The Ohio River Greenway Trail

North Shore Connector: Sewickley to Center Township

An On-Road Bicycle Route Feasibility Study

Submitted to:

The Ohio River Greenway Trail Council

Prepared by:
Mackin Engineering Company
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Ohio River Greenway Trail Council Steering Committee:

Dr. Vincent Troia, Chair
Mr. John Orndorff, Vice Chair
Mr. Ed Quigley
Mr. Jack Manning

Consultant:

Mackin Engineering Company
117 Industry Drive
RIDC Park West
Pittsburgh, PA 15275
www.mackinengineering.com
Mr. Robert W. Genter, RLA, ASLA, Project Manager
Mr. Matt Lokay, ASLA, RLA, Senior Landscape Architect

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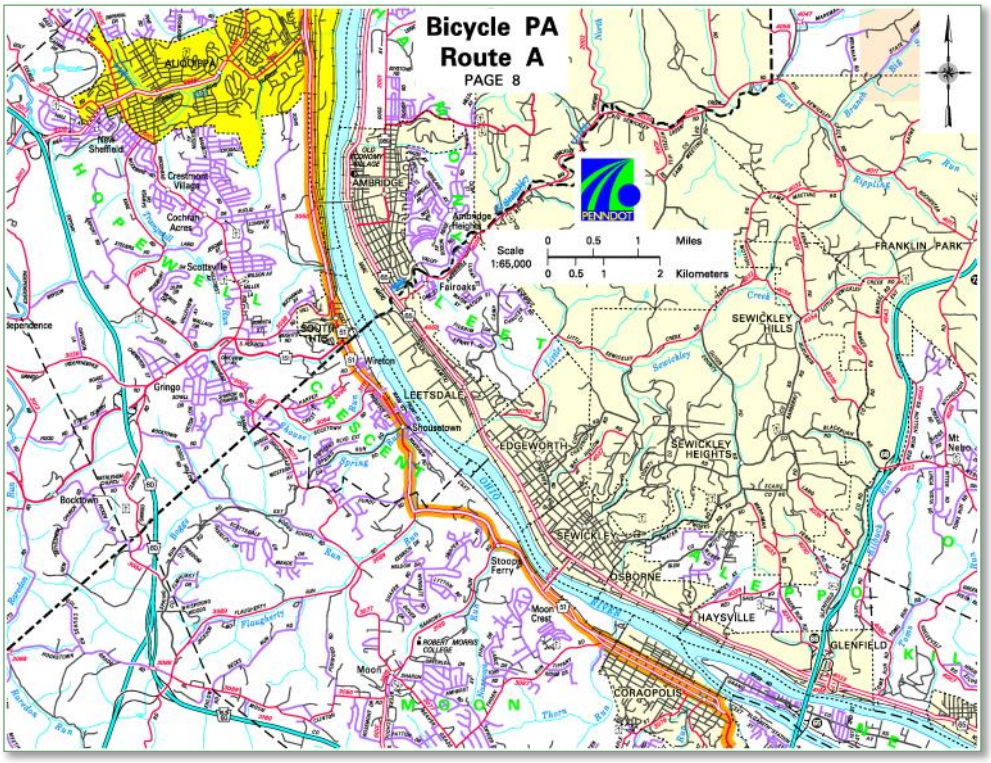
Project Overview

The purpose of the project is to investigate if a safer bicycling route can be established between the City of Pittsburgh and the State of Ohio. Currently State Route (SR) 51 is designated as the BicyclePA Route A directing cyclists through the region; SR51 is a 55 mph, four lane highway. Unfortunately, three cycling fatalities have occurred in the last three years along this section of the PA Bicycle Route A corridor.

It is the vision of the Ohio River Trail Council (ORTC) to achieve zero traffic deaths. Safer bicycling means that more people will decide that cycling can be a safe and enjoyable option for commuting and recreation. By creating a safer on-road bicycle route more cyclists would be able to connect between Ohio's many trails and on-road bicycle routes- through the Pittsburgh region and- to Washington DC via the Great Allegheny Passage Trail and C&O Canal Trail systems. This link will connect over 450 miles of route and trail systems between our mid-western states, our great lakes, and our nation's capital.

Ohio River Greenway Trail Phase II project re-routes bicyclists from the SR51 highway through each community's business district, past stores, parks, schools, churches and homes. The 15-mile on-road bicycle route is intended for both through-cyclists and for local riders. **Instead of avoiding the business district, like BicyclePA Route A does, the Ohio River Greenway Trail (ORGT) offers safer streets with services and amenities**- for users to stop, spend money, stay overnight, and enjoy what each community offers.

The ORGT North Shore Connector will create a critical connection through local communities along the Ohio River. These communities have the opportunity to re-create themselves as trail towns, and pedestrian oriented and bicycle friendly communities that attract visitors, new residents and potential investors.

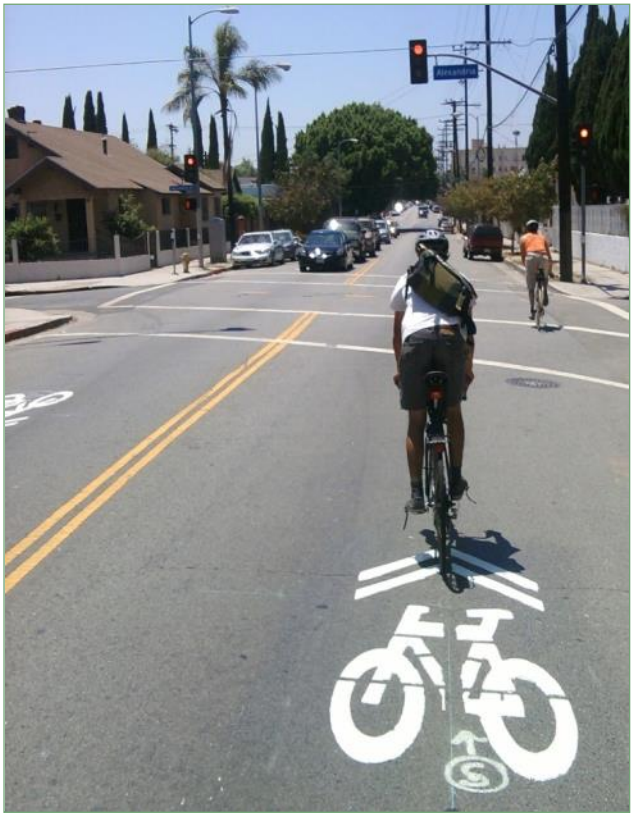


The recommended route utilizes existing roadways through local communities along the Ohio River. Most of these roadways are municipal roads with lower traffic volumes and lower posted speeds. The communities include Moon, Sewickley, Glen Osborne, Edgeworth, Leetsdale, Ambridge, Harmony, Baden, Hopewell, Aliquippa and Center. These eleven (11) communities have an opportunity to re-create their streets as community corridors that welcome cyclists and pedestrians, and attract more people to shop, eat, conduct business, and live in the community. Providing equally safe transportation opportunities for people to walk, ride a bike, drive, or take the bus creates opportunities for all ages, abilities, and social and economic

Project Overview

levels in the community.

The recommendations propose a 'share the road condition' for most of the routes. The recommendations also include bike lanes, one-way bike lanes up hill with shared lanes down hill, and a protected two-way bike lane along State Route 51. The estimated budget for 13.5 miles of the 15 mile route is $277,650. The remaining 1.5 miles– the protected two-way bike lane along SR51 south shoulder- is estimated at $1.5 million.



The route selection focuses on linking key points of community interest and facilities; creating bike routes that can be implemented with minimal cost; and delineating routes that are intuitive, direct, and easy to follow.

Project Goals

- Implement a safer and more accessible bikeway route.
- Develop a plan with minimal impacts to existing conditions and a plan that can be implemented.
- Provide the plan to local communities and to PennDOT for adoption to their short and long-term planning efforts.

Implementation Considerations

Each municipality, county, and PennDOT should consider all new road projects, including resurfacing projects, as an opportunity to provide for all modes of transportation- pedestrian, bicycles and automobiles. This will ensure a complete system for transportation and offer your residents choices to travel through the community and between communities.

Providing for bicycle infrastructure makes our streets safer for all of us– when we ride a bike, walk, or drive a vehicle. It's about traffic calming, traveling the posted speed, and delineating specific lanes for cyclists, pedestrians, and motorists. This is your opportunity to recreate your community streets for people first- and automobiles.

Many of the bikeway improvements can be accomplished through a **'road-diet'**, a reduction of the travel lane width to provide for the addition of a wider shoulder or a 5'-6' bike lane. The route can also be marked with paint and/or hot thermoplastic markings and lines, and supported with regulatory and wayfinding route signs (standard PennDOT pavement markings, signs and posts should be used).

The bikeway hierarchy system would include the below bicycle treatments:

1. **Bike Lane**: the roadway is delineated with a bike lane. Typically a road diet reconfigures the travel lane widths to accommodate the new bike lanes. The travel lanes are re-marked, and a 5'-6' wide bike lane is created for each travel direction. The roadway is signed with 'bike lane signs' and 'No Parking' signs are posted at the bike lane.
    - » If the corridor allows for more width, or the project right-of-way and project funding will allow it, the following bike lane designs provide more comfort and safety to the cyclist:
        - › A Protected Bike Lane provides additional distance and a physical element between the roadway and the bike lane. A vertical barrier, median, or a lawn strip is typically used to separate the bike lane from the roadway; the protection width is typically between 3' and 5' plus the width of the bike lane.
        - › A Buffered Bike Lane provides the distance between the roadway and the bike lane using a painted border. The buffer is typically between 2' and 5' wide depending on the roadway condition and traffic.
2. **Sharrows**: A bike Shared Lane Marking (called 'sharrows')- the travel lanes are marked with a shared lane marking and signed with a 'Share the Road' sign.
3. **Bike Route**: This is simply a mapped route only. The roadway may be signed as 'Share the Road'. This treatment does not include any pavement markings for lanes or 'sharrows'.

All of the above treatments help to alert motorist that bicycles use the corridor, and the above elements provide wayfinding for bicyclists.

Having marked sharrows or bike lanes also provides guidance for bicycles to be in the designated lane or to share the road appropriately; and be both visible to automobiles and out away from parked car doors.

Implementation Considerations

The following are example images for some of the bikeway designs recommended in this report.

By signing and marking the pavement along the route, motorists are made aware that bicyclists use the corridor, and the signs and markings provide cyclists with wayfinding to stay on course. Additionally, marking of bike lanes delineate where cyclists are to ride and where motorists are not to drive.

Marking the center and edge of travel lanes provides a form of traffic calming; and edge lines mark the space for parallel parking or a larger road shoulder.

By marking the travel lane, motorists can see the width of the lane and stay in the lane. Having no lane markings or a really wide lanes encourages motorists to go faster.

These are your community streets, we recommend they are designed for the posted speed limit of 25 mph.

Shared Lane Marking – 'Sharrrow'

Bike Lane at sidewalk: increase safety for pedestrians and adds a separate lane for cycling

Buffered Bike Lane: increases distance between cars and bikes

Project Recommendations

Route Recommendations

Our recommendation is to implement a **'road diet'** (re-delineate the travel lanes from 12' wide to 10' wide), mark the double yellow center line, and mark the edge of each travel lane with a 4" white paint line throughout the project. The borough of Edgeworth already has marked the roadway in a similar fashion.

The proposed bike route is to be signed and marked on the ground within the existing roadway template. **The bike route is to be signed to alert motorists that cyclists are in the corridor, and as wayfinding for the bicyclists.**

Delineating the travel lanes per the recommended 'road diet' will help to calm traffic and provide a wider road shoulder for cyclists, and increase the distance between people on the sidewalk and vehicles. All of this helps to maintain vehicle traffic speeds to the posted speed limit of 25 mph. (25 mph is the posted limit on the majority of this recommended on-road bicycle route.)

- Marking the roadway with centerlines and edge lines focuses the motorist to stay within their lane; typically this slows the motorist to the actual posted speed limit.
- Marking the travel lane and/or road edge also provides a wider shoulder for bicyclists to move to the side and allow motorists to pass, or provides the space needed for a 5' - 6' wide bike lane.
- Marking the travel lane and/or road edge also provides additional buffer space against the sidewalk, making a more comfortable walking experience.

The on-road bike route is to be **signed as a bicycle route** and designated as the Ohio River Greenway Trail. The route is also to receive **pavement markings** on the road- shared lane markings ('Sharrows'), and signed and marked with bike lane markings where designated.

Materials

All construction materials, methods and procedures are recommended to follow PennDOT standards.

Refer to PennDOT Specifications Publication 408 and Road Construction (RC) Standards, and the Manual on Uniform Traffic Control Devices (MUTCD); a Federal Highway Administration (FHWA) document.

- Lane markings, road edge markings and center line markings can be either paint or a hot-thermo applied material. PennDOT Publication 408 Specifications should be followed for material, reflectivity, dimensions, and preparation of surfaces.
- All symbols are recommended to be hot-thermo applied material to increase durability and wear. Linear markings that receive limited tire turning wear can be painted markings.
- Signs - Sign types follow PennDOT standards

Signs & Markings

Bicycle route signs alert motorists that cyclist are in the corridor, and provide wayfinding for cyclists. Bike route signs are critical at turns, both ahead of the turn and after each turn. Bicycle regulatory signs (Share the Road) and bike route signs should be installed at approximately 500 feet on-center (for both eastbound -EB and westbound- WB routes) and ahead and beyond intersections and turns. Each route should be designed individually, since each route is unique and requires safety and accessibility considerations.

