide Multi-Use Path Trail Route
- - - Alternative On-Road Signed Trail Route



630 Proposed Trail Location
SCALE: Not to Scale

Site Photo Location

Phasing, Estimate of Probable Costs and Financing

Phasing Strategy

Realizing that the improvements identified in this plan collectively represent approximately \$5M to \$6M in new infrastructure investments in 2010 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 ORSST route as quickly as possible. The key to this strategy is the utilization of the existing Pennsylvania Bicycle Route A as the current bicycle and pedestrian spine. This existing on-road route allows for individual projects to occur while providing a connector route for the overall trail corridor. This also allows for the accommodation of the disconnected trail segments as portions of the proposed ORSST route are constructed in the locations where it differs from the Pennsylvania Bicycle Route A.

The following break-down represents 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.

The proposed improvements are organized into four 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 ORT Trail route that will consist of on-road segments, either on the current Pennsylvania Bicycle Route A or via other existing roadways.

Phase 2 - Linkages to On-Road Segments and the Montour Trail: 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 ORSST route.

Phase 3 - Key Infill Linkages: Years 5 through 10 - 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.

Phase 4 - Strategic Upgrading of On-Road Segments with Side Paths: Years 10+ - These projects are the last trail segments and parallel on-road segments that were improved in earlier phases yet represent locations where a dedicated sidepath could be constructed and would provide for a more enjoyable trail user experience.

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

The projects in this phase represent the segments of the proposed ORSST route that will consist of on-road segments, either on the current 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, warning lighting and traffic calming. 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 Woodlawn Road within Segments 200 and 300. 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 on-road routes. In most cases any improvements to these on-road segments would immediately serve the local community as well as connect to Pennsylvania Bicycle Route A.

There is one proposed construction oriented project in this phase, which is Segment 600.6 in Coraopolis, which runs through the core of the Borough's Downtown Revitalization Area and is described in more detail below.

The segments included in the Phase 1 are:

Segment 100 - Monaca Borough

100.1 - Monaca Rochester Bridge to Monaca Memorial Field via 9th Street, Washington Avenue and 16th Street. Improvements along this on-road segment will consist of trailblazer signing that will begin to establish the entity of the Ohio River Trail and establish its connection to the North Shore of the Ohio River, via the Monaca Rochester Bridge. The ORSST route along 9th Street, Washington Avenue and 16th Street should be studied for bicycle share-lane marking per the 2009 Manual of Uniform Traffic Control Devices (page 815).

Segment 200 - City of Aliquippa

200.4 - Woodlawn Road from 1st Street to 6th Street (approximately the western point of the proposed BCED roadway improvement project). In Phase 4 this segment is targeted for a 10' wide paved trail of asphalt to be located in the wide grass median between Woodlawn Road and River Avenue. In Phase 1 this segment could be signed as a trailblazer route and could serve the adjacent neighborhood.

Segment 300 - City of Aliquippa

300.2 - Woodlawn Road from the Entrance to USG Plant (approximately the eastern point of the proposed BCED roadway improvement project) to a Point Just East of Steel Street (western terminus). This segment is part of the portion of Woodlawn Road that has been improved. In Phase 4 it is targeted for a 10' wide gravel side path but could be signed as an on road route prior to trail construction.

300.3 Woodlawn Road in the Vicinity of the Franklin Avenue Underpass. This segment is part of the Woodlawn Road that has been improved. In Phase 4 it is targeted for a 10' wide asphalt side path but could be signed as an on road route.

300.4 - Woodlawn Road from a Point Just East of Steel Street (western end) to Steel Street (eastern terminus). This segment is part of the Woodlawn Road that has been improved. In Phase 4 it is targeted for a 10' wide gravel side path but could be signed as an on road route in this phase.

Segment 400 - South Heights Borough

Interim Segment - PA Route 51 from Power Plant Road to Crescent Township Line. This segment of PA Route 51 is designated as Pennsylvania Bicycle Route A. It is targeted for a 10' wide asphalt side path along the frontage of the former power plant property but could be signed as an on road route prior to trail construction. Recent crosswalk improvements were made

in this segment of PA Route 51. Trailblazer signing and additional safety improvements, such as traffic calming, could be considered as well as curb bump outs for key crossing locations and enhanced roadway striping and markings. Debris should also be swept from shoulders and other areas where bicyclists are expected to ride.

Segment 400 - Crescent Township

Interim Segment - PA Route 51 from South Heights Borough Line to Jeannette Street. This segment of PA Route 51 is designated as Pennsylvania Bicycle Route A. It is targeted for a 10' wide asphalt side path along the frontage of the former power plant property but could be signed as an on road route prior to trail construction. Recent crosswalk improvements were made in this segment of Route 51. Trailblazer signing and additional safety improvements, such as traffic calming, could be considered as well as curb bump outs for key crossing locations and enhanced roadway striping and markings. Debris should also be swept from shoulders and other areas where bicyclists are expected to ride.

Interim Segment - PA Route 51 from Jeanette Street to Main Street, McCutcheon Way and Riverview Park. This segment of Route 51 is designated as Pennsylvania Bicycle Route A. Trailblazer signing and additional safety improvements could be considered including curb bump outs at key route crossing locations. This area serves as a major gateway through the Township with residential and commercial uses and should be considered for streetscape and safety improvements including traffic calming, curb bump-outs, crossing warning signals and architectural lighting and landscaping. Debris should also be swept from shoulders and other areas where bicyclists are expected to ride.

400.6 - Dashields Lock Road from McCutcheon Way to the Crescent Township Line and U.S. Army Corps of Engineers Parking Lot. This area experiences very little traffic since it is exclusively a roadway to access the Dashields Lock Complex. This area will only require on-road trailblazing signing.

Segment 600 – Coraopolis Borough

600.4 - Kendall Street from Birch Avenue to 1st Avenue. This segment of the trail travels through a transitional area between the industrial zone to the west and the primarily residential/mixed-use area to the east. This segment is targeted as an on-road route and will only require trailblazing signing.

600.5 - 1st Avenue from Kendall Street to Broadway Street and Broadway Street to Pine Alley. 1st Avenue is the main residential street that is closest and parallel to the Ohio River in Coraopolis. It is targeted as an on-road

route and will only require trailblazing signing and possibly some traffic calming since some vehicular speeding was witnessed during field observations. Broadway Street is a residential street and will only require on-road trailblazer signing.

600.6 - Pine Alley from Broadway Street to Montour Street. Pine Alley is targeted to be a "green alleyway" which will feature safety improvements including striping and lighting as well as improved streetscaping and site specific stormwater management improvements to promote better urban stormwater runoff management. The on-road route through this segment could be initially signed with trailblazer signing, however, this segment also represents an excellent route for the core of Coraopolis to access the pending Montour Junction Recreation Complex located at the east end of the Borough.

600.7 - Montour Street from 4th Avenue to the Montour Junction Access Point Adjacent to the CSX Railroad Mainline. This small segment is a critical link between the core downtown area of the Borough that will be served by Segment 600.6 and the Montour Junction property. This route should be signed once the Montour Junction property is publicly accessible. The area is targeted as an on-road route, however, additional safety improvements should be considered for the intersection of 4th Avenue and Montour Street. These improvements could include curb bump outs, enhanced crosswalk striping and crossing warning signals.

Phase 2 – Linkages to On-Road Segments and the Montour Trail: 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 or to take advantage of planned construction activities along portions of the proposed ORSST route.

The segments included in Phase 2 are:

Segment 100 - Monaca Borough

100.2 - Memorial Field Alleyway from Indiana Avenue at 16th Street, Underneath the East Monaca Rochester Bridge to the Alleyway at the Eastern Terminus of Indiana Avenue. This segment is proposed to consist of a 10' wide asphalt path. The improvements in this area will require grading and retention wall improvements for the portion along the football field fence. A major portion of the existing alleyway consists of old brick pavers which could also be reused in their entirety or integrated into the design of the paving surface with an asphalt trail section. This segment

will also require stormwater management improvements in the form of a bio-swale along the field fence and the removal of invasive plant species on the upper slope that are currently compounding soil erosion issues on the slope. At the point where the trail turns to travel underneath the bridge, a retaining wall "bench" will need to be created to accommodate the trail, adjacent to the bridge abutment. Creating this trail segment will require coordination between multiple agencies including PennDOT, the County Conservation District, and utility companies/authorities, as well as other federal and state agencies for potentially necessary permits. Detailed engineering study will be necessary to determine the exact costs and coordination required for construction and permit approvals.

Additional public amenities such as wooden riverview overlooks are proposed since this is a very attractive location along the riverfront and would provide a public enhancement to the community.

100.3 - The Alleyway at the Eastern Terminus of Indiana Avenue to Moor Industrial Park Property Line. The improvements to this segment would consist of reconstructing the 20' wide alleyway to accommodate on-road routing of the trail. This will also allow for a complete loop from Indiana Avenue at 16th Street to the terminus of Indiana Avenue on the east side of 17th Street.

100.5 - Industrial Park Road from Pennsylvania Avenue/PA Route 51 to the Monaca Borough/Center Township Line. This segment is included in Phase 2 since there is currently a pending proposal to locate a new riverfront refinery operation on the BET-TECH property located at the Monaca Borough/Center Township Municipal Line. In order to accommodate the truck traffic generated by this proposed facility, a new roadway, or major roadway improvements are being considered for Industrial Park Road. This roadway is currently privately owned and, if improved, would extend from the Pennsylvania Avenue/PA Route 51 Bridge to Monaca Borough/Center Township Municipal Line. The proposed trail improvements for this segment would consist of signing and safety improvements for a small portion of the roadway adjacent to the industrial building located at the intersection with Pennsylvania Avenue/PA Route 51. Starting at the point of the old cemetery as, as a new 10' wide gravel side path will be created between Industrial Park Road and the CSX railyard right-of-way, extending to the Monaca Borough/Center Township Municipal Line.

Segment 200 – City of Aliquippa

200.5 - Woodlawn Road from 6th Street (approximately the western point of the proposed BCED roadway improvement project) to Segment 300 divider line (approximate midpoint of BCED property). This segment is targeted for a 10' wide gravel side path to be located on the side of the roadway closest to the railroad. This segment is included in Phase 2 based on the fact that BCED is actively pursuing funding to construct a new roadway in this location and if additional engineering and construction funding can be secured for trail design and specifications, the trail and the roadway could potentially be constructed concurrently.

Segment 300 – City of Aliquippa

300.1 - Woodlawn Road from the Segment 300 Divider Line (approximate midpoint of BCED property) to the Existing USG Complex Access Roadway. This is a continuation of Segment 200.5 and is targeted for a 10' wide gravel side path to be located on the side of the roadway closest to the railroad. This segment is included in Phase 2 based on the fact that BCED is actively pursuing funding to construct a new roadway in this location and if additional engineering and construction funding can be secured for trail design and specifications, the trail and the roadway could potentially be constructed concurrently.

300.5 – Woodlawn Road from Steel Street to the Eastern Property Line of the BCED/BET-TECH Tin Mill Property. This segment is part of the portion of Woodlawn Road that has not yet been improved and is scheduled for phasing after Segments 200.5 and 300.1. A 10' wide gravel side path is proposed on the railroad side of the roadway. Funding to include the engineering for the trail in the final roadway engineering drawings and specifications should be pursued to ensure that the trail and the roadway can be constructed concurrently.

300.6 Woodlawn Road from the Eastern Property Line of the BCED/BET-TECH Tin Mill Property to the Segment 400 Divider Line. The ownership of this segment of Woodlawn is currently in contention. Based on parcel information and verbally provided information, it appears that the roadway is currently privately owned. Acquiring this roadway as public right-of-way would be the first step needed to create a trail in this location. Today it could not even be designated as an on-road route without an access easement. This segment is targeted for a 10' wide gravel path on the railroad side of the roadway.

Segment 400 – Hopewell Township

400.1 - Woodlawn Road from the Segment 400 Divider Line to the Hopewell Township/South Heights Borough Municipal Line. As with Segment 300.6, the ownership of this segment of Woodlawn is currently in contention. Based on parcel information and verbally provided information, it appears

that the roadway is currently privately owned. Acquiring this roadway as public right-of-way would be the first step needed to create a trail in this location. Today it could not even be designated as an on-road route without an access easement. This segment is targeted for a 10' wide gravel path on the railroad side of the roadway.

Segment 400 – South Heights Borough

400.2 – Woodlawn Road from Hopewell Township/South Heights Borough Municipal Line to North Street Underpass. As with Segment 300.6 and 400.1, the ownership of this segment of Woodlawn is currently in contention. Based on parcel information and verbally provided information, it appears that the roadway is currently privately owned. Acquiring this roadway as public right-of-way would be the first step needed to create a trail in this location. Today it could not even be designated as an on-road route without an access easement. This segment is targeted for a 10' wide gravel path on the railroad side of the roadway.

400.3 - Off Road Multi-Use Path From the North Street CSX Underpass to the Power Plant Road Bridge. This segment of the ORSST route will consist of a 10' wide gravel off-road multi-use trail. It travels through a series of parcels that are owned by CSX or Reliant Energy. The trail will diverge from North Street near the CSX underpass and continue parallel to the river along what is believed to be an abandoned rail siding that once served the now closed power plant. The trail will continue along this alignment until it reaches the Power Plan Road Bridge over the CSX Railroad.

Segment 500 – Moon Township

500.3 - Western Boundary of Parcel West of Sewickley Bridge to American Bridge Way. This segment represents a key segment of the trail within the overall ORSST route. Moon Township has targeted a former brownfield property located at Valley Ambulance Drive and the river for a new waterfront park. The property is currently undergoing environmental remediation through PA Act 2 and is owned by the Moon Township Municipal Authority. The Authority also owns, or is in the process of acquiring, several other parcels to the west of the proposed park parcel. The Township has several water supply wells located on these parcels. The proposed trail would extend from the western parcel boundary, parallel to the river and the CSX Railroad right-of-way to the proposed park parcel. The trail is proposed to be a 10' wide gravel path. A portion of the trail through the proposed park property would be located on the concrete building slab from the former building, where a railroad siding once entered the industrial facility. The trail is proposed to be asphalt in the location of the concrete slab to the at-grade railroad crossing at Valley Ambulance Drive.

The trail will cross the at-grade crossing and then travel parallel to the CSX railroad on a utility corridor right-of-way from Valley Ambulance Drive to 4th Avenue, just west of Thorn Run. A bridge span or culvert will

be required to cross Thorn Run, behind the PennDOT guiderail in this location.

The railroad right-of-way for the entire length of the trail in Segment 500.3 is proposed to be fenced.

Segment 600 – Coraopolis Borough

600.1 - American Bridge Way from 4th Avenue to 3rd Avenue Right-of-Way. This short section of recently reconstructed roadway is wide and was designed to accommodate heavy tanker truck traffic generated by the Petroleum Products gasoline distribution plant located on American Bridge Way. As a result of this truck traffic an asphalt or concrete side path is proposed for the eastern side of American Bridge Way. The creation of this trail segment will require widening the existing sidewalk in this location, which is a landscaped area with American Bridge Corp's facility sign.

600.2 - 3rd Avenue (Paper Street) from American Bridge Way to Watt Street. This area, which aligns with 3rd Avenue in other sections of the Borough, appears to be public right-of-way based on the location of the existing fence line along American Bridge's property. Digital tax parcel information does not show this as a separate parcel. Instead, it appears to be land split between American Bridge and CSX. Additional property ownership research will be required to determine actual ownership. This area is targeted for a 10' wide asphalt path with right-of-way fencing along the CSX Railroad.

600.3 – Watt Street from 3rd Avenue to Birch Avenue. This segment is proposed as an on-road route for the trail and would only require trailblazer signing. It is a short segment located between two segments that require full construction so it is not included as a Phase 1 segment.

600.4 – Birch Avenue from Watt Street to Kendall Street. Birch Avenue is currently in very poor condition and is only utilized as a rear service alley to several adjacent industrial properties. This segment is targeted for a 20' wide alleyway reconstruction with landscape and stormwater management improvements. Once reconstructed, the trail would be on-road on this portion and would require trailblazer signing.

600.8 - Montour Street to Montour Trail Milepost "0". The exact routing of this trail segment will need to be determined as part of the site master planning effort for the overall Montour Junction Sportsplex Project. Depending on its context within the park it could either be gravel or a paved asphalt path with a width of 10' or 12' or greater. The segment is the critical link between Coraopolis's downtown core and the existing Montour Trail system.

Phase 3 – Key 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 ORSST Corridor.

Segment 100 - Monaca Borough

100.4 – Moor Industrial Park Connector from Indiana Avenue to Pennsylvania Avenue/PA Route 51 and Industrial Park Road. This segment will require coordination with the owners of the Moor Industrial Park to create the trail connection between what should be two completed segments. The proposed trail in this segment will consist of a 10' wide trail of asphalt construction. If the trail is constructed while the existing industrial use remains on the site, the proposed trail will include landscaping and possibly some right-of-way fencing.

This parcel currently appears to be under-utilized and the portion that includes the proposed alignment appears to be vacant or is only utilized for storage. The proposed trail alignment would travel as close to the western parcel boundary as possible. It has not been determined if the owners of the Moor Industrial Park will allow a 10' wide easement or outright purchase of right-of-way along the edge of the parcel on the east side of the bridge approach and through a portion of the property (between two apparently vacant buildings) to reach Pennsylvania Avenue. It is presumed that a trail could be incorporated into the redevelopment of this site. It is believed that the owners are currently considering redevelopment plans. Ideally, the requirement to accommodate and construct the public trail should be codified through modifications to ordinances and the adoption of the trail feasibility study.

Segment 200 – Center Township

200.1 - Future Woodlawn Road from the Monaca Borough/Center Township Municipal Line to Center Township/Hopewell Township Municipal Line. The majority of Segment 200 is controlled by BET-TECH and consists of the former J&L Steel Plant property. It is anticipated that a trail through the area will not be feasible until a new roadway, Future Woodlawn Road, is created. When that occurs a 10' wide gravel or asphalt side path (depending on the grade of the trail) should be created along the railroad side of the roadway. This trail location will greatly reduce any conflicts between truck traffic entering or leaving the roadway and potentially crossing the trail, since in most cases the development will occur along the riverside of the roadway.

The probable cost of this segment assumes that a new roadway and trail can be accommodated above the existing outfall of Elkhorn Run. This area is very constrained as a result of the location and configuration of the CSX track. This constraint is partly due to changes that CSX made to its track alignment in this area. According to information provided by

Richard Dorothy of C.J. Betters Enterprises, the railroad's legal right-of-way agreements in this area, which date back to J&L Steel, are very complicated and open to interpretation. More detailed engineering would be required to determine if a two-lane roadway along with a 10' wide sidepath could be created in this area. There is also an option to locate the trail route at the bottom of the slope, near the edge of the river in this location, but the feasibility of that alignment could only be determined once an engineered alignment between the proposed refinery facility and existing dock is determined. A crossing of the day-lighted portion of Elkhorn Run would be required if this route is chosen and the cost will likely be greater.

Segment 200 – Hopewell Township

200.2 - Future Woodlawn Road from Center Township/Hopewell Township Municipal Line to Existing Terminus of the Reconstructed Woodlawn Road (adjacent to Aliquippa Water Authority Plant). The majority of Segment 200 is controlled by BET-TECH and consists of the former J&L Steel Plant property. It is anticipated that a trail through the area will not be feasible until a new roadway, Future Woodlawn Road, is created. When that occurs, a 10' wide gravel or asphalt side path (depending on the grade of the trail) should be created along the railroad side of the roadway. This location will greatly reduce any conflicts between truck traffic entering or leaving the roadway and potentially cross the trail, since in most cases the development will occur along the riverside of the roadway.

Segment 200 – City of Aliquippa

200.3 - Woodlawn Road at the Water Authority Plant to 1st Street. This segment is ultimately targeted for 10' wide gravel side path but could be signed as an on-road route to serve the nearby neighborhood of Aliquippa. Woodlawn Road in this area has already been improved so the side path would need to be added to the railroad side of the roadway. The need for a side path along this segment will be more critical as industrial development occurs on the BET-TECH property which will likely generate more significant truck traffic.

