Schuylkill River Trail Gap Analysis at the Wissahickon Gateway

Submitted to:

City of Philadelphia -

Philadelphia Parks and Recreation Department

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Prepared by

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With support from Toole Design Group – Silver Spring, Maryland

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Study Committee

Marcus Allen - Philadelphia Department of Public Property

Rob Armstrong - Philadelphia Department of Parks and Recreation

Jennifer Barr - Philadelphia Planning Commission

Jeannette Brugger - Philadelphia Planning Commission

Charles Carmalt – Mayor's Office for Transportation and Utilities

Stephanie Craighead - Philadelphia Department of Parks and Recreation

Chris Dougherty - Philadelphia Department of Parks and Recreation

Kevin Groves – Friends of the Wissahickon

Charles Mottershead – Philadelphia Department of Public Property

Rosemary Rau - Philadelphia Canoe Club

George Schaefer – Philadelphia Canoe Club

Gina Snyder, East Falls Development Corporation

Sarah Stuart –Bicycle Coalition of Greater Philadelphia

Kay Sykora - Schuylkill Project

Todd Zielinski - Philadelphia Canoe Club

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Pennsylvania Department of Conservation and Natural Resources

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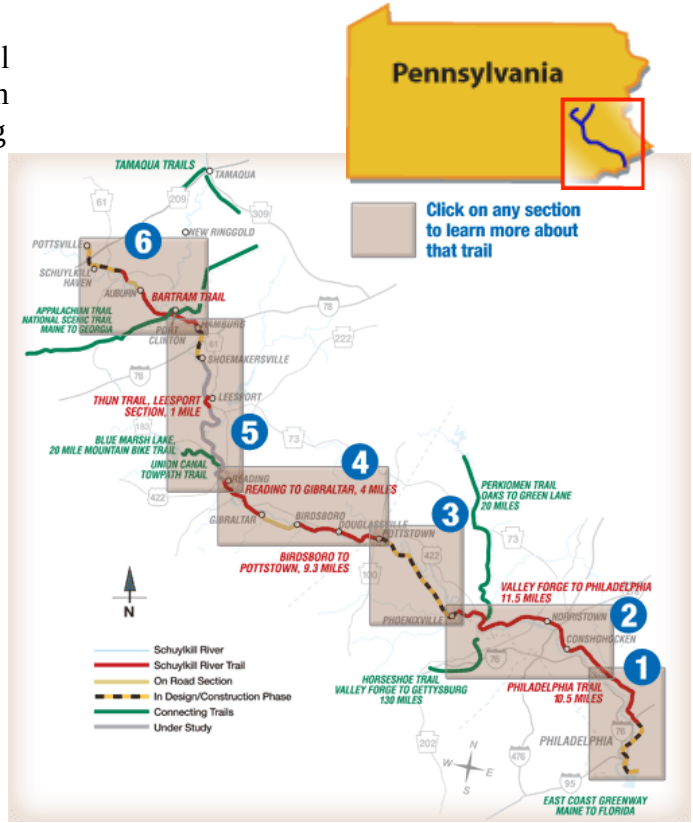
City of Philadelphia

Table of Contents

1. Introduction

The Schuylkill River Trail (SRT) is a multi-use recreational path following the Schuylkill River and stretching 128 miles from the southernmost foothills of the Appalachians to tidal lands in Philadelphia. As a regional connector knitting together four counties and numerous communities, it is a strong driver of heritage and recreation tourism. Poised to become the region's first green transportation corridor, the SRT is increasingly utilized by commuters as an alternative transportation route in some urban areas. In Philadelphia and its suburbs, "demand" for the trail has markedly increased with 670,000 people using the SRT last year and with bicycle traffic on the trail doubling in the last year alone. Stakeholders and planners alike see the trail connecting business districts, transit options, parks, green space, and other communities up and down the trail.

Presently though, gaps exist in what could be a seamless network. One of the most challenging gaps in the SRT exists between the East Falls and Manayunk sections of Philadelphia where the Fairmount Bikeway (a/k/a Schuylkill River Trail) narrows to a sidewalk and terminates on a busy arterial street. Bicyclists wishing to continue east or west along the trail must navigate a narrow bikeway, weave through passengers disembarking and embarking from SEPTA buses, and avoid cars entering and exiting from eleven (11) curb cuts along Ridge Avenue. According to trail use statistics, trail advocates have found that while the Montgomery County stretch of trail enjoys 12,500 weekly users and the East Falls section 15,000 weekly users, the area between these two sections only sees 2,500 weekly users. This drop off is directly attributable to the gap at Ridge Avenue and the Wissahickon Creek. While some conceptual options for separating or improving the bicycle travelway have come out of *The Wissahickon Gateway (2008)* and the *Ridge Avenue Revitalization* studies, a more detailed analysis of these options was needed.



This study was undertaken to advance the extension of the Schuylkill River Trail (SRT) from Ridge Avenue to the Pencoyd Bridge. The objectives of this effort were as follows:

- Conduct a feasibility study to assess two options for bicycle and pedestrians travel through this corridor and determine the preferred route for the SRT. The options under consideration include a riverside route and a route along Ridge Avenue/Main Street.

- Conduct a structural alternatives analysis for crossing of the Wissahickon Creek by either widening the existing Ridge Avenue roadway bridge or providing an independent trail bridge

- Develop schematic plans for the preferred trail alignment

- Present the feasibility study , structural alternatives analysis and schematic plans for review and consideration by the project steering committee and the general public

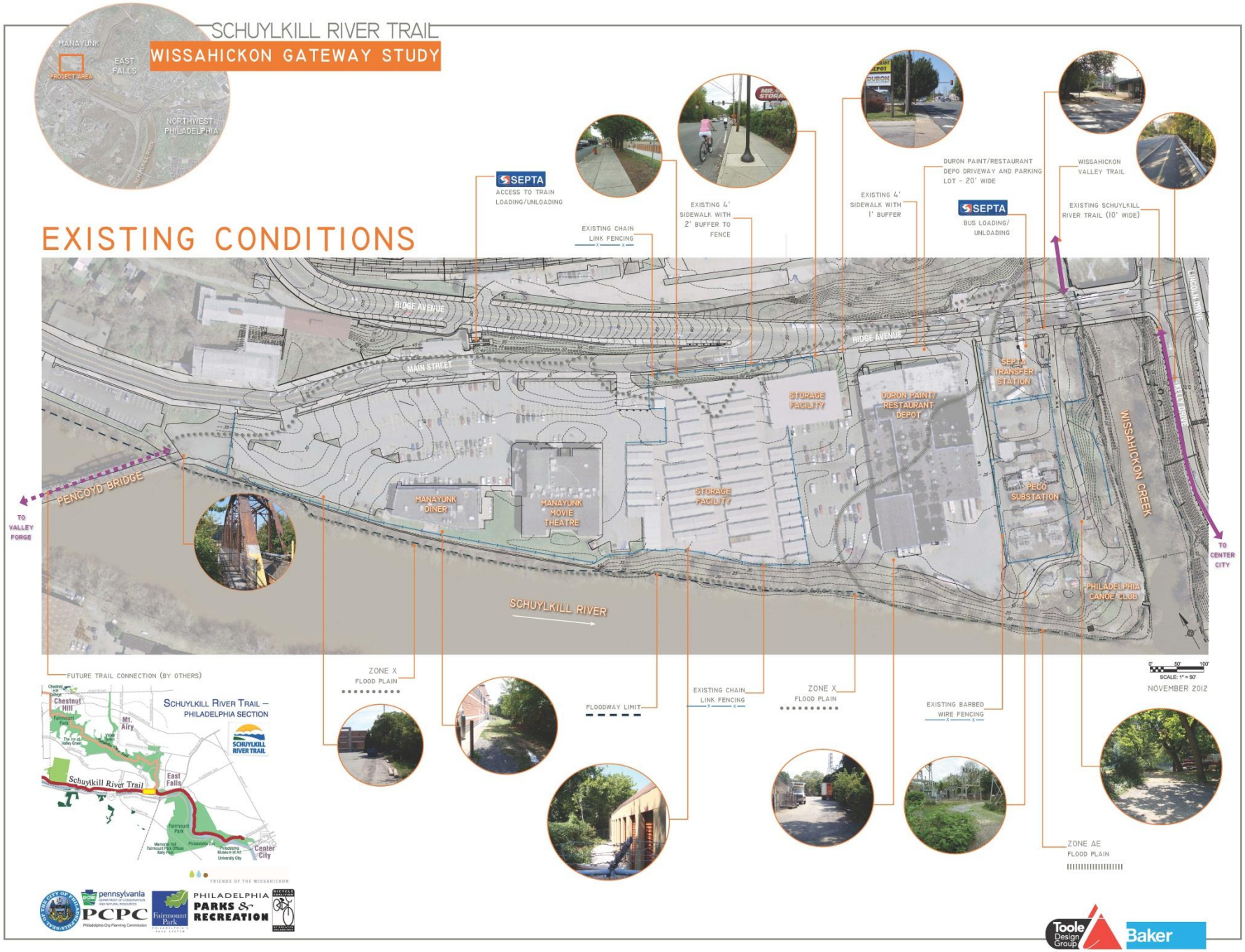
Gap in SRT, shown in yellow, between East Falls and Manayunk

The study limits extend from the current ending point of the SRT at Kelly Drive on the east side of the Wissahickon Creek to the existing Pencoyd truss bridge over the Schuylkill River on the west. The corridor under study extends from Ridge Avenue and Main Street to the north to the edge of the Schuylkill River to the south.