If the route is marked as a shared lane or bike lane, then signs should be supported with a pavement marking. These pavement markings are typically spaced between 200'-250' on-center; and ahead and beyond each turn.

ORT = OHIO RIVER TRAIL

• Use Ohio River Trail (ORT) placard only along designated ORT route.

D11-1 or R3-17

D1-3b

DESTINATION SIGNS

• Bottom destination sign to be placed along the ORT, proposed trail to town connection and proposed local loop system.
• Used to help trail users find town amenities.

D11-1

BIKE ROUTE SIGNS

• These signs to be placed along the ORT route.

R3-17

• Use placard R3-17bP at end of bike lane.

BIKE LANE SIGNS

W16-101

SHARE ROAD REGULATORY SIGNS

• These signs to be placed along both State and Local roads designated as bicycle routes
• Coordinate with PennDOT District for authorization to place signs in State Right-of-Way.

NOTES:
• All signs and posts to comply with Manual on Uniform Traffic Control Devices (MUTCD) standards.

SIGN TYPES
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

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Budget Estimates

Figures are rounded up; refer to enclosed Project Budget.

- Glen Osborne: $15,400
- Sewickley: $44,265
- Edgeworth: $11,700
- Leetsdale: $51,645
- Ambridge: $90,200
- Harmony, Baden: $27,000
- Aliquippa: $37,440
- 2-Way Bike Lane at SR 51: $1.5 M

Maintenance Costs

Cost and life expectancy for pavement markings is estimated below:

Pavement Markings

- Hot Thermo: Sharrow (Shared Lane Marking) 4 - 6 years $250 EA
- Hot Thermo: Bike Lane Graphic with Arrow 5 - 7 years $300 EA
- Hot Thermo: Ped Crossing, using 'ladder bars' 4 - 6 years $12 LF
- Painted: Green Lane markings through intersections 1 - 3 years $3 - $5 SY
- Painted: Linear 4" wide yellow or white lane markers 1 - 3 years $0.50 LF

Epoxy can be used to mark concrete; its life expectancy is 2-3 years in a roadway and 3-5 years in a bike lane.

The above are estimates for markings in the roadway- If the marking is out of the vehicle wheel path, it will have a longer life expectancy. A higher volume road with greater trips and turning movements over the markings will lead to a lower life expectancy.

Cost for Signs

- Bike Lane, Bike Route, or Share the Road Sign Post mounted PennDOT Type B sign and post: budget between $180 and $250 EA.

Project Recommendations

General Bike Route Description

The selected project corridor is posted at 25 mph except the section of State Route (SR) 51 between Ambridge and Aliquippa. The project roadways are owned by local municipalities excluding SR 51 and SR 989 in Ambridge. SR 989 is a section of Duss Ave between 8th and Baden. The SR's are state owned roadways managed by PennDOT.

The bike route is recommended to be marked and signed within the roadway as the following types:

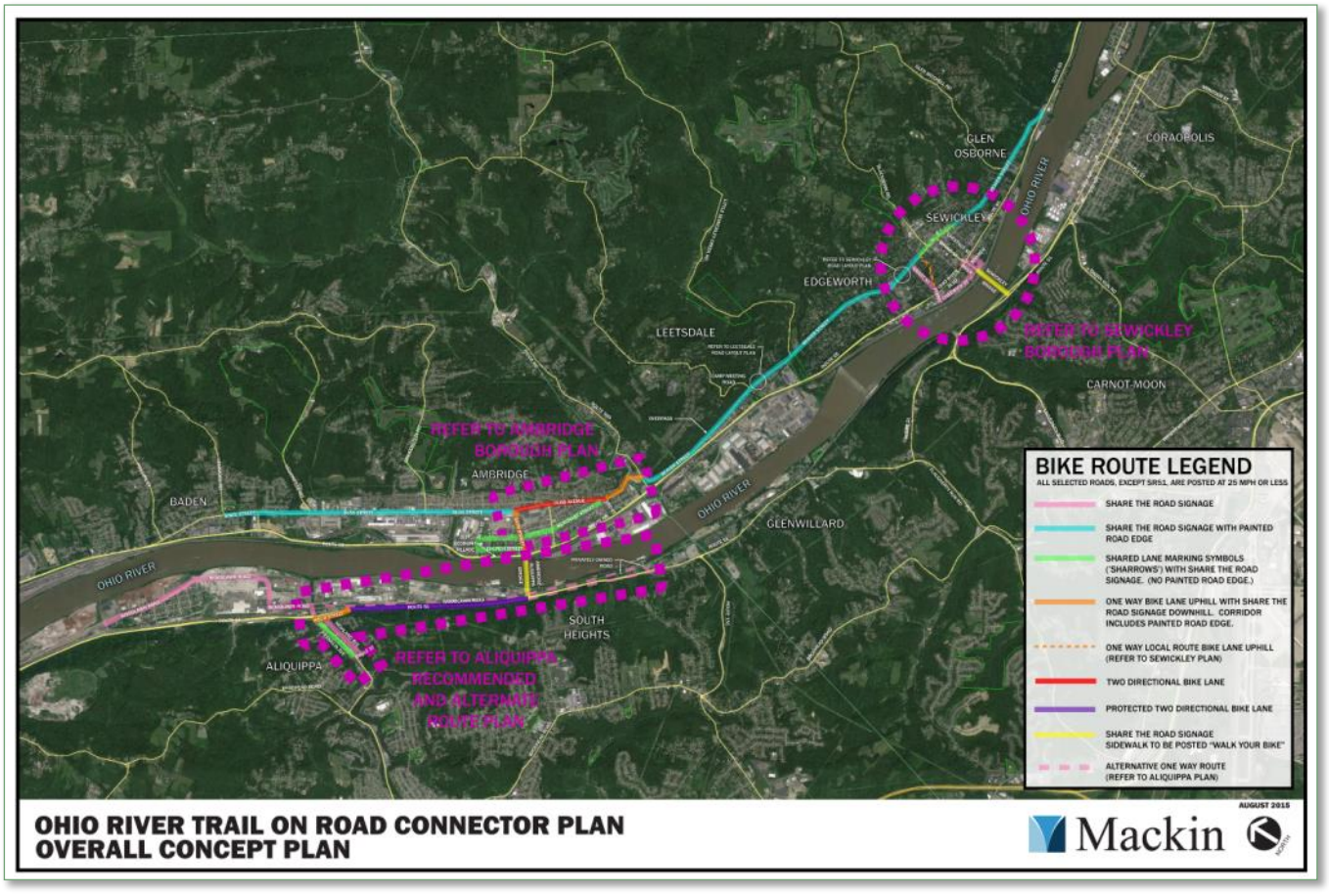
- Bike Route - signed with 'Share the Road' signs only (not supported with pavement markings)
- Shared Lane Markings - marked with paint or hot-thermo 'Sharrows' and signed as 'Share the Road'
- Bike Lane - 5-6 feet wide marked bike lane and signed as 'Bike Lane'
- 2-way Protected Bike Lane - The bike route along SR 51 is proposed as an adjacent, separated, and protected two-way bike lane to be built along the south side of Route 51.

The Recommended Bike Route

The recommended 15 mile on-road bike route follows Beaver Street through each community, connects to Duss Avenue in Ambridge and crosses the Ohio River following SR 51 to Aliquippa. Currently the Beaver Street route in Edgeworth, Sewickley, and Glen Osborne is used often by bicyclists. *Refer to below and* ***Overall Concept Plan- Appendix A1.***

Most of the recommended bicycle route is posted at 25 mph and the roadway is owned by the local municipality. A portion of the route, SR 51 and SR 989, is owned and maintained by PennDOT. (SR 51 is the section between Ambridge and Aliquippa, and SR 989 is a section of Duss Ave. between 8th and Baden in Ambridge)

The route crosses two bridges - the Sewickley Bridge and the Ambridge/Aliquippa Bridge. The bridge



route would be marked as 'Shared the Road' and the sidewalk on each bridge is recommended to be signed for cyclists to walk bikes if using the sidewalk.

Glen Osborne

Beaver Street *(1 mile corridor, posted 25 MPH)*

The recommendation is to mark the road edge lines to delineate 2- 10' travel lanes and wide shoulders.

Where the road widens to 30 feet plus, (Beaver Street between Lantern and Boundary) the recommendation is to install 5' bike lanes along each side of the road. This will eliminate parallel parking along this section of road.

ALTERNATE:

As an alternative design, instead of installing bike lanes and eliminating parallel parking, continue the 10' marked travel lane and wide shoulder design throughout the corridor.

The route is to be signed for 'Share the Road'. The lane marking is a 4" wide white line delineating (2) two 10'wide automobile travel lanes.

*Refer to the **Glen Osborne Borough, Beaver Street Modification Plan– Appendix B1 and B2.***

Sewickley

Beaver Street *(0.96 mile corridor, posted 25 MPH)-*

*Refer to **Sewickley Borough, Overall Borough Plan- Appendix A2.***

Boundary to Straight Street- The recommendation is to mark the road edge lines to delineate 2– 9' or 10' travel lanes and wide shoulders. Wide shoulders do not negate the use of car parking; the current parking location and No parking location is to be maintained as existing.

Delineating the road edge helps to calm traffic to the posted speed limit through your neighborhood. It marks the edge of the road for cyclists to be able to move to the side and allow cars to pass, and increases the space between the road and the adjacent sidewalk.

To further calm traffic, the roadway may be marked as 9' lanes through residential district.

Beaver Street– from Straight St. to Grimes St. (Business/Commercial District)

When the bicycle route reaches the location of marked parallel parking, between Straight and Grimes Streets, the Bicycle 'Sharrow' marking is to be installed in each direction.

Refer to the ***Sewickley Borough, Beaver Street Modification Plan- Appendix B3.*** This is the preferred design through each business/ commercial district (Aliquippa, Ambridge and Sewickley) so as to not eliminate parking and to mark a designated shared lane for cyclists and motorists.

Beaver Street– Westbound beyond Grimes St. (Residential District)

Westbound beyond Grimes St., Beaver Street is recommended to be marked with either 2- 10' or 9' travel lanes and wide shoulders.

Refer to ***Sewickley Borough Road Layout Plan- Appendix A6*** for on street parking option. This allows parallel parking, delineated road edges and a shoulder. The route is to be signed 'Share the Road' in each direction. The lane marking is a 4" wide white line delineating (2) two 10' wide automobile travel lanes.

Sewickley Bridge to Beaver Street *(multiple streets - 1.49 miles, posted 25 MPH)*

The recommendation is to share the road across the bridge or walk your bike along the sidewalk.

Westbound (WB) cyclists would enter Kramer Street and loop south on Chestnut and west along Chadwick Street. Continuing west, cyclist would pedal the local streets of Ferry Street, under Ohio River Boulevard- Rt65, and either up Grant Street to Beaver Street, or continue along Ferry Street, a flatter one-way route leading to the business district. Ferry St. is recommended as a one-way bike lane up hill (with traffic). As an alternative to the bike lane, the corridor could be just signed as 'Share the Road'.

Eastbound (EB) cyclists would travel Beaver Street to Grant, traverse down Grant to Ferry St. and eastward along Chadwick to River Avenue. At River

Ave. cyclists (EB cyclists going toward Pittsburgh) would pedal 600 feet north to Rt. 65 and 200 feet east to cross the Ohio River at the Sewickley Bridge with automobile traffic. Another option for cyclists would be to walk your bike along the sideway from Rt. 65 to the south end of the Sewickley Bridge.

Approaching the south shore of the Sewickley Bridge, cyclists would obey the 'rules of the road' and cross at the traffic signal to the road edge shoulder toward Coraopolis. This is part of the Ohio River Trail, South Shore TCSP Phase-1 Project being pursued by Moon Township and Coraopolis Borough. Preliminary plans include a protected two -way bike lane along the south shoulder of SR 51.

Edgeworth

Beaver Street *(1.24 miles, posted 25 MPH)*

Edgeworth already has marked the roadway centerline and edge lines. The only recommendation for the bike route is to sign the corridor as 'Share the Road' for EB and WB travelers.

Refer to the ***Beaver Street Modification Graphic- Edgeworth Borough– Appendix B4.***

Leetsdale

Beaver Street *(1.83 miles, posted 25 MPH)*

The recommendation is to mark the road edge lines to delineate 2– 9' or 10' travel lanes and wide shoulders. To preserve on street parking, refer to the ***Leetsdale Borough Road Layout Plan- Appendix A7*** for delineation of on road parking at adjacent residential at Victory Lane.

Beaver Street at Cross Street

In the vicinity of Cross Street, the route is recommended as a bike lane uphill WB and a bike lane uphill EB. The downhill cycle route would be a share the road condition. Refer to the ***Borough of Leetsdale, Beaver Street Modification Plan– Appendix B5.***

Ambridge

(1.62 miles, posted 25mph, multiple streets)

Refer to ***Ambridge Borough, Overall Borough Plan- Appendix A3.***

The recommendation is to install a WB bike lane from the Borough line uphill along Beaver Street, to the split at Merchant St. and Duss Avenue. At the WB split, cyclists can pedal Merchant Street into the business district, following a shared lane marking, or travel Duss Avenue in a delineated bike lane.

