

South Broad Sidepath Concept Plan



September 2013





The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals, and the public with a common vision of making a great region even greater. Shaping the way we live, work, and play, DVRPC builds consensus on improving transportation,

promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region — leading the way to a better future.



The symbol in our logo is adapted from the official DVRPC seal and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the

diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. DVRPC's website (www.dvrpc.org) may be translated into multiple languages. Publications and other public documents can be made available in alternative languages and formats, if requested. For more information, please call (215) 238-2871.

Table of Contents

| | |
|---------------------------------------|----|
| Executive Summary..... | 1 |
| C H A P T E R 1 | |
| Introduction..... | 3 |
| ■ Project Background..... | 3 |
| C H A P T E R 2 | |
| Sidepath—General Guidelines..... | 7 |
| ■ General Design Recommendations..... | 7 |
| ■ Managing Potential Conflicts..... | 10 |
| ■ Crossing Streets..... | 11 |
| ■ Other Issues..... | 12 |
| C H A P T E R 3 | |
| Sidepath—Conceptual Design..... | 15 |
| ■ Broad Street Panels..... | 15 |
| ■ Next Steps..... | 31 |

Figures and Tables

| | |
|---|-----|
| Figure 1: 58th Street Greenway..... | 8 |
| Figure 2: Pedestrian-Scale Lighting..... | 9 |
| Figure 3: Trees along Broad Street..... | 9 |
| Figure 4: Signs that Could Reduce Bicycle and Pedestrian Conflicts..... | 10 |
| Figure 5: Driveway Conflicts along Sidepath..... | 11 |
| Figure 6: Signs to Mitigate Conflicts at Driveways and Intersections..... | 11 |
| Figure 7: Crossing Broad Street at Pattison..... | 112 |
| Figure 8: Freeway Underpasses along the Sidepath..... | 13 |
| Figure 9: Bike Box Depicting a Copenhagen Left..... | 13 |
| Figure 10: Map of Study Area..... | 15 |
| Figure 11: Section 1: Oregon Avenue to Bigler Street..... | 17 |
| Figure 12: Section 2: Bigler Street to Packer Avenue..... | 19 |
| Figure 13: Section 3: Packer Avenue to Hartranft Street..... | 21 |
| Figure 14: Section 4: Hartranft Street to Pattison Avenue..... | 23 |
| Figure 15: Section 5: Pattison Avenue to Zinkoff Boulevard..... | 25 |
| Figure 16: Section 6: Zinkoff Boulevard to I-95..... | 27 |
| Figure 17: Section 7: I-95 to Navy Yard Gates..... | 29 |
| Table 1: Comparison of Treatment Options..... | 5 |

Executive Summary

This report provides general guidance and conceptual recommendations for a multi-use sidepath running parallel to South Broad Street from Oregon Avenue to the Philadelphia Navy Yard. This facility was proposed in the city's pedestrian and bicycle master plan, which was funded through the Delaware Valley Regional Planning Commission's (DVRPC) Transportation and Community Development Initiative. The accompanying drawings are intended to be used for more detailed engineering plans and to apply for additional funding to move the project forward.

Introduction

This document provides general guidance and conceptual site-specific recommendations for a multi-use sidepath, a facility proposed in the 2010 *Philadelphia Pedestrian and Bicycle Master Plan* that would run parallel to South Broad Street from Marconi Plaza (Oregon Avenue) to the Philadelphia Navy Yard. The accompanying drawings can be used to develop more detailed engineering plans and to apply for additional funding to move the project forward.

This project was conducted as part of DVRPC's 2012 Unified Planning Work Program as requested by the City of Philadelphia Mayor's Office of Transportation and Utilities (MOTU). Work on the project was assisted by a steering committee comprised of representatives from MOTU, the Philadelphia City Planning Commission, the Philadelphia Streets Department, the Stadium Complex Special Services District, the Philadelphia Industrial Development Corporation, and the Bicycle Coalition of Greater Philadelphia.