2. Existing conditions

The existing conditions in this area include a complex mix of industrial, commercial, park land, and transportation uses. Major land uses and owners include the following:

- Fairmount Park and trailhead parking area adjacent to the Wissahickon Creek (a portion is leased to the Philadelphia Canoe Club)
- SEPTA Wissahickon Transportation Center (WTC)
- PECO Energy Electrical substation
- Restaurant Depot / Duron Paint building and parking are
- Mr. Storage building and parking area
- Manayunk Movie Theater /Manayunk Diner and parking area


SCHUYLKILL RIVER TRAIL
WISSAHICKON GATEWAY STUDY
MANAYUNK
EAST FALLS
PROJECT AREA
NORTHWEST PHILADELPHIA
EXISTING CONDITIONS
SEPTA
ACCESS TO TRAIN LOADING/UNLOADING
EXISTING CHAIN LINK FENCING
EXISTING 4' SIDEWALK WITH 2' BUFFER TO FENCE
DURON PAINT/RESTAURANT DEPO DRIVEWAY AND PARKING LOT ~ 20' WIDE
EXISTING 4' SIDEWALK WITH 1' BUFFER
SEPTA
BUS LOADING/ UNLOADING
WISSAHICKON VALLEY TRAIL
EXISTING SCHUYLKILL RIVER TRAIL (10' WIDE)
RIDGE AVENUE
MAIN STREET
STORAGE FACILITY
DURON PAINT/ RESTAURANT DEPOT
SEPTA TRANSFER STATION
PECO SUBSTATION
WISSAHICKON CREEK
MANAYUNK DINER
MANAYUNK MOVIE THEATRE
PENCOYD BRIDGE
TO VALLEY FORGE
TO CENTER CITY
SCHUYLKILL RIVER
PHILADELPHIA CANOE CLUB
FUTURE TRAIL CONNECTION (BY OTHERS)
ZONE X FLOOD PLAIN
FLOODWAY LIMIT
EXISTING CHAIN LINK FENCING
ZONE X FLOOD PLAIN
EXISTING BARBED WIRE FENCING
ZONE AE FLOOD PLAIN
SCALE: 1" = 50'
NOVEMBER 2012
SCHUYLKILL RIVER TRAIL – PHILADELPHIA SECTION
Chestnut Hill
Mt. Airy
Schuylkill River Trail
East Falls
Fairmount Park
Center City
FRIENDS OF THE WISSAHICKON
pennsylvania
PCPC
Philadelphia City Planning Commission
Fairmount Park
PHILADELPHIA PARKS & RECREATION
Toole Design Group
Baker

a. User Demands and Travel Patterns

Existing traffic signal and crosswalk at the end of the Wissahickon Trail

Currently, bicyclists utilize the existing sidewalk or shoulder of the roadway to travel from the end of the SRT at Ridge Avenue to and from Manayunk. The current sidewalk pathway is very narrow in many locations and crosses many uncontrolled driveways. The shoulder of the roadway is not designated with pavement markings or signage for bicyclists. In addition, the SEPTA WTC presents significant conflict points with entering/exiting buses, loading and unloading of buses along the curb of Ridge Avenue and transit riders waiting on the sidewalk for their bus. Shared lane markings or "sharrows" have been added recently to Main Street and portions of Ridge Avenue in the study area.

Additional bicyclists and pedestrians enter the project area from the Wissahickon Trail that ends on the north side of Ridge Avenue. These trail users cross Ridge Avenue at a dedicated pedestrian only actuated traffic signal and crosswalk at the end of the trail (see photo). This crosswalk serves both trail users and the many transit users crossing from a heavily used bus stop on the north side of Ridge Avenue to the WTC. Trail users then use the existing sidewalk of the Ridge Avenue roadway bridge over the Wissahickon Creek to connect to/from the Schuylkill River Trail along Kelly Drive.

Origins and Destinations

There are many important origins and destinations for trail users in the study area including:

- SEPTA Wissahickon Transportation Center
- SEPTA Wissahickon Station on the Manayunk/Norristown Regional rail line
- Wissahickon Trail and Fairmount Park
- On road connections to Manayunk and East Falls
- Manayunk Movie theater, Manayunk Diner and shopping center

The SEPTA facilities in this area present many options for access to and from the SRT and the Wissahickon trails. Once the trail is completed, the Manayunk Diner will surely become a popular trail side destination for hungry bikers.

b. Site Constraints:

Major site constraints within the project area include:

- Wissahickon Creek and the Ridge Avenue Bridge over the Wissahickon Creek
- Schuylkill River
- PECO Pencoyd substation
- Congested area in front of the SEPTA Wissahickon Transportation Center
- Ridge Avenue and Main Street travel lanes

Loading/unloading near the SEPTA WTC creates conflicts in the area

Steep slopes along the Wissahickon Creek and along the banks of the Schuylkill River also present project challenges. The travel lanes along Ridge Avenue and Main Street also limit the amount of space that can be reallocated for a trail facility. The City would like to limit the amount of easements that are required for the project so the existing road right of way is also a constraint.

c. Property Ownership:

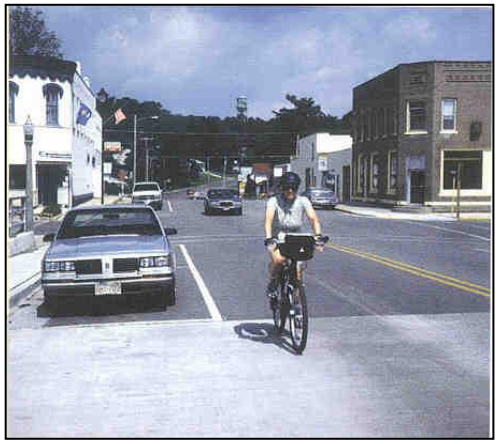
The properties involved with this study are included in the following table:

Parcel #	Owner Name	Current Use
N/A	Fairmont Park /City of Phila	Philadelphia Canoe Club and trailhead parking area
098N160023	SEPTA	SEPTA Wissahckon Transportation Center
098N160022	PECO	PECO Pencoyd Substation
098N160020	PECO	PECO Pencoyd Substation
098N160024	MBS Associates	Restaurant Depot / Former Duron Paint Store
098N60025	MBS Associates	Mr. Storage
098N160026	Manayunk Associates LP	Manayunk Movie Theater & Manayunk Diner Plaza

The Philadelphia Canoe Club has a long term lease agreement with the City for the use of the park land along the Wissahickon Creek. An existing 12’ wide “riverwalk” easement exists behind the Manyaunk Movie theater and Manyaunk Diner buildings. An additional 30’ wide easement exists between the Pencoyd bridge and Main Street for access associated with the former Connelly Containers property. Lastly, there is a 30’ easement along the eastern property line of the Manayunk Associates and MBS Associates property.

Public Right of Way: According to City records, the public street right of way along Main Street is 60’ wide with 13’ outside of each of the curb lines and 34’ between curbs. Ridge Avenue also has this same right of way dimensions between the Main Street split and the area near the Wissahickon Creek. The right of way increases to 70’ across the creek with 10’ outside the curb to the south, 13’ outside the curb to the north and 47’ between curbs.

3. Design Standards



Shared Roadway Bicycle Facility

Analysis of aerial photography, background research and field views were conducted to determine the major terrain features, adjacent property uses and environmental issues that would affect the construction of this trail facility. The corridor was evaluated to determine the most appropriate trail facility and most feasible approach for its construction. According to AASHTO's Guide for the Development of Bicycle Facilities, there are 4 different types of bicycle facilities. The selection of the facility should be based on factors such as the ability of the users, specific corridor conditions, and facility cost. The different types are the following:

Shared Roadway (No Bikeway Designation): This facility represents the majority of existing bicycle travel in the United States. Some street systems provide efficient bicycle travel and do not require the use of additional signing and striping. In other instances, it would be inappropriate to designate a certain route a bikeway because the roadways are not suitable for bicycling. In some cases, such as residential areas, the bicycle demand is not high enough to warrant a bikeway designation. Rural highways that are used for intercity and recreational travel should only be designated as a bikeway where there is a need for enhanced continuity with other bicycle routes.