Duss Avenue

Duss is recommended to be a bike lane for both EB and WB routes. Refer to the ***Borough of Ambridge Duss Avenue Modification Plan, Recommended Route–Appendix B6*** for image of roadway modification to fit bike lanes EB and WB. Duss is approximately 34-36 feet wide. The recommendation is to install bike lanes EB ad WB along the roadway corridor between Merchant St and 11th Street. This will eliminate on street parking. Parking can be found along nearby perpendicular streets and along the adjacent Beaver Street, between 5th and 8th, and along the adjacent Lenz Avenue between 8th and 11th Streets. The roadway is posted at 15 mph (school zone) past the Ambridge High School.

ALTERNATE:

As an alternative design- instead of installing EB and WB bike lanes along Duss Ave. and eliminating the parking, continue the 2-10' marked travel lanes and wide shoulder design throughout the corridor and where the corridor is wide enough (over 32 feet wide) mark the parallel parking space and add 'Sharrows'. Refer to the ***Borough of Ambridge Duss Avenue Modification Plan, Alternate Route-Appendix B6.***

The route can be signed as a share the road condition. The lane marking is a 4" wide white line delineating (2) two 10'wide automobile travel lanes.

The Merchant Street Business District Route

A second route through Ambridge is along Merchant Street through the business district. The recommendation is to mark and sign the business district of Merchant with a 'Sharrows' and a 'Share the Road' sign. Refer to the ***Sewickley Borough, Beaver Street Modification Plan– Appendix B3*** for image of Shared Lane Markings through a business district. This is the preferred design through each business district (Aliquippa, Ambridge and Sewickley) so as to not eliminate parking and to mark a designated shared lane for cyclists and motorists.

11th Street

The recommend route along the 11th Street corridor is a bike lane up hill and a 'share the road condition' down hill. Refer to the ***Borough of Ambridge, 11th. Street Modification Plan- Appendix B7, B8.***

Harmony and Baden

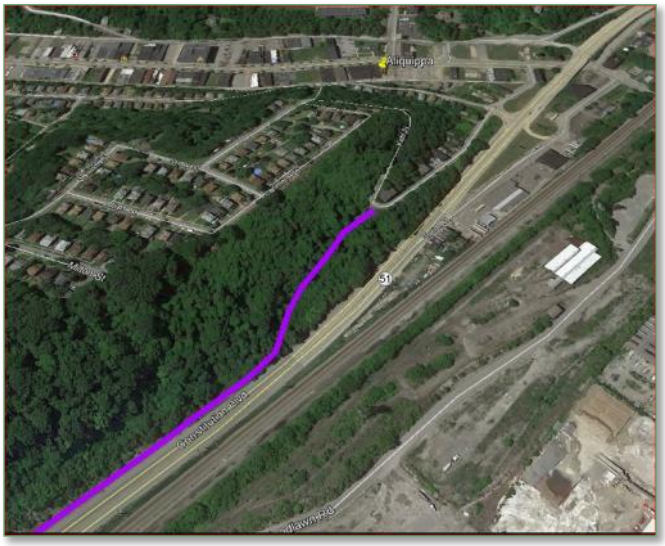
Additionally, there are 2.5 more miles along Duss Avenue through Harmony Township and extending to the municipality of Baden where Duss Ave. becomes State Street. This section of roadway varies in width from 30 to 40 feet, and includes multiple lanes, and shoulder conditions. The roadway is posted 25 mph in Ambridge, increases to 40 mph in Harmony, and reduces speed to 30 mph in Baden.

It is recommended to sign and mark this segment of roadway as a Share the Road Route and to implement at road diet for the travel lanes. Changing the travel lanes from 12' to 11' each will allow for truck traffic to travel the posted speeds, and create a wider shoulder condition for cyclists and pedestrians.

Aliquippa

(4.5 miles, SR 51 posted 55 MPH, divided 4-lane road, with a 10'-12' south shoulder)

The recommended route is to exit the Ambridge/ Aliquippa Bridge and travel west along a protected



2-way bike lane within the south shoulder of SR 51 towards Aliquippa. Refer to the ***City of Aliquippa, Recommended Route Plan– Appendix A4.*** The safest recommendation is to construct a protected 2-way bike lane along SR 51 south shoulder. The state route will require shoulder modifications, embankment, drainage pipe extensions, some utility pole relocations, and a change of the barrier. The bikeway would extend along SR 51 and then traverse up the slope to reach Kiehl Street in Aliquippa. The cost for this 1.7 mile stretch of improvement is budgeted between $800,000-$1.5 million.

The 2-way bike lane construction would require space for a new barrier and a 14' wide 2-way bike lane. The EB and WB lanes could be marked at a minimum of 6' each and include 'shy distance' between the cyclist and the barrier. The

Existing Barrier Condition at Cliff -
SR 51 Sewickley Bridge approach in Moon Township

recommendation includes replacement of the current concrete barrier with a guiderail system- the similar condition exists along SR 51 at the Sewickley Bridge. The guiderail barrier would allow drainage to exit the roadway and enter the exiting drainage ditch, and minimize the amount of room required for barrier.

Refer to ***Route 51 Modification Plan– Appendix B9.***

At Kielh St. the route shares the road to Highland Avenue. Highland is a 15 mph, one-way road varying in width from 18' at SR 51 to 24' at Engle Street. It is posted as Do Not Enter at the SR 51 interchange to keep trucks of the winding residential route. The recommendation is to sign Highland Avenue to allow Only Bicyclists to travel both ways along Highland. The route extends along Highland toward Engle Street, and down Engle to the signalized intersection at Franklin. At the signal, the bike route travels toward the Ohio River along Franklin Avenue.

Franklin Ave. is the business district of Aliquippa. The roadway is 40' curb to curb and includes parallel parking along each side. This section is recommended to be marked with Shared Lane Markings- 'Sharrows'. Refer to the ***Sewickley Borough, Beaver Street Modification Plan– Appendix B3.*** This is the preferred design through each business district (Aliquippa, Ambridge and Sewickley) so as to not eliminate parking and to mark a designated shared lane for cyclists and motorists.

ALTERNATIVE:

The alternative WB route is to exit the Ambridge/ Aliquippa Bridge and travel east along SR 51, approximately 1.5 miles, toward South Heights. At South Heights, the four lane divided SR 51 becomes a median separation and the road is posted at 35 mph. Refer to 'green' route on image below and refer to the ***City of Aliquippa, Alternative Route Plan– Appendix A5.***

At the intersection of SR 51 and Hill Road, the alternate route turns left (to the Ohio River), travels under the railroad, and loops west on Woodland Road, back toward Aliquippa. Woodlawn Road is a gravel and partial paved road leading three (3) miles WB toward Aliquippa. This is a low volume, unimproved roadway between the railroad tracks and the industrial land use along the river. If selected, this Alternative Route would require Share the Road signing and pavement improvements to Woodlawn Road.

NOTE:

FWHA's MUTCD manual provides guidance to NOT mark roadways with speed limits greater than 35 mph with a shared lane marking. Therefore, we do not recommend marking State Route 51 with a shared lane marking, 'sharrow', system.

Another Option-

Constructing a bike and pedestrian structural ramp from the Ambridge-Aliquippa Bridge to Woodlawn Road was considered, but the property under the bridge is privately owned and the remaining property is railroad owned. A ramp from the bridge may be a safest future option if landownership and access can be negotiated. Acquisition and construction costs for a ramp project would be significant.

Next Steps

Next Steps

1. Decide which route will be the first project. This selected route should be the easiest to implement, has public and political support, and can be completed in a short time with either local forces or with a low cost budget; **you want your first project to be a great success!**
2. Agree on how the bikeway facility will be maintained. The PA Code requires that local authorities be responsible for maintaining all pavement markings for bicycles. Typically, the municipal department of public works will provide maintenance for signs and pavement markings, street cleaning, etc. Sometimes a local trail organization will provide this service; or a combination of both sources providing the maintenance tasks. It is recommended that any agreement be formalized and recorded.
3. Hire Mackin Engineering Company to complete the final design and construction documents for bidding and constructing the selected Priority Project #1. We recommend the project begin with signing and pavement markings in Glen Osborne, and continue with signs and markings from Sewickley to Ambridge. Municipal support will determine which projects become Priority Project #1, #2, and #3, etc.

   The following work tasks may be required:

   - » Complete a field survey of chosen alignment
   - » Identify the roadway corridor owner; either local, county, or state. Make application to the appropriate organization
   - » Submit plans and local roadway permits
   - » If crossing a State Route (SR) or using a State Route ROW, apply for permits through the local PennDOT District (11-0 for Allegheny, Beaver and Lawrence Co.)
   - » Complete Construction Documents for Bidding
4. Bid and build the first phase of the project. We recommend connecting the bikeway system along local streets to the school, park, homes and shops.
5. Begin a campaign to educate users and motorist about bike safety and shared use roadways. Plan and organize a campaign to educated, engage and enforce bike safety beginning with the police force, residents, and local cycling clubs. Refer to Appendix for technical information sources.

Municipalities

We recommend that each of the municipalities along the Ohio River Greenway Trail, North Shore Connector **consider all roadway maintenance projects, infrastructure projects, and new site developments as an opportunity to improve community connections for all modes of transportation.** All roadway maintenance and widening projects should consider provisions for bike lanes, bicycle 'Share the Road' markings, and sidewalk extensions to provide safer travel choices for citizens. All modes of transportation mean that corridors that are designed for people who walk, people who bicycle and people who drive in the community- and designed for the community in that order of hierarchy.

We recommend that all town councils review and adopt a Complete Streets Policy directing all newly constructed and reconstructed roadways to be designed for safe and accessible travel for pedestrians, bicycles and automobiles. More information about a Complete Streets policy can be found in the Smart Growth America's Complete Streets, Local Policy Workbook.

What are "Complete Streets"?

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users. People of all ages and abilities are able to safely move along and across streets in a community, regardless of how they are traveling. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow

buses to run on time and make it safe for people to walk to and from train stations. Source: ***http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals***

The PA Code requires that local authorities be responsible for installing, maintaining and operating all pavement markings for bicycles. This includes Shared Lane Markings ('Sharrows') and bike lane symbols. This is enforced through the PennDOT Bicycle Occupancy Process, which the municipality must adopt by resolution when working in State owned right-of-ways.

Refer to PennDOT Design Manual Part 2 (DM-2) Highway Design Publication 13 M, March 2015 Edition, Chapter 16 Bicycle Facilities; and refer to PennDOT's Bicycle Occupancy Permit Figure 16.3.

http://www.dot.state.pa.us/public/Bureaus/design/PUB13M/Chapters/Chap16.pdf

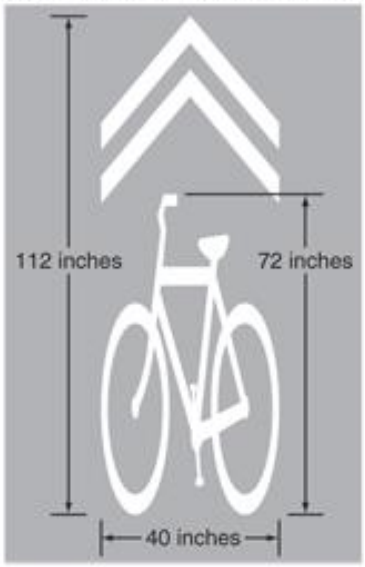
Supporting Information

Shared Lane Marking Guidance from MUTCD, FHWA

Pavement markings and signs typically are installed at each turning point- a marking and sign ahead of the turn and a marking and sign directly following the turn. This will enhance the wayfinding ability for cyclists at decision points.

Below is guidance from Manual of Uniform Traffic Control Devices (MUTCD) Chapter 9B, MUTCD 2009 Edition, for Shared Lane Markings.

Figure 9C-9. Shared Lane Marking



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, and*
- *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.

Standard:

Shared Lane Markings shall not be used on shoulders or in designated bicycle lanes.

Guidance:

- *If used in a shared lane with on-street parallel parking, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb.*
- *If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.*
- *If used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter.*

Option:

Section 9B.06 describes a Bicycles May Use Full Lane sign that may be used in addition to or instead of the Shared Lane Marking to inform road users that bicyclists might occupy the travel lane.

For additional information about sharrows, bicycle signs, and other types of bikeway systems, please refer to the National Association of City Transportation Officials (NACTO) website - http://nacto.org/cities-for-cycling/design-guide

Supporting Information

Safety & Pennsylvania Law

Under Pennsylvania law bicyclists are considered a vehicle.

- Ride on the right side of the road
- Obey stop signs and traffic signals
- Never ride against the flow of traffic

In PA cyclists must stay to the right side of the road except where impractical or unsafe and not impede traffic if traveling below the speed limit.

Bicyclists are allowed to ride on the road, unless the road is posted to the contrary (such as Freeways and Interstates: I-79 and the PA Turnpike).

General Bike Route Design Goals

The bike route should be:

1. **Intuitive:** easy for users to find and follow the route
2. **Direct:** as straight as possible to the final destination. If not, people will not use it; they go another way, a more direct route.
3. **Visible:** open and visible for police to see and monitor. The route should be on or near the public right-of-way to be easily patrolled.
4. **Safe:** marked or constructed with separated travel lanes. Cars, bikes and pedestrians (peds) all move at different speeds; designating travel lanes help to reduce conflicts.
5. **Accessible for pedestrians:** Consider ADA compliant upgrades throughout the route especially at intersections. Providing accessible routes for all people will provide the most usable corridor for every age, every condition, and every ability.