Segment 400 – South Heights Borough

400.4 - Off Road Multi-Use Path From Power Plant Road to Crescent Township Line. This segment of the trail will consist of a 10' wide gravel off-road multi use trail located on right-of-way to be acquired from the CSX Railroad. This entire segment will be fence along the CSX Railroad right-of-way.

Segment 400 - Crescent Township

400.5 – Crescent Township Line to Dashields Lock Road. This segment of the trail will consist of a 10' wide gravel off-road multi use trail located on right-of-way to be acquired from the CSX Railroad. This entire segment will be fence along the CSX Railroad right-of-way.

Segment 500 – Moon Township

500.1 – U.S. Army Corps of Engineers Dashields Lock Area. The creation of a trail along this segment, when combined with Segment 500.2 would create more than 2.5 continuous miles of dedicated multi-use trail in very close proximity to the river's edge and also would connect two major riverfront public parks: Shouse Park in Crescent Township and the proposed waterfront park in Moon Township. This trail segment would consist of a 10' wide multi-use path. The path would be primarily gravel, although along a small portion where the trail travels up in elevation from Dashields Lock Road to a height that allows it to pass behind the Lock House, it will need to be asphalt. In order to create the trail behind the lock complex a "bench" will need to be created by the placement of a series of parallel retaining walls.

500.2 – Stoops Ferry Area. This area is the most topographically challenging portion of the entire proposed ORSST route. In order to locate the trail in this location and achieve the 50' setback from the track centerline as required by CSX, a boardwalk structure will be required. It is believed that one parcel at the location of the former P&LE Stoops Ferry station will require acquisition from CSX. This entire segment will likely require special permitting due to its special construction techniques, earth disturbance in close proximity to the floodway and the need to access the area via barge for construction.

Phase 4 – Strategic Upgrading of On-Road Segments with Side Paths: Years 10+

These projects are the last trail segments to be constructed and they mostly parallel on-road segments that were improved in earlier phases yet represent locations where a dedicated sidepath could be constructed to reduce vehicular conflicts, improve safety and provide for a more enjoyable and accommodating trail user experience.

Segment 200 – City of Aliquippa

200.4 - Woodlawn Road from 1st Street to 6th Street (approximately the western point of the proposed BCED roadway improvement project). This phase will consist of constructing a 10' wide asphalt or concrete trail to be located in a wide grass median between Woodlawn Road and River Avenue. This segment's location is an area that is park or boulevard-like due to the amount of lawn area and the orientation of the parallel roadways. During field observations, numerous residents were observed walking and biking along this stretch of un-utilized roadway. As a result, this portion of the trail could be treated like a promenade with architectural lighting, an alleé of street trees and other site amenities to provide broader community enhancement to areas of Aliquippa that has been severely impacted by the demise of the J&L Steel Plant.

Segment 300 – City of Aliquippa

300.2 - Woodlawn Road from the Entrance to the USG Plant (approximately the eastern point of the proposed BCED roadway improvement project) to a Point Just East of Steel Street (western terminus). This segment is part of the Woodlawn Road that has been improved. It is targeted for a 10' wide gravel side path that will be located on the railroad side of the roadway. The portion of trail that is directly adjacent to the CSX railroad will be fenced.

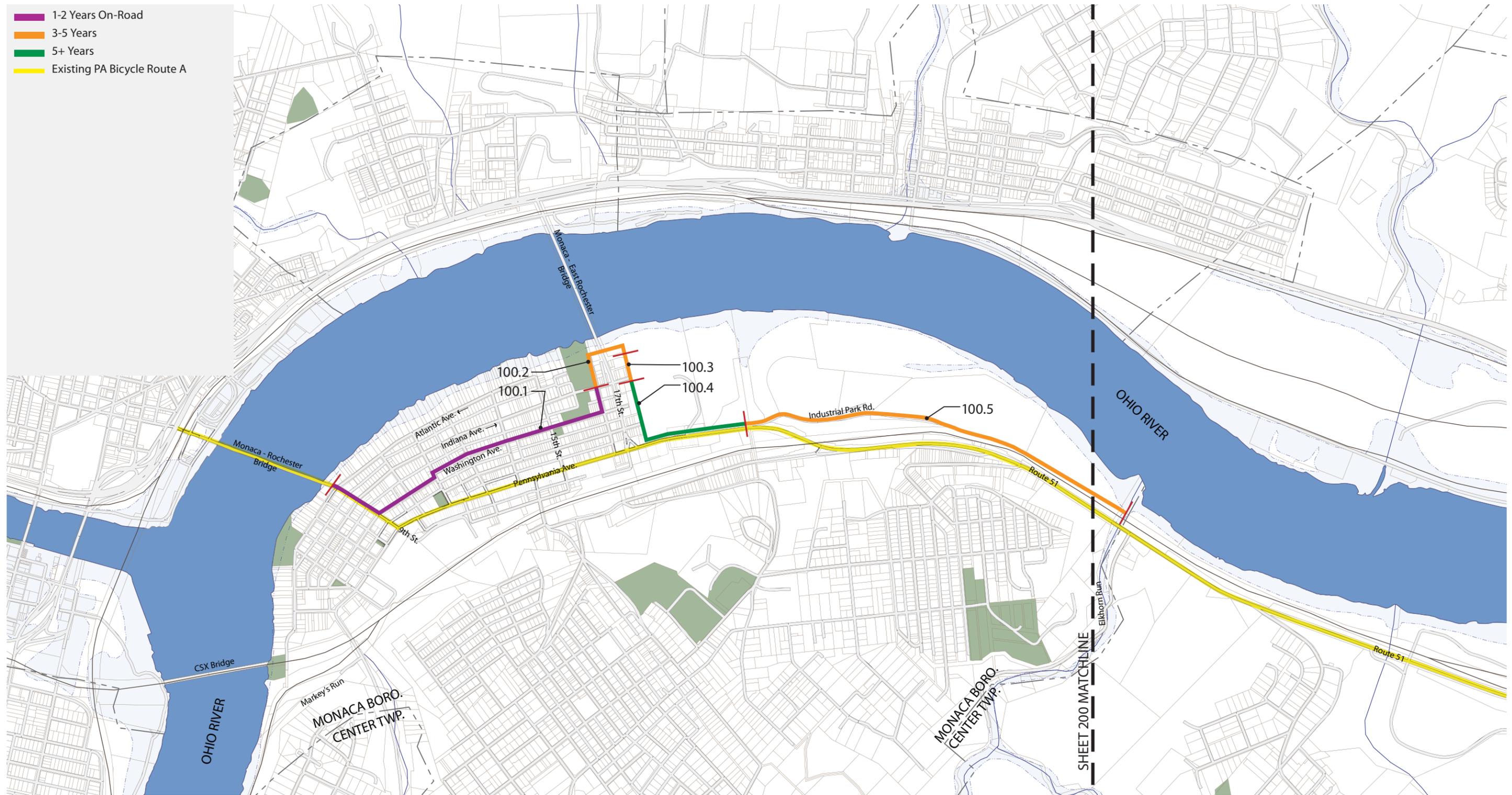
300.3 Woodlawn Road in the Vicinity of Franklin Avenue Underpass.

This trail segment is part of the portion of Woodlawn Road that has been improved. It is targeted for a 10' wide asphalt side path. An asphalt trail is required in this area due to the grades that exist to approach the underpass from the westerly direction. This area will require more detailed engineering to determine an exact route of side path. The intersection with Franklin Avenue and the circulation constraints of the underpass have the potential to create traffic conflicts between trucks and bicyclists. Ideally the trail would be located on the river side of the roadway for this segment, which will require a crossing of Woodlawn Road at each end of the segment to align with the adjoining segments.

300.4 - Woodlawn Road from a Point Just East of Steel Street (western terminus) to Steel Street (eastern terminus). This segment is part of the portion of Woodlawn Road that has been improved. It is targeted for a 10' wide gravel side path located along the railroad side of the roadway.

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Existing PA Bicycle Route A



SCALE: Not to Scale NORTH

SECTION 100

BOROUGH OF MONACA

SEGMENT #	DESCRIPTION	QUANTITY		MATERIALS	
		NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
100.1	SIGNING / STRIPING	1	L.S.	\$5,000.00	\$ 5,000.00
100.2	ASPHALT	970	L.F.	\$45.00	\$ 43,650.00
100.2	SITE IMPROVEMENTS / LANDSCAPING*	970	L.F.	\$80.00	\$ 77,600.00
100.3	ASPHALT ALLEY RECONSTRUCTION	350	L.F.	\$90.00	\$ 31,500.00
100.3	SITE IMPROVEMENTS / LANDSCAPING	350	L.F.	\$10.00	\$ 3,500.00
100.4	ASPHALT	1,980	L.F.	\$45.00	\$ 89,100.00
100.4	SITE IMPROVEMENTS / LANDSCAPING	1,980	L.F.	\$10.00	\$ 19,800.00
100.5	GRAVEL	4,650	L.F.	\$18.00	\$ 83,700.00
100.5	FENCING	4,650	L.F.	\$12.00	\$ 55,800.00
SUBTOTAL					\$ 409,650.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 20,482.50
MATERIAL SUBTOTAL					\$ 430,132.50
ENGINEERING					20% \$ 86,026.50
INSPECTION					15% \$ 64,519.88
CONSTRUCTION CONTINGENCY					20% \$ 86,026.50
BORO. OF MONACA TOTAL COST					\$ 666,705.38

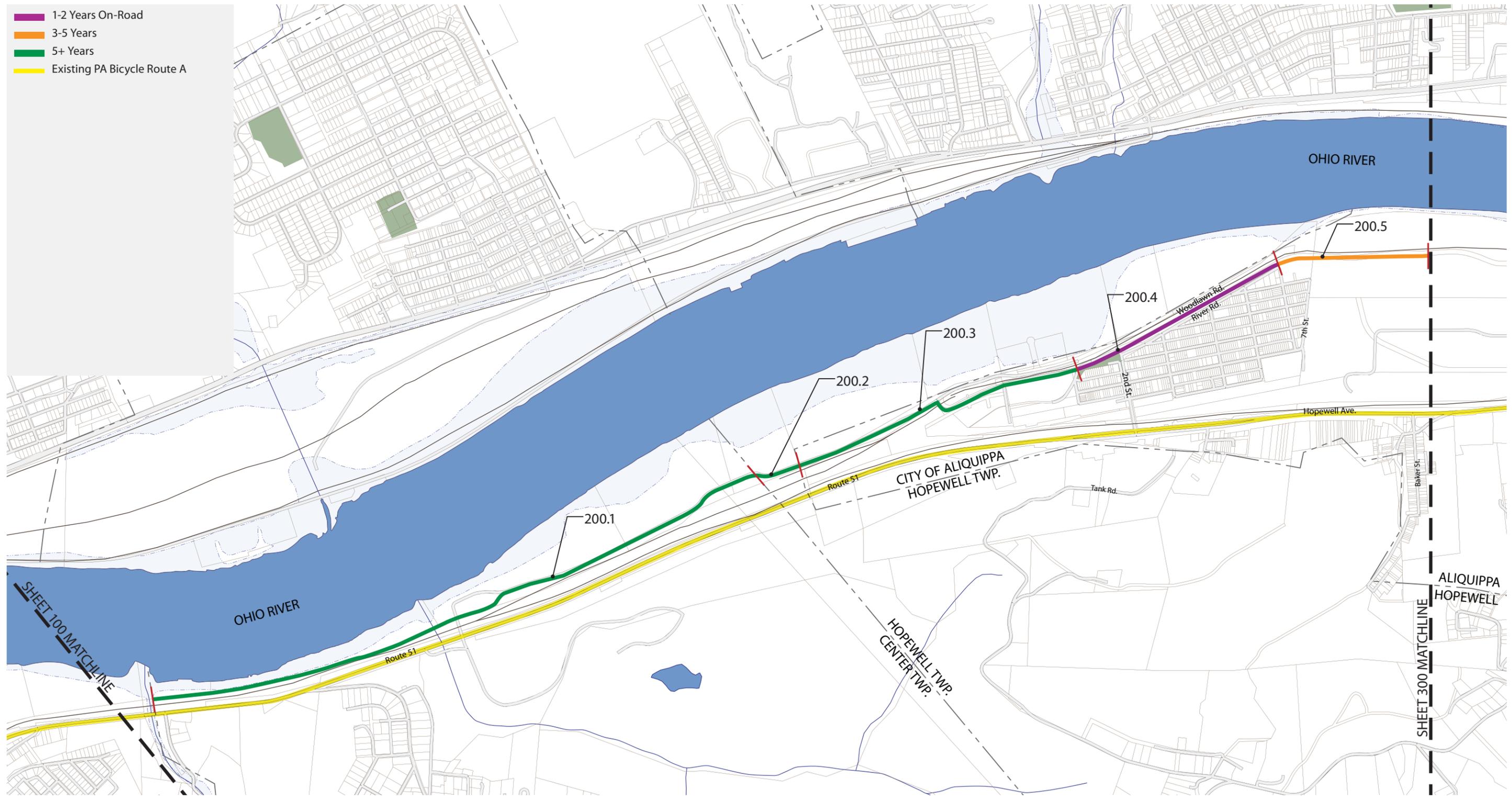
SECTION 100 TOTAL COST \$ 666,705.38

* Includes retaining walls underneath Monaca East Rochester Bridge to provide bench for trail

Center Township - Hopewell Township - City of Aliquippa - 200.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Existing PA Bicycle Route A



SCALE: Not to Scale NORTH

Center Township - Hopewell Township - City of Aliquippa - 200.PC

SECTION 200

CENTER TOWNSHIP		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
200.1	GRAVEL	8,160	L.F.	\$18.00	\$ 146,880.00
200.1	FENCING	8,160	L.F.	\$12.00	\$ 97,920.00
SUBTOTAL					\$ 244,800.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 12,240.00
MATERIAL SUBTOTAL					\$ 257,040.00
ENGINEERING					20% \$ 51,408.00
INSPECTION					15% \$ 38,556.00
CONSTRUCTION CONTINGENCY					20% \$ 51,408.00
CENTER TWP. TOTAL COST					\$ 398,412.00

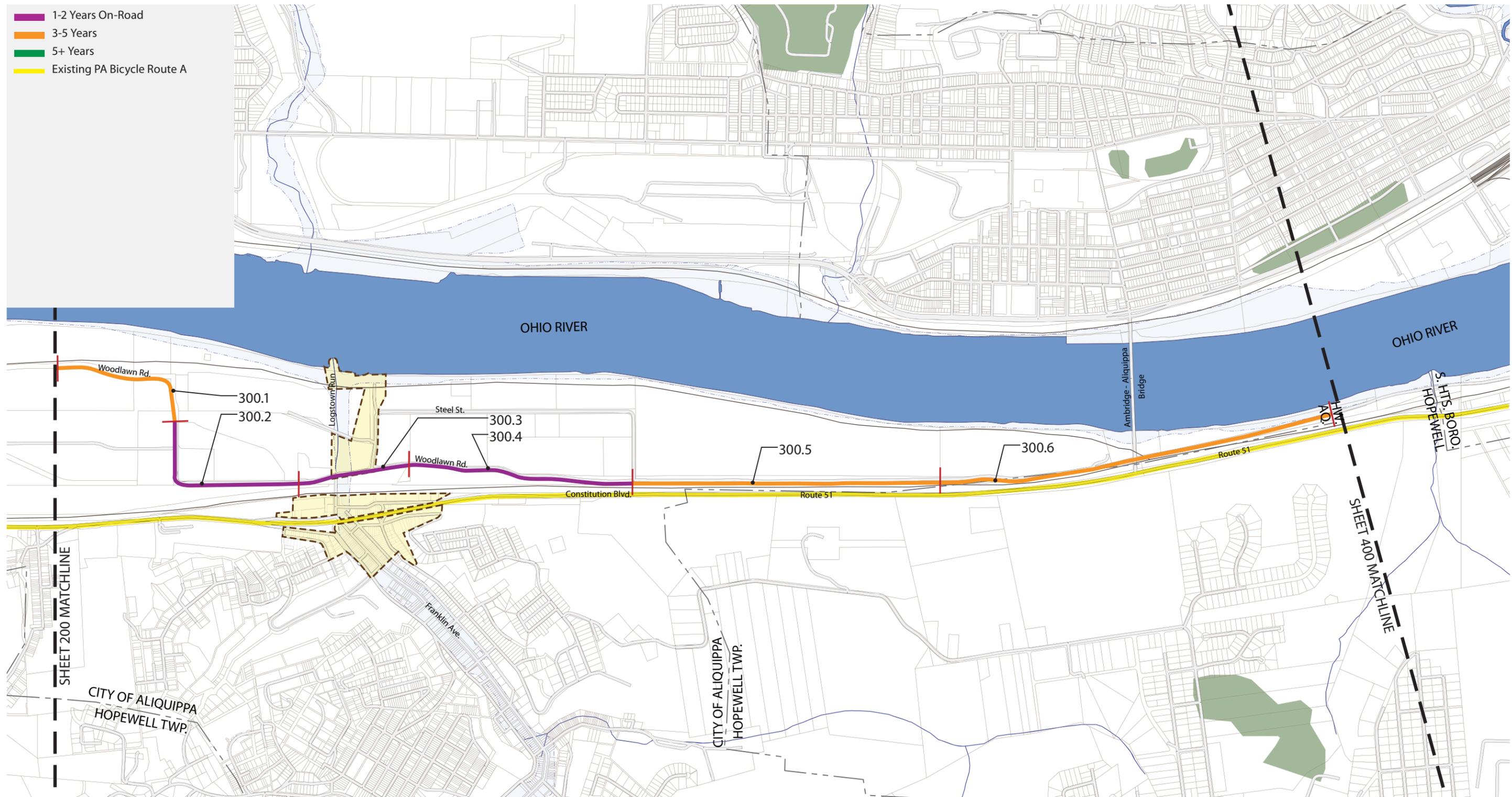
HOPEWELL TOWNSHIP		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
200.2	GRAVEL	510	L.F.	\$18.00	\$ 9,180.00
200.2	FENCING	510	L.F.	\$12.00	\$ 6,120.00
SUBTOTAL					\$ 15,300.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 765.00
MATERIAL SUBTOTAL					\$ 16,065.00
ENGINEERING					20% \$ 3,213.00
INSPECTION					15% \$ 2,409.75
CONSTRUCTION CONTINGENCY					20% \$ 3,213.00
HOPEWELL TWP. TOTAL COST					\$ 24,900.75

CITY OF ALIQUIPPA		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
200.3	GRAVEL	4,350	L.F.	\$18.00	\$ 78,300.00
200.4	ASPHALT	2,310	L.F.	\$45.00	\$ 103,950.00
200.4	SITE IMPROVEMENTS/ LANDSCAPING / STREESCAPING	2,310	L.F.	\$15.00	\$ 34,650.00
200.5	ASPHALT (BCED PORTION)	1,940	L.F.	\$18.00	\$ 34,920.00
SUBTOTAL					\$ 251,820.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 12,591.00
MATERIAL SUBTOTAL					\$ 264,411.00
ENGINEERING					20% \$ 52,882.20
INSPECTION					15% \$ 39,661.65
CONSTRUCTION CONTINGENCY					20% \$ 52,882.20
CITY OF ALIQUIPPA TOTAL COST					\$ 409,837.05

SECTION 200	TOTAL COST \$ 833,149.80
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PROJECT PHASING