Signed Shared Roadway Bicycle Facility

Signed Shared Roadway: This facility is designated by bike route signs along existing roadway and has two purposes. One purpose is to provide continuity to other bicycle facilities, such as bike lanes. Another purpose is to designate preferred routes through high-demand corridors. These routes are implied to be more advantageous than alternate routes to bicyclists. Therefore, responsible agencies should ensure that these routes are adequate and well maintained for the needs of bicyclists. Signing also makes drivers aware of the presence of bicyclists.

Example of Bike Lanes

Bicycle Lane: This facility's purpose is to enhance conditions for bicyclists on the streets through the use of appropriate pavement markings and signing. Bike lanes are used in areas where there is both a high bicycle demand and distinct needs that can be served by using them. Bike lanes delineate the right-of-way for bicyclists and motorists, separating the traffic and increasing the capacity of highways with mixed traffic. Bike lanes also provide an adequate area for bicyclists where there is insufficient space on the roadway for comfortable riding. For effective bike lanes, bicycle-safe drainage inlet grates should be used, pavement surfaces should be smooth, and traffic signals should be responsive to bicyclists. Regular maintenance should be a top priority to ensure potholes, broken glass, debris, or other impediments do not interfere with the bicyclists.

Shared Use Path: This facility consists of any independent trail on a separate alignment specifically designed for pedestrians and bicyclists. Shared use paths (SUP) are often constructed along rivers, ocean fronts, canals, utility rights-of-way, former or active railroad rights-of-way, within college campuses, within and between parks, or as part of a planned development. Shared use paths offer opportunities not provided by road systems, such as recreation or a direct commute. A shared use path is designed with the safety of all users in mind. This includes bicyclists, joggers, pedestrians, dog walkers, people with baby strollers, people with disabilities, roller bladders, etc.

Example of Shared Use Path

It is important that the proposed facility does not encourage or require bicyclists or motorists to operate in a manner that is different from the rules of the road. The needs of both bicyclists and motorists must be considered in the selection of the facility. Continuity of the overall system should be taken into consideration in the selection of the facility. Alternating segments of shared use path and bike lanes may result in street crossings at the end of the segments or wrong-way bicycle travel beyond the limits of the path due to the inconvenience of crossing the street. Sidewalks should be used in limited circumstances, such as along bridges or in areas of sporadic bicycle use. Any considerable difference in height between the sidewalk and roadway should be protected by a suitable barrier.

Bicycle/Pedestrian Bridges and Crossings: Crossings of waterways, roadways and other obstacles can be some of the most difficult and costly portions of a trail project due to design, permitting and construction issues. Crossings of waterways can be complicated by the need for various types of permits from state Departments of Environmental Protection or other agencies. These permits can vary from a minor application showing a sketch of the crossing to permits that required in-depth hydraulic models, reports and coordination with the Federal Emergency Management Agency (FEMA) to determine flood plain impacts. The following are several methods that are typically used on trail projects for waterway crossings: ford, low flow pipe culverts, metal/concrete box or arch culvert, pre-fabricated bridge (various materials) and custom designed bridge.

Example of Independent Trail Bridge

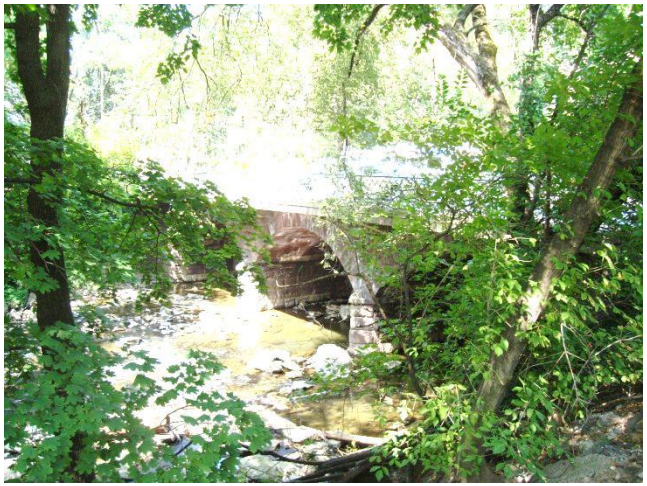
The above trail facility and structure types were considered in this initial feasibility study.

Structural Alternatives Analysis to cross the Wissahickon Creek.

One of the goals of this study was to conduct a structural alternatives analysis for crossing of the Wissahickon Creek by either widening the existing Ridge Avenue roadway bridge or providing an independent trail bridge

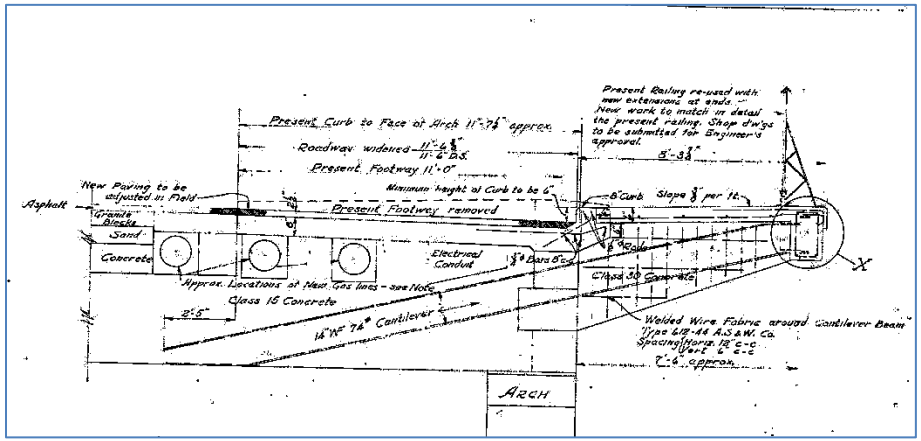
Widening of the existing Ridge Avenue Bridge:

The option to widen the sidewalk on the Ridge Ave Bridge to accommodate trail access is being considered. This three span arch bridge was originally built in 1877 and consists of stone masonary construction. It is an officially designated as a historic structure by the PA Historic and Museum Commission. The existing sidewalk, which is not part of the original structure, was built in the 1950s. It consists of steel beams embedded in the arch backfill at an angle and cantilevered outward to support the sidewalk. This beam is attached to a steel channel beam running along the outside of the sidewalk for the length of the structure. The sidewalk is approximately 8'-3" wide with a pedestrian railing with angle supports leaving a usable sidewalk of approximately 6'-0". The sidewalk is separated from traffic by a concrete curb. The height of the curb has been decreased through subsequent repavings and is in poor condition due to vehicle impacts.



View of the existing Ridge Avenue Bridge

Existing sidewalk on Ridge Avenue Bridge



Cross section of sidewalk from 1953 construction plans

A design for a 16'-0" maximum and 14'-0" minimum wide final sidewalk width was utilized to determine the feasibility of widening this structure. The design assumed adding additional supports to the existing structure in order to extend the sidewalk.

An additional issue that was not considered in the design is the overhanging portions of the existing steel beams are concrete encased and not visible. Since the steel beam supports are concealed, it is very difficult to determine their condition using visual inspection. There is a high probability the beams have corrosion and would be unable to take any additional loading.

It is highly unlikely that the existing support system could be configured to take the additional loading. Modern pedestrian loading includes 85 lbs per square foot of sidewalk and stringent deflection controls. Complete removal of the fill from the Ridge Ave Bridge and replacement with new support beams and reinforced concrete encasement would be the likely possible solution. It is not a certainty that this would be proven adequate by analysis. Also, the presence of multiple utilities within the fill of the arch would complicate this option. A multi day shutdown of Ridge Ave would be required.

Another consideration is the inclusion of safe traffic and pedestrian barriers. As the existing sidewalk was built prior to the modern safety criteria provided in AASHTO today, the railing does not meet the requirements for either traffic barrier or pedestrian barrier. A new sidewalk would have to comply with both criteria. The inclusion of a traffic barrier adjacent to traffic would be difficult to terminate and would

Sidewalk and railing on the Ridge Avenue Bridge

probably require impact attenuators on each end. These would possibly protrude into the Canoe Club access in order to effectively shield traffic. It would increase the needed width of the sidewalk by approximately 2'. The most detrimental issues caused by the sidewalk would be the inclusion of a horizontal traffic impact load. This could most likely only be accommodated by the inclusion of moment slabs on top of the arch.