Benefits of Adding Bikeway Infrastructure to Community Streets

By including bicycle infrastructure into the current roadway system, communities can increase traffic calming to the roadway corridor; and reduce the need to constantly drive their cars all of the time to the store, to school, to work. This simply provides people with travel options- options that can be made safe, reliable and efficient.

Implementation of the recommendations can result in dramatic health benefits for citizens, reduced traffic and parking congestion, and create safer places to walk and bicycle in your town.

Providing designated bike lanes creates a space for bicyclists, separates bicycle from auto traffic, provides direction and wayfinding to the cyclist, and alerts motorists that cyclists are in the corridor. Bicycle lanes can be used by all cyclists- from experienced to novices. Bicycle lanes encourage newer riders that currently do not ride on the road, or are not comfortable riding on the road, and provide direction and wayfinding to keep them in their lane.

Constructing roadways for all modes of travel (including walking and bicycling) increases access opportunities to employment centers and community resources. 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.

Why Do It?

- **Economic energy** - millions of dollars are spent each year in towns along Pennsylvania trails
- Provide an activity for **healthy habits** - this can change lifestyles and habits of people who live in your community
- Creation of Active, Attractive and **Safe Corridors** through your Community - create corridors where people feel safe traveling, doing business, and living; these are places that attract more people.
- Marketing - Opportunity to become a **Bicycle Friendly Community - BFC.** There are very

few registered BFC's in Pennsylvania; your town could be one of them- *www.bikeleague.org/community*

- This is low cost infrastructure that:
  - changes peoples actions to become **healthy habits**
  - **reduces traffic congestion**
  - **minimizes parking congestion**
  - and **decreases air pollution**

Local Benefits

- Create safe routes and complete streets between trail and town - This connection will link the downtown business district to Ohio River Greenway Trail - which links to a larger trail network.
- Strengthen local partnerships between businesses and agencies, and between each community linked to the Ohio River Greenway Trail corridor.
- Having safe and accessible routes in your community will encourage residents to use them; encouraging people to be outside gets more 'eyes on the street', increases safety, and strengthen social bonds; that will attract more people to your community
- Safely connect homes and places of business, to school, shops, and recreation resources for all modes of travel - not just the car.
- Build commuter routes for cycling and provide choices for residents and visitors to easily use and change between travel modes for public transit, walking, cycling and automobiles.

Bicycle Friendly Community (BFC) Status

We also recommend that all town councils review the **BFC program** through **The League of American Bicyclists**. 'The League' is a comprehensive resource for bicycling. This resource can be used for planning, promotion, education, enforcement, and implementation.

Register with the League of American Bicyclists as a BFC (a national registration) can be valuable to promotion tool for your community. This will also provide you with additional resources to build your trail town and a bike friendly community.

The Bicycle Friendly Community Program provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling. This would be a great way to be recognized nationally and to market your town as a registered Bicycle Friendly Community.

Bicycle information for Planning, Design and Promotions can be found at below sources:

- Advocacy Advance (passionate advocates for bicycling and walking): www.advocacyadvance.org
- League of American Bicyclists - Bicycle Friendly Community Program, www.bikeleague.org/community
- Bikes Belong and People for Bikes at: www.bikesbelow.org and www.peopleforbikes.org
- Bike Commuting 101, Bike Pittsburgh web page at www.bikepgh.org;
- Smart Growth American, National Complete Streets Coalition- Complete Streets Policy- http://www.smartgrowthamerica.org/complete-streets

The above resources will help to educate council members, businesses, landowners, and residents about the benefits to re-create our roads as community streets for people who walk, people who bike, people shopping, driving, riding a bus, and selling products, merchandise and services.

Roadway corridor design begins with designing for the function of the street- these streets should be corridors that are comfortable and attractive to people; if so, they will attract more people.

These are your community streets, **they should function as places where people want to live, shop, and do business**.

Appendix

Sources - Potential Marketing Partners, Project Partners, Funding Sources and Technical Sources:

Potential Marketing and Technical Partners:

- Bicycle Friendly Community (BFC) though the League of American Bicyclists Program. The BFC Program provides incentives, hands-on assistance, and award recognition for communities that actively support bicycling.
- Department of Conservation and Natural Resources
  - The State of Pennsylvania is now pursuing projects with a 'nature based place making' goal; this project fits well into that category; appropriately scoped to receive funding. This is an opportunity to tap additional funding and technical sources.

Potential Project Partners and Funding Partners:

The following is a list of potential funding partners, resources and grant opportunities available:

- PennDOT Multimodal Fund, (The Multimodal Fund was created by Act 89, enacted in November 2013), - http://www.penndot.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx#.VhPFNPlVhBc
- PCTI- Pennsylvanian Community Transportation Initiative (PennDOT) smart-transportation.com
- Pennsylvania Infrastructure Investment Authority (PennVEST) - http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/pennsylvania-infrastructure-investment-authority
- Trail Volunteer Fund, at the Pittsburgh Foundation, http://they-working.org
- First Industries Fund http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/first-industries-fund
- Infrastructure Development Program - http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/infrastructure-development-program
- Water Supply and Wastewater Infrastructure Program - http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/water-supply-and-wastewater-infrastructure-program-pennworks
- Department of Conservation and Natural Resources (DCNR) Community Conservation and Partnership Programs (C2P2) - http://www.dcnr.state.pa.us/brc/grants/indexgrantsinstruct.aspx
- Pittsburgh History and Landmarks Foundation - http://www.phlf.org/programs-and-services/main-and-elm-street-programs/
- Pennsylvania Downtown Center - http://www.padowntown.org/
- Recreational Trails Program - http://www.fhwa.dot.gov/environment/rectrails/
- Pennsylvania Fish and Boat Commission (PFBC) - http://www.fish.state.pa.us/grants.htm
- The Sprout Fund - http://www.sproutfund.org
- Pennsylvania Council on the Arts - http://www.pacouncilonthearts.org/
- Private Utility Companies, Large Employers in the Area and Marcellus Shale Mining Companies.
- Foundation Center - http://foundationcenter.org/ Directory available for purchase that lists all public foundations, past giving practices, coverage area, minimum and maximum grants, application instructions and each foundation's primary focus. This is a national directory that can be researched by topic, state, etc.
- PA Wilds Initiative; 12 County Regional Marketing Initiative; tbrant@pawilds.com - http://www.pawildsresources.org/

Other Potential Funding Sources:

- Grants (government funding programs, corporate grants, and private foundations)
- In-Kind Services/Donations
- Corporate Giving
- Fundraising Programs and Private Donations

Grants:

There are a number of public and private grant sources, including foundations that provide funding for trails. However, it is important to note that most trails are constructed as a result of local efforts and it will take a strong commitment to raise money to provide the matching funds often required.

In-Kind Services/Donations:

Many grant sources will accept in-kind services as a replacement for cash matches. The project sponsor, municipal department of public works, and the local trail association may have resources at their disposal that can be turned into in-kind services. Examples of in -kind services/donations for a trail project include:

- Building materials
- Equipment use/rental/purchase
- Professional expertise
- Meals for volunteers

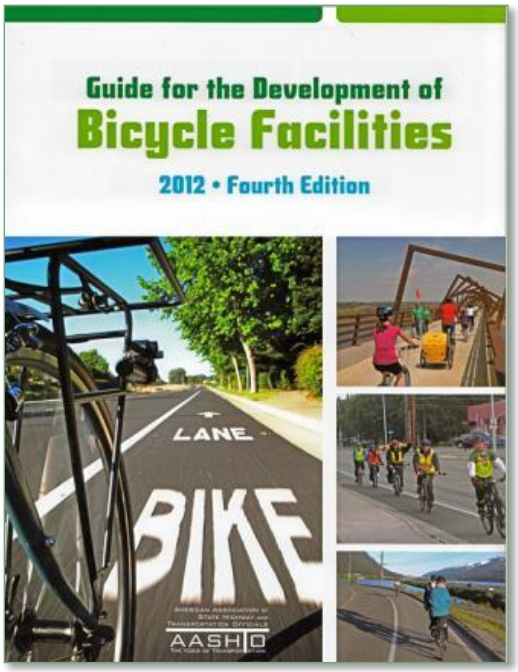
Corporate Giving:

The National Trails Training Partnership (http://www.americantrails.org/resources/funding/Funding.html) provides useful information regarding asking corporations to donate money for trail projects.

"Treat them exactly the same way you would a private donor or a foundation. Do not overlook the biggest and the smallest businesses in your community. Corporate citizens like to be a visible, viable part of where they do business." "...Keep an open mind when approaching businesses. All types of 'givers' generally receive MANY more requests than they can fund. Being turned down does not mean the 'ask' wasn't worthwhile- only that there were too many projects for them all to be funded." (McCollom Development Strategies)

Technical Sources and Regulatory Compliance

- AASHTO, American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities



- NACTO, National Association of City Transportation Officials, (http://nacto.org/cities-for-cycling/design-guide)
- FHWA, Federal Highway Administration
- 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
- All signs and markings are to comply with MUTCD standards, PennDOT Publication 236, Publication 111, and any applicable PennDOT Publications

- PennDOT, Pennsylvania Department of Transportation
- ITE - Institute of Transportation Engineers
- ADAAG - United States Access Board, for the revised ADA Accessibility Guidelines
- US Department of Transportation
- Complete Streets. Web. 27 Nov. 2009. (http://www.completestreets.org)

Bicycle Sources - Planning, Design and Promotions

- Advocacy Advance
- League of American Bicyclists– Bicycle Friendly Community Program, www.bikeleague.org
- Bikes Belong.org and People for Bikes.org

- Bike Commuting 101, Bike Pittsburgh web page at www.bikepgh.org
- Bike Pittsburgh - 188 43rd Street, Suite 1, Pittsburgh, PA 15201
- PACOMMUTES, alternative transportation in Pennsylvania at http://www.pacommutes.com
- Adventure Cycling Association
- Pro Walk, Pro Bike
- America Walks
- Pedestrian and Bicycle Information Center, www.pedbikeinfo.or
  - walkinginfo.org
  - bicyclinginfo.org
- Active Transportation Alliance: www.activetrans.org
- Association of Pedestrian and Bicycle Professionals: www.apbp.org
- National Complete Streets Coalition: www.completestreets.org

Keep the following things in mind when preparing grant applications to obtain funding for improvement projects:

- Multi-municipal plans are favored.
- DCNR favors connecting regional bicycle trail systems and favors projects along regional trail systems.
- Volunteer and in-kind services should be utilized as matching funds when applying for State grant funding.
- Green infrastructure and sustainable design projects are preferred.

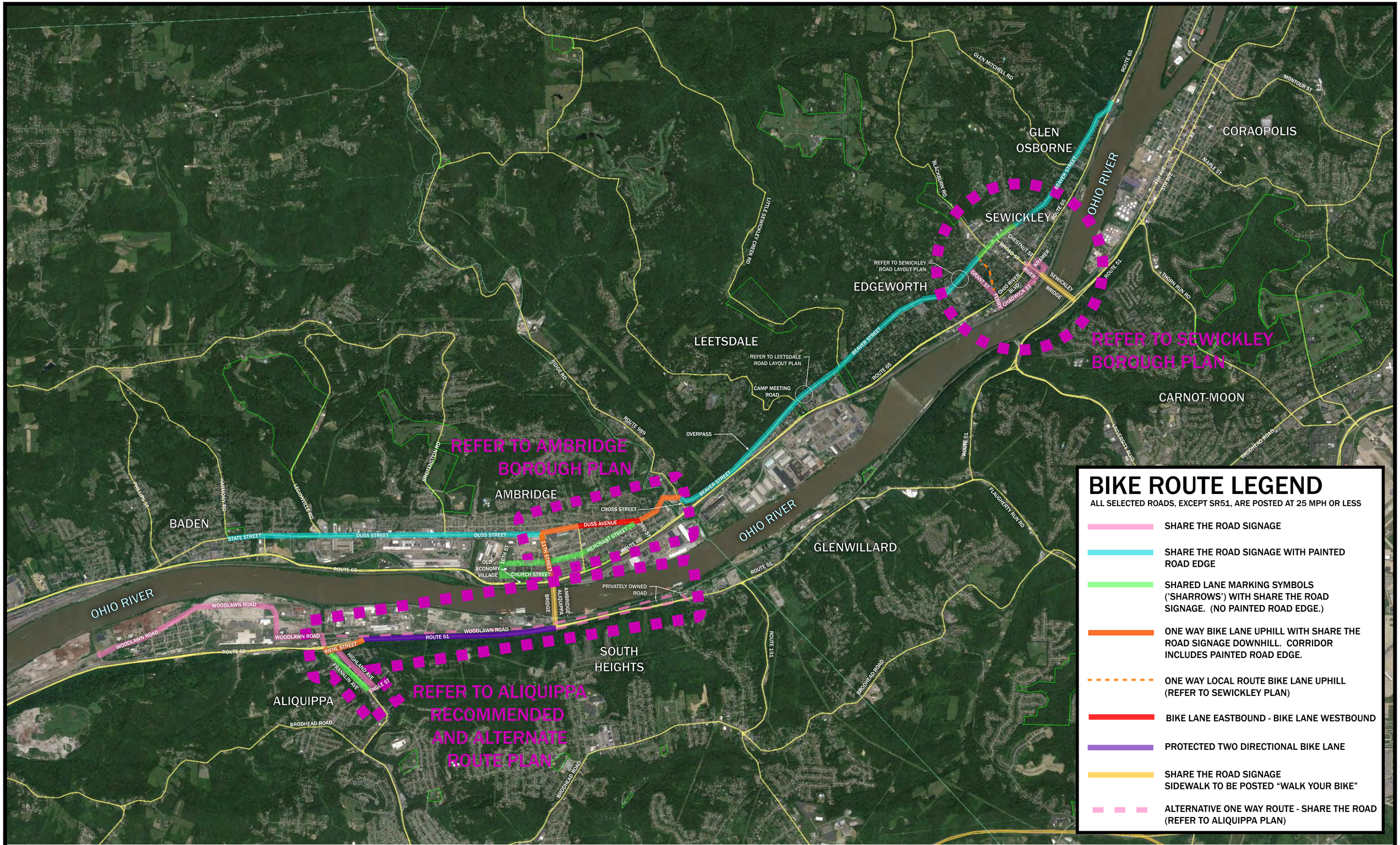
Project Budget

Estimate of construction is based on federal funds and a public bid and construction process for installed items.
DPW and volunteer labor and material can significantly reduce project costs; including material procurement from PennDOT.