- █ 1-2 Years On-Road
- █ 3-5 Years
- █ 5+ Years
- █ Existing PA Bicycle Route A



SCALE: Not to Scale NORTH



SECTION 300

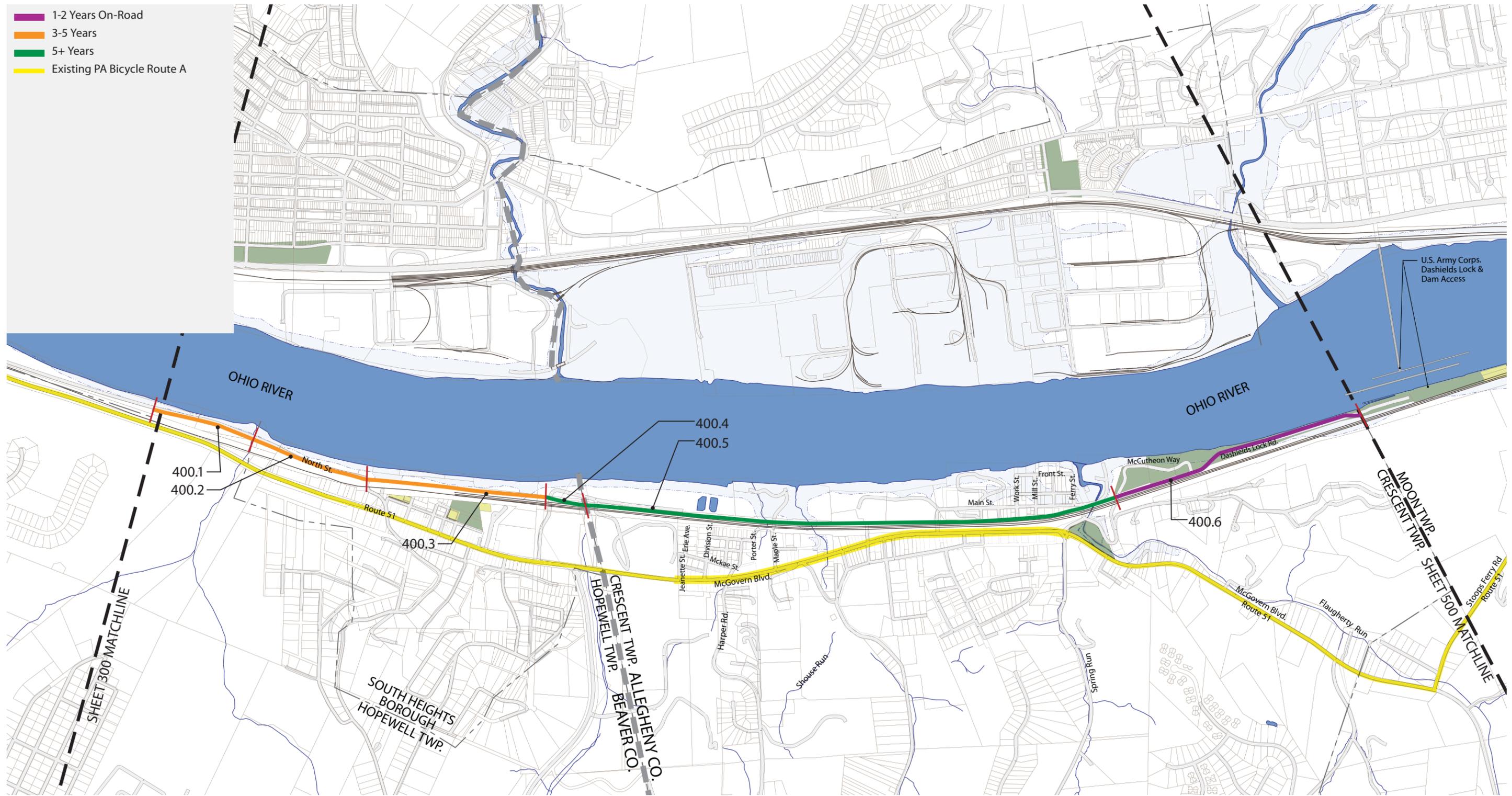
CITY OF ALIQUIPPA		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
300.1	GRAVEL	1,970	L.F.	\$18.00	\$ 35,460.00
300.2	GRAVEL	2,260	L.F.	\$18.00	\$ 40,680.00
300.2	FENCING	2,260	L.F.	\$12.00	\$ 27,120.00
300.3	ASPHALT	1,400	L.F.	\$45.00	\$ 63,000.00
300.3	SITE IMPROVEMENTS / LANDSCAPING	1,400	L.F.	\$10.00	\$ 14,000.00
300.4	GRAVEL	2,810	L.F.	\$18.00	\$ 50,580.00
300.5	GRAVEL	3,840	L.F.	\$18.00	\$ 69,120.00
300.6	GRAVEL	4,980	L.F.	\$18.00	\$ 89,640.00
				SUBTOTAL	\$ 389,600.00
OTHER TRAIL SUPPORT GENERAL FACILITIES				5%	\$ 19,480.00
				MATERIAL SUBTOTAL	\$ 409,080.00
ENGINEERING				20%	\$ 81,816.00
INSPECTION				15%	\$ 61,362.00
CONSTRUCTION CONTINGENCY				20%	\$ 81,816.00
				CITY OF ALIQUIPPA TOTAL COST	\$ 634,074.00

SECTION 300 TOTAL COST \$ 634,074.00

PROJECT PHASING

Hopewell Township - South Heights Borough - Crescent Township - 400.PC

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Existing PA Bicycle Route A



SCALE: Not to Scale NORTH

Hopewell Township - South Heights Borough - Crescent Township - 400.PC

SECTION 400

HOPEWELL TOWNSHIP		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
400.1	GRAVEL	1,320	L.F.	\$18.00	\$ 23,760.00
SUBTOTAL					\$ 23,760.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 1,188.00
MATERIAL SUBTOTAL					\$ 24,948.00
ENGINEERING					20% \$ 4,989.60
INSPECTION					15% \$ 3,742.20
CONSTRUCTION CONTINGENCY					20% \$ 4,989.60
HOPEWELL TWP. TOTAL COST					\$ 38,669.40

SOUTH HEIGHTS BOROUGH		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
400.2	GRAVEL	1,500	L.F.	\$18.00	\$ 27,000.00
400.3	GRAVEL	2,300	L.F.	\$18.00	\$ 41,400.00
400.3	FENCING	2,300	L.F.	\$12.00	\$ 27,600.00
400.4	GRAVEL	600	L.F.	\$18.00	\$ 10,800.00
400.4	FENCING	600	L.F.	\$12.00	\$ 7,200.00
SUBTOTAL					\$ 114,000.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 5,700.00
MATERIAL SUBTOTAL					\$ 119,700.00
ENGINEERING					20% \$ 23,940.00
INSPECTION					15% \$ 17,955.00
CONSTRUCTION CONTINGENCY					20% \$ 23,940.00
SOUTH. HEIGHTS BORO. TOTAL COST					\$ 185,535.00

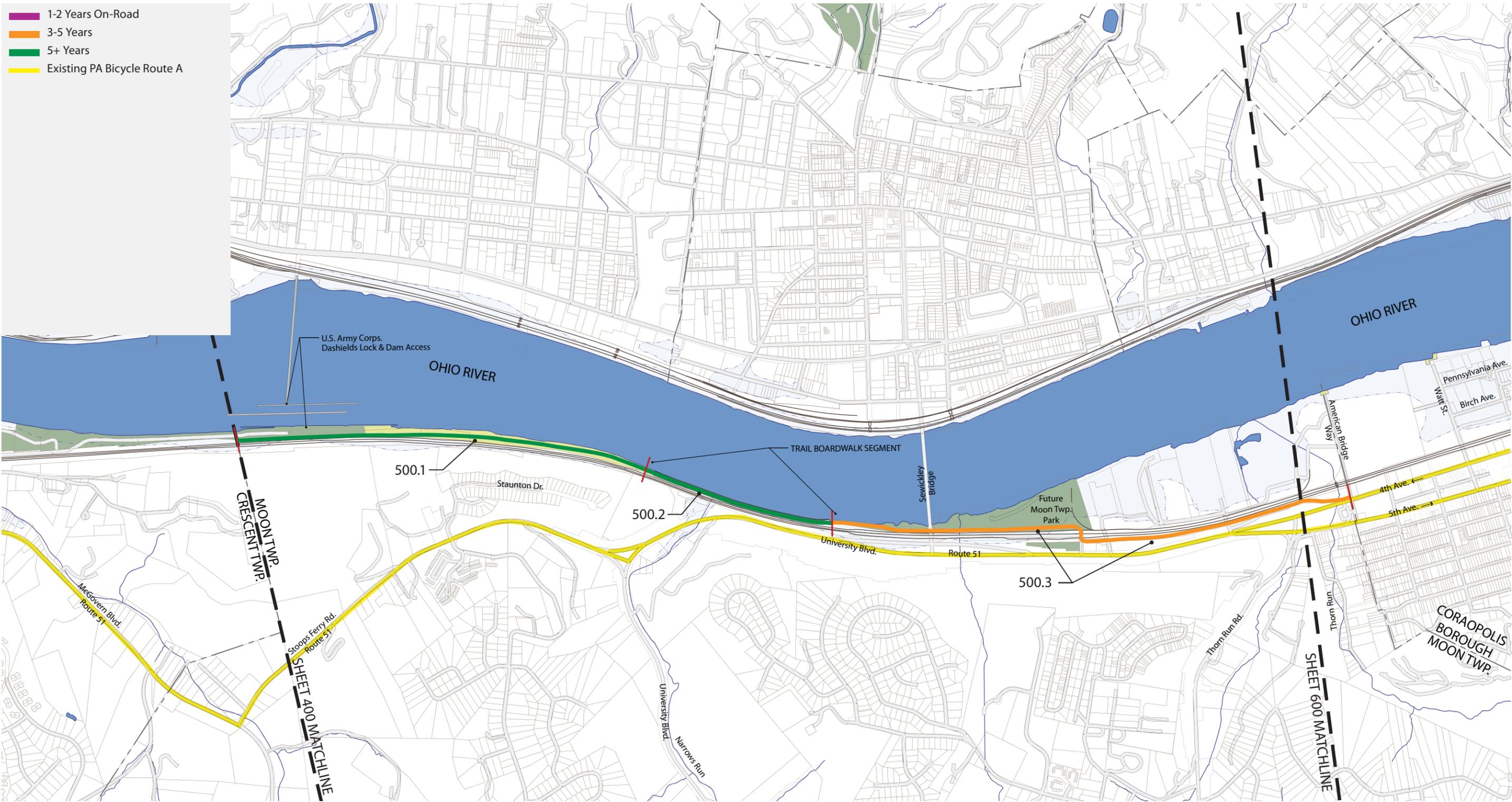
CRESENT TOWNSHIP		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
400.5	GRAVEL	4,220	L.F.	\$18.00	\$ 75,960.00
400.5	FENCING	4,220	L.F.	\$12.00	\$ 50,640.00
400.6	SIGNING / STRIPING	1	L.S.	\$5,000.00	\$ 5,000.00
400.6	FENCING	1,500	L.F.	\$12.00	\$ 18,000.00
SUBTOTAL					\$ 149,600.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 7,480.00
MATERIAL SUBTOTAL					\$ 157,080.00
ENGINEERING					20% \$ 31,416.00
INSPECTION					15% \$ 23,562.00
CONSTRUCTION CONTINGENCY					20% \$ 31,416.00
CRESENT TWP. TOTAL COST					\$ 243,474.00

SECTION 400	TOTAL COST \$ 467,678.40
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Crescent Township - Moon Township - Coraopolis Borough - 500.PC

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Existing PA Bicycle Route A



SCALE: Not to Scale NORTH

Crescent Township - Moon Township - Coraopolis Borough - 500.PC

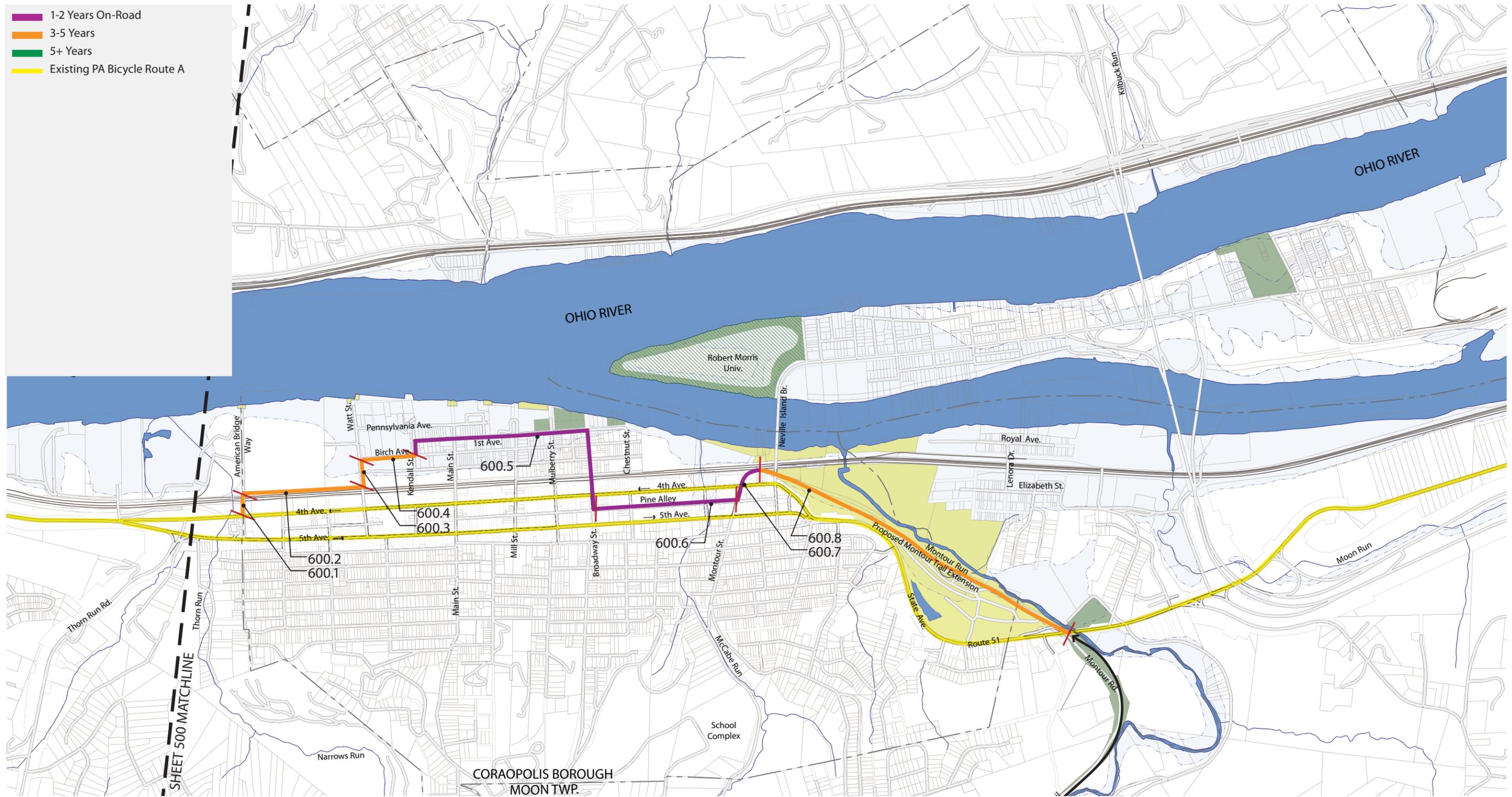
SECTION 500

MOON TOWNSHIP		QUANTITY		MATERIALS	
SEGMENT #	DESCRIPTION	NO. UNITS	UNIT MEAS.	PER UNIT COST	MATERIAL TOTAL COST
500.1	GRAVEL	5,370	L.F.	\$18.00	\$ 96,660.00
500.1	FENCING	5,370	L.F.	\$12.00	\$ 64,440.00
500.2	BOARDWALK / RETAINING WALL / SITE IMPROVEMENTS	2,270	L.F.	\$450.00	\$ 1,021,500.00
500.3	GRAVEL	6,620	L.F.	\$18.00	\$ 119,160.00
500.3	FENCING	6,620	L.F.	\$12.00	\$ 79,440.00
500.3	SITE IMPROVEMENTS / LANDSCAPING	3,000	L.F.	\$10.00	\$ 30,000.00
SUBTOTAL					\$ 1,411,200.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5% \$ 70,560.00
MATERIAL SUBTOTAL					\$ 1,481,760.00
ENGINEERING					20% \$ 296,352.00
INSPECTION					15% \$ 222,264.00
CONSTRUCTION CONTINGENCY					20% \$ 296,352.00
MOON TWP. TOTAL COST					\$ 2,296,728.00

SECTION 500 TOTAL COST \$ 2,296,728.00

PROJECT PHASING

- 1-2 Years On-Road
- 3-5 Years
- 5+ Years
- Existing PA Bicycle Route A



SCALE: Not to Scale NORTH

SECTION 600

BOROUGH OF CORAOPOLIS

SEGMENT #	DESCRIPTION	QUANTITY		PER UNIT COST	MATERIALS	
		NO. UNITS	UNIT MEAS.		MATERIAL	TOTAL COST
600.1	ASPHALT	250	L.F.	\$45.00	\$	11,250.00
600.1	THORN RUN CROSSING	1	L.S.	\$55,000.00	\$	55,000.00
600.1	SITE IMPROVEMENTS / LANDSCAPING	250	L.F.	\$10.00	\$	2,500.00
600.2	ASPHALT	1,500	L.F.	\$45.00	\$	67,500.00
600.2	FENCING	1,500	L.F.	\$12.00	\$	18,000.00
600.3	SIGNING / STRIPING	1	L.S.	\$1,200.00	\$	1,200.00
600.4	ASPHALT ALLEY RECONSTRUCTION	690	L.F.	\$90.00	\$	62,100.00
600.4	SITE IMPROVEMENTS / LANDSCAPING	690	L.F.	\$10.00	\$	6,900.00
600.5	SIGNING / STRIPING	1	L.S.	\$20,000.00	\$	20,000.00
600.6	GREEN ALLEY RETROFIT	3,500	L.F.	\$55.00	\$	192,500.00
600.7	SIGNING	1	L.S.	\$1,200.00	\$	1,200.00
600.8	GRAVEL	1,920	L.F.	\$18.00	\$	34,560.00
600.8	FENCING	500	L.F.	\$10.00	\$	5,000.00
					SUBTOTAL	\$ 233,260.00
OTHER TRAIL SUPPORT GENERAL FACILITIES					5%	\$ 11,663.00
					MATERIAL SUBTOTAL	\$ 244,923.00
ENGINEERING					20%	\$ 48,984.60
INSPECTION					15%	\$ 36,738.45
CONSTRUCTION CONTINGENCY					20%	\$ 48,984.60
					BORO. OF CORAOPOLIS TOTAL COST	\$ 379,630.65

SECTION 600 TOTAL COST \$ 379,630.65

Cost Summary

SECTION 100

BOROUGH OF MONACA	SUBTOTAL \$	666,705.38
SECTION 100 TOTAL COST \$		666,705.38

SECTION 200

CENTER TOWNSHIP	SUBTOTAL \$	398,412.00
HOPEWELL TOWNSHIP	SUBTOTAL \$	24,900.75
CITY OF ALIQUIPPA	SUBTOTAL \$	409,837.05
SECTION 200 TOTAL COST \$		833,149.80

SECTION 300

CITY OF ALIQUIPPA	SUBTOTAL \$	634,074.00
SECTION 300 TOTAL COST \$		634,074.00

SECTION 400

HOPEWELL TOWNSHIP	SUBTOTAL \$	38,669.40
SOUTH HEIGHTS BOROUGH	SUBTOTAL \$	185,535.00
CRESENT TOWNSHIP	SUBTOTAL \$	243,474.00
SECTION 400 TOTAL COST \$		467,678.40

SECTION 500

MOON TOWNSHIP	SUBTOTAL \$	2,296,728.00
SECTION 500 TOTAL COST \$		2,296,728.00

SECTION 600

BOROUGH OF CORAOPOLIS	SUBTOTAL \$	379,630.65
SECTION 600 TOTAL COST \$		379,630.65

OHIO RIVER TRAIL PREFERRED ROUTE	TOTAL COST \$	5,944,671.61
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Alternative Trail Surface Estimate of Probable Costs

The Estimate of Probable Costs provided on pages III.6 through III.18 is based on a value design approach for the preferred trail alternative. In terms of trail surface material, the most cost-effective and context appropriate material was chosen for each planning segment (100.1, 100.2, etc.). The cost for each segment is depicted in the associated cost tables based on the unit cost for that applicable surface material.

Through the trail planning and preferred alternative selection process employed during the preparation of this study, there were discussions about the durability, maintenance and cost trade-offs for each surface material type. It was determined that in many cases asphalt would be the ideal trail surface, it was not required and may be highly cost prohibitive in terms of getting the entire trail, as proposed, constructed. A separate probable cost calculation was performed for all trail segments listed in the proceeding Estimate of Probable Cost to determine the cost increase, per segment for asphalt versus gravel material. The attached table shows that the ORSST construction cost could be increased by an estimated \$2M to \$2.5M if it were constructed entirely of asphalt for all off-roadway segments.