Construction of a barrier on the outside of the sidewalk would allow for a curb to remain adjacent to traffic. It would require a combination pedestrian/vehicle barrier to be constructed on the outside of the sidewalk. The horizontal load generated by an impact to the barrier in this configuration would almost undoubtedly be greater than a cantilever support could sustain.

A more structurally feasible solution would be widening the abutments to accommodate new beams to span the channel and support all loads. The existing right wing has failed. The left wing (See photo) is well below the required height and would need to be completely replaced to support a new superstructure. Both wings would need to be lengthened and protected from future scour.

Left wing wall with pipe passing through it. Also note downstream pipe with undermining of concrete channel

Construction of new abutment extensions would be expensive as the banks are steep and features above would either prohibit excavations or require extensive shoring. Post and panel wall would probably be the most economical alternative. Work in this location is probably the most costly alternative.

There are some alternative options to widening the existing cantilevered sidewalk including widening the abutments of the existing bridge and using new beams to span the creek. However, the existing wingwalls would also need to be replaced to support the widening of the bridge for the trail. This widening would be very costly and would be difficult to accomplish due to the historic designation of the bridge. Based on these the widening calculations and the above reasons, we recommend using a separate trail bridge downstream of Ridge Avenue. Please refer to the Appendix for detailed calculations.

Independent Trail Bridge:

The placement of an independent trail bridge was considered between Ridge Avenue and the existing retaining wall adjacent to the Philadelphia Canoe club. There are stone masonary bridge abutments from a former private bridge built in the 1800's also located in this area. The potential reuse of the abutments was evaluated and other possible crossings were considered.

Background: A field view was conducted on April 6, 2011 to evaluate the condition of existing stone masonry abutment slightly downstream of Ridge Ave.

Site Conditions: Matching stone masonry abutments exist along Wissahickon Creek. There are no remains of a superstructure in place on the structure. They are approximately 37' wide. The abutments are approximately 100' downstream from the Ridge Avenue Bridge. The abutments are in fair condition with limited signs of undermining and loss of mortar. The abutments are stone masonry, constructed of relatively small stones averaging approximately 6" in height. The majority of the mortar is lost from the joints between the lower courses and what remains has softened to the point it has little adhesion to the stones. The walls remain standing due to gravity with the weight of the upper courses holding the lower stones in place. There is no accurate method to gauge the amount of frictional capacity of the forces between the stones and therefore no means to determine what loads (particularly horizontal loads) they could be counted on to support. Any new construction relying solely on the abutments could exceed that capacity and cause a failure.

Existing left stone abutment downstream of Ridge Avenue

Existing right stone abutment downstream of Ridge Avenue

Another issue with the existing abutments is the undermining occurring at each. The stream bed of Wissahickon Creek appears to have dropped from the time of original the construction. On the day of the field visit, courses of stones protruding in front of the faces of the abutments at or just above water level were visible. These slightly larger stones would have been laid down as the starter courses for the walls. Through the clear water and by probing, it was possible to identify three layers of protruding stones present at the right abutment. At the left abutment there was a hole greater than 2' deep at the upstream corner. It was not possible to determine the depth of the hole, the extent of the foundation stones or if undermining exist. At the downstream corner, 2 courses of stone were visible. Normal construction would have been to lay down these foundation stones as deeply as the excavations would have allowed and backfill in front of them with rock. They would not have been built at stream bed at the time of construction. It is likely that the streambed has lowered since the initial construction and uncovered these layers.

Foundation stones at right abutment. Note mortar loss particularly in the lower courses.

As mentioned, Wissahickon Creek flows under Ridge Avenue, approximately 100' upstream from the abutments. The bridge is a three span stone masonry arch structure which greatly constricts the stream flow. Bank erosion has occurred on both banks of the Ridge Ave structure and the right wing wall of the Ridge Avenue Bridge has had partial failure.

Water is constricted horizontally in passing through the Ridge Ave. bridge and is probably also under pressure flow in large storm events. This would cause hydraulic jumps and turbulence which is undoubtedly causing the bank erosion. The channel banks are significantly wider below the Ridge Avenue Bridge to approximately 100 yards downstream of the abutments where walls limit the erosion. A few large trees and their root masses, provide a degree of bank stabilization, between the Ridge Ave bridge and the downstream walls, but both banks are pushed back much further than the upstream and downstream features. The right wing wall of the Ridge Ave. Bridge has failed and a portion has collapsed. In high flows, the stream flow is just behind the wall.

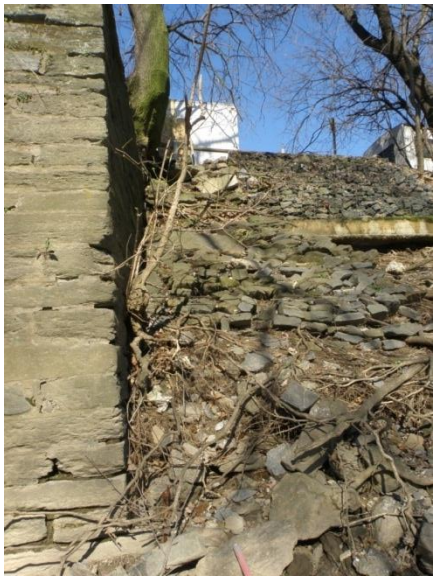
Failed right wingwall of Ridge Avenue Bridge

Ridge Avenue Bridge approximately 100' upstream

Also at the old abutments, immediately upstream of the right abutment is a portion of dry set stone bank protection. The bottom of the bank protection has failed and is missing. The right bank downstream of the abutments has been recently reconstructed with precast concrete blocks and riprap to contain the stream.

Wissahickon Creek in the area of the abutments has a bed comprised of silts, sands, cobbles and boulders. There is no discernible bedrock. It is unlikely that bedrock is near enough the surface that the abutments were built on bedrock. The technology did not exist for deep excavations within a streambed at the time of construction. Also, if bedrock was shallow, it would have been exposed since the turbulent nature of the stream would have swept a thin layer of alluvium over bedrock away.

The abutments have evidently not been in service for extended periods and large trees have grown in the fill behind the abutments. The root systems of the trees is undoubtedly extensive and would have to be removed otherwise the decomposition of the woody material would provide an unsuitable bearing area.



Undermined rock slope protection

Recommendations: The condition of the abutments is such that they would be a poor choice to use as the sole means of support for a new structure. The deterioration of the mortar would require complete demolition and reconstruction for them to even be considered as safe for additional loading, particularly for horizontal loads. However, even if the abutments were completely rebuilt, it is unlikely without major strengthening they would pass modern analytical checks to insure safety.

A more feasible alternative would be to leave the abutments in place to serve as fill retention structures. Simple repointing should be all that is necessary to seal the faces from stream flows.

The trees growing in the fill behind the abutments will have to be removed along with their root masses. This material should be replaced with clean granular fill. Granular material would also be required to support new stub abutments placed 15'-20' behind the existing abutments. This distance would be required to minimize transference of load to the existing structures.

Also, the undermining and lateral channel expansions are both serious concerns. If no mitigations are performed, the abutments will probably fail due to actions of the stream either undercutting the abutments or washing out the channel banks and turning the wings. The undermining could be addressed with underpinning along the front face. Due to the bank erosion it would be prudent to extend the underpinning upstream of the right abutment to tie it into the undercut bank protection. Also to address the channel expansion large riprap is needed to stabilize the banks both upstream and downstream of the abutments.

New precast retaining wall adjacent to Canoe Club

As the existing abutments are approximately 85' apart, a new structure would need to be between 115' and 125' long. Options would include P/S beams with a concrete deck and railings, steel beams with similar configuration or a pre-fabricated steel truss. There is sufficient freeboard between the existing sidewalk elevation and the top of arch at Ridge Ave that any structure type could be used without affecting the flows.

New Structure location

Background: Consider options for placement of a completely new structure on a new alignment located between the Ridge Avenue Bridge and the newly constructed Canoe Club retaining wall.

Findings: The distance between the existing Ridge Ave Bridge and the Canoe Club wall is about 150'. The banks are well back from the manmade constructions. The top of banks are close to 150' apart. Any new structure would have to span from bank to bank to avoid more costly construction techniques such as deep excavations and extensive shoring. A pile foundation should be considered for this option.

The best location would likely be between the abutments and the Canoe club wall. Stream bank armoring would also need to be extensive to protect the structure. Placing riprap from the abutments to the canoe club wall and to the old stone wall on the left side would adequately protect the structure.