All below signs are PennDOT Type-B Post Mounted	**Glen Osborne** Beaver St- 5,496 LF	**Sewickley** Bridge-2,280 LF Kramer to Grant- 5,588 LF Beaver St- 5,100 LF Sharrows at Bus. District- 1,955LF Bike Lane Up Hill Ferry St- 1,930 LF	**Edgeworth** Beaver St-6,558 LF	**Leetsdale** Beaver St-9,671 LF	**Ambridge** Bridge- 2,070 LF Sharrows- Merch Bus. Distr & Church- 8,998 LF Duss Ave, 11th to Merch- 4,288 LF (bike lane EB-WB) Merch, Cross St to 3rd- 1,475 LF (bike lane up hill) 11th Ave- 2,188 (bike lane up hill)	**Harmony & Baden** 14,990 LF	**Aliquippa** Bridge- 2,025 LF SR 51 South Shoulder and Kiehl- 8,820 LF Highland, Franklin, Woodlawn to Jail- 17,150 LF Sharrows at Franklin Ave- 2,440 LF *S. Hts- Woodlawn Alternative- 21,800 LF*
Share the Road Sign (PennDOT Type B) $250 500 OC EA	22 $5,500	56 $14,000	26 $6,500	38 $9,500	50 $12,500	60 $15,000	66 $16,500
Bike Route Sign w/ Trail Logo Placard $200 500 OC EA	22 $4,400	44 $8,800	26 $5,200	38 $7,600	50 $10,000	60 $12,000	50 $10,000
Bike Lane Sign $180 250 OC EA		10 $1,800 1-Way Up Ferry St.		8 $1,440 1,500 LF Up Hill	60 $10,800		5 $900 1- Way Bike Lane Up Kiehl
No Parking Sign (in Bike Lane) $150 500 OC EA		10 $1,500		8 $1,200	60 $9,000		5 $750
Walk Your Bike Sign $150 800 OC EA		6 $900			6 $900		6 $900
Sharrow Graphic- 'Hot Thermo' $250 200 OC EA		20 $5,000			90 $22,500		26 $6,500 Franklin Ave
Bike Lane Graphic- 'Hot Thermo' $300 200 OC EA		10 $3,000 1-Way Up Ferry		8 $2,400	60 $18,000		5 $1,500 780 LF, 1- Way Bike Lane Up Kiehl
4" White Pavement Marking- Road Edge $0.50 LF	11,000 $5,500	8,330 $4,165		9,670 $4,835	13,000 $6,500		780 $390 Bike Lane Up Kiehl
Dual 4" Yellow Pavement Marking- Centerline $1.00 LF		5,100 $5,100		9,670 $9,670	*exisiting centerline*		
				$15,000 Budget for Bike Lane at Cross St			
	$15,400 Total- Glen Osborne	$44,265 Total- Sewickley	$11,700 Total- Edgeworth	$51,645 Total- Leetsdale	$90,200 Total- Ambridge plus Ambridge-Aliquippa Bridge	$27,000 Total- Harmony & Baden	$37,440 Total- Aliquippa

Above Signs and Markings	**On-Road Signs and Markings**	**$277,650**
2- Way Bike Lane at SR51 South Shoulder Construction (Kiehl Street Work is included in SR51 S.Shoulder Project)	**2-Way Bike Lane at SR 51**	**$1,500,000**
Includes Signs and Markings, and SR Bike Lane	**Total Project**	**$1,777,650**

Aliquippa- Alternative Route to South Heights and Woodlawn Road (Instead of SR51 Bike Lane)				
5,773 LF Share the Road- SR51 Westbound to S. Hts (45 mph at S.Hts- One Way Eastbound)	12 signs	sign budget	$11,000	$131,000
15,977 LF- Woodlawn, Share the Road (One Way Bike Traffic Westbound)	32 signs			*(Substitute this item cost for 2-Way Bike*
Woodlawn Road Repairs		road repair budget	120,000	*Lane at SR 51)*



BIKE ROUTE LEGEND

ALL SELECTED ROADS, EXCEPT SR51, ARE POSTED AT 25 MPH OR LESS

- SHARE THE ROAD SIGNAGE
- SHARE THE ROAD SIGNAGE WITH PAINTED ROAD EDGE
- SHARED LANE MARKING SYMBOLS ('SHARROWS') WITH SHARE THE ROAD SIGNAGE. (NO PAINTED ROAD EDGE.)
- ONE WAY BIKE LANE UPHILL WITH SHARE THE ROAD SIGNAGE DOWNHILL. CORRIDOR INCLUDES PAINTED ROAD EDGE.
- ONE WAY LOCAL ROUTE BIKE LANE UPHILL (REFER TO SEWICKLEY PLAN)
- BIKE LANE EASTBOUND - BIKE LANE WESTBOUND
- PROTECTED TWO DIRECTIONAL BIKE LANE
- SHARE THE ROAD SIGNAGE SIDEWALK TO BE POSTED "WALK YOUR BIKE"
- ALTERNATIVE ONE WAY ROUTE - SHARE THE ROAD (REFER TO ALIQUIPPA PLAN)

OVERALL CONCEPT PLAN

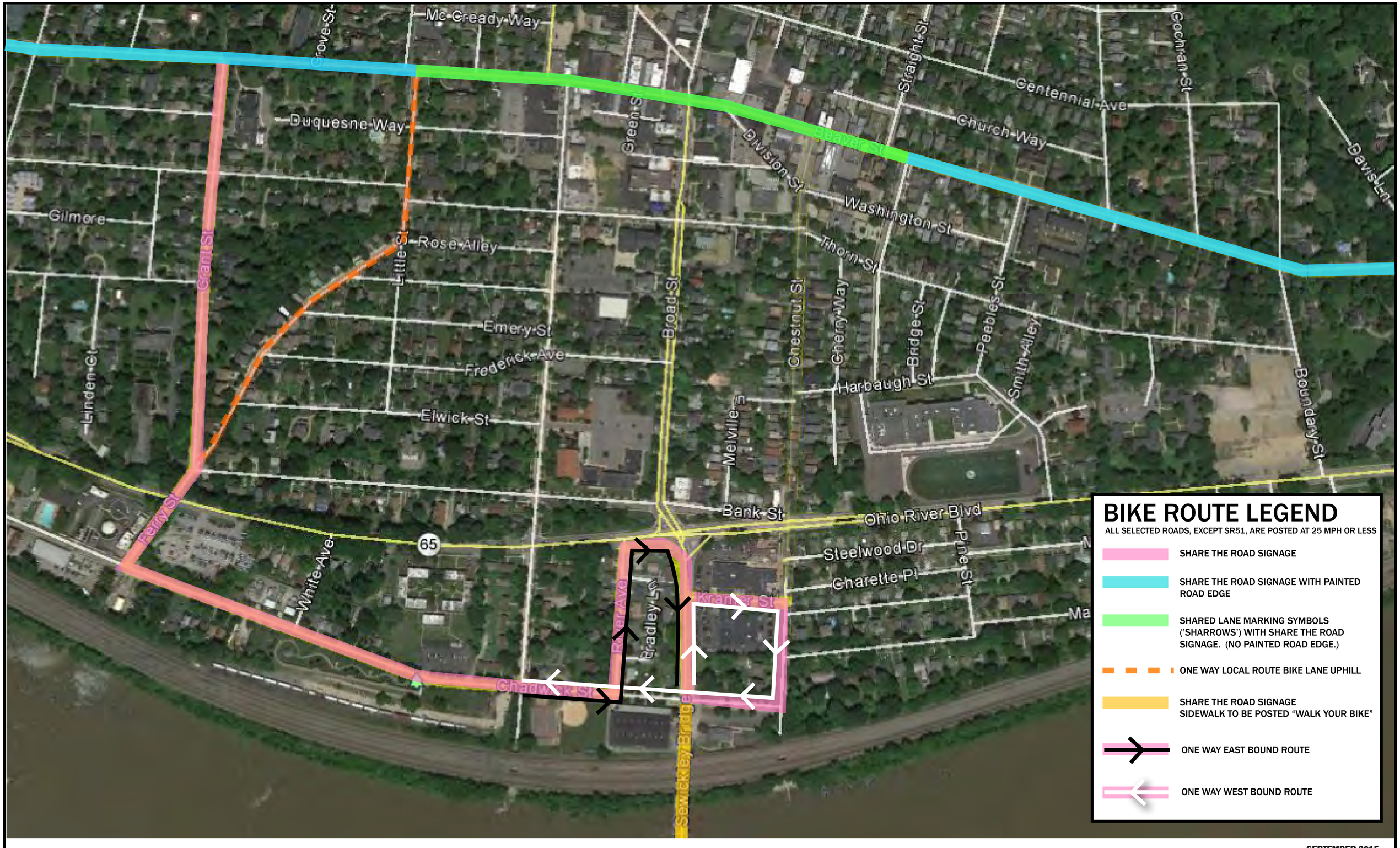
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

A-1

Mackin

NORTH



SEWICKLEY BOROUGH, OVERALL BOROUGH PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

BIKE ROUTE LEGEND

ALL SELECTED ROADS, EXCEPT SR51, ARE POSTED AT 25 MPH OR LESS

- SHARE THE ROAD SIGNAGE
- SHARE THE ROAD SIGNAGE WITH PAINTED ROAD EDGE
- SHARED LANE MARKING SYMBOLS ('SHARROWS') WITH SHARE THE ROAD SIGNAGE. (NO PAINTED ROAD EDGE.)
- ONE WAY BIKE LANE UPHILL WITH SHARE THE ROAD SIGNAGE DOWNHILL. CORRIDOR INCLUDES PAINTED ROAD EDGE.
- BIKE LANE EASTBOUND - BIKE LANE WESTBOUND
- PROTECTED TWO DIRECTIONAL BIKE LANE
- SHARE THE ROAD SIGNAGE SIDEWALK TO BE POSTED "WALK YOUR BIKE"