There were also discussions regarding other trail surfaces materials, specifically the possibility of using permeable asphalt paving. It is believed that permeable asphalt has too many drawbacks to be considered a viable option for application on the ORSST. As a general rule, permeable asphalt paving costs are double that of traditional asphalt. In addition, permeable asphalt requires a significant amount of annual maintenance to ensure its longevity, which further impacts the potential annual trail maintenance budget burden for each municipality. If routine maintenance is not provided for permeable asphalt paving, the value of the additional expenditure for construction will be lost. In most cases, comparable stormwater infiltration achieved by permeable paving materials can be achieved through the design of rain garden swales along the edges of the trail, requiring less maintenance and potentially improving habitat and water quality.

SECTION 100

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
100.5	4,650'	\$209,250.00	\$83,700.00	\$ 125,550.00
SECTION 100 SUBTOTAL COST INCREASE				\$ 125,550.00

SECTION 200

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
200.1	8,160'	\$367,200.00	\$146,880.00	\$ 220,320.00
200.2	510'	\$22,950.00	\$9,180.00	\$ 13,770.00
200.3	4,350'	\$195,750.00	\$78,300.00	\$ 117,450.00
SECTION 200 SUBTOTAL COST INCREASE				\$ 351,540.00

SECTION 300

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
300.1	1,970'	\$88,650.00	\$35,460.00	\$ 53,190.00
300.2	2260'	\$101,700.00	\$40,680.00	\$ 61,020.00
300.4	2,810'	\$126,450.00	\$50,580.00	\$ 75,870.00
300.5	3840'	\$172,800.00	\$69,120.00	\$ 103,680.00
300.6	4,980	\$224,100.00	\$89,640.00	\$ 134,460.00
SECTION 300 SUBTOTAL COST INCREASE				\$ 428,220.00

SECTION 400

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
400.1	1320'	\$59,400.00	\$23,760.00	\$ 35,640.00
400.2	1500'	\$67,500.00	\$27,000.00	\$ 40,500.00
400.3	2300'	\$103,500.00	\$41,400.00	\$ 62,100.00
400.4	600'	\$27,000.00	\$7,200.00	\$ 19,800.00
400.5	4,220'	\$189,900.00	\$75,960.00	\$ 113,940.00
SECTION 400 SUBTOTAL COST INCREASE				\$ 271,980.00

SECTION 500

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
500.1	5,370'	\$241,650.00	\$96,660.00	\$ 144,990.00
500.3	6,620'	\$297,900.00	\$119,160.00	\$ 178,740.00
SECTION 500 SUBTOTAL COST INCREASE				\$ 323,730.00

SECTION 600

SEGMENT #	NO. UNIT / L.F.	ASPHALT	GRAVEL	INCREASE
600.8	1,920'	\$86,400.00	\$34,560.00	\$ 51,840.00
SECTION 600 SUBTOTAL COST INCREASE				\$ 51,840.00

ORT SUBTOTAL COST INCREASE				\$ 1,552,860.00
ENGINEERING		20%	\$	310,572.00
INSPECTION		15%	\$	232,929.00
CONSTRUCTION CONTINGENCY		20%	\$	310,572.00
OHIO RIVER TRAIL PREFERRED ROUTE				TOTAL COST INCREASE \$ 2,406,933.00

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,

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

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 park land 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 economic climate leaves many of these programs in a state of limbo. It is not clear if the programs will remain intact, or instead in a dormant stage until revenue returns or if they will disappear permanently.

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

PennDOT's primary means of funding greenways projects is through the Transportation Enhancements Program that is part of SAFETEA-LU. Greenways projects with a tie to transportation, historic preservation, bicycle/pedestrian improvements, or environmental quality are eligible

candidates for Transportation Enhancements funding. This funding comes from the federal transportation bill which typically is adopted every six years by Congress and signed by the President into law. SAFETEA-LU's six year program period ended in October of 2009 and Congress has not yet taken up the task of writing and adopting a new six year transportation bill. Much of the federal funding that is being allocated by Congress is still passing through the extension of SAFETEA-LU programs and it is not clear what sources and programs will be available once a new federal bill is passed into law.

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 due in October 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.

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.

Urban and Community Forestry Grants

This funding is used to encourage the planting of trees in Pennsylvania communities. Municipal challenge grants provide 50 percent 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.

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).

Phasing, Estimate of Probable Costs and Financing

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.

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.

Department of Community and Economic Development (DCED)

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.

Community Revitalization Program

This funding source supports local initiatives aimed at improving a community’s quality of life and improving business conditions.

State Planning Assistance Grant

This program provides funding to municipalities for preparation and maintenance of community development plans, policies, and implementation measures. The grant requires a 50% match and priority is given to projects with regional participation.

Communities of Opportunity Program

This program provides funding to prepare communities to be competitive in attracting, expanding, and maintaining businesses and providing affordable housing. The program is open to municipalities, redevelopment and housing authorities, and nonprofit housing corporations. The program does not require a local match.

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.

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.

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.

Pennsylvania Historical Museum Commission (PHMC)

The PHMC’s funding for the 2009-2010 Fiscal Year was cut by more than 50 percent. The PHMC received 174 Project applications in December 2008. The PHMC has suspended application deadlines and is currently trying to address the budget reduction impacts on the 165 museums, historical organizations and county historical societies it currently supports.

Keystone Historic Preservation Grants

Local governments and non-profit groups may apply for this grant that ranges in value from \$5,000 to \$100,000. A 50% local match is required and funds may be used for preservation, rehabilitation, and restoration of historic properties, buildings, structures, sites, or objects.

Certified Local Government Grants

This is a federal funding program limited to Certified Local Governments for purposes of cultural resource surveys, technical and planning assistance, educational and interpretive programs, and national register nominations. The program includes a 40% local match that can be made with in-kind services, cash, or Community Development Block Grants.

DEP Growing Greener

Growing Greener, the largest single investment of state funds in Pennsylvania's history, is set to expire. 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.

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.

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.

Environmental Fund for Pennsylvania

This fund is available to environmental, conservation, and recreation organizations for projects that improve the quality of life for Pennsylvania communities.

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.

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.

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.

Surface Transportation Act (SAFETEA LU) (Accessed through PENNDOT)

For the past 15 years, the Surface Transportation Act has been the largest single source of funding for the development of bicycle, pedestrian, trail and greenway projects. However, the original bill expired on September 30, 2009. Congress approved a continuing resolution that keeps the government funded through 2010. Congress could take up a new surface transportation reauthorization bill (\$450 billion in road and transit funding is being considered) after the mid-term elections in 2010. There was serious discussion of passing an 18 month extension which would have extended SAFETEA-LU through March 2011. It is uncertain whether this is still possible with the current continuing resolution.

There are many programs within SAFETEA-LU that deserve mention. The authorizing legislation is complicated and robust. The following provides a summary of how this federal funding can be used to support the Ohio River Trail Network. All of the funding within these programs would be accessed through the PennDOT and in most cases appropriated by Congressional legislators.

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.

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.

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.

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.

Recreational Trails Program (RTP)

The Recreational Trails Program is specifically set up to fund both motorized and non-motorized trail development. Under SAFETEA-LU, funding was established at \$370 million for the five-year term of the legislation. At least 30% of these funds must be spent on non-motorized trails, or \$110 million. This program has a relatively low cap on grant size (\$100,000 per grant) but can't be used to supplement other larger funding sources. This program has a 20 percent local matching funds requirement. It is not clear if this funding program will continue under the reauthorization of SAFETEA-LU.

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.

Safe Routes to School Program (SR2S)

A new program under SAFETEA-LU is the Safe Routes to School (SR2S) program, with \$612 million in funding during the term of the legislation. This is an excellent new program to increase funding for access to the outdoors for children. Each state will receive no less than \$1 million in funding, with 10% to 30% of the funds allocated to non-infrastructure activities. The SR2S Program was established in August 2005 as part of the most recent federal transportation re-authorization legislation--SAFETEA-LU. This law provides multi-year funding for the surface transportation programs that guide spending of federal gas tax revenue. Section 1404 of this legislation provides funding (for the first time) for PENNDOT to create and administer SR2S programs which allow communities to compete for funding for local SR2S projects.

The administration of section 1404 has been assigned to FHWA's Office of Safety, which is working in collaboration with FHWA's Offices of Planning and Environment (Bicycle and Pedestrian Program) and the National Highway Traffic Safety Administration (NHTSA) to establish and guide the program.

High Priority Projects

Under SAFETEA-LU more than 5,091 transportation projects were earmarked by Congress for development, with a total value in excess of \$3 billion.

Land and Water Conservation Fund (LWCF)

The Land and Water Conservation Fund is the largest source of federal money for park, wildlife, and open space land acquisition. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of \$900 million each year. However, Congress generally appropriates only a fraction of this amount. The program provides up to 50 percent of the cost of a project, with the balance of the funds paid by states or municipalities. These funds can be used for outdoor recreation projects, including acquisition, renovation, and development. Projects require a 50 percent match.

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.

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.*

US Department of Energy (DOE) Energy Efficiency and Conservation Block Grant Program

This program, authorized in the Energy Independence and Security Act of 2007, exists to assist eligible entities in implementing energy efficiency and conservation strategies to reduce fossil fuel emissions, total energy use, and to improve energy efficiency in the transportation sector. Specifically, funds are available for transportation infrastructure: bike lanes/pathways, pedestrian walkways, and synchronized traffic signals. The total annual appropriation is \$2B, and DOE will develop a formula for allocating \$1.36B (68%) of the block grants among cities and counties. Approximately \$560M (28%) will be passed to the states and each state will decide how to award these funds among its cities and counties. \$40M (2%) is available in a competitive program to non-formula cities/counties, and the final \$40M (2%) is appropriated under a tribal program.

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.

Community Block Development Grant Program (HUD-CBDG)

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate-income areas. Grants from this program range from \$50,000 to \$200,000 and are either made to municipalities or non-profits.

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.

Phasing, Estimate of Probable Costs and Financing

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 it 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.

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.

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

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 Beaver and Allegheny Counties, the nine South Shore communities including the boroughs of Monaca, South Heights, Coraopolis and Montour Junction/Groveton, the City of Aliquippa, and the townships of Center, Hopewell, Crescent, and Moon. ORTC would serve as the umbrella organization. Other partners would include CJ Betters Corporation, American Bridge Corporation and the U.S. Army Corps of Engineers. The other 17 municipalities could join the agreement over time as the trail is developed.
- **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.

Boroughs of Glasgow, Ohioville, Midland, Industry, Beaver, Bridgewater, Fallston, New Brighton, Rochester, and the Townships of Vanport and Rochester. In addition, the North Shore Extension Communities include the Boroughs of Ambridge, Leetsdale, Edgeworth and Sewickley. The Bradys Run Extension adds Patterson and Brighton Townships.

The eight communities within the South Shore Feasibility study area span two counties, Beaver and Allegheny, and have a combined population of over 75,000 and range in population size from 542 to 22,290 residents. The level of municipal staffing, budget and capacity for maintenance and operations vary widely by jurisdiction. By working together in developing, operating and maintaining the Ohio River 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.

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

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 south 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 South Shore communities include the Boroughs of Monaca, South Heights, and Coraopolis, the City of Aliquippa, and the Townships of Center, Hopewell, Crescent, and Moon. The eleven North Shore communities include the

- **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.

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.

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 ORSST 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.

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 ORSST. Monaca Borough has received funding to locate security cameras along the riverfront, especially targeting the bridge areas.

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.

A wooden deck surface, such as that proposed for the boardwalk area between CSX property and the Ohio River also requires specific maintenance. The cost for the care of the surface can be mitigated drastically by using a "trex" or recycled lumber deck. Traditional treated wood decking surfaces require preservative treatment every 2-4 years and the costs of the work and material soon exceed the replacement cost of the wood. The surface of decks should be inspected regularly to ensure that fasteners have not worked themselves loose, which pose potential risks to trail users. This can be easily accomplished by municipal staff or volunteer crews.

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.

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 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. 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

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 ORSST 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-stripping/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.

Ownership, Operation and Maintenance

Low Cost Range to Maintain Trail by Surface Type per Municipality

Municipality	On-Road Length	Off-Road Length	Boardwalk Length	Total Length
Monaca Borough	\$ 300.00	\$ 2,100.00		\$ 2,400.00
Center Township	\$ -	\$ 2,250.00		\$ 2,250.00
Hopewell Township	\$ -	\$ 450.00		\$ 450.00
City of Aliquippa	\$ -	\$ 7,350.00		\$ 7,350.00
S. Heights Borough	\$ 30.00	\$ 1,350.00		\$ 1,380.00
Crescent Township	\$ 456.00	\$ 1,140.00		\$ 1,596.00
Moon Township	\$ -	\$ 2,550.00	\$ 560.00	\$ 3,110.00
Coraopolis Borough	\$ 360.00	\$ 870.00		\$ 1,230.00
TOTAL	\$ 1,146.00	\$ 18,060.00	\$ 560.00	\$ 19,766.00

High Cost Range to Maintain Trail by Surface Type per Municipality

Municipality	On-Road Length	Off-Road Length	Boardwalk Length	Total Length
Monaca Borough	\$ 450.00	\$ 2,800.00		\$ 3,250.00
Center Township		\$ 3,000.00		\$ 3,000.00
Hopewell Township		\$ 600.00		\$ 600.00
City of Aliquippa		\$ 9,800.00		\$ 9,800.00
S. Heights Borough	\$ 45.00	\$ 1,800.00		\$ 1,845.00
Crescent Township	\$ 684.00	\$ 1,520.00		\$ 2,204.00
Moon Township		\$ 3,400.00	\$ 960.00	\$ 4,360.00
Coraopolis Borough	\$ 540.00	\$ 1,160.00		\$ 1,700.00
TOTAL	\$ 1,719.00	\$ 24,080.00	\$ 960.00	\$ 26,759.00

Cost Range to Maintain Per Mile by Surface Type

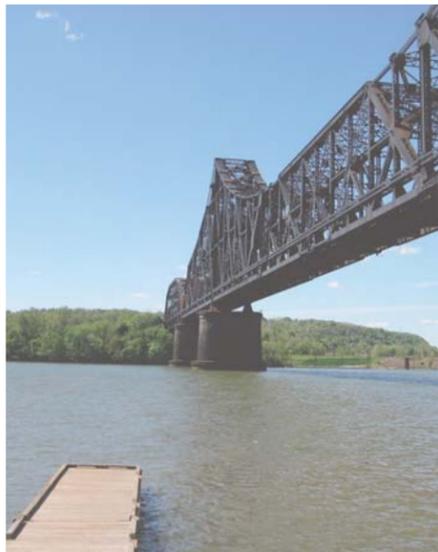
	On-Road Length	Off-Road Length	Boardwalk Length
Low/Mile	\$ 300.00	\$ 1,500.00	\$ 700.00
High/Mile	\$ 450.00	\$ 2,000.00	\$ 1,200.00

Cost Range to Maintain Entire Trail System

	On-Road Length	Off-Road Length	Boardwalk Length	Total Length
Low/17 Miles	\$ 1,146.00	\$ 18,060.00	\$ 560.00	\$ 19,766.00
High/17 Miles	\$ 1,719.00	\$ 24,080.00	\$ 960.00	\$ 26,759.00

Ohio River South Shore Trail Feasibility Study

APPENDIX



February 2011

Appendix A - Sample Intergovernmental Agreement

Appendix A: Sample Intergovernmental Agreement

This agreement made this ____ day of _____, 2010 by and among:

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.

Appendix A - Sample Intergovernmental Agreement

- (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.
- (b) Participants.
 - (1) **Ordinance** -Each Participant must adopt an ordinance, 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.
 - (2) **Official Recognition**- Each Participant will incorporate the Ohio River Trail in its official municipal maps and plans.
 - (3) **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.
 - (4) **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.
 - **Trail Surface**- The ORTC will be responsible for soliciting and entering into contracts for trail resurfacing.
 - **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.)
 - **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
 - **Trail Mowing** – Each Participant shall be responsible for trail mowing twice-monthly April through October.
 - **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 _____, 2010 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.

Appendix A - Sample Intergovernmental Agreement

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals of the day, month and year first above written

Attest: _____	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.

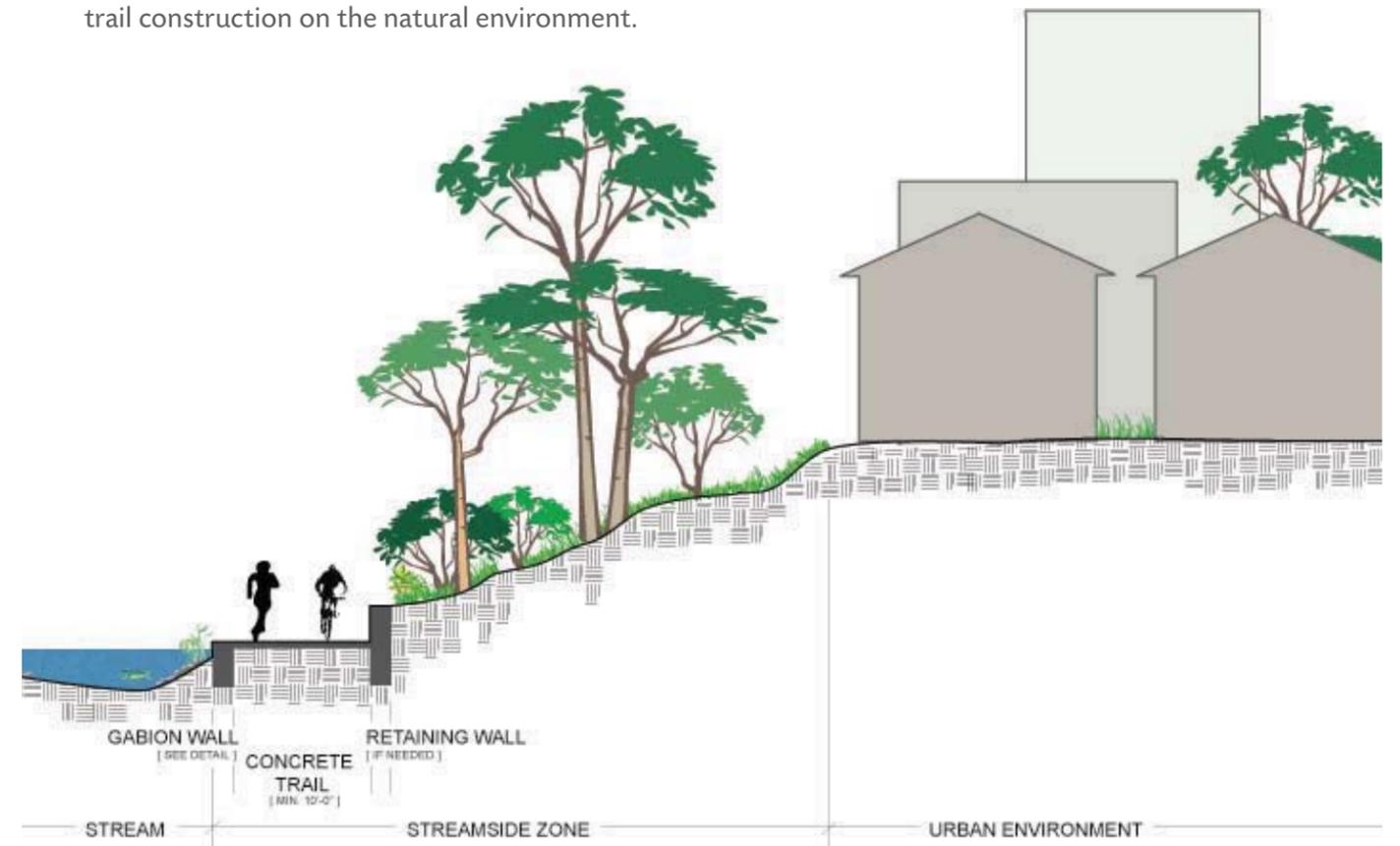
- Paved asphalt, concrete or permeable paving is recommended.
 1. In most areas, paved asphalt trails offer substantial durability for the cost of installation and maintenance. As a flexible pavement, asphalt should also be considered for installing a paved trail on slopes.
 2. In areas prone to frequent 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.