Before and after artistic renderings of a potential "signature" trail bridge over the Wissahickon Creek

Options would include pre-stressed concrete beams with a concrete deck and railings, steel beams with similar configuration or a pre-fabricated steel truss. There is sufficient freeboard between the existing sidewalk elevation and the top of arch at Ridge Ave that any structure type could be used without affecting the flows.

Considering the high profile location of this crossing in Fairmount Park, the two aesthetically pleasing masonary arch bridges nearby as well as the thousands of trail users, pedestrians and motorists passing this structure daily, the use of a "signature" type bridge should be considered. A tied arch truss bridge such as the one depicted in the rendering above is an example of this higher level bridge type. It is recommended that the structure use a color scheme and materials that fit in with the adjacent park setting. Concrete formliners and concrete staining was requested by the Parks Department for the structures in the adjacent Gustine Lake interchange. Any concrete work for this structure and others in the project should match this appearance.

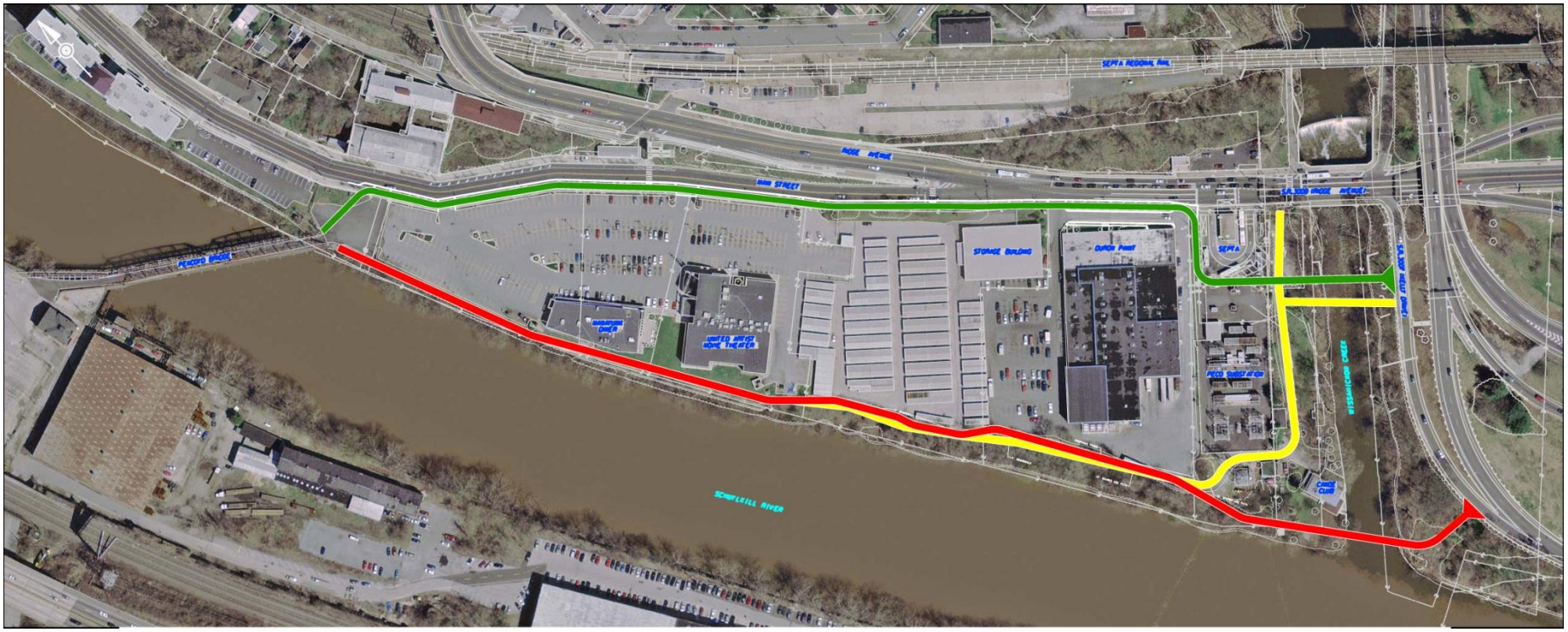
Concrete formliner and staining on adjacent Lincoln Drive Bridge.

4. Alignment Analysis

The potential pathway alignment location for the gap between the Pencoyd Bridge and the existing SRT, at the Wissahickon Gateway, was evaluated and assessed to determine the most preferred recommendation for this critical connection. Each alignment was evaluated through several factors to determine potential advantages and disadvantages to the considered alignment.

There are three potential alignments that would improve bicycle and pedestrian connectivity to resolve the significant gap along the Schuylkill River Trail network between the Pencoyd Bridge and the existing SRT as follows:
One potential connection extends directly along the east side of the Schuylkill River, while the other connection extends along the southern side of Main Street and Ridge Avenue. Variations to these alignments were also evaluated due to the various challenges presented within both alignments.

- Alternative #1 – Riverside Trail with Downstream Bridge Crossing (shown in red on the graphic below)
- Alternative #2 - Riverside Trail with Upstream Bridge Crossing (shown in yellow on the graphic below)
- Alternative #3 – Ridge Avenue Trail with Upstream Bridge Crossing (shown in green on the graphic below)



Aerial map of the study area including the three trail alternatives

The criteria on which each alternative is being evaluated on are as follows:

- Quality of Experience/Views
- Environmental Concerns/Benefits
- Property Ownership/Land Uses (compatibility with land uses)
- Connections to Other Facilities
- Physical Barriers
- Roadway Traffic Impacts
- Cost

Alternative #1 – Riverside Trail with Downstream Bridge Crossing

This option includes a 10'-12' shared use path running near the top of the bank of the Schuylkill River. This option includes a two span bridge over the Wissahickon Creek and the Canoe Club property near the confluence of the Wissahickon Creek and the Schuylkill River. The span over the Canoe club will be approximately 15' in the air to provide access to the Creek and River for boat launching. This option also includes approximately 800' of boardwalk area to minimize impacts to Mr. Storage and Restaurant Depot properties. The trail will narrow to 10' wide behind the Manayunk Diner and movie theater to utilize an existing 12' wide trail easement. Major improvements include:

Aerial photo of Alignment #1

- 270' x 14' wide trail bridge over the Wissahickon Creek and Canoe Club property
- Approximately 2100' of new shared use path
- 800' long x 14' wide boardwalk structure

Property Impacts: 3 easements / strip acquisitions (PECO, MBS Associates – 2 parcels)

Construction Cost Estimate: Range from $3.8 million to $5.8 million depending on the structure type selected for the bridge and boardwalk. (Refer to the Appendix for detailed cost estimate)

Advantages:

User Experience

The location of a riverside trail has the potential to enhance the user experience along the greenway. The trail alignment location along the waterfront would provide direct and visual access to the natural landscape along the Schuylkill River. A riverside connection would eliminate the chance of stressful situations and conflicts with motor vehicles and other roadside traffic.

Another advantage of the Riverview Trail alignment alternative is opportunity to continue the region's goal to have the Schuylkill River as the first green transportation corridor. Since the existing SRT is located in a relatively green space, filling this gap with a river alignment promotes the existing land use and continuity of the trail as a whole.

The route easily connects from Pencoyd Bridge to a proposed bridge crossing the Wissahickon Creek and connecting back to the existing SRT along Kelly Drive.

Before and after renderings of a riverside trail alignment behind the Manayunk Movie Theater.

Traffic/Road Impacts

The Riverview Trail Alignment would have minimal, if any roadway and traffic impacts. Since this alignment is recommendation to be located away from Main Street and Ridge Avenue, roadway infrastructure modifications and traffic realignment would not be required for the construction of this trail segment in the Schuylkill River Trail. Additionally, an uninterrupted riverside alignment allows users on the trail to quickly travel through the corridor without having to stop for traffic lights and conflict with motor vehicle traffic.

Utility Impacts:

Based on field observations, there are little or no utility relocations anticipated with this alternative.

Property Acquisition:

This option utilizes City property and the existing easement behind the movie theater.

Challenges:

There are some obstacles and constraints to consider in the potential Alternative #1 - Riverside Trail alignment. These disadvantages include environmental restrictions, physical obstructions, property ownership constraints and conflicts.

Environmental

The Riverside Trail alignment would be placed along the bank of the Schuylkill River. Environmental obstacles include extreme topography (see photo), impacts on natural landscape, and floodplain impacts. Many of these issues can be resolved during the greenway design, include the construction of boardwalks and sensitive design practices.