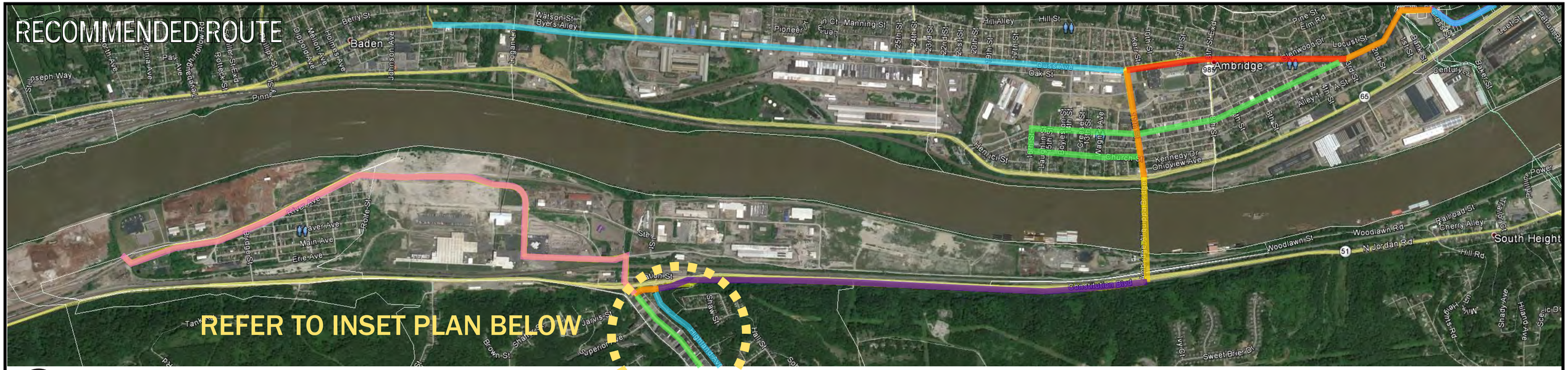
AMBRIDGE BOROUGH, OVERALL BOROUGH PLAN

OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

NORTH



BIKE ROUTE LEGEND

ALL SELECTED ROADS, EXCEPT SR51, ARE POSTED AT 25 MPH OR LESS

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- SHARE THE ROAD SIGNAGE WITH PAINTED ROAD EDGE
- SHARED LANE MARKING SYMBOLS ('SHARROWS') WITH SHARE THE ROAD SIGNAGE. (NO PAINTED ROAD EDGE.)
- ONE WAY BIKE LANE UPHILL WITH SHARE THE ROAD SIGNAGE DOWNHILL. CORRIDOR INCLUDES PAINTED ROAD EDGE.
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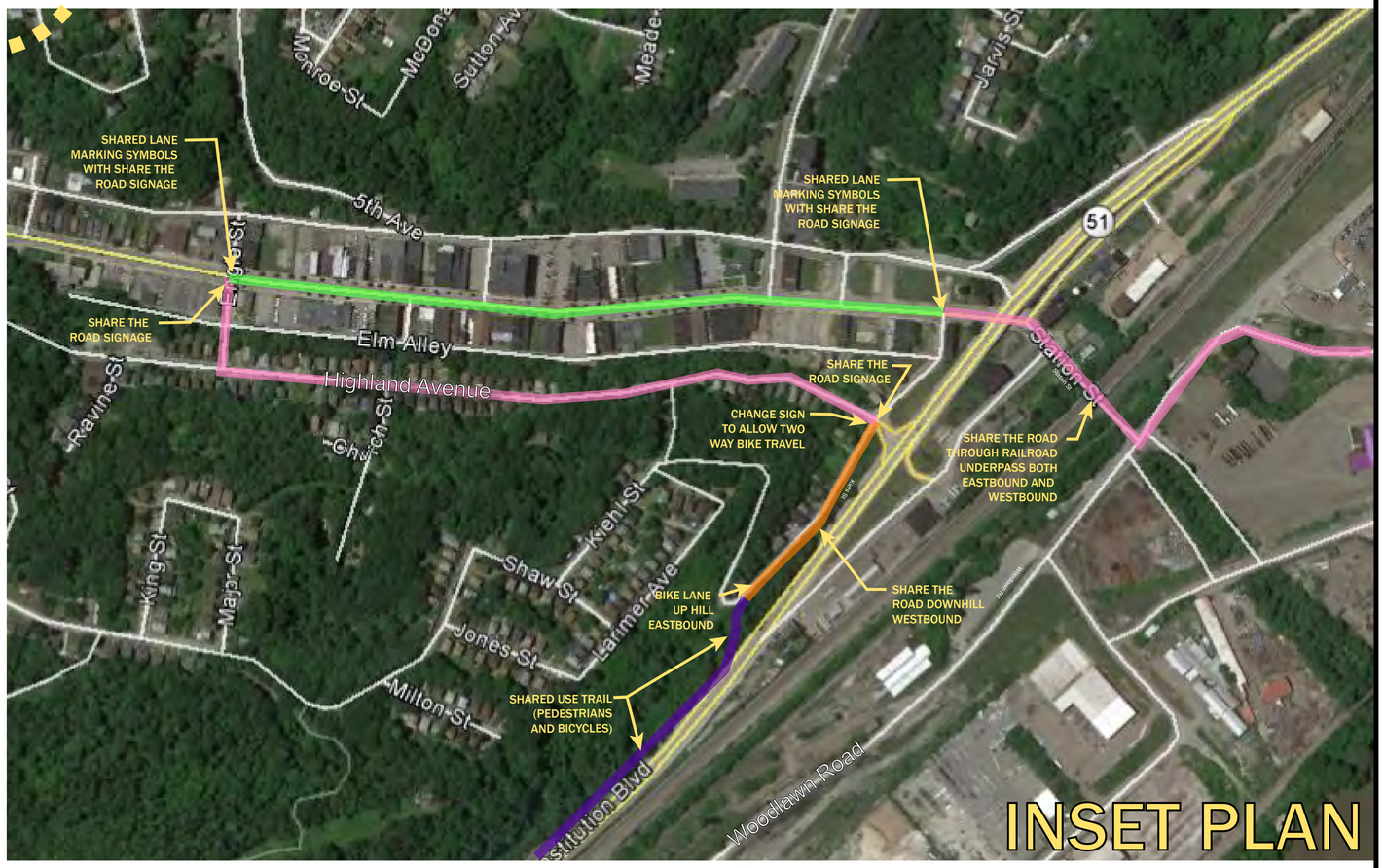


CITY OF ALIQUIPPA, RECOMMENDED ROUTE PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

BIKE ROUTE LEGEND

ALL SELECTED ROADS, EXCEPT SR51, ARE POSTED AT 25 MPH OR LESS

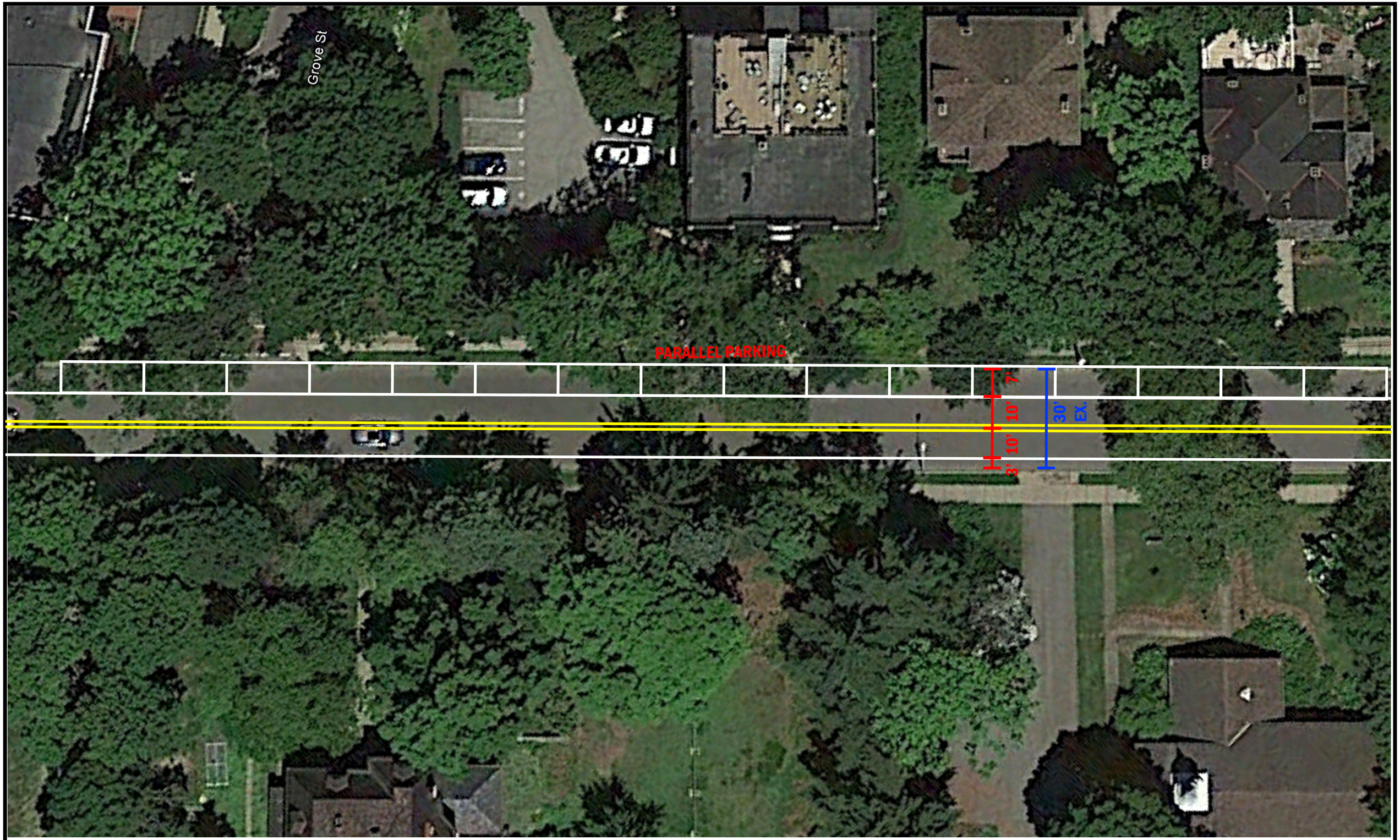
- SHARE THE ROAD SIGNAGE
- SHARE THE ROAD SIGNAGE WITH PAINTED ROAD EDGE
- SHARED LANE MARKING SYMBOLS ('SHARROWS') WITH SHARE THE ROAD SIGNAGE. (NO PAINTED ROAD EDGE.)
- ONE WAY BIKE LANE UPHILL WITH SHARE THE ROAD SIGNAGE DOWNHILL. CORRIDOR INCLUDES PAINTED ROAD EDGE.
- BIKE LANE EASTBOUND - BIKE LANE WESTBOUND
- PROTECTED TWO DIRECTIONAL BIKE LANE
- SHARE THE ROAD SIGNAGE SIDEWALK TO BE POSTED "WALK YOUR BIKE"
- ALTERNATIVE ONE WAY ROUTE - SHARE THE ROAD SIGNAGE (REFER TO ALIQUIPPA PLAN)

CITY OF ALIQUIPPA, ALTERNATIVE ROUTE PLAN

OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

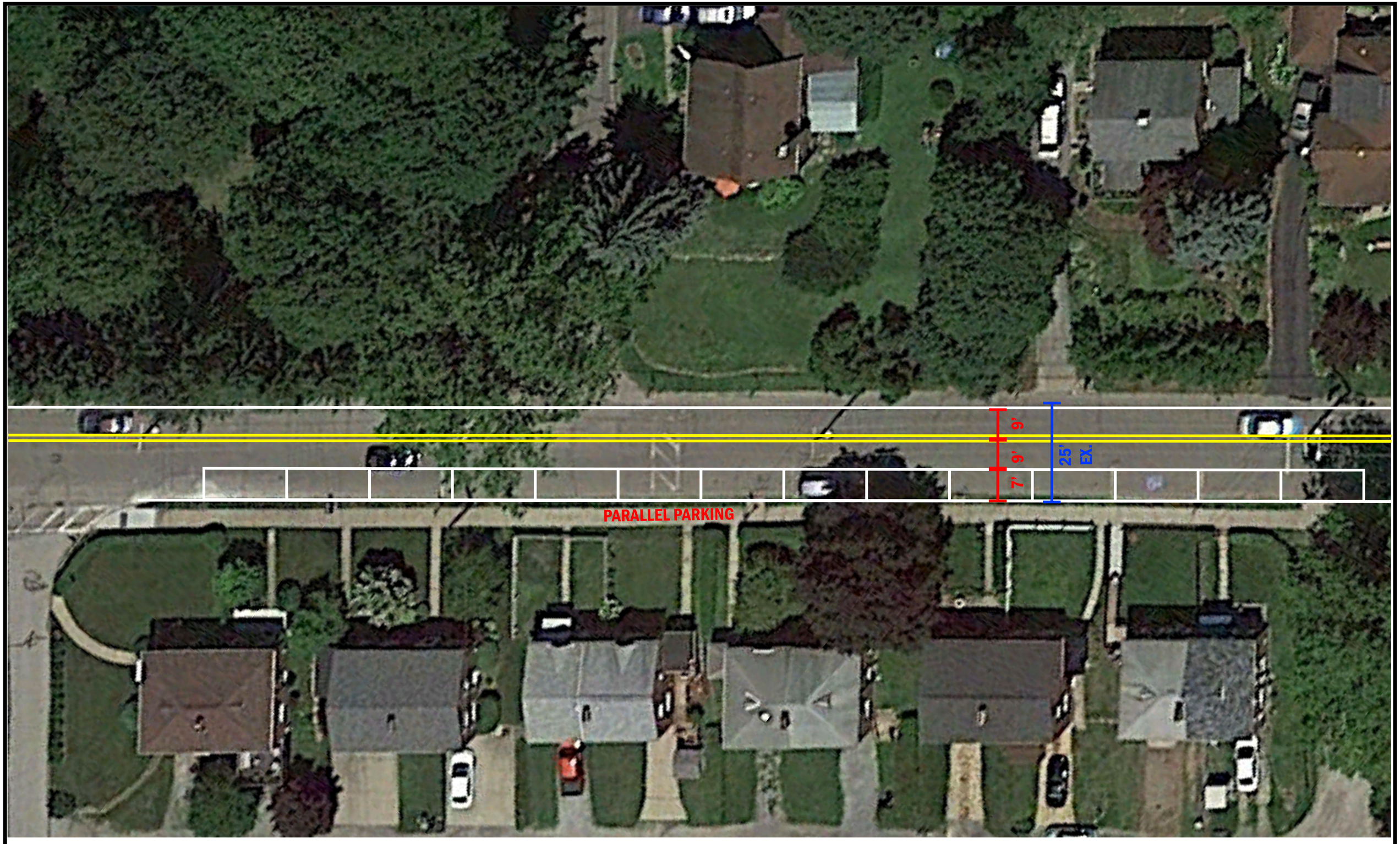
Mackin



SEWICKLEY BOROUGH, ROAD LAYOUT PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin NORTH



LEETSDALE BOROUGH, ROAD LAYOUT PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

