The Purpose of the Feasibility Study

The purpose of this feasibility study is to determine the viability to extend a trail connector route west along the Ohio River corridor between the existing Three Rivers Heritage Trail in the City of Pittsburgh and the Borough of Coraopolis. The proposed trail connector route is both a walking system and an on-road bicycling system. The route traverses through several neighboring communities and connects to the Montour Trail at Allegheny County's Sports Legacy Facility in Coraopolis Borough and Robinson Township.

This project is a collaboration between Stowe Township, Friends of the Riverfront, the Pennsylvania Environmental Council and Allegheny County to bring together seven local municipalities, residents, bicycle and trail enthusiasts, developers, and business owners to participate in the planning of the trail connector feasibility study.

The feasibility study recommends walking and cycling improvements in each community, connections between communities, and route improvements to connect Pittsburgh to Coraopolis; and Pittsburgh's trail systems to other regional and interstate trails and cycling routes.

The study offers many improvement projects for communities. It proposes reconnecting our street grids, extension of sidewalks, ADA accessible route upgrades, safer roadway crossings, and safe walking and cycling routes to connect people to school, work and to shops. It provides for improved pedestrian and bicycle connections within each community and improved connections between communities.

A walk-able and bike-able community offers multiple transportation choices to all citizens regardless of age, ability or socio-economic status, and provides for healthier travel choices. Constructing truly multi-modal roadways (with provisions for walking and bicycling) increases the opportunity for all members of the community to access employment centers and community resources.

The report includes mapped routes showing the Three Rivers Heritage Trail Connector: preferred routes and local loop routes within the community. The mapping also indicates bus stop locations and important roadway information to understand the traffic conditions- average daily trips (ADT) and posted speed limits (MPH). The report delineates an on-road walking & bicycle facility including:

- Bike Routes
- Bike Shared Lane Markings (SLM), 'Sharrows'
- Bike Lanes
- Sidewalk, curb ramp, and crossing improvements at key intersections

Once complete, this project will become **THE LINK** in a multi-state trail initiative, connecting Pittsburgh Pennsylvania to the states of Ohio, West Virginia and Maryland. Additionally, this Link will connect our nation's capital to our great Midwest.

Completion of this project would link together the following trail systems:

1. Great Allegheny Passage Trail and C&O Canal Towpath Trail to Wash DC, (335 miles)
2. The Montour Trail, (46 miles and airport connector)
3. Erie to Pittsburgh Trail
4. Ohio River Trail (Part of the Tri-State Trail System- OH, PA, WV),
5. BicyclePA Route-A
6. Great Ohio Lake to River Greenway
7. Ohio and Erie Canal Towpath

Creating roadways for all modes of transportation - automobiles, pedestrians (peds), and bicycles- raises the hierarchy of peds and bikes in the corridor, increases ped-bike awareness for motorists, promotes the construction of traffic calming measures in the corridor, and increasing roadway safety for all travelers and members of the community.

Project Process & Schedule

Until this time, bike trails have not been developed in this corridor; and for good reason. This section of the Ohio River valley is very narrow with steeply sloped hillsides and riverbanks, traversed by a heavily traveled West Carson Street (State Route 51), two active railroad lines, and a very busy Ohio River, active with tow boat and barge traffic. Additionally, the properties throughout are owned by the railroad and several private interests.

The feasibility study began with the Mackin Trail Team (Robert Genter- Project Manager, Chuck Jones- Traffic Engineer, Amy Wiles- Planner and Bill Moldovan- Landscape Architect) and Sam Thomas of Friends of the Riverfront cycling the entire alignment on a Tuesday, early in the month of May 2012. The trip included exploration of several alternative routes both on and off-road. The ride began at Station Square at 7:30 am, extended to Coraopolis, and then returned back to Station Square around 5:30 pm.

The field investigation helped the team to gauge many conditions of the corridor– pavement surfaces and conditions; traffic speeds, volumes, and shy-distances; shoulder conditions; intersection conditions; surrounding property uses; active users in the corridor (walking, carrying groceries, cycling and commuting to work); and views along the corridor– of the river valley, urban conditions, railroads and steep hillsides. A photo log and mapping notes were recorded.