Physical Barriers & Property Ownership

Due to the proximity to adjacent land owners and the Schuylkill River, space for the potential river alignment is limited. The trail would be tightly squeezed between the two, with a limited amount of alternatives for alignment placement. Physical obstructions to consider in this alignment include vegetation and brush along the stream embankments that are also located on a steep slope. Although some properties, such as the Diner and Movie Theater, allow ample space behind their buildings for a potential a path alignment, the remaining properties, including Mr. Storage facility, PECO, and the Philadelphia Canoe Club present physical obstructions that promote a challenge in the decision of a trail placement.

The placement of the Riverside Trail alignment adjacent properties would require negotiations and potential easements with the property owners. Due to heavy trucking in the back of the Restaurant Depot property, a pathway would require a physical barrier from these operations such as a fence and landscaped buffer.

Mr. Storage/Restaurant Depot

Currently, storage units and a fence block access to the Schuylkill River waterfront, creating an absolute barrier along the river between the Movie Theater and Duron Paint. These obstructions would require the use of a boardwalk structure on the side slope of the river bank to avoid impacts to the fence and building.

Philadelphia Canoe Club

The Philadelphia Cane Club is located at the southeast corner of the study area. Physical obstructions on this property promote a challenge for the potential riverside alignment. The club has many amenities including equipment sheds, parking lots, canoe launch, and a driveway that handles high volumes of club members during peak season. These factors must be taking in consideration with the placement of the pathway. This alignment would likely a bridge span over the Wissahickon Creek as well as the backyard area of the Canoe Club to maintain access to the river. A column for the two span structure would likely need to be placed in the backyard of the Canoe Club building. The bridge and column would impact the views from the Canoe Club property.

Aerial photo the Philadelphia Canoe Club building at the confluence of the Wissahickon Creek and Schuylkill River

Alternative #2 - Riverside Trail Alternative with Upstream Crossing

This option includes a 10'-12' shared use path running near the top of the bank of the Schuylkill River. This option includes an independent trail bridge over the Wissahickon Creek approximately 130' west of the Ridge Avenue roadway bridge. This option also includes approximately 400' of boardwalk area to minimize impacts to adjacent properties. Major improvements include:

- 125' x 14' wide trail bridge over the Wissahickon Creek
- Approximately 2100' of new shared use path
- 400' x 14' long boardwalk structure

Property Impacts: 3 easements / strip acquisitions (PECO, MBS Associates – 2 parcels)

Construction Cost Estimate: Range from $2.7 million to $3.5 million depending on the structure type selected for the bridge and boardwalk. (Refer to the Appendix for detailed cost estimate)

This option does involve sharing the Canoe Club driveway or reconfiguring the space between the PECO substation and the Creek to accommodate the trail and Canoe Club driveway.

Aerial photo showing Alignment #2

Before and after renderings of a riverside trail alignment behind Restaurant Depot.

Advantages:
This option has the same advantages as Alternative #1

User Experience
The location of a riverside trail has the potential to enhance the user experience along the greenway. The trail alignment location along the waterfront would provide direct and visual access to the natural landscape along the Schuylkill River. A riverside connection would eliminate the chance of stressful situations and conflicts with motor vehicles and other roadside traffic. Another advantage of the Riverside Trail alignment alternative is opportunity to continue the region's goal to have the Schuylkill River as the first green transportation corridor. Since the existing SRT is located in a relatively green space, filling this gap with a river alignment promotes the existing land use and continuity of the trail as a whole. The route easily connects from Pencoyd Bridge to a proposed bridge crossing the Wissahickon Creek and connecting back to the existing SRT along Kelly Drive.

Traffic/Road Impacts
The Riverview Trail Alignment would have minimal, if any roadway and traffic impacts. Since this alignment is recommendation to be located away from Main Street and Ridge Avenue, roadway infrastructure modifications and traffic realignment would not be required for the construction of this trail segment in the Schuylkill River Trail. Additionally, an uninterrupted riverside alignment allows users on the trail to quickly travel through the corridor without having to stop for traffic lights and conflict with motor vehicle traffic.

Utility Impacts:
Based on field observations, there are little or no utility relocations anticipated with this alternative.

Property Acquisition:
This option utilizes City property and the existing easement behind the movie theater.

Challenges:

There are some obstacles and constraints to consider in the potential Alternative #2 - Riverside Trail alignment. These disadvantages include environmental restrictions, physical obstructions, property ownership constraints and conflicts.

Environmental
The Riverside Trail alignment would be placed along the bank of the Schuylkill River. Environmental obstacles include extreme topography, impacts on natural landscape, and floodplain impacts. Many of these issues can be resolved during the greenway design, include the construction of boardwalks and sensitive design practices.

Physical Barriers & Property Ownership

Due to the proximity to adjacent land owners and the Schuylkill River, space for the potential river alignment is limited. The trail would be tightly squeezed between the two, with a limited amount of alternatives for alignment placement. Physical obstructions to consider in this alignment include vegetation and brush along the stream embankments that are also located on a steep slope. Although some properties, such as the Diner and Movie Theater, allow ample space behind their buildings for a potential a path alignment, the remaining properties, including Mr. Storage facility, PECO, and the Philadelphia Canoe Club present physical obstructions that promote a challenge in the decision of a trail placement.

The placement of the Riverside Trail alignment adjacent properties would require negotiations and potential easements with the property owners. Due to heavy trucking in the back of the Restaurant Depot property, a pathway would require a physical barrier from these operations such as a fence and landscaped buffer.

Mr. Storage/Restaurant Depot

Currently, storage units and a fence block access to the Schuylkill River waterfront, creating an absolute barrier along the river between the Movie Theater and Duron Paint. These obstructions would require the use of a boardwalk structure on the side slope of the river bank to avoid impacts to the fence and building.

Philadelphia Canoe Club

The Philadelphia Cane Club is located at the southeast corner of the study area. Physical obstructions on this property promote a challenge for the potential riverside alignment. The club has many amenities including equipment sheds, parking lots, canoe launch, and a driveway that handles high volumes of club members during peak season. These factors must be taking in consideration with the placement of the pathway. This option eliminates the bridge span and column in the backyard of the Canoe Club property, but does require sharing or reconfiguring the Canoe Club driveway area to accommodate both uses.

The canoe club members have indicated that they are not in favor of changes to the driveway and not in favor of having the trail alignment travel near their facility. They have indicated that they use the area in the front of the Canoe Club building for numerous activities. There also are storage buildings on both sides of the existing property and there will be conflicts between access to the storage buildings and trail users.

Alternative #3 – Ridge Avenue Trail Alternative with Upstream Crossing

This option includes a 10’-12’ shared use path primarily along the existing Ridge Avenue and Main Street with a 5’ grass buffer between the new curb line and the roadway. The curb line along the west side of the roadway would be moved into the existing shoulder area by approximately 5’-6’. This option includes an independent trail bridge over the Wissahickon Creek approximately 130’ west of the Ridge Avenue roadway bridge. Major improvements include:

- 125’ x 14’ wide trail bridge over the Wissahickon Creek
- Approx. 2000’ of new shared use path
- Relocation of 7 utility poles
- Relocation of 9 banner poles
- Relocation of 1 signal support
- Minor modifications of sidewalk and parking area in front of Duron Paint Store

Property impacts: 3 easements/strip acquisitions (MBS Associates, SEPTA, PECO easement)

Construction Cost Estimate: Range from $2.2 million to $2.5 million depending on the structure type selected for the bridge. (Refer to the Appendix for detailed cost estimate)

Aerial photo showing Alignment #3

Before and after renderings of the proposed trail in front of Duron/Restaurant Depot property.

Bird's eye view, artistic rendering of the recommended short term solution for the Schuylkill River Trail at the Wissahickon Gateway

Advantages

The Ridge Avenue Trail alignment has some of advantages as a roadside/side path alignment. The potential opportunities consist of minimal environmental disturbance, use of public right of way, quality of experience, and connections to other facilities.

Environmental Impacts

One advantage to the side path alignment is the fact that it will have minimal impact on existing or future environmental conditions of the Schuylkill River. Since the alignment would be located along Main Street and Ridge Avenue, the side path will not be positioned in sensitive riverbank environment and will not impact the floodway of the river. Additionally, a new side path located along these roads could allow the opportunity for green infrastructure/low impact development treatments such as tree trenches and bio-retention facilities for treating storm water on site.

User Experience

Main Street and Ridge Avenue includes ample street lighting and a relatively high volume of people. Since a possible side path will be located next to this busy corridor, the trail has the potential to provide an encouraging experience for trail users with a feeling of safety and physical visibility.