NORTH

EXISTING CONDITIONS

EXISTING CURB TO
CURB WIDTH = 27’-8”

SHARE THE ROAD
SIGNAGE

SHARE
THE
ROAD

OHIO RIVER TRAIL

BIKE ROUTE

SCHOOL
SPEED LIMIT 15

ROAD EDGE
MARKING

PROPOSED DRIVE AISLES = x2 @ 10’
PROPOSED SHOULDER = x1 @ 2.5’
PROPOSED SHOULDER =x1 @ 5’-2”

GLEN OSBORNE BOROUGH, BEAVER STREET MODIFICATION PLAN

OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

GLEN OSBORNE BOROUGH, BEAVER STREET MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

EXISTING CONDITIONS

EXISTING CURB TO
CURB WIDTH = 34'

SHARE THE ROAD
SIGNAGE

SHARE
THE
ROAD

OHIO RIVER TRAIL
BIKE ROUTE

SHARROWS; INSTALL IN
BOTH TRAVEL LANES

SEWICKLEY BOROUGH, BEAVER STREET MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

EXISTING CONDITIONS

EXISTING CURB TO
CURB WIDTH = 30’-3”

SHARE THE ROAD
SIGNAGE

EXISTING ROAD
EDGE MARKING

EXISTING DRIVE AISLES = x2 @ 11
EXISTING SHOULDERS= x2 @ 4.17’

OHIO RIVER TRAIL ON ROAD CONNECTOR, EDGEWORTH BOROUGH
BEAVER STREET MODIFICATION PLAN

APRIL 2015

Mackin

SHARE THE ROAD
SIGNAGE

ROAD EDGE
MARKING

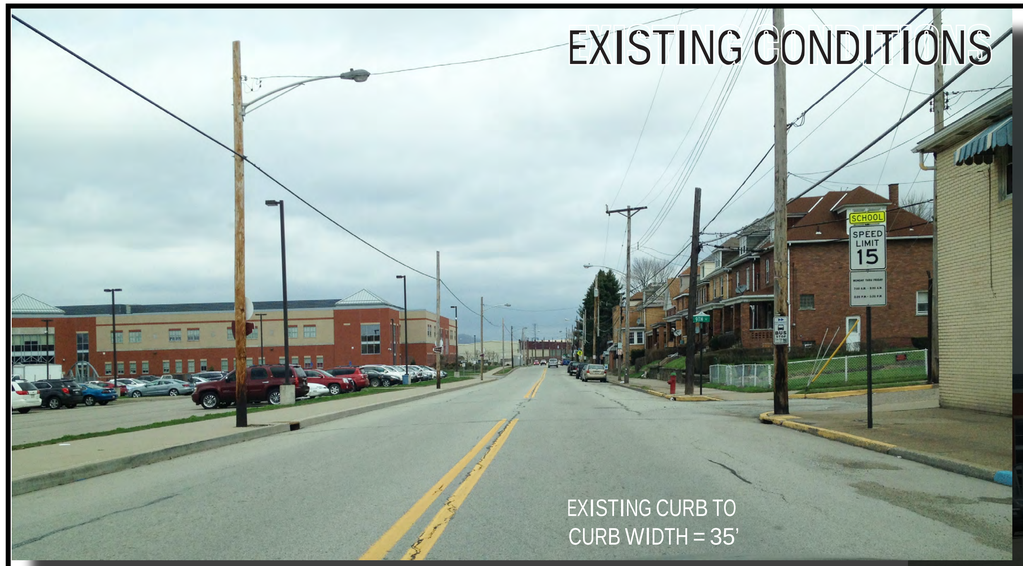
SAWCUT AND REINSTALL
EXTENDED WIDTH SIDEWALK
FOR DEDICATED BIKE LANE

PROPOSED BIKE LANE = x1 @ 8'
PROPOSED DRIVE AISLES = x2 @ 10'
PROPOSED SHOULDERS= x2 @ 1'

BOROUGH OF LEETSDALE, BEAVER STREET MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin



BOROUGH OF AMBRIDGE, DUSS AVENUE MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

DEDICATED BIKE LANE
WITH PAINTED SYMBOL

SHARE THE ROAD
SIGNAGE

PROPOSED BIKE LANE = x1 @ 8'
PROPOSED DRIVE AISLES = x2 @ 10'
PROPOSED SHOULDER = x1 @ 2'

BOROUGH OF AMBRIDGE, 11TH STREET MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

EXISTING CONDITIONS

EXISTING CURB TO
CURB WIDTH = 30’

SHARE THE ROAD
SIGNAGE

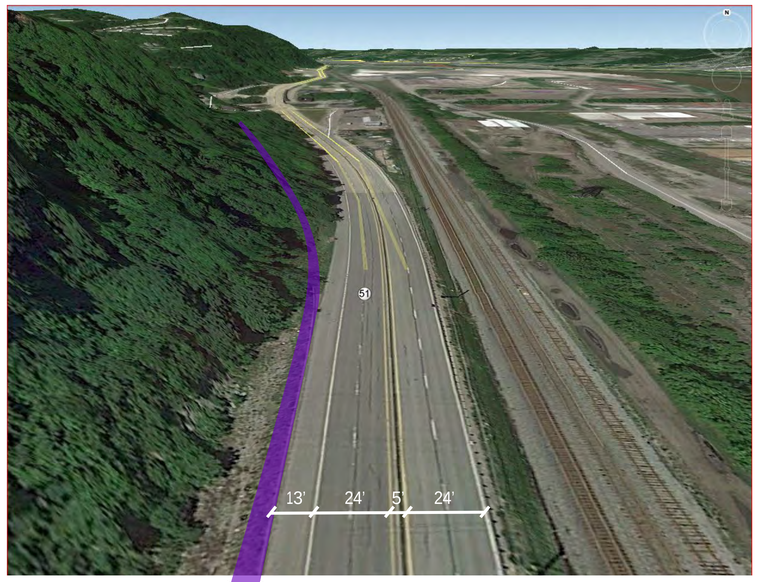
DEDICATED BIKE LANE
WITH PAINTED SYMBOL

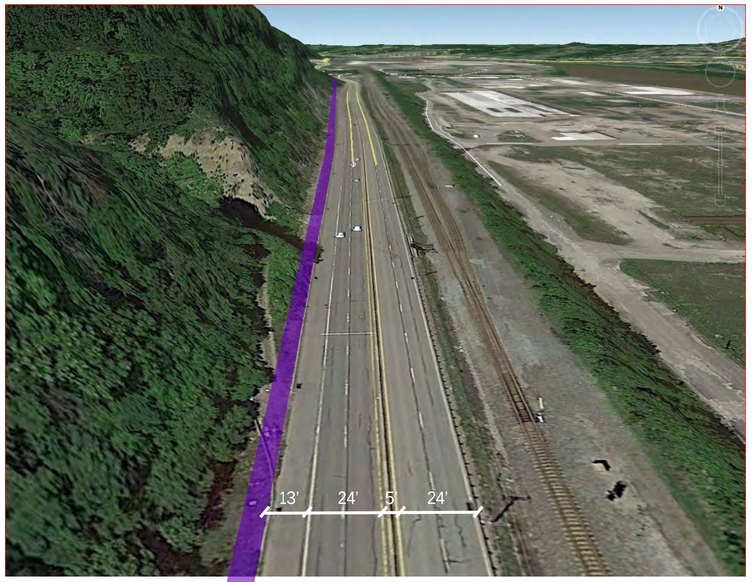
PROPOSED BIKE LANE = x1 @ 8’
PROPOSED DRIVE AISLES = x2 @ 10’
PROPOSED SHOULDER = x1 @ 2’

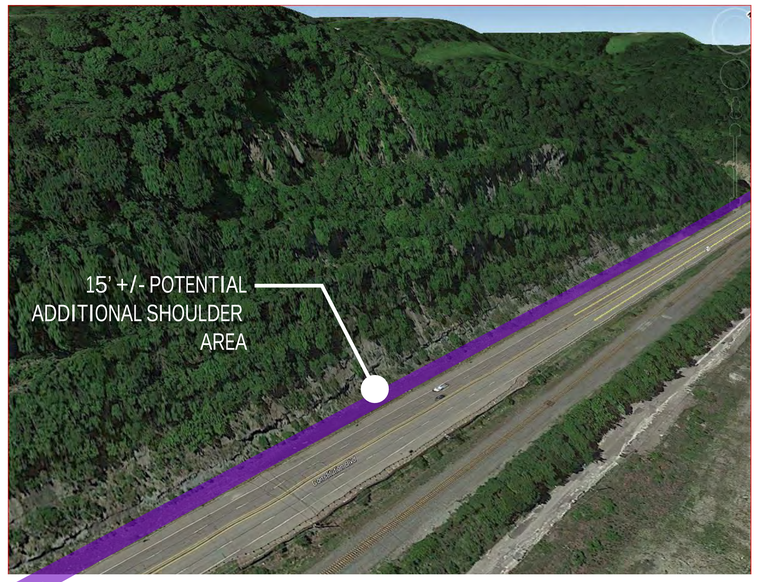
BOROUGH OF AMBRIDGE, 11TH STREET MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

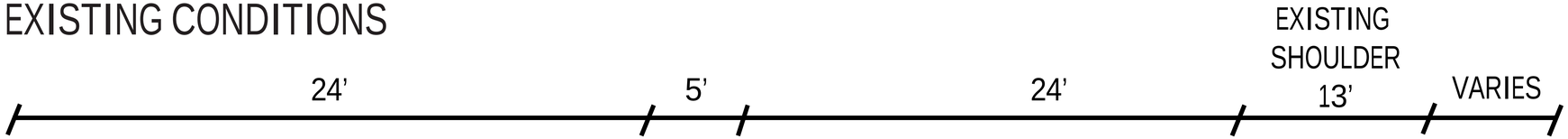






PROPOSED 2-WAY PROTECTED BIKE LANE.
UTILIZE PART OF EXISTING SHOULDER; MODIFY BARRIER (TYPICAL)

EXISTING CONDITIONS



PROPOSED BIKE LANE

ROUTE 51 MODIFICATION PLAN
OHIO RIVER TRAIL ON ROAD CONNECTOR

SEPTEMBER 2015

Mackin

PENNDOT DISTRICT 11-0 MEETING MINUTES

OHIO RIVER TRAIL ON-ROAD CONNECTOR FEASIBILITY STUDY- SEWICKLEY TO ALIQUIPPA

MACKIN PROJECT NO#5085

May 11, 2015, 2pm at PennDOT District 11-0 Office

ATTENDANCE:

Dr. Vincent Troia, Ohio River Trail Council President
John Orndorff, Director- Ohio River Trail Council & Glen Osborne Borough Council
Robert Genter, RLA, ASLA, Mackin Engineering Company
Kathryn Power, P.E., District Safety Engineer, PennDOT 11-0
Michael Grumley, Civil Engineer Transportation, PennDOT 11-0

DISCUSSION:

1) The ORT on-road connector study is to investigate and recommend ways to improve PA Bike Route-A by using roadways with less traffic, slower posted speeds and through local communities with facilities, shops, schools, and parks. This is the connection between the state of Ohio and the Great Allegheny Passage (GAP) Trail- to Washington DC. People are traveling this route now to reach the Montour Trail near Coraopolis and connect to the GAP Trail; and people have been killed cycling along PA Bike Route-A.

2) We reviewed the route and recommendations shown on plan sheets and photo enhanced images from Sewickley to Aliquippa. In general, the recommendations were for delineating automobile travel lanes with center lines, and edge lines, narrowing lanes to 11ô along the posted 25 MPH roadways; and posting the road with Share the Road Signs. In the Sewickley business district Shared Lane Markings are recommended to increase awareness to motorist, to guide cyclists through the roadway- away from ódoor openingô areas; this also avoids taking parallel parking in town. The group did not have concerns or issues with recommendations up to the SR51 route.

3) A modification to the bike route mapping in Sewickley is to use Grant Street as the E-W primary alignment.
   a) The primary East route is: Beaver, Grant, Ferry, Chadwick, River Ave, SR65 (short segment) to Sewickley Bridge
   b) The primary West route is: Sewickley Bridge, Kramer (right off the Bridge), Chestnut, Chadwick, Ferry, Grant, Beaver

4) The sections of the proposed route that include State Routes or PennDOT facilities include:
   a) Sewickley Bridge
   b) Ambridge/Aliquippa Bridge (east side traffic signal)
   c) State Route 51 between Ambridge and Aliquippa
   d) PennDOT provided traffic signal and SR51 plans to Mackin as requested

5) PennDOT stated that the SR51 subject section of roadway was completed (milled and resurfaced) in 2006/07 and is not scheduled for rehabilitation at this time.

6) PennDOT stated that impacts for shoulder widening (for construction of 2-way bike lane along east shoulder/cliff side) would require drainage reconstruction, roadway and shoulder reconstruction and be a major project. The route extends outside the SR51 ROW above a SR51 retaining wall to Kieh St in Aliquippa.

7) Additionally, the work would require preliminary engineering to conduct a geotechnical investigation for rock hillside stability, since recommendation proposes to move cyclists toward the rock fall zone.