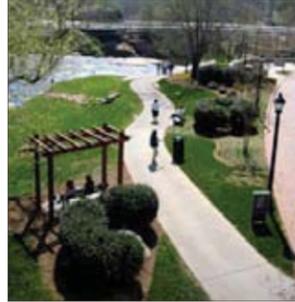
Appendix B - Design Guidelines

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.

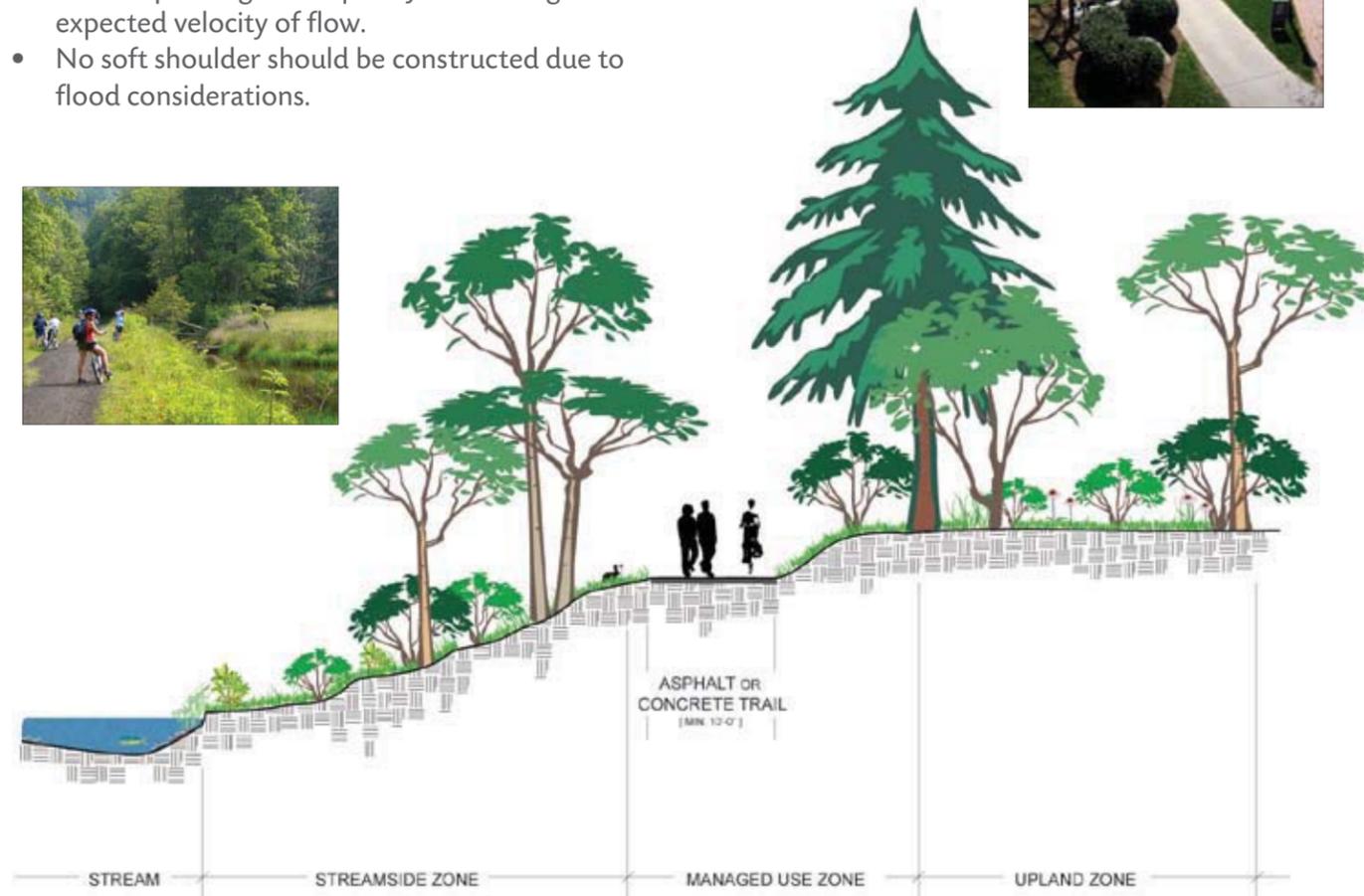


Multi-use Trail : Floodplain Areas

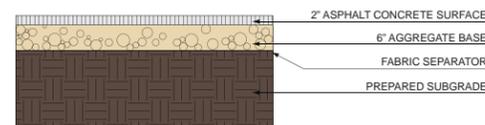
'Paved Multi-use Trail' guidelines apply, with the following considerations and exceptions:

- 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.

Appendix B - Design Guidelines

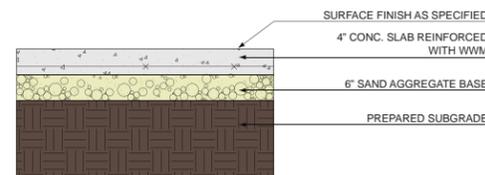


LOW VELOCITY



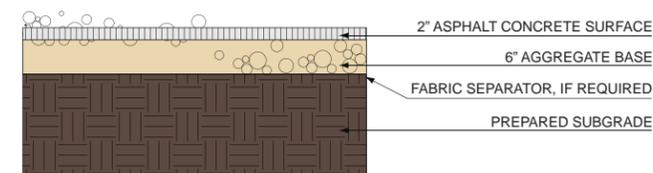
ASPHALT PAVING ON AGGREGATE BASE

HIGH VELOCITY

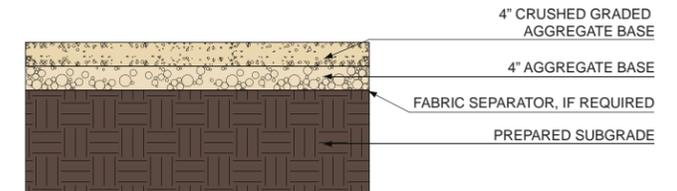


CONCRETE PAVING ON AGGREGATE

TYPICAL PAVED & UNPAVED TRAIL CROSS SECTIONS

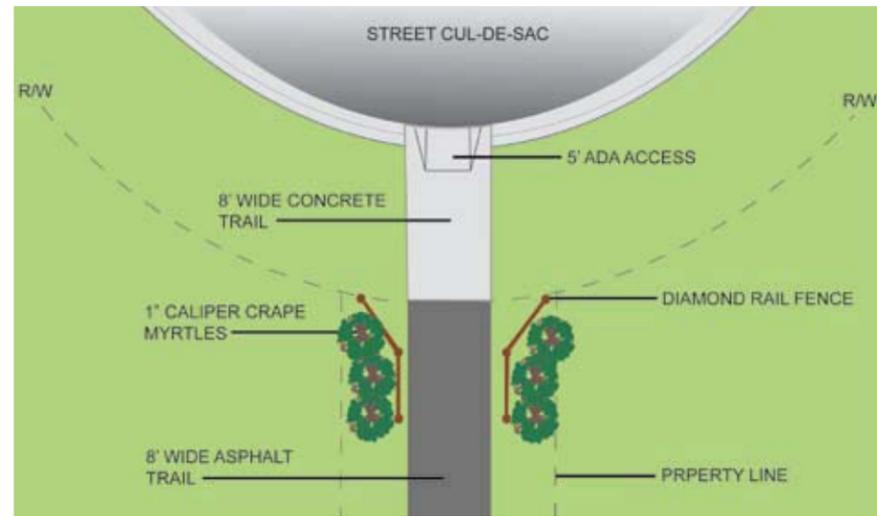


ASPHALT PAVING ON AGGREGATE BASE



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, cul-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

Appendix B - Design Guidelines

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 interfere 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.

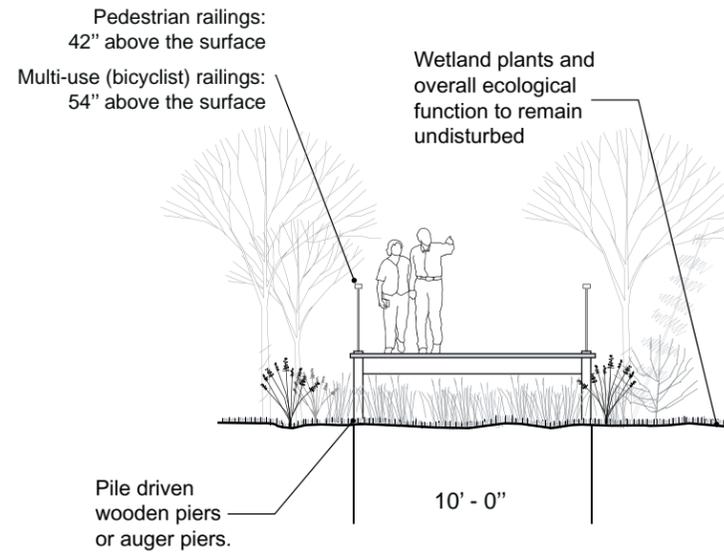
- Street and sidewalk landscaping can be used to provide a separation buffer between pedestrians and motorists, reduce the width of a roadway, calm traffic by creating a visual narrowing of the roadway, enhance the street environment, and help to generate a desired aesthetic.
- Growth pattern and space 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.



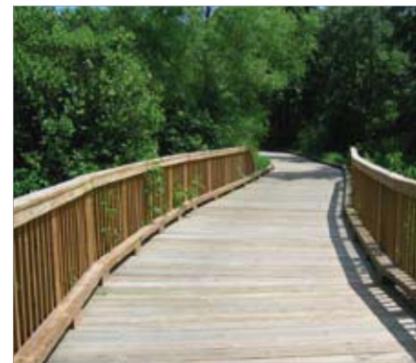
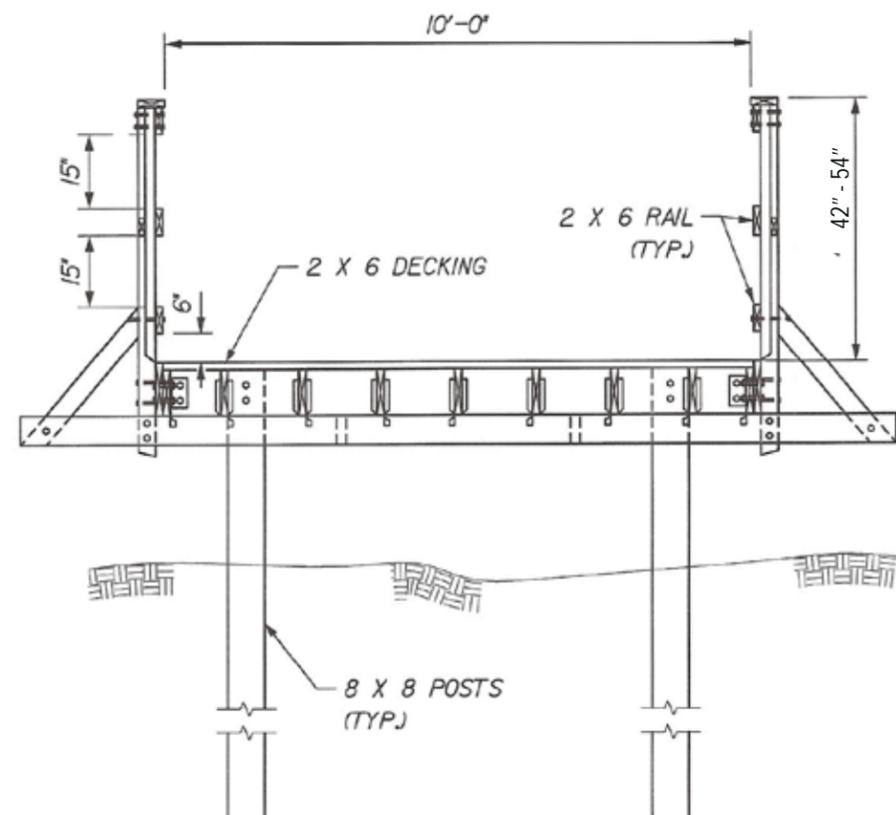
Landscaping used on the Capital Crescent Trail, Washington DC, shows how stormwater treatment can be tied to aesthetically pleasing plantings.

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.

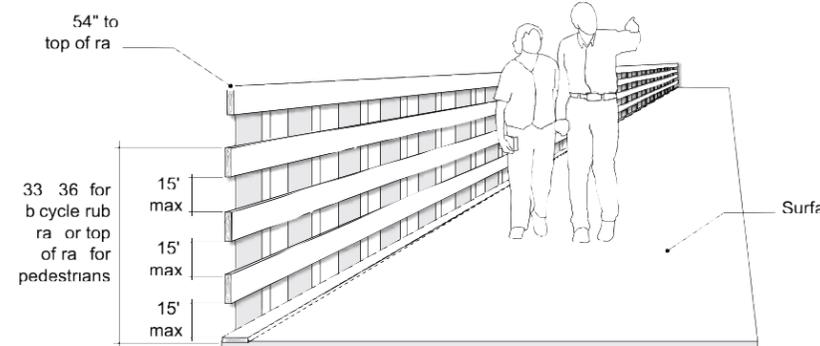


A boardwalk allows for travel through wet areas..

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 hazard 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.



Example image of fence used along a rail with trail (Grand Rounds Parkway).

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.



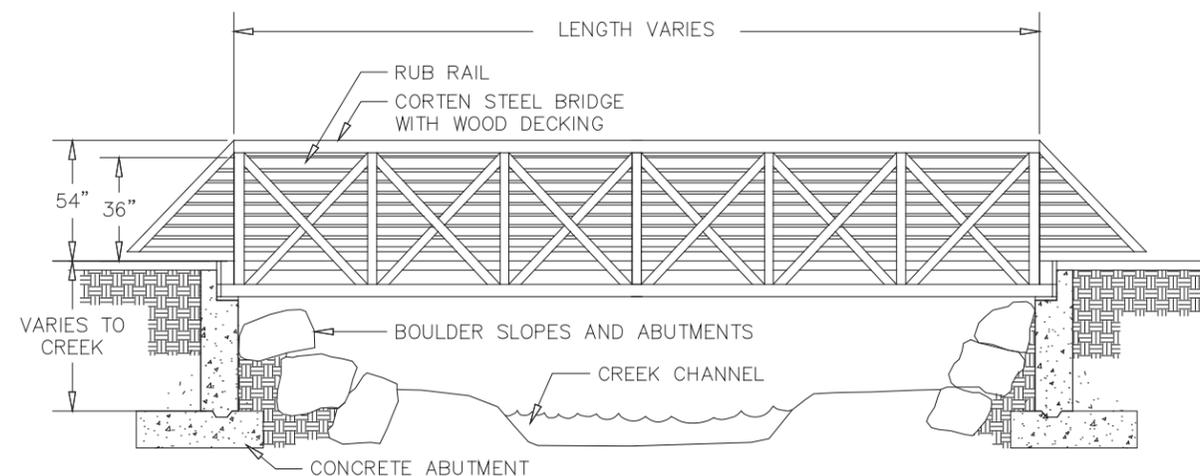
Bicycle wheel gutters on stairs and boardwalk bridge



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

Trail overpasses 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.

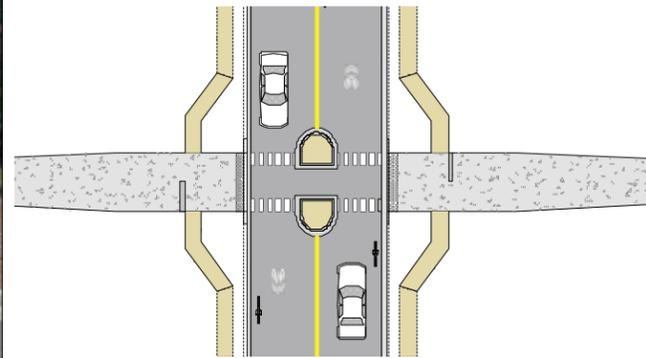
- Sidewalks should be included on roadway bridges on both sides, minimum 5' wide, with minimum hand-rail height of 42"
- Sufficient bridge deck width should be provided on new bridges, including approaches, to accommodate bicyclists
- In roadway underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the roadway by more than a standard curb height.
- On bridges built for controlled access roadways, a separated, multi-use sidepath should be provided, minimum 12' wide, with connections made to bike/ped facilities on both sides of the bridge.

Trail Underpass

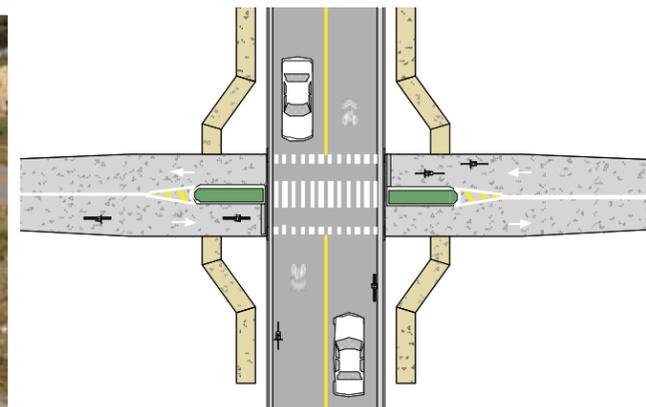
- Over and underpasses should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over.
- Underpasses work best with favorable topography when they are open and accessible, and exhibit a sense of safety.
- Underpasses should have a daytime 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 streams 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 underpasses can be designed to flood periodically (after significant rainfall, for instance).



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 trail-heads. 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



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 trail 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 ambience. 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'.

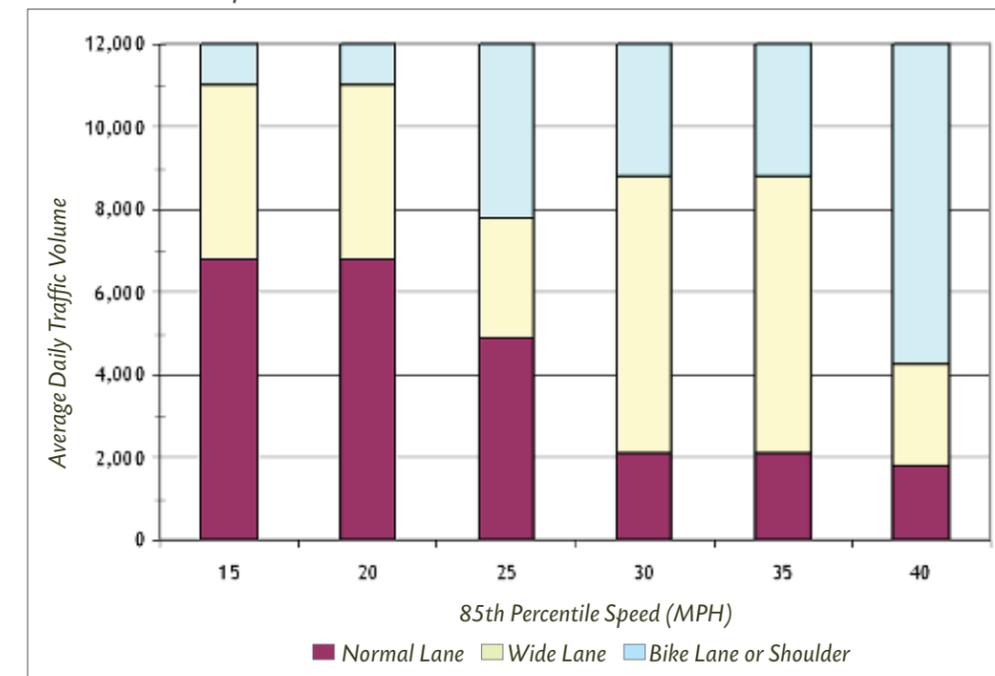
- Ensure pedestrian walkways and crossways are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at key intersections.
- Install lighting on both sides of streets in commercial districts.
- Use uniform lighting levels
- Use full cut-off, 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

Appendix B - Design Guidelines

A wide variety of on-road bicycle facilities have been developed to meet different transportation 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.