The Ridge Ave Alignment has a great potential to connect to nearby amenities for trail users. The existing Wissahickon SEPTA station on the Manayunk/ Norristown Line , located on the north side of Ridge Ave, is a clear connection that available through the existing mid-block crossing. Direct access to the SEPTA Wissahickon Transportation Center, Manayunk Movie Theater and Manayunk Diner are also a convenient amenities for trail users.

Challenges

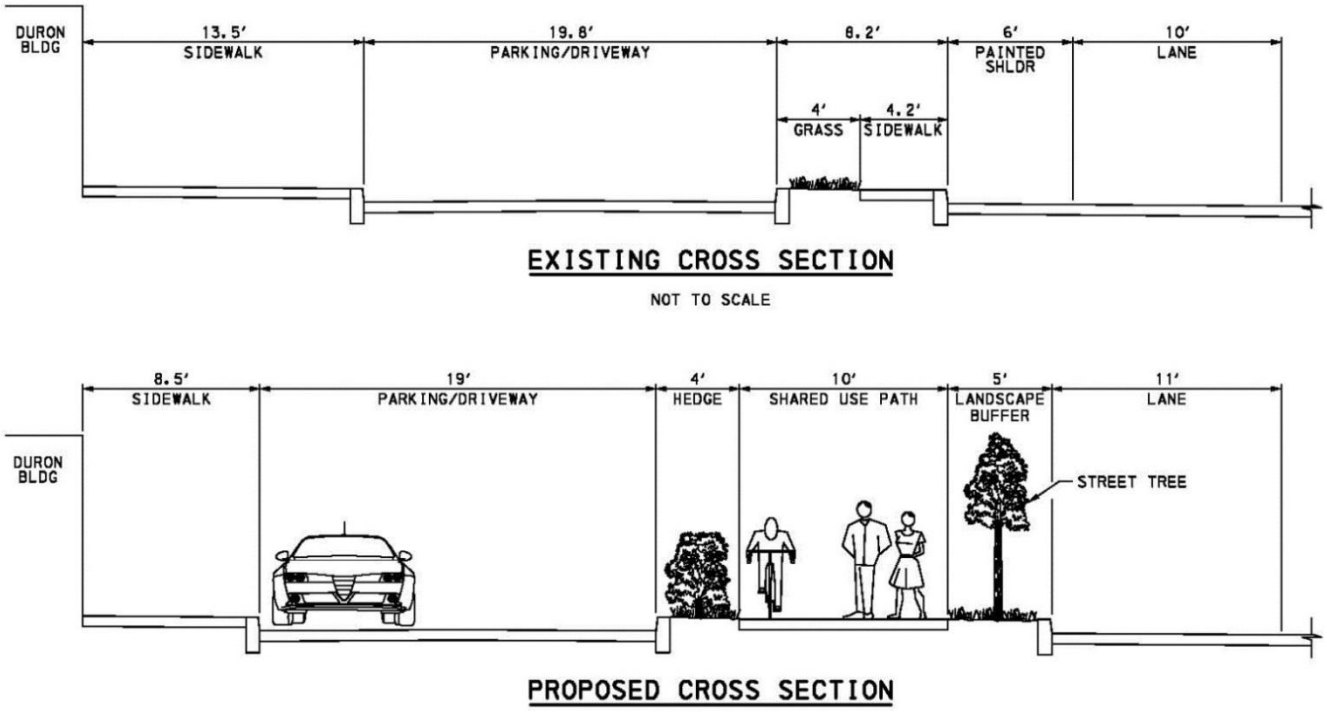
There are some obstacles to consider in the potential Ridge Avenue Trail Alignment. These challenges consist of user experience, physical constraints, property ownership limitations, and roadway and traffic impacts.

User Experience

Although the user experience along a roadside side path alignment may be positive in regards to visibility and safety, the atmospheric qualities need to be considered. Within this alignment are multiple driveway entrances which will force trail users to cross potential conflict points with vehicles. Bicycle and vehicle warning signage and markings are recommended to enhance safety at these locations. Additionally, Main Street and Ridge Avenue are currently high volume streets with a close proximity to the existing sidewalk and potential sidepath alignment. Although buffers are proposed to separate motor vehicle traffic from trail users, potential loud volumes from cars and SEPTA buses, may also hinder the user experience along the sidepath. These atmospheric environments potentially create higher stress environments for trail users that could be avoided by separating the pathway connection from the roadside.

Physical Barriers

Along the Ridge Avenue alignment, physical barriers such as utility poles, existing fences, SEPTA bus stop, steeper grades, and landscaping were factors taken into consideration when evaluating a roadside side path. The frontage of the Restaurant Depot/Duron Paint property is an area that will require close attention. That area currently includes a small frontage road with parallel parking. A small curbed island containing the sidewalk and utility poles divides Ridge Avenue from the frontage road. The current plan includes narrowing of the existing sidewalk that is adjacent to the Duron/Restaurant Depot Building from 13.5' to 8.5', narrowing of the frontage road slightly from 19.8' to 19' and relocation of the utility poles to create additional space for a 10'trail, 4' hedge row/poles between the frontage road and trail and a 5' landscape buffer between the trail and Ridge Avenue. 5' from the existing painted shoulder along Ridge Avenue will be used with the proposed trail design in this area.



Cross sectional views of potential modifcations to the Duron/Restaurant Depot frontage.

Property Ownership

PECO/SEPTA – Numerous meetings and significant coordination has occurred between the City, PECO and SEPTA regarding this alignment. Specifically, the area near the fences between the PECO Pencoyd Substation and the SEPTA Wissahickon Transportation Center as well as the access driveway to PECO property from Ridge Avenue was discussed in detail. The results of this extensive coordination are the following:

- SEPTA and the City have verbally agreed to work on a land exchange to allow the trail to use a portion of the rear of the SEPTA property. In exchange, the City will allow SEPTA access to a portion of City land to the east side of the SEPTA property. A formal agreement will be worked out in the future. The City agreed to incorporate the required construction items into the future trail project.

- PECO has verbally agreed to allow shared use of their access driveway with the trail. The City will incorporate the required safety signing and other improvements for the shared driveway into the future trail project. A draft sign plan is included in the Appendix. A creation of a formal agreement is anticipated in the near future.

Potential trail area between the PECO and SEPTA fences.

If the trail alignment is developed between the two fence areas, efforts should be made to improve the appearance of this area. Concepts such as adding vinyl fence screening(as shown to the right), landscaping, artwork or other approaches could be used.

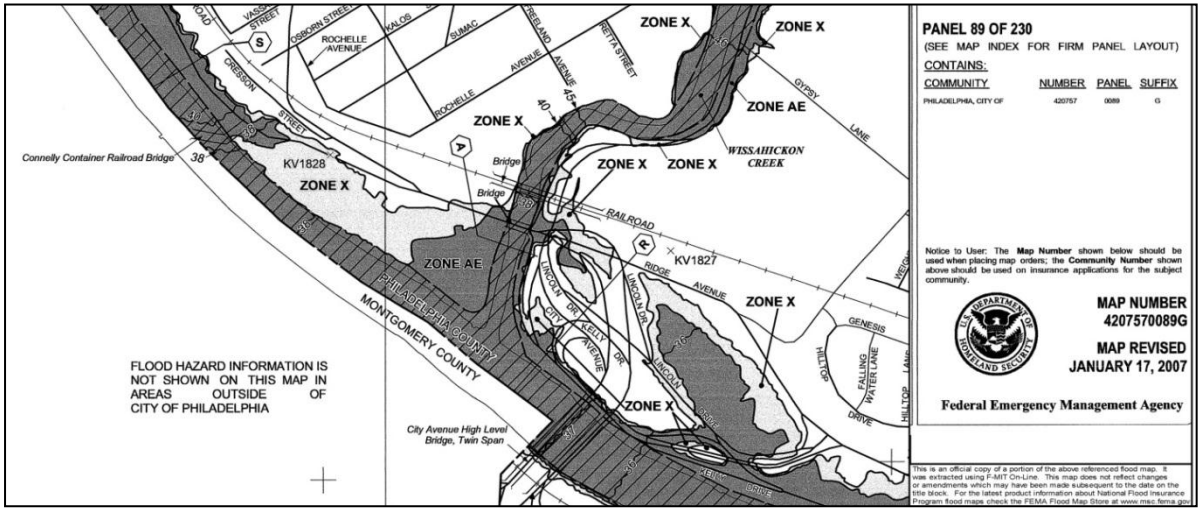
MBS Associates – Several meetings/conversations have occurred with one of the owners of the Restaurant Depot /Duron Paint property. Further negotiations will be required regarding the modifications of the frontage of the Restaurant Deport/Duron Paint property. Depending on the needs of the owner, a permanent easement agreement could be developed for any portion of the trail and adjacent hedge row area on his property. A temporary construction easement could be used to "rent the property" and have the City's contractor make the physical improvements to the frontage road area and then return the property to the owner after construction is complete. Refer to the Appendix for sketches of potential easement areas.