Following the field investigation, a kick off meeting was held to introduce the project's purpose and benefits to neighboring communities and municipal leaders. A second public meeting was held in June in McKees Rocks to review route alignment options with the public. Meeting summaries can be found in the Appendix.

Phone interviews with twenty key stakeholders were conducted and recorded. The interview questions and the list of person can be found in the report appendix. Special meetings were also held with adjacent landowners, businesses, and local developers to review how this project could benefit the community and how they may get involved.

During the winter, background documents and past planning reports were reviewed for coordination. Documents included PennDOT's West Carson Street (SR 51) roadway improvement plans, Riverlife's plan for a ped-bike crossing and landing at the West End Bridge, Stowe Township's comprehensive plan, Ohio River Trail's water trail & riverfront access plan, Allegheny County's cursory report for the Preston Bridge, and local traffic reports.

The riverbank geography is steeply sloped, wooded and narrow; there are several locations used by barge traffic for docking and access; and the banks are separated from the adjacent community by an active railroad. Given these conditions, and other restrictions, an on-road bike route connector was investigated.

At the end of winter and into the Spring of 2013 follow-up field meetings were conducted with Coraopolis, Neville, Stowe and McKees Rocks to review draft routes alignments within each community. Participants traveled to key intersections and trail segments to field review and discuss options and alternatives.

The findings and recommendations were drafted and presented to the steering committee for review and revision. Additional community review meetings were conducted by Friends of the Riverfront; alignments were revised for the McKees Rocks area. The draft was completed and posted on the project's FTP site for final review. Once complete the final reports were issued to the sponsor for adoption in June 2013.

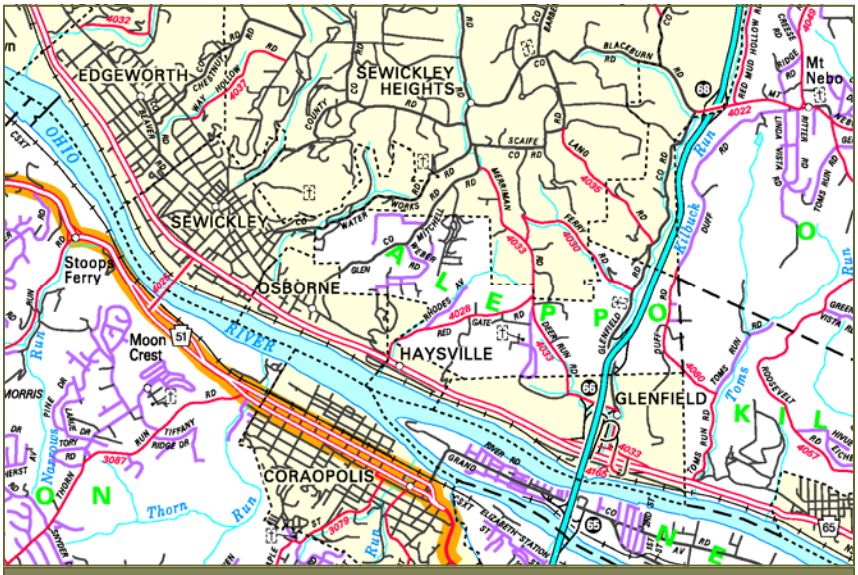
Project Description – *Existing Conditions*

The project investigated walking and bicycling routes along the urban Ohio River valley. The Ohio River valley corridor is confined by steep cliffs, railroads, river banks, narrow roadway corridors, and heavy traffic conditions including trucks and buses. The property along the river is owned by multiple owners and by CSX Railroad. Due to the corridor conditions, an 'on-road' bike route connector was investigated.