Bicycle Boulevards

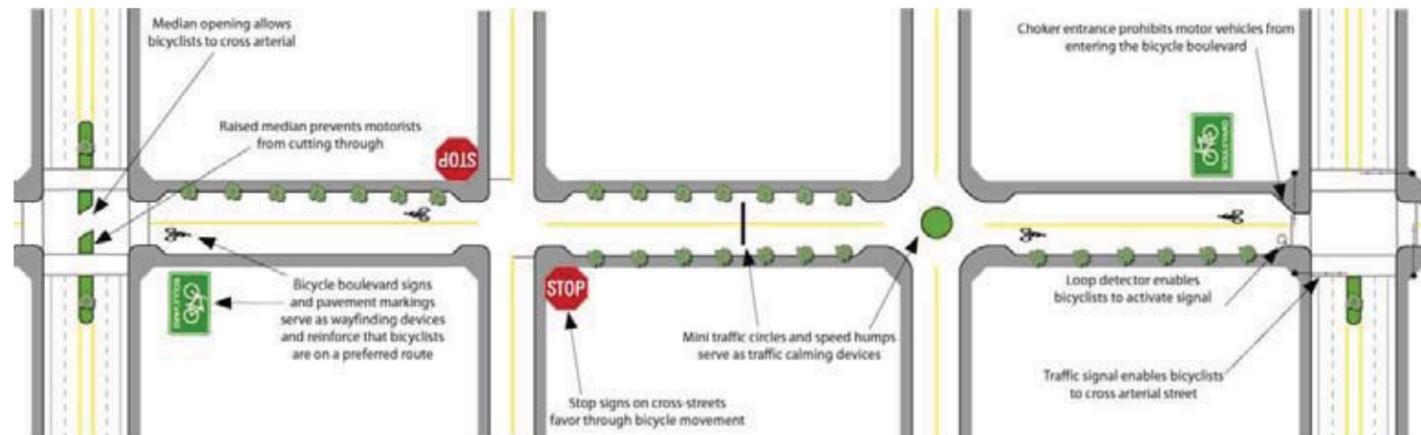
To further identify preferred routes for bicyclists, the operation of lower volume roadways may be modified to function as a through street for bicycles while maintaining local access for automobiles. Traffic calming devices reduce traffic speeds and through trips while limiting conflicts between motorists 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.

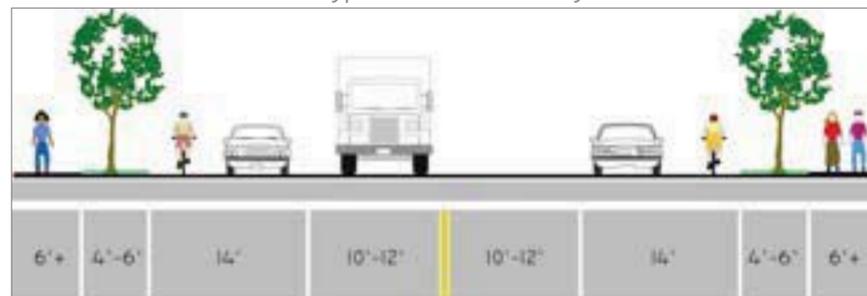
Below: A bicycle boulevard.



Wide Outside Lanes

Even without a bicycle facility or marking, the conditions for bicycling 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

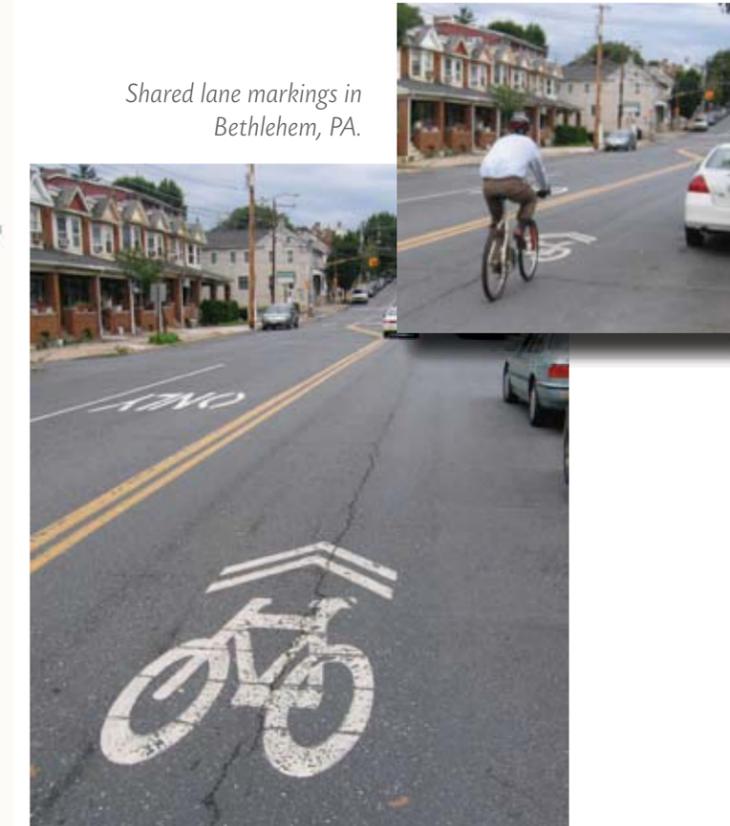
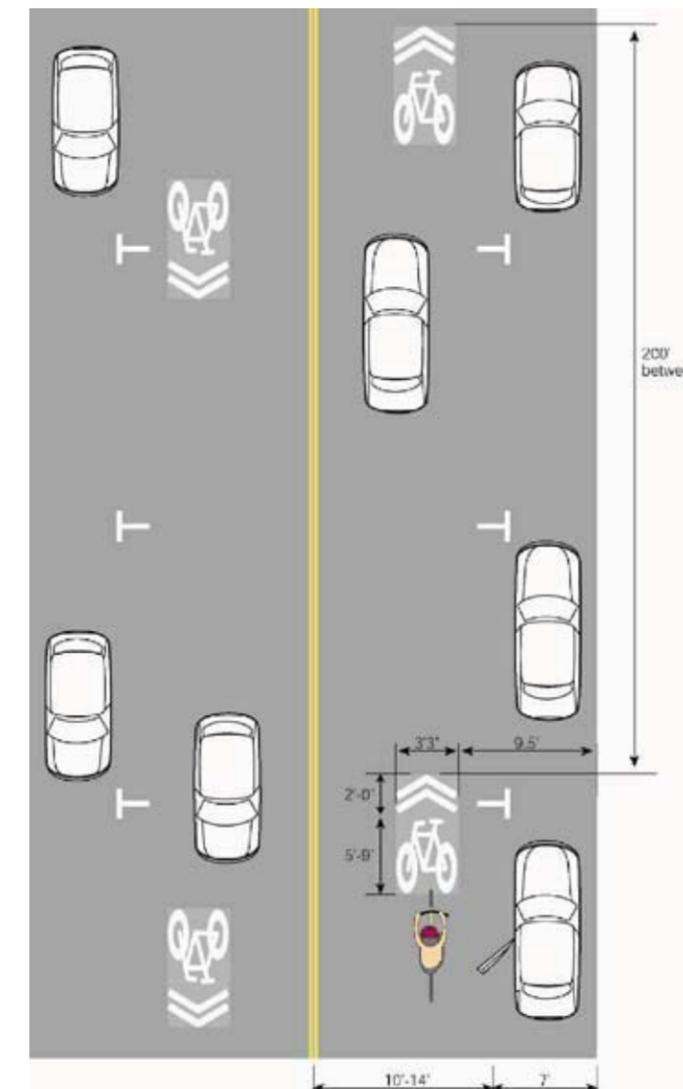


Shared Lane Marking

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:

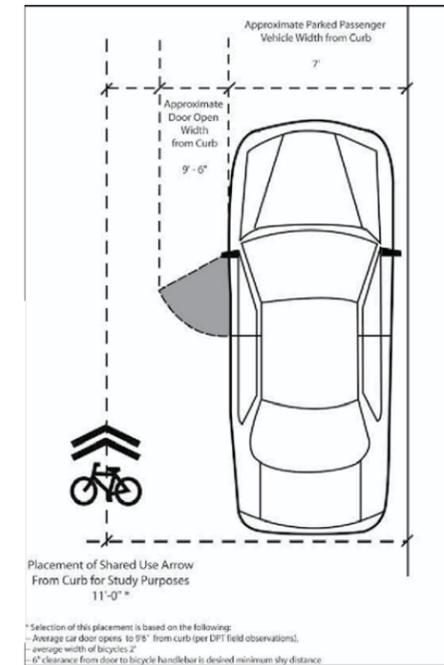
- Where lanes are too narrow for striping bike lanes
- Where the speed limit does not exceed 35 MPH
- With or without on-street parking

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.

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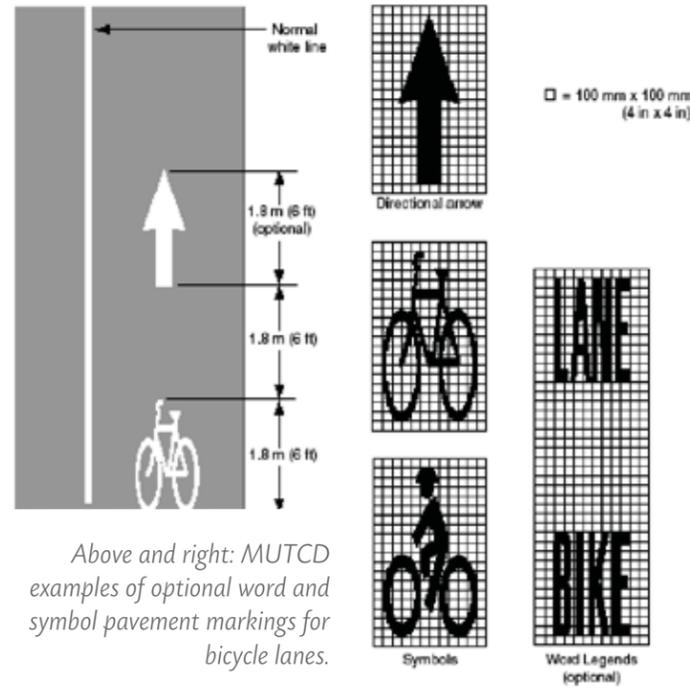


Bicycle Lanes

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

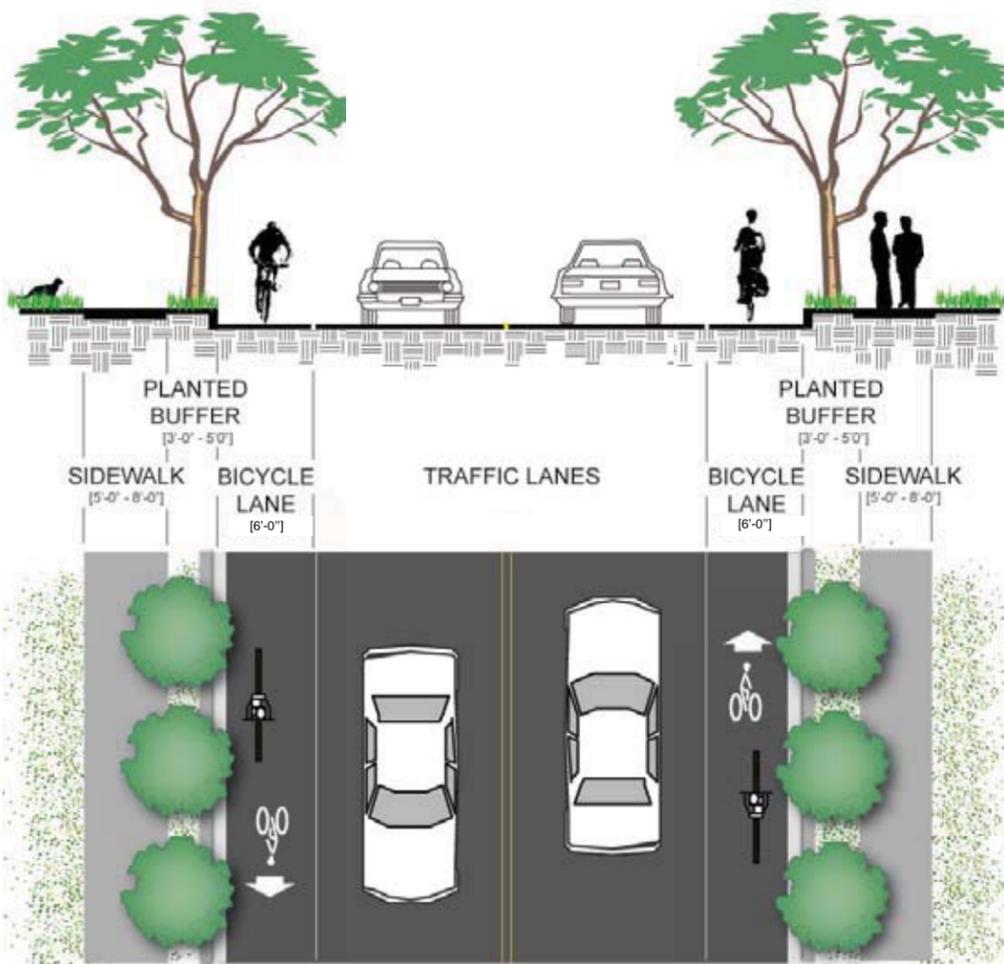


Above and right: MUTCD examples of optional word and symbol pavement markings for bicycle lanes.

Colored Bike Lanes

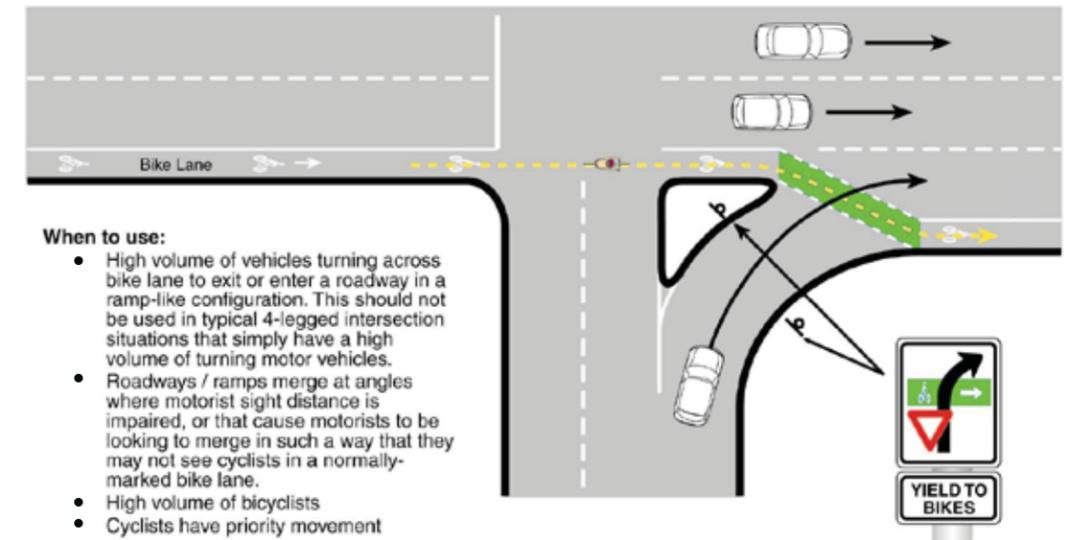
In addition to markings presented in the MUTCD, the following experimental pavement markings may be considered. European countries have used colored pavement for bicycle lanes in areas that tend to have a higher likelihood for vehicle conflicts. Examples of such locations are freeway on- and off-ramps 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).

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Henry Street in Brooklyn, NY.