8) Alternatives:

   a) Revised shoulder design to minimize drainage reconstruction- use metal posts and rail as a barrier (PennDOT did not recommend this alternative). This would still require drainage impacts to end pipe draining to rock fall area; and significant earth fill in rock fall area.
   b) Plan for a structure from the Bridge to the ground between river and railroad- (This is Betters property according to Vince Troia). Acquisition or easements would be required for property use. This would also be a major project requiring ROW, geotechnical, environmental clearance, utility clearance, and design and engineering for structure; additionally bridge structure reviews by County engineering department since itôs their structure.
   c) Stay on north shore of Ohio River and extend bike route along Duss Avenue to Baden where it becomes State Street; end route in Baden.

NEXT TASKS:

1. PennDOT- Kathryn Power to send required minimum shoulder distance for SR51 barrier to Mackin
2. Mackin to edit bike route Legend and route through Sewickley (as per above)
3. Mackin to submit revised bike route plans to ORT
4. It was suggested that ORTôs next step might be to package a preliminary submission to PennDOT including geotechnical investigation for rock stability, environmental and roadway impacts, recommendations for design and construction budgets. This would require significant design costs and may result in a suggested construction project valued at $1 million or more. Other options would be to look for an alternative design for SR51 shoulder, or other bicycle route alignments as listed above under Alternatives.
5. In the future, when ready, the ORT is to submit Ohio River Trail sign standard designs to PennDOT for approval (Trail/Route Name, Distance, and Direction). According to PennDOT, these signs are to be on separate, approved posts; separate from the Share the Road and other regulatory signs.
6. ORT to send revised bike route plans to ORT council members and municipal officials for review and comment. All comments are to be collected by ORT, organized, prioritized then submitted to Mackin for response.

The above minutes of the meeting were written by Robert W. Genter of Mackin for project recording purposes. If you have questions or edits, please contact Mackin at 412.788.0472 or via email (rwg@mackinengineering.com) within seven (7) days of the May 12, 2015 writing date.

SENATOR
ELDER VOGEL JR.
47TH SENATORIAL DISTRICT

SENATE BOX 203047
HARRISBURG, PA 17120-3047
(717) 787-3076
FAX: (717) 772-2756

488 ADAMS STREET
ROCHESTER, PA 15074-1940
(724) 774-0444
FAX: (724) 773-7384

1905 WEST STATE STREET
NEW CASTLE, PA 16101
(724) 654-1444
FAX: (724) 656-3182

evogel@pasen.gov
senatoreldervogel.com

Senate of Pennsylvania

COMMITTEES

AGRICULTURE & RURAL AFFAIRS
CHAIRMAN
APPROPRIATIONS
BANKING & INSURANCE
COMMUNICATIONS & TECHNOLOGY
ENVIRONMENTAL RESOURCES & ENERGY
LOCAL GOVERNMENT
MAJORITY POLICY

November 2, 2015

Leslie Richards, Secretary
Pennsylvania Department of Transportation
Keystone Building
400 North St, 8th Floor
Harrisburg PA 17120

Dear Secretary Richards,

I'm writing to bring to your attention the dangerous conditions that exist for bicyclists along the Ohio River Trail corridor of PA Bike Route A. Three fatalities have occurred along this corridor over the last few years and I am requesting that the Department make safety improvements along this route.

Pennsylvania Route 51 is an important route for bicyclists and motorists alike. Safety upgrades must be made in order to help ensure safe passage. Ultimately the Ohio River Trail Project remains the best long term solution for safety, but much can be done until that project is fully funded.

Thank you for your consideration of this important request. My office is prepared to assist should you require additional information.

Sincerely,

Elder Vogel Jr.

Senator Elder Vogel, Jr.
State Senator, 47th District

CC: Ohio River Trail Council

1100 Pennsylvania Av
Monaca, Pa 15061
www.ohiorivertrail.org

Phone: 724.728.2625
Fax: 724.775.9876
drvtroia@ohiorivertrail.org

Ohio River Trail Council

"Joining communities through fitness, recreation, heritage and transportation networks"

September 15, 2015

Governor Tom Wolf
508 Main Capitol Building
Harrisburg, PA 17120

Dear Governor Wolf,

On August 6, 2015, Beaver County resident Art Bell was killed by a motorist on PA Bike Route A while commuting to his workplace on his bicycle.

Arthur Bell is the third fatality in the last 25 months along the Ohio River Trail corridor of PA Bike PA Route A. The community is joined together to honor the memory of Arthur Bell, 54 (May 4, 1961 - August 6, 2015), Taylor Banks, 23 (March 24, 1991 - October 31, 2014), and Emily Jancart, 17 (September 7, 1995 - July 21, 2013).

The Ohio River Trail Council hosted a Memorial Bike Ride and Ghost Bike Dedication for Arthur Bell on Saturday, September 12, 2015. Family, friends, fellow cyclists, community leaders, and the media participated in the ceremony.

A white painted "Ghost Bike" was placed at the collision site as a dignified and somber monument to the victim. The bike serves as a reminder of the avoidable tragedy that occurred on an otherwise anonymous road while conveying a quiet statement in support of cyclists' right to safe travel.

The Ohio River Trail Council seeks compassion and support to initiate a change in culture that fosters mutual respect among all people who share the road. The roadway design and speeds of PA Route 51 are not compatible with a State Bike Route A designation, with speeds often in excess of 65 mph and limited shoulders.

We are respectfully requesting the Pennsylvania Pedalcycle & Pedestrian Advisory Committee to expeditiously implement safety improvements along Bike PA Route A from Coraopolis to Monaca, Pa. including but not limited to the lowering of speed limits, installation of additional share the road signage, markings, and sharrows.

1100 Pennsylvania Av
Monaca, Pa 15061
www.ohiorivertrail.org

Phone: 724.728.2625
Fax: 724.775.9876
drvtroia@ohiorivertrail.org

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In addition, the ORTC respectfully requests the prioritization and funding of the Ohio River Trail Project through PennDOT and the Department of Conservation and Natural Resources. The Ohio River Trail parallels this hazardous area of Bike PA Route A and results in a safer and alternate bikeway. The Ohio River Trail initiative was established in 2009 and progresses at a glacial pace while we incur a cyclist death every eight months.

Please join us to improve cycling infrastructure along the Ohio River corridor. If you require additional information, please visit www.ohiorivertrail.org or contact me personally at 724-728-2625.

Sincerely,

Dr. Vincent Troia

Dr. Vincent Troia
President & CEO

Bicycle Safety Issues on Pa Bike Route A

Gothie, Roy <rgothie@pa.gov> Today at 10:29 AM

To drvtroia@ohiorivertrail.org

CC Adams, Emily J

Dear Dr. Troia:

Thank you for your letter regarding the series of cycling related fatalities on PA Bicycle Route A as well as your suggestions for improving the existing roadway conditions. The Governor received your letter and requested I respond on his behalf.

First allow me to assure you that safety remains PennDOT's top priority for all roadway users regardless of mode choice. With that in mind, Pennsylvania Bicycle Route A's current alignment was developed in coordination with the Pedalcycle and Pedestrian Advisory Committee (PPAC) to provide long distance routes for experienced cyclists. Few of these routes contain bike lanes or other facilities designed specifically for cyclists.

At the September 22nd PPAC meeting, PennDOT requested the Bicycle Route Sub-Committee to re-evaluate the segment of SR 51 in question as a response to several inquiries from advocacy groups. The evaluation will include the identification of possible alternative routes. However, due to the budget impasse, funding to support the on-road re-evaluation is not currently available.

As to the suggested roadway improvements, the majority of these fall under the purview of the local municipalities. The Share the Road signage and sharrows may be appropriate in areas with lower posted speed limits and the District Office would be willing study these areas to identify specific locations if requested by the local municipalities. The costs associated with the Share the Road signs (fabrication and installation) could be covered by PennDOT while the installation and maintenance of the Sharrows and other signage would be a local responsibility after approval from PennDOT.

Finally, each municipality along SR 51 must support and enforce the posted speed limits which are set at the 85th percentile speed of drivers on the roadway. Reducing the posted speed below this limit confounds driver expectations, which are based upon the design of the roadway and reduces compliance with the posted speed limit.

Thank you, again, for seeking for expressing your concerns regarding Bicycle Route A on State Route 51. If you have any additional questions or comments, please do not hesitate to contact me at 717-783-3991 or via email at rgothie@pa.gov.

Respectfully,

Roy Gothie | Bicycle and Pedestrian Coordinator
Pennsylvania Department of Transportation |Multi-Modal Division
400 North Street - 8th Floor | Harrisburg, PA 17120
Phone: 717.783.3991

Freeport Road between Blawnox, Harmar dropping from 4 to 3 lanes to give room for cyclists

By Tawnya Panizzi
Tuesday, Oct. 27, 2015, 7:24 p.m.

PennDOT is paving the way for better bike access in the Lower Valley.

A four-lane section of Freeport Road, from Blawnox to Harmar, will be reduced to three lanes with shoulders up to eight-feet wide on either side.

"We are not designating any bike lanes with signage," said Todd Kravits, PennDOT traffic engineer.

That designation would come only with the approval of O'Hara and Harmar councils, since the property lies within those municipalities. Neither council is willing to take on the liability of the bike lanes without PennDOT installing a hard barrier along the shoulders.

"Bike lanes become the responsibility of the municipality," O'Hara Manager Julie Jakubec said.

"Council's concern along Freeport road is that it's heavily traveled and sometimes at a high speed. Council would consider an official bike lane if there's some sort of guide rail or barrier in place."

Bicycles, however, are legal on the road and along the shoulders. Bikers currently ride among the vehicles on Freeport Road.

Scott Bricker, executive director of BikePGH, applauded the move.

"Freeport is a fast-moving road. A redesigned Freeport will hopefully slow cars down to the speed limit and the shoulders will expand the option for more people to use the corridor by bike, which is especially important with the new Hulton Bridge connection," he said. "Considering that there are already people biking and walking on Freeport Road, we are very appreciative of PennDOT's efforts to improve safety."

Blawnox Manager Jack Nolan also considers the work a safety benefit.

"We welcome anything PennDOT can do on that road that will make it safer for bikers," Nolan said.

The new traffic design affects the portion of Freeport Road from the Blawnox-O'Hara border to the newly-opened Hulton Bridge, a $65 million span equipped with a bike lane.

Kravits said that discussions with bike advocacy groups and local municipalities led PennDOT to consider the lane change.

Analysis revealed that four lanes were unnecessary and instead, one lane in each direction along with a turning lane — a configuration known as a road diet — could accommodate the flow and possibly increase safety, Kravits said.

"There are a number of safety and operational benefits that this concept provides, including an overall crash reduction of 19 to 47 percent," he said. "There is a reduction of rear-end and left-turn crashes through the use of a dedicated left-turn lane and fewer lanes for pedestrians to cross."

About 15,000 to 21,000 vehicles travel the stretch each day.

Timing of the road diet was beneficial since crews this month completed a resurfacing project.

The changes can be incorporated at no additional cost, Kravits said. Lines are expected to be painted this week.

Tawnya Panizzi is a staff writer for Trib Total Media. She can be reached at 412-782-2121, ext. 2 or at

STREETSBLOG USA

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Wednesday, September 2, 2015 25 Comments

"Share the Road" Signs Don't Work

by Tanya Snyder

Image: Bike Delaware

Delaware got rid of its "Share the Road" signs about two years ago. Though the signs were designed to affirm cyclists' rights to the road, they were widely misinterpreted — by both motorists and cyclists — as an exhortation to cyclists to stop "hogging" the road, or as a recommendation that drivers and cyclists share a lane (leading to tight squeezes and close passes).

Bike Delaware concluded that "Share The Road" is just "feel good' signage that placates an interest group but has no safety benefit." And the state dumped the confusing message in favor of a less ambiguous one asserting that bicycles "may use full lane."

A new survey confirms that Delaware had the right idea — and other states should follow suit. In all 50 states, cyclists have a right to the road — including the center of the lane, if that's the safest place for them to be.

Researchers George Hess and M. Nils Peterson of North Carolina State University conducted an online survey of nearly 2,000 people to find out what various road signage means to them. On the screen, respondents were shown pictures of various traffic scenarios and street designs, and asked to interpret different signs and markings in those contexts.

When confronted with a "Share the Road" sign, a "Bicyclists May Use Full Lane" sign, or a sharrow painted on the roadway surface, did respondents think the cyclist should cede position to let the driver pass in the same lane? Should the driver wait for an opportunity to pass in the adjacent lane? Did they think it's legal for the cyclist to take the lane? Did they think it's safe?

Turns out "Share the Road" had no effect whatsoever in leading people to respect cyclists' right to occupy a full lane of traffic. A sharrow helped a little. In the survey, by far the clearest indication that cyclists have an equal right to the road was a sign stating unequivocally that cyclists "may use full lane."

On a four-lane road, both sharrows and "May Use Full Lane" signs doubled the share of people who concluded that cyclists are allowed in the center of the lane. But on a two-lane road, neither sharrows nor "Share the Road" signs effectively communicated that motorists should wait for a gap in traffic to pass in the adjacent lane; the "May Use Full Lane" sign did.

Respondents were recruited via Twitter, and Hess and Peterson acknowledge that the pool may not be a representative sample. Participants appear to bike more and drive less than the typical American, with 80 percent saying they bike more than 16 kilometers (10 miles) per week, and 57 percent saying they don't drive solo to work. However, given the skew toward people who bike, the results suggest that if anything, Americans are more confused by "Share the Road" signage than the survey indicates.