This 11.5 mile 'on-road' bicycle and pedestrian project is proposed to connect the City of Pittsburgh with the town of Coraopolis and the Montour Trail System. In Coraopolis the system can extend off-road to the Montour Trail, on-road as BicyclePA Route-A, or west toward the State of Ohio along the proposed Ohio River Trail extension. The Montour Trail is a 46 mile trail that connects to the Great Allegheny Passage Trail and the C&O Canal Towpath Trail (an interstate trail totaling 335 miles as it reaches Washington D.C.). Additionally, the Montour Trail is a connection for cyclist to travel to Pittsburgh's International Airport, with a trail leading directly to the landside terminal.

Bike PGH's 2009 Pittsburgh Bike Map delineates a 'Cautionary Bike Route' along West Carson Street, State Route 51, from the City of Pittsburgh to Island Avenue in McKees Rocks/Stowe Township. The route is then listed as 'On-Street Bike Route' along Island Avenue, through Stowe, to Neville Island and along Neville Road. This study recommends variations to those routes with a municipal preferred route through the McKees Rocks 'Bottoms' to avoid the heavily traveled truck route along SR51 (Stanhope, Chartiers Avenue, and Island Avenue). The preferred route uses portions of Island Avenue and enters Neville Island along Neville Road and Grand Avenue.

Source: Bike-PGH's Route Map. Yellow is 'Cautionary Bike Route', Grey is 'On-Street Bike Route'



Source: PennDOT BicyclePA Route-A (orange highlight)

When in Coraopolis, the preferred route mimics BicyclePA Route-A along Fourth and Fifth Streets. The preferred route will connect to the Ohio River Trail, a planned trail extension westward along the Ohio's north shore to Wheeling, West Virginia and then into the State of Ohio.

BicyclePA Route-A is a north-south extension along western Pennsylvania roadways. BicyclePA Route-A already exists through the study area in Coraopolis; it's along Fourth and Fifth Avenues and connects to the Montour Trail. Route-A is a signed, on-road route system extending north and south through western Pennsylvania, from Erie County to Greene County and into West Virginia.

BICYCLEPA ROUTE - A Explanatory Statement

"BicyclePA routes were designed by experienced bicyclists to provide bicycling members of the traveling public who wish to traverse the state with a guide to some of the Commonwealth's highways and rail-trails. Few of these routes contain bike lanes or other facilities designed specifically for bicyclists traveling within the four corners of the Commonwealth. The Pennsylvania Department of Transportation cannot guarantee the safety of bicyclists as they access those roads and rail-trails. Every bicyclist is responsible for his or her personal safety and welfare and for remaining alert and mindful of conditions on the roads or trails. BicyclePA users are expected to be licensed drivers or persons at least sixteen years of age who have several years of road bicycling experience." ***Source - Pennsylvania Department of Transportation***

This project proposes to enhance BicyclePA Route-A by adding signs and pavement markings to the existing route. This will help to alert motorists and will better delineate the route for cyclist.

This study recommends improvements for each community including maps of the bike route, photo enhanced images, safety and engineering standards, and project costs. The study proposes improvements for cyclists and pedestrians within each town. Project improvements include the addition of bike lanes and bike routes, traffic calming measures, upgrades to sidewalks and pedestrian crossings, and signing for safety, trail identification, trail orientation, regulations, destinations and wayfinding.

These recommendations propose safer pedestrian and bicycle facilities, provide for all modes of transportation, provide for ADA upgrades and complete streets, increase safety for walkers and cyclists within the community, and provide for walk and bike friendly amenities.

User Types - Pedestrians & Bicyclists

There are many types of users. People who walk along roads or ride bicycles represent all age groups; from children to adults, and senior citizens. During our field visits, people were seen commuting to the city on bike, walking and cycling carrying groceries, and walking and cycling on the sidewalks within each town. Trail users and cyclists represent all experience levels; from novices riders to experienced cyclists.

Recommended project improvements are for all people in our community

Each user has a different comfort level walking along, or riding in and around automobile traffic. This study therefore recommends alternatives to serve a variety of user types and provides options to link to points of interest. The study identifies preferred routes and local loop routes to accommodate different user types. Below are descriptions of route types, walking route improvements, and a definition of terms.