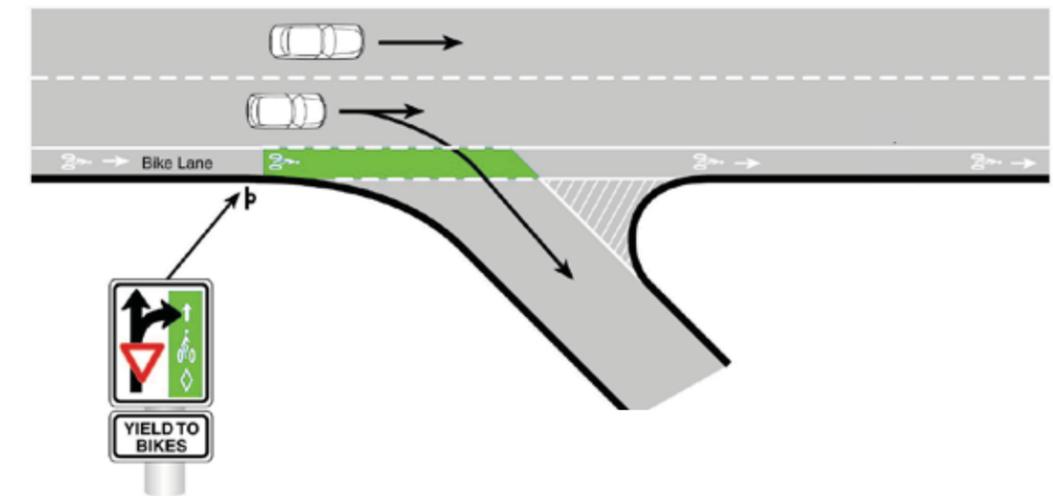
Entrance Ramp Zone



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

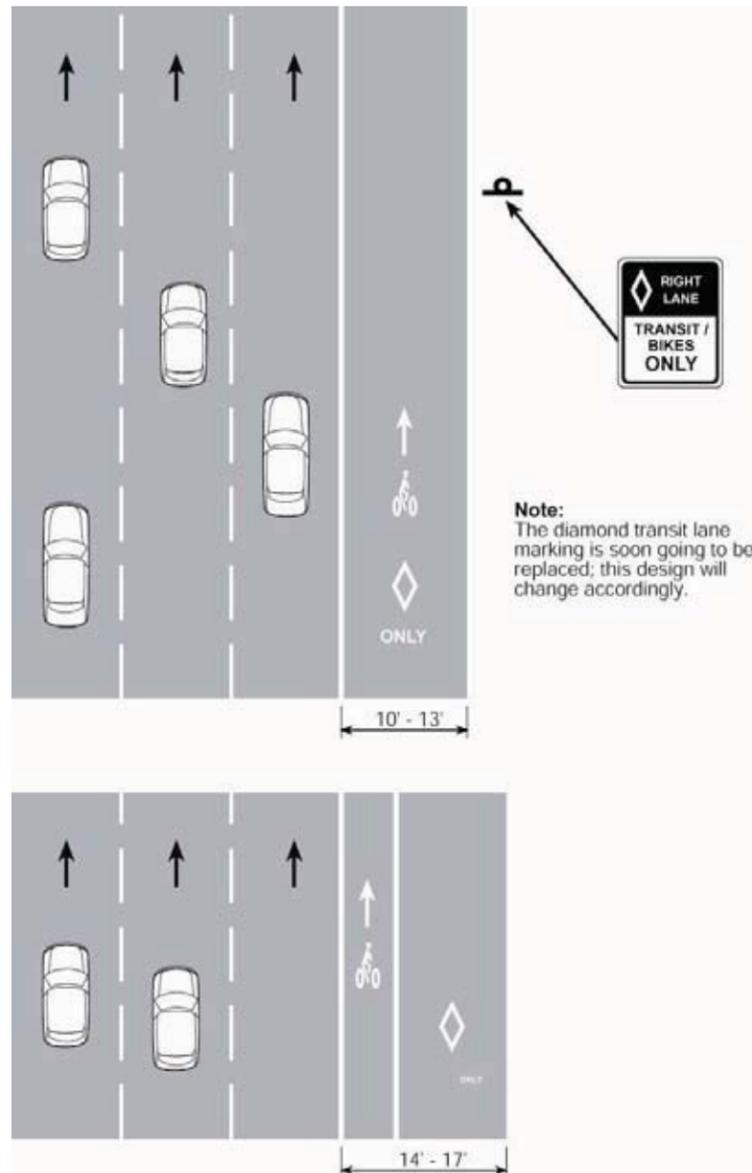


Shared Bus/Taxi/Bicycle Lane

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

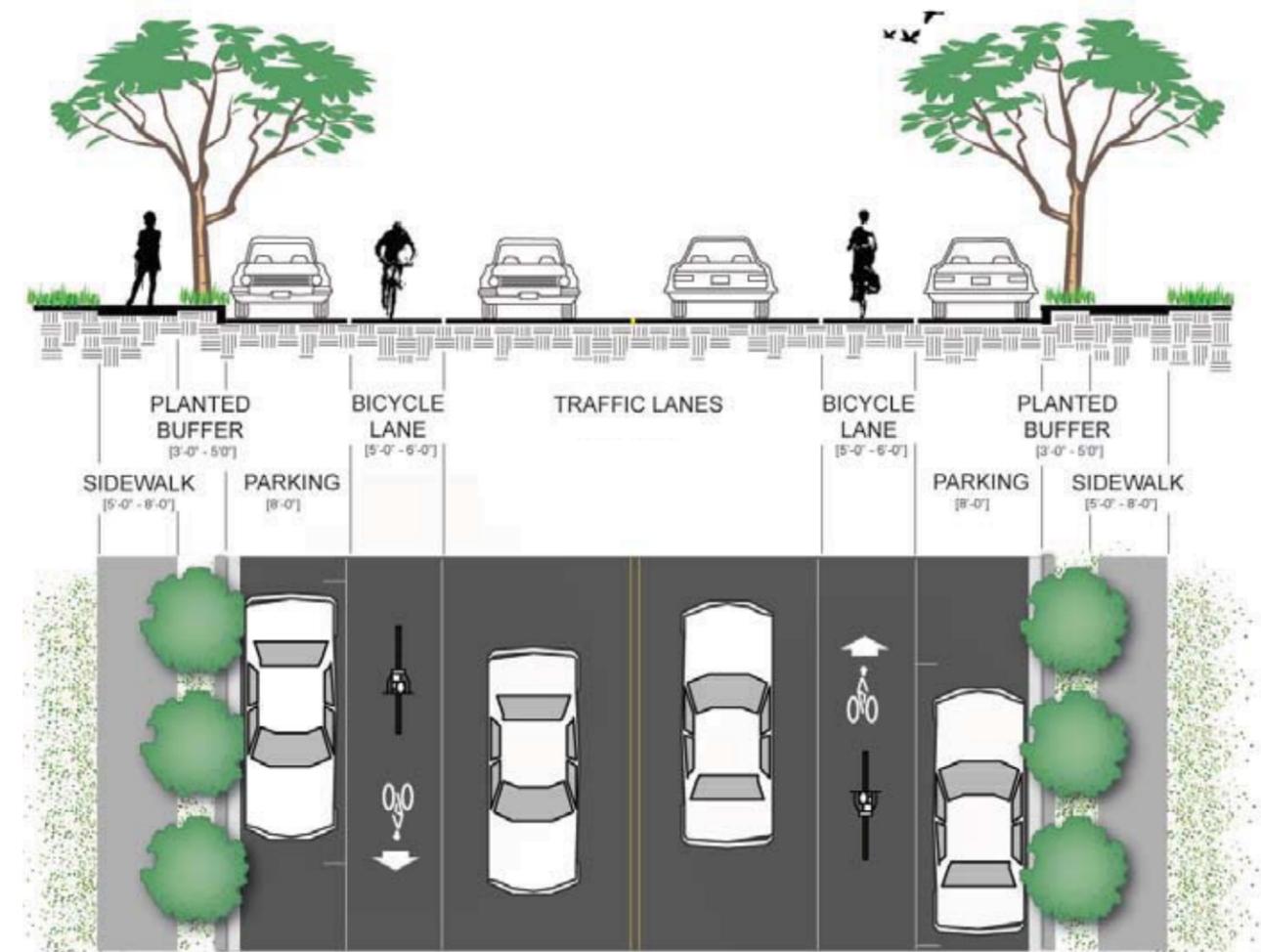


Bicycle Lane + Parking

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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 included in the construction of new roadways and/or the upgrade of existing roadways, especially where there is a need to more safely accommodate bicycles.

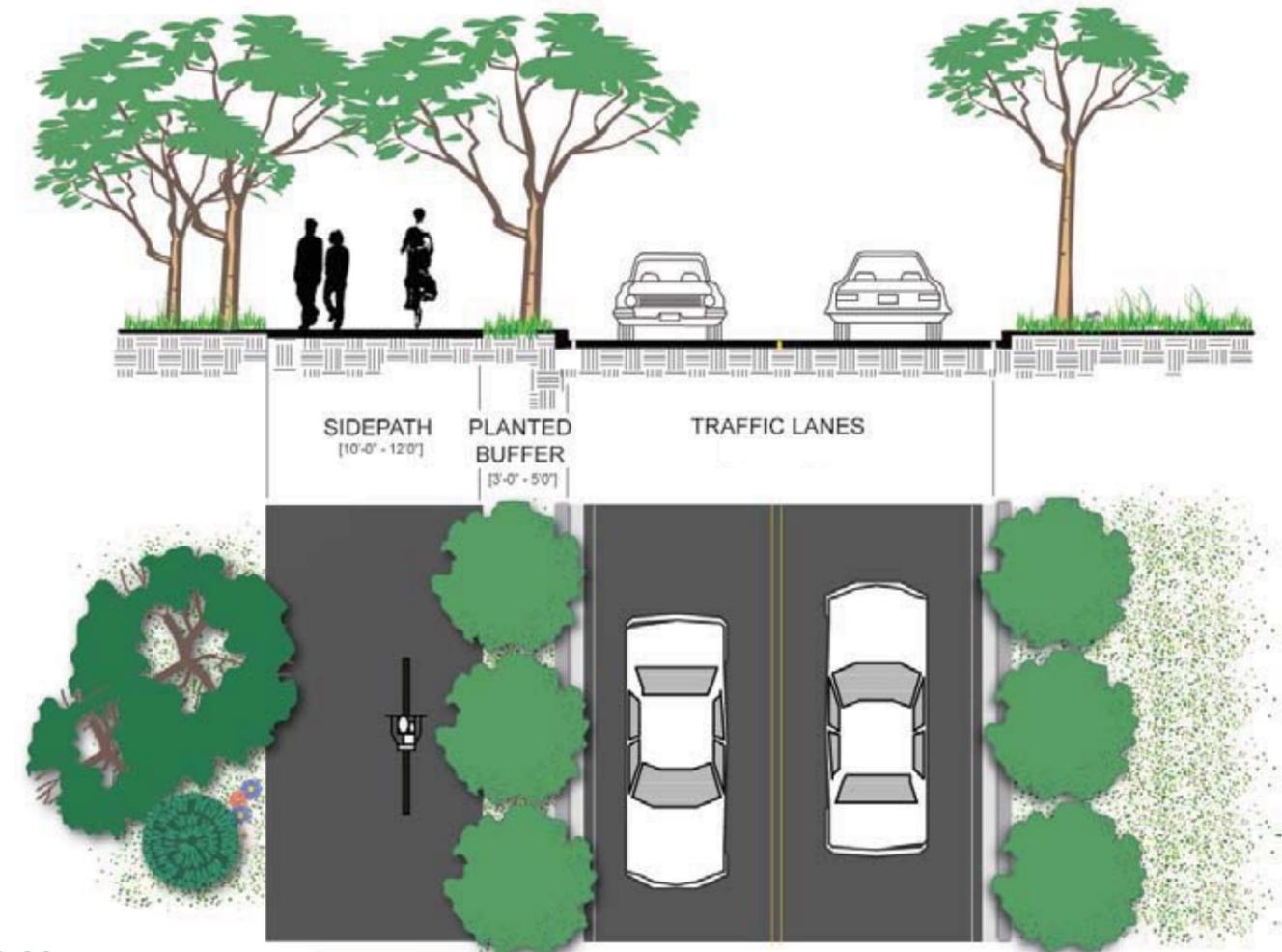
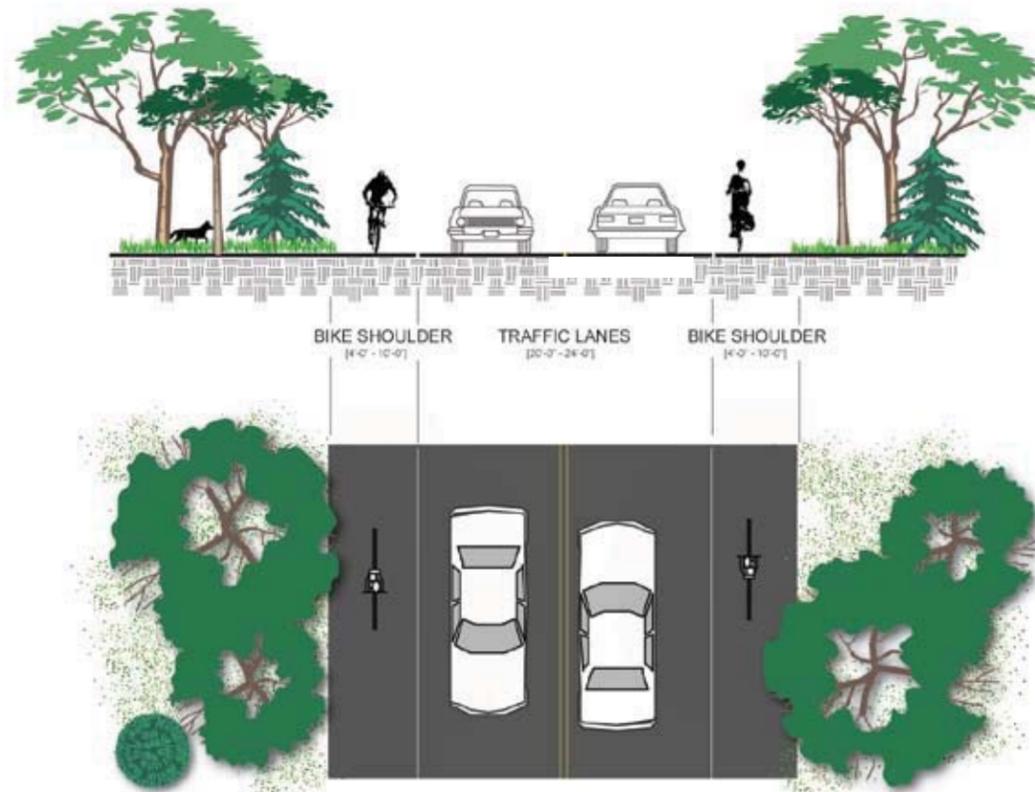
- Most often used in rural environments, although not confined to any particular setting
- Should be delineated by a solid white line, and provided on both sides of the road
- Should be contiguous and on the same level as the regularly traveled portion of the roadway
- 4' minimum width; however for speeds 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)



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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 continuous, 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.

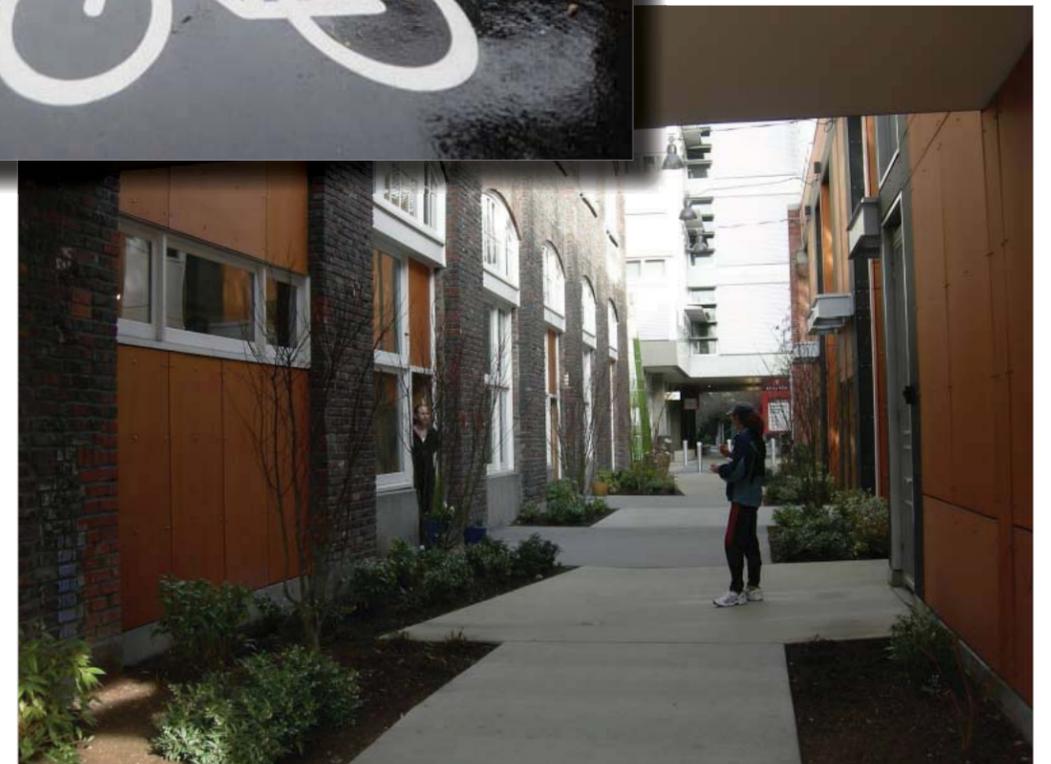


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- Sufficient lighting should be made available at night and on dark days. See section on 'Lighting' for related guidelines.
- Where green alleys intersect streets, integrate features into the streets that would prioritize bicyclists (ie improve crossing 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:

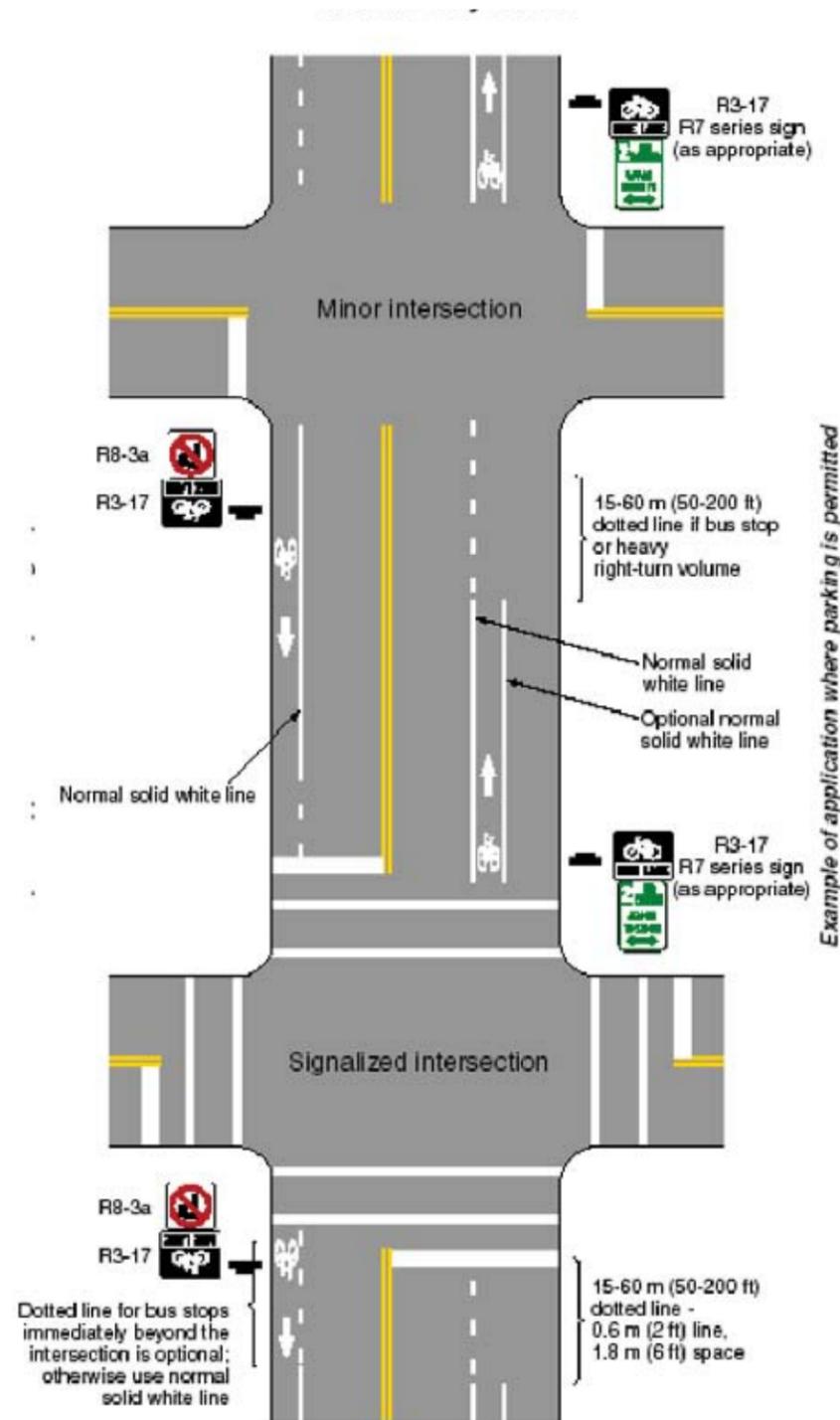
- Larger intersections are more difficult for bicyclists to cross.
- On-coming vehicles from multiple directions and increased turning movements make it more difficult for motorists to notice non-motorized travelers.
- Most intersections do not provide a designated place for bicyclists.
- Bike lanes 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.

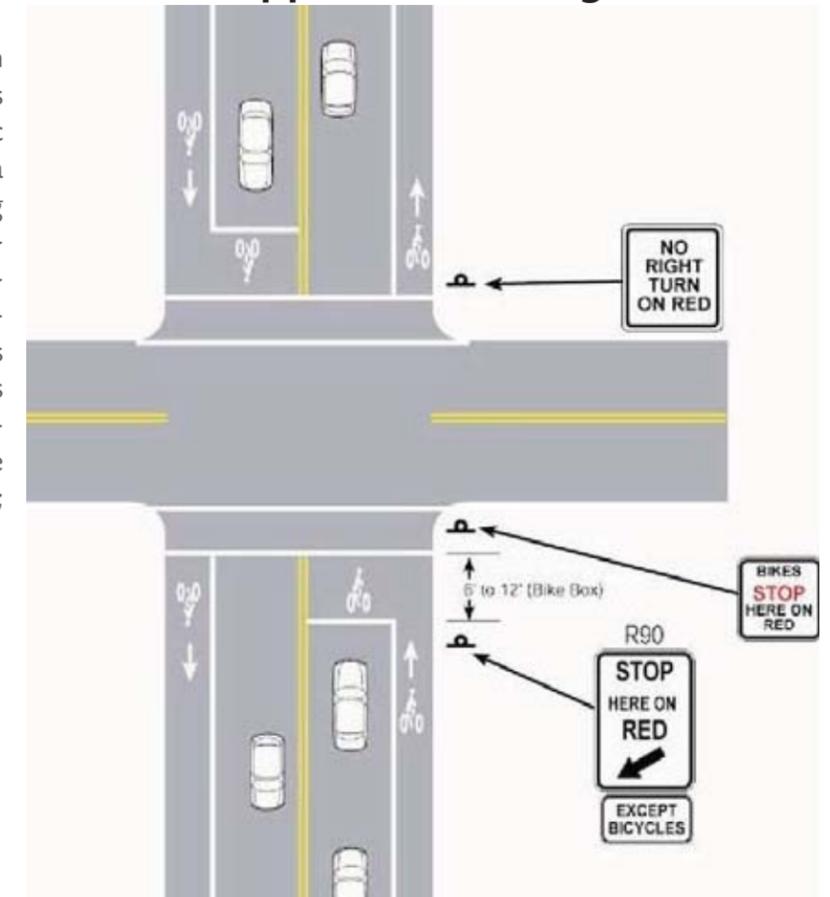
Potential Applications:

- 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.