Traffic and Roadway Impacts

The potential roadside pathway would have a minor impact on traffic and roadway infrastructure on Main Street and Ridge Avenue. The consultant team has met with the Streets Department and they have agreed to the concept of shifting the curbline of Ridge Avenue and Main Street 5'-6' to the north into the painted shoulder to create room for the trail. An ordinance will have to be passed to officially remove the parking in the affected portion of these streets. As there is significant off street parking for the adjacent businesses and no one parks there today, the removal of the parking should not be a problem.

Potential artwork or fence screening is recommended for the area between the PECO and SEPTA fences.

Environmental Constraints and Permitting



A preliminary review of the anticipated environmental constraints and permitting requirements was developed as part of this study. As shown in the FEMA Flood Insurance map to the right, the project area is located in zone AE of the 100 year floodplain of the Schuylkill River and Wissahickon Creek. Any above ground structures constructed in this area will require review by the Army Corp of Engineers (ACOE) and Pennsylvania Department of Environmental Protection (PADEP). A new structure over the Wissahickon Creek will require a detailed hydraulic and hydrology study and a Joint ACOE/PADEP Chapter 105 /404 Waterway Obstruction Permit. Any options that include structures or fill along the banks of the Schuylkill River will also require a detailed Hydraulic study and Joint Permit.

PWD Stormwater Requirements:

In determining the applicability of the Philadelphia Water Department (PWD) stormwater requirements to this project, earth disturbance and location are the main factors. PWD requirements include:

1. Existing Resources and Site Analysis (ERSA)
2. SWM Requirements for flow and quality
3. Implementation of Erosion and & Sediment (E&S) Control and Stormwater Management Practices (SMPs)
4. Submission of an E&S Plan
5. Approval of E&S Plan by PWD
6. NPDES Permit submission and approval by PADEP

Each of the alternatives will likely result in an earth disturbance area of 40,000-50,000 square feet. All three alternatives would be required to submit an ERSA. Given that a very small portion of the project falls within the Wissahickon Watershed, and that portion is located at the confluence with the non-tidal Schuylkill River, the Philadelphia City Planning Commission (PCPC) will most likely waive the Wissahickon Watershed Environmental Controls requirements. They still must be notified and the waiver request must be made. All three alternatives are exempt from channel protection

requirements All three alternatives will have to implement E&S BMPs as needed. If stormwater management practices are required based on directly connected impervious area (DCIA), these areas can be easily disconnected, and the requirements waived, by following the pavement disconnection requirements as part of the overall design.

Green Infrastructure:

Preliminary discussions have occurred with PWD regarding the potential to include green infrastructure elements as part of this project. The trail alignment along Ridge Avenue appears to have the most potential at this point form incorporation of long, linear BMPS to capture stormwater runoff from Ridge Avenue and Main Street and divert it into infiltration element such as a tree trench. The tree trench would be incorporated into the 5' buffer strip between the roadway and the shared use path. PWD indicated that they would contribute funding toward the project if green infrastructure was included. PWD would not likely install green infrastructure along the river option due to flooding concerns, poor soil conditions close to the river and the fact that this infrastructure would not be located on City property.

Refer to meeting minutes in the Appendix.

5. Stakeholder / Public Meeting Summaries

Three stakeholder meetings and one public meeting were held during the duration of the feasibility study. A summary of each meeting is described below.

- The first stakeholder meeting included Schuylkill River Trail stakeholder, City staff, and the project consultants and was the kick-off to the Wissahickon Gateway Study. The goal of this meeting was to discuss the background information and past studies, determine the exact goals of the study, review the possible trail alignment alternatives, and to lay out a schedule for the project.
- The second stakeholder meeting was held at the project site on April 27, 2011 to review the existing site conditions and discuss a first assessment of the site and its possible alternatives for a trail alignment. Project consultants, City staff, and additional stakeholders participated in a project site walk- through to discuss possible trail alternatives and desires, as well as to

Project stakeholders and the study team during the April 2011 field view meeting.

observe opportunities and constraints within the project area.

- On August 18, 2011, a third stakeholder/progress meeting was held at the project site to review a detailed analysis of three preliminary trail alignment options. Project consultants, City staff, and project stakeholders discussed each alternative's opportunities and constraints that included items such as project costs, view sheds, environmental issues, permitting constraints, easement limitations, and pedestrian and bicyclist's safety concerns. Feedback from this meeting was used to define the preferred alternative.
- A final public open house meeting was held on November 1, 2012 at the Gustine Lake Recreation Center To review the preferred option for the Wissahickon Gateway trail alignment. During this meeting, the public had the opportunity to provide feedback. In general, the public was in agreement with the Preferred Alternative as the favored option. The public feedback expressed that the favored alignment will provide greater physical safety and visibility for trail users, in addition to trail awareness and branding, however; there was concern for traffic safety at trail and driveway intersections. Consequently, the public unanimously agreed for the Preferred Alternative to be documented as a short term improvement, while a Riverside alignment was in favor as a long term improvement. As a result, both trail connections would have the opportunity to provide greater connectivity within this section of the Schuylkill River Trail network.

Refer to the Appendix for complete summaries for each of the meetings.

6. Implementation Plan

We recommend a two pronged approach to further develop this project:

- Short term solution (shown in green) which is the trail alignment along Ridge Avenue/Main Street with an upstream bridge crossing
- Long term solution (shown in yellow) which is a Riverside alignment with an upstream bridge crossing

Long term solution for trail alignment in yellow and short term alignment solution in green for the SRT Wissahickon Gateway.

Short Term Solution: With the completion of this study, PPR is ready to move forward with environmental permitting, acquisition of property easements and final design engineering. It is anticipated that the engineering/permitting phase will take 1-2 years. If all these efforts are successful, construction could begin and be completed within 3 years. (Refer to the Illustrative Plan and the Schematic Engineering plans in the Appendix.)

Funding options for the short term solution include the following:

- DVRPC Regional Trails Program – Phase III, the last phase of this $10 million trail development program, is anticipated to start in early 2013. Requests for proposals will be solicited and evaluated. This round will fund design and construction of trail projects. Funding of $4-5 million is anticipated to be divided up among worthy projects in the Greater Philadelphia area. The SRT is listed as the first priority regional trunk trail on the program's "Targeted Trail List." The Wissahickon Gateway is one of 8 missing links in the SRT identified in the list. It is highly recommended that the PPR and the City submit a proposal for this project.PA Department of Conservation and Natural Resources (DCNR) - This study was funded through DCNR's Community Conservation Partnerships Program, Keystone Recreation, Park and Conservation Fund. They have already recognized the importance of this project through this financial support and further support for design and construction is a likely possibility. Grant applications are anticipated to be due in the Spring of 2013.
- DVRCP Map 21 / Transportation Alternatives Program (TAP) – MAP-21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), was signed into law by President Obama on July 6, 2012. This law provides funding surface transportation programs at over $105 billion for fiscal years (FY) 2013 and 2014. MAP-21 establishes a new program to provide for a variety of alternative transportation projects, including many that were previously eligible activities under separately funded programs. The TAP replaces the funding from pre-MAP-21 programs including Transportation Enhancements, Recreational Trails, Safe Routes to School, and several other discretionary programs, wrapping them into a single funding source. A combined total of over $1.6 billion is budgeted in TAP for FY 2013 and FY 2014 for projects across the nation. It is anticipated that a grant program will be administered by the DVRPC to allocate this funding.
- PWD –As indicated previously, PWD has verbally committed to contributing funding to the project if green infrastructure and SMPs can be incorporated into it. PWD provided similar support to the City for the 58th Street Greenway project which is currently under construction.
- PPR funding – Capital funds from the City's Parks and Recreation Department budget could also be used to support the project.
- Other grant sources – numerous organizations provide grant funding for trail projects like this one. These include the William Penn Foundation, (www.williampennfoundation.org/Grants.aspx), the Robert Wood Johnson Foundation (www.rwjf.org/grants), National Parks Service – Trails Assistance Program (www.nps.gov/ncrc/programs/rtca), the PECO Green Region program among many others.

Long Term Solution: A riverside option would likely require a major redevelopment of the Mr. Storage and Restaurant Depot properties into a new use. The planning and design of that new development project would include space for the riverside trail. The City would make the trail easement and construction a requirement of the land development plan.