Walking Route Improvements

Sidewalks and accessible curb ramps exist within the corridor; many of them can be improved to comply with current ADA standards including resurfacing and compliance upgrades to the curb ramps, pedestrian push buttons, pedestrian traffic signals, and the crosswalk markings. The report proposes improvements at key roadway intersections and crossings along the route. *Refer to Opinion of Probable Costs– Intersection Improvements.*

Bicycle Route Types & Definition of Terms

There are both on-road and off-road bicycle routes in Pittsburgh. The rail-trails along our rivers are good examples of off-road routes. On-road facilities share the roadway corridor and may include bike lanes (marked outside of the travel lane), two-way bicycle tracks (outside of the travel lane), or shared lanes (shared lane markings within the travel lane).

This feasibility study utilizes an on-road bicycle route to connect the City of Pittsburgh to Coraopolis. An off-road bike route, or separated trail, was not an option due to the geography, infrastructure and property ownership along the corridor.

Off-Road Bike Routes

Typically, off-road bike routes are shared use paths on a separate right-of-way for pedestrians and bicycles only. The Montour Trail is a local example of an off-road bike route. This 46 mile project was the conversion of a former railroad into a trail; the Montour Trail also includes an on-road route leading directly into Pittsburgh's international airport. The Montour Trail connects many local communities together with a safe corridor for walking and bicycling, free of automobiles.

A second potential and local off-road bike route is at Neville Island's- RMU Sports Center. The Sport Center has plans to extend its recreation facility with a new river walk and trail.

On-Road Bike Routes

Bike Pittsburgh is currently installing on-road routes throughout the city of Pittsburgh. These routes include signing, pavement markings, and sometimes 'road-diets' and re-stripping of lanes to accommodate cyclists.

On-Road Bikeway systems include a variety of facility types. Below are descriptions and definitions of on-road proposed facilities:

- **Bike Lanes**
  - Conventional Bike Lane
    - » Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and flows in the same direction as motor vehicle traffic.
    - » Bike lanes in urban areas are recommended to be signed for NO Parking.
    - » Conventional Bike Lane Benefits
      - › Increases bicyclist comfort and confidence on busy streets.
      - › Creates separation between bicyclists and automobiles.
      - › Increases predictability of bicyclist and motorist positioning and interaction.
      - › Increases total capacities of streets carrying mixed bicycle and motor vehicle traffic.
      - › Visually reminds motorists of bicyclists' right to the street.

      Source: National Association of City Transportation Officials (NACTO) website (http://nacto.org/cities-for-cycling/design-guide)

- Buffered Bike Lane
  - Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.
  - Buffered Bike Lane Benefits
    - Provides greater shy distance between motor vehicles and bicyclists.
    - Provides space for bicyclists to pass another bicyclist without encroaching into the adjacent motor vehicle travel lane.
    - Encourages bicyclists to ride outside of the door zone when buffer is between parked cars and bike lane.

Example of Bike Lane at sidewalk - increase safety for pedestrians and adds a separate lane for cycling

Example of Shared Lane Marking– SLM

Example of Buffer Bike Lane – increases distance between cars and bikes

    - Provides a greater space for bicycling without making the bike lane appear so wide that it might be mistaken for a travel lane or a parking lane.
    - Appeals to a wider cross-section of bicycle users.
    - Encourages bicycling by contributing to the perception of safety among users of the bicycle network.

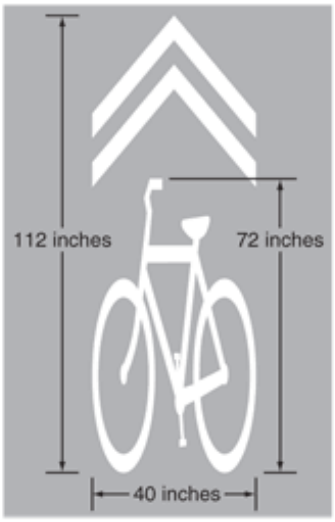
  Source: NACTO website (http://nacto.org/cities-for-cycling/design-guide)

- **Bike Routes** (signed- shared roadways)
  - A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes.