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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

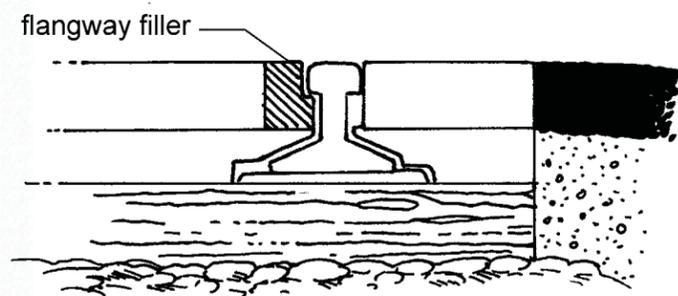
Railroad crossings are particularly hazardous to those who rely on wheeled devices for mobility (railroad crossings have flangeway gaps that allow passage of the wheels of the train, but also have the potential to catch wheelchair casters and bicycle tires). In addition, rails or ties that are not embedded 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.



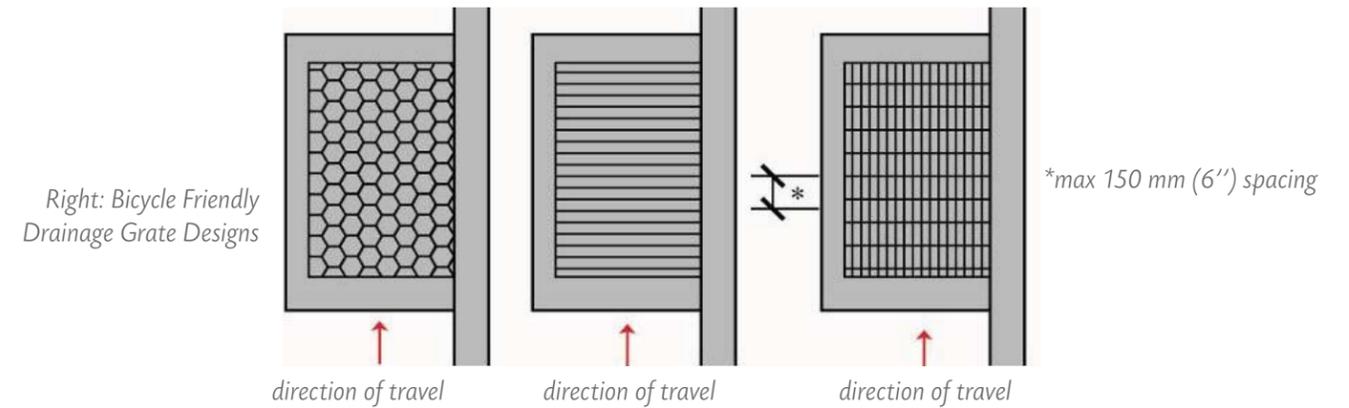
Installing a rubber surface rather than asphalt around railroad flangeways reduces changes in level and other maintenance problems.



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 with the weight of a train and does not affect railway function.

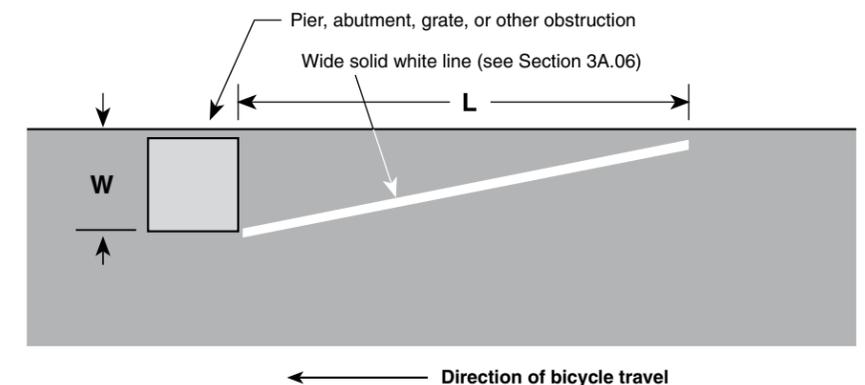
Bicycle Friendly Drainage Grates

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

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.

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This typical transit stop features a shelter, ample seating, bicycle parking, landscaping, and trash bins (Image from <http://www.walkinginfo.org>).

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>)

Sidewalks and Walkway Guidelines:

Sidewalk Guideline Sources:

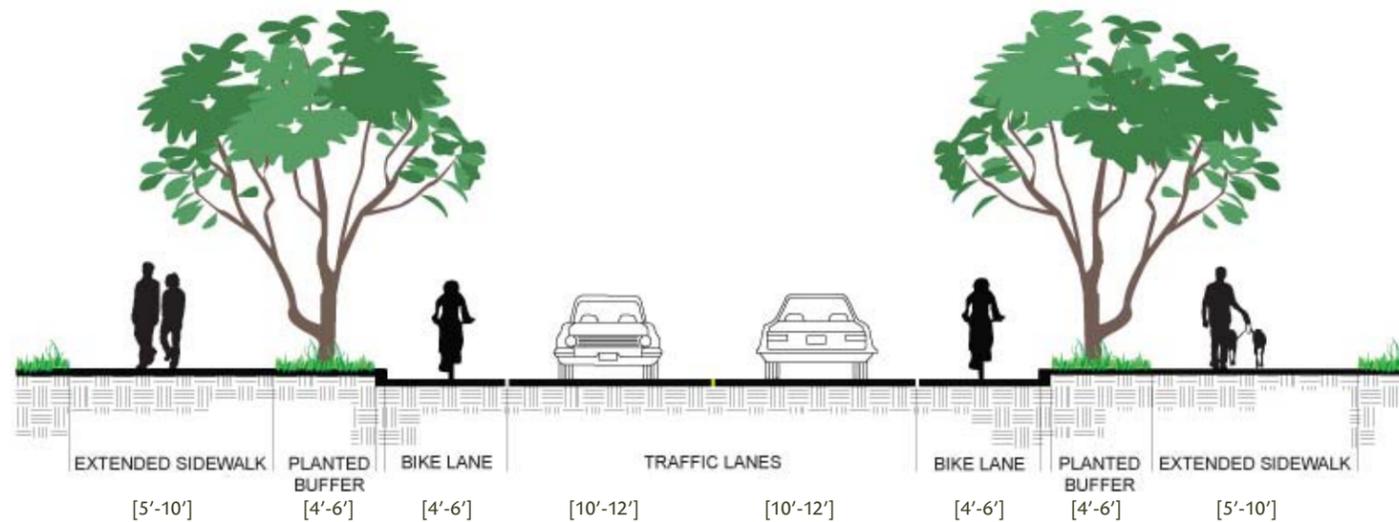
American Association of State Highway and Transportation Officials. (2004). *Guide for the Planning, Design, and Operation of Pedestrian Facilities.*

Metro Regional Government. (2005). *Portland, Oregon: Transportation Information Center.* <http://www.oregon-metro.gov>

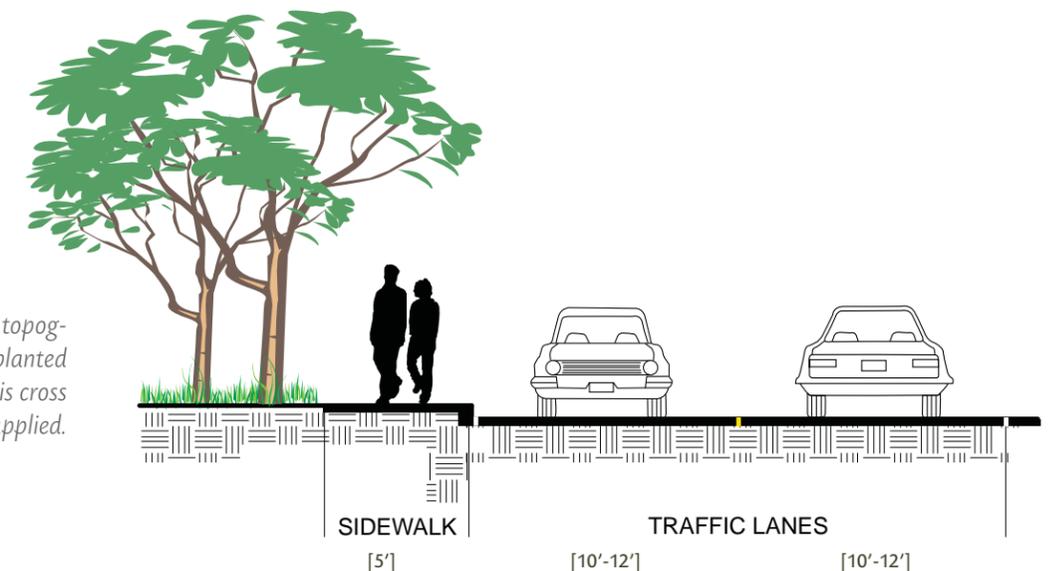
Appendix B - Design Guidelines

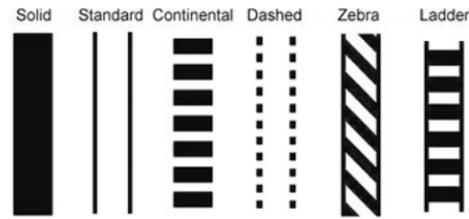
- Concrete is preferred surface, providing the longest service life and requiring the least maintenance. Permeable pavement such as porous concrete may be considered to improve water quality.
- Sidewalks should be built as flat as possible to accommodate all pedestrians; they should have a running grade 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.





A variety of patterns are possible in designating a crosswalk; an example of a 'continental' design is shown above.

Marked Crosswalks

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.oregon-metro.gov>

Curb Ramps

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or hand-carts, 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:

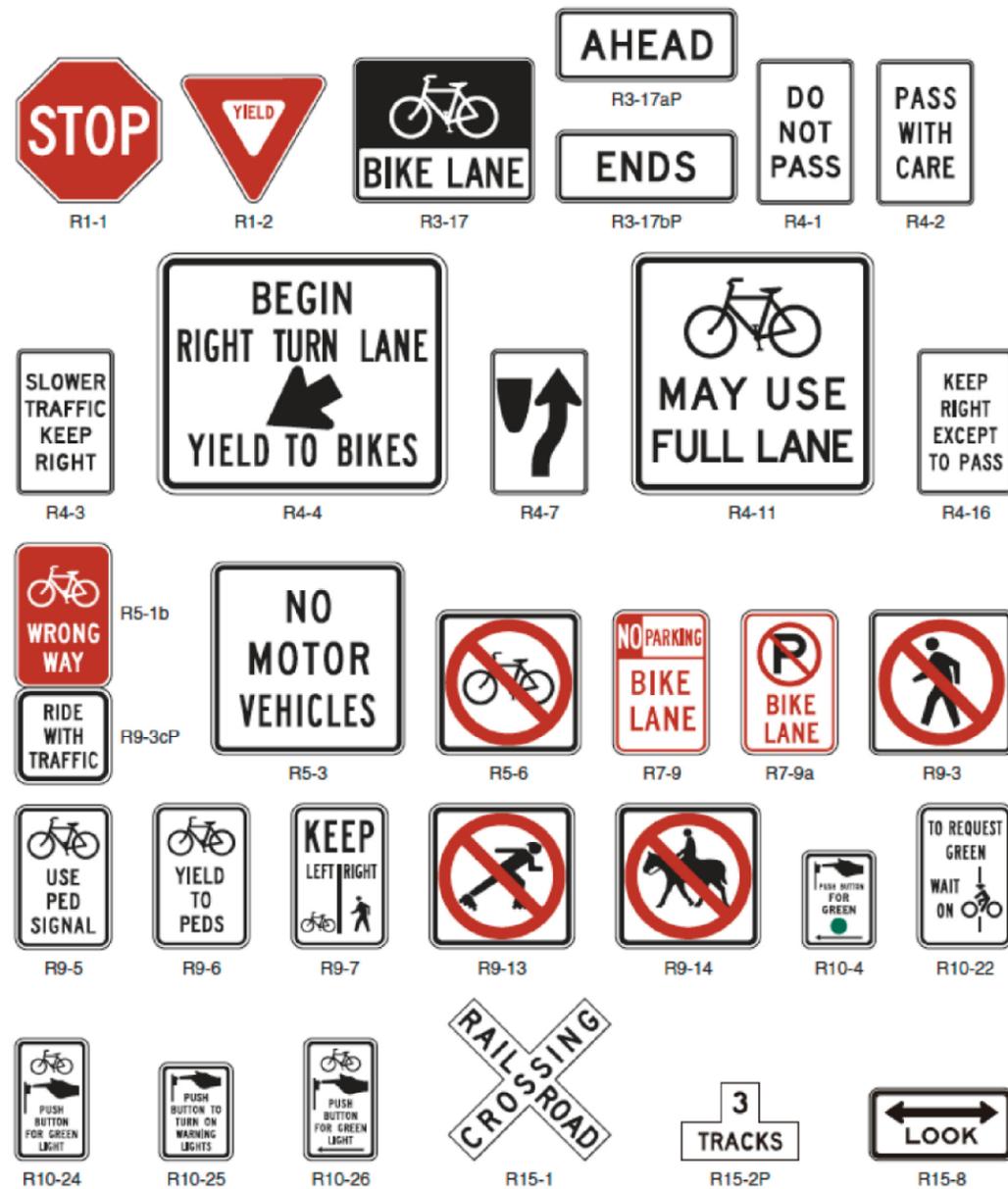
Metro Regional Government. (2005). *Portland, Oregon: Transportation Information Center.* <http://www.oregon-metro.gov>



Left: The curb ramps shown have two separate ramps at the intersection (visible 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 and 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 approved 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:

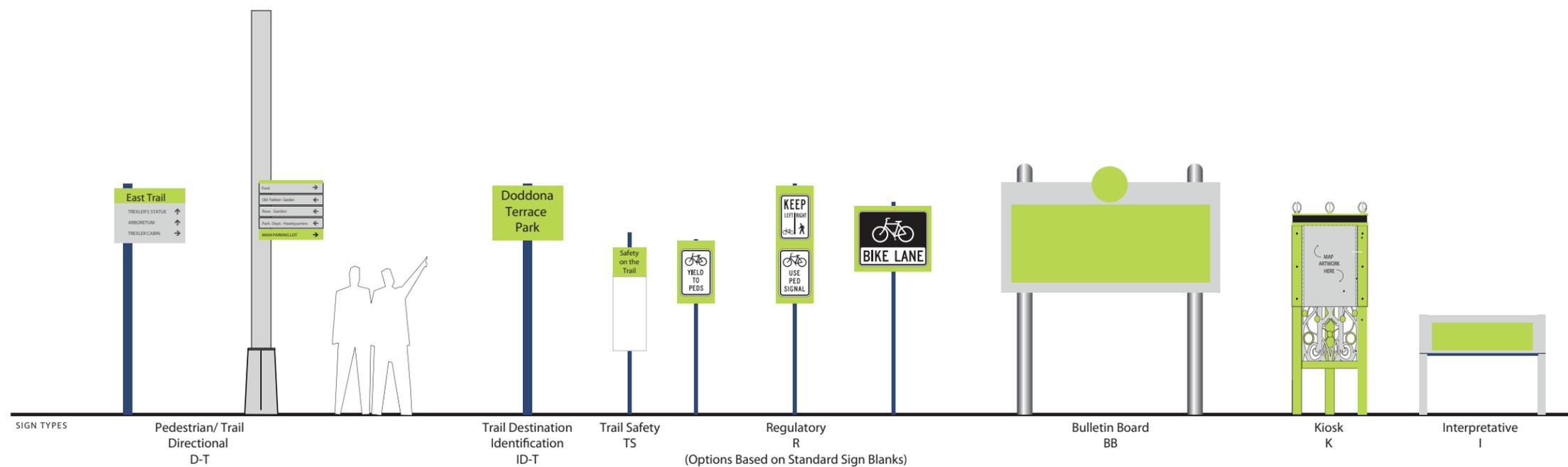
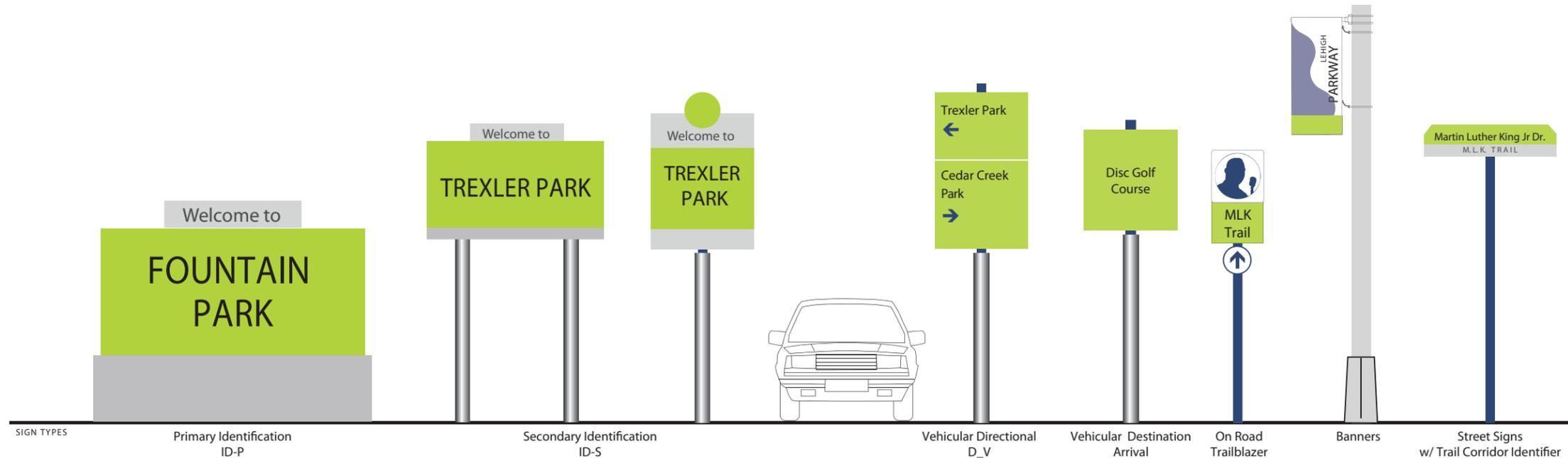
Off-road trail signing allows for greater design flexibility. One option to reduce the size of the signs and to minimize text, is to utilize icons as a way to provide basic information. Any icons that are utilized should be simple and their intent should be very obvious and universal. The above is an example palette that covers typical messages for trail users.

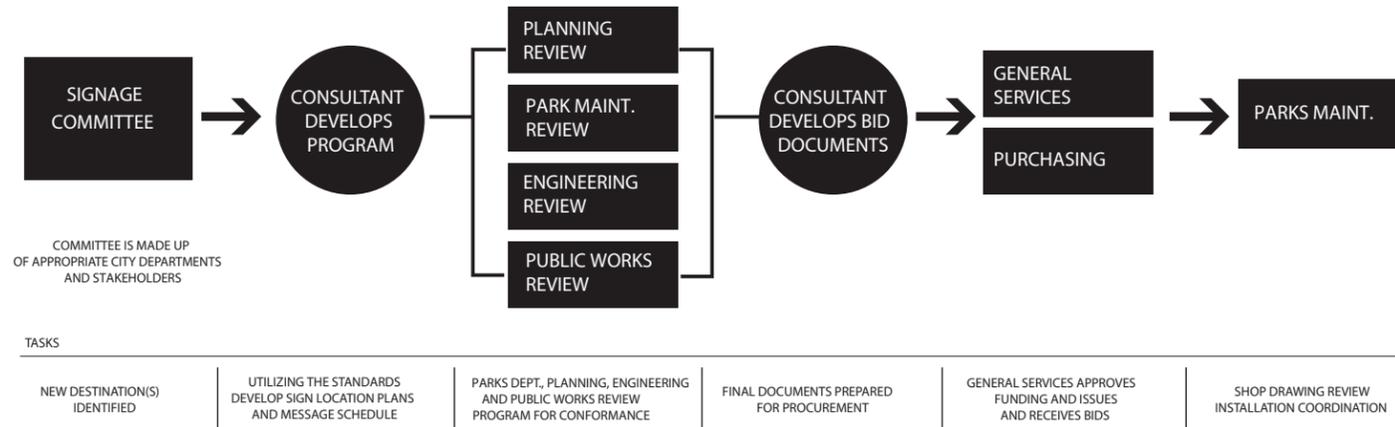
The Value of a Comprehensive Signing System

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 graffiti 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 least 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 film 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.

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.