    Source: NACTO website (http://nacto.org/cities-for-cycling/design-guide)

There are limited locations in the study area that have wide (5'-8') shoulders, adjacent to the lanes of travel that provide the bicyclist an opportunity to ride outside the vehicular traffic flow where a bike lane is not present. This scenario can increase safety along the posted bicycle route, but provisions should be made to keep the shoulders clear of debris as to not introduce a new hazard to users.

Figure 9C-9. Shared Lane Marking



- **Bike Shared Lane Markings** (SLM) "Sharrows"
  - Description Shared Lane Markings (SLMs), or "sharrows," are road markings used to indicate a shared lane environment for bicycles and automobiles. Among other benefits shared lane markings reinforce the legitimacy of bicycle traffic on the street and recommend proper bicyclist.

    Source: NACTO website (http://nacto.org/cities-for-cycling/design-guide).

Shared Lane Markings should not be used on shoulders or bicycle lanes. Below is guidance from Manual of Uniform Traffic Control Devices (MUTCD) Chapter 9B, MUTCD 2009 Edition, for Shared Lane Markings.

Source: http://mutcd.fhwa.dot.gov/htm/2009/part9/part9c.htm#figure9C09

- Assist bicyclists with lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist's impacting the open door of a parked vehicle.
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane.
- Alert road users of the lateral location bicyclists are likely to occupy within the traveled way.
- Encourage safe passing of bicyclists by motorists.
- Reduce the incidence of wrong-way bicycling.

Guidance **-** The Shared Lane Marking should not be placed on roadways that have a speed limit above 35 mph. The MUTCD further recommends SLM's be reserve for roadways with posted speeds no greater than 35 mph and placed immediately after the intersection and spaced 250 feet apart or less. *(Effects of Shared Lane Markings on Bicyclists and Motorist Behavior along Multi-Lane Facilitates,* City of Austin Bicycle Team, 2010).

It is our recommendation that a SLM is painted at each turning point- a mark ahead of the turn and a mark directly following the turn. This will enhance the wayfinding ability for cyclists at decision points.

Also, the project sponsor may want to consider hot-thermo applied marking at locations of heavy vehicle travel to increase wear and reduce maintenance needs for repainting.

To increase safety for cyclists on roadways, in February 2012 the Pennsylvania Governor signed into law a requirement for motorists to leave a 4-foot "cushion of safety" when passing a bicyclist. To achieve this cushion, motorists may cross the roadway's center line when passing a bicycle on the left, but only when the opposing traffic allows. The law is designed to improve safety and traffic flow.

CURRENT LAWS

State law allows cyclists to use all roads in Pennsylvania unless they are otherwise posted. Pedestrians and cyclists typically are not allowed on the interstate or on the PA Turnpike. Although, the section of Interstate-79 at Neville Island (within the project corridor) is allowed for ped-bike use to cross over the Ohio River and access its northern shores.

SECTIONS OF TITLE 75 (VEHICLE CODE) PERTAINING TO PEDALCYCLES

Title 75 of the Pennsylvania Consolidated Statutes contains the laws which govern the operation of vehicles on Pennsylvania roads. In Pennsylvania, a bicycle is considered a vehicle and, as such, is governed by a general set of rules (common to all vehicles) and a specific set of rules (designed for bicycles). ftp://ftp.dot.state.pa.us/public/PubsForms/Publications/PUB%20380.pdf

"Bicycles are considered vehicles under Pennsylvania Laws and must obey all the rules of the road which apply to vehicles."

"A bicycle may be operated on either a shoulder or on the roadway (the travel lanes). The locations will be based upon traffic volume, the physical condition of the travel lanes or the shoulder, traffic speed, the bicyclist's intended direction, and other safety factors."

State law prohibits bicycle riding on sidewalks in business districts unless permitted by official traffic control devices. "A person shall not ride a pedalcycle upon a sidewalk in a business district unless permitted by official traffic-control devices, nor when a usable pedalcycle-only lane has been provided adjacent to the sidewalk."- ***Source: Pennsylvania State Bicycle Laws***