Project Background

The first component of this project was to evaluate different options to provide bicycle and pedestrian accommodations along South Broad Street from Oregon Avenue to the Philadelphia Navy Yard, and present them to the steering committee with the goal of selecting a preferred option.

Four different options were considered. These were:

- (1) a multi-use sidepath that would replace the southbound sidewalk running parallel to Broad Street;
- (2) buffered bicycle lanes on both sides of Broad Street;
- (3) a two-way cycletrack on the southbound side of Broad Street; and
- (4) a bicycle path running on the median that divides the north- and southbound sides of Broad Street.

Comparison of Different Treatment Options

Criteria were chosen to evaluate the strengths and weaknesses of each of these candidate treatments. Table 1 lists the different treatments and how they compared to each other. Some criteria used were:

- ☞ **connectivity** to attractions on either side of Broad Street, as well as to adjacent bicycle facilities;
- ☞ **potential conflicts** between different users that may arise;
- ☞ **impacts** on the current road configuration;
- ☞ **ancillary benefits** that a facility may have (greening and beautification, possible increase in non-motorized modes); and
- ☞ the **estimated costs** of the facility, compared on an order-of-magnitude basis.

Table Summary

Buffered bicycle lanes are the only option that would provide connections to attractions on both sides of Broad Street, as well as to the Navy Yard and other bicycle facilities in the area. The sidepath and two-way cycletrack offer high connectivity to west-side attractions such as FDR Park and medium connectivity to other bicycle facilities, but low connectivity to the stadium complex. The median bikeway offers low connectivity to the stadium complex and FDR Park, as well as the Navy Yard and other bicycle facilities.

Conflicts between bicyclists and motorists would be highest with buffered bicycle lanes (because they would be on both sides of the road). The other treatments have some potential for conflict between bicyclists and automobiles because of the many driveways and intersections in the corridor. A sidepath presents the biggest challenge in terms of conflicts between bicyclists and pedestrians because both would be sharing the same space.

Bicycle lanes would have the greatest impact on the configuration of Broad Street because one traffic lane in each direction would have to be removed to accommodate them. A cycletrack would require removing one traffic lane from the southbound side of Broad Street. The sidepath would require some reductions in traffic lane and shoulder widths and changes to intersecting streets to shorten crossing times. The median option would require making some changes to intersecting streets as well.

Because they would be separated from vehicular traffic and impact the current road configuration less than the on-road options, the sidepath and median options have the greatest opportunity for greening and beautification, as well as for enticing more casual bicyclists to the facility.

Aside from bicycle lanes, which are far and away the least expensive option, the facility types investigated are similarly priced. According to Philadelphia Streets Department estimates, a cycletrack is estimated to be about 80 percent of the cost of the sidepath or median.

These concepts were shared with the steering committee with the goal of selecting a preferred option. Consensus among stakeholders was that the sidepath was the preferred option because it created the necessary connection to the Navy Yard without significantly impacting the current road configuration and vehicle flow. DVRPC staff was then tasked with developing a more detailed conceptual plan for this option.

Table 1: Comparison of Treatment Options

| | Sidepath | Buffered bicycle lanes | Cycletrack | Median Bikeway |
|--|---|---|---|---|
| Connectivity | | | | |
| East | Low Sidepath would be located on the west side of Broad Street | High Would provide connections to attractions on both sides of Broad Street | Low Would only be on the west side of Broad Street | Low Would not provide connections to east-side attractions |
| West | High Would provide connections to all attractions on the west side of Broad Street | High Would provide connections to attractions on both sides of Broad Street | High Would provide connections to all attractions on the west side of Broad Street | Low Would not provide connections to west-side attractions |
| Other bike facilities | Medium Additional crossings would be necessary for cyclists to transition to other bike facilities | High No additional crossings would be necessary to make transitions | Medium Additional crossings would be necessary for cyclists to transition to bike facilities to the east | Low Additional crossings would be necessary for cyclists to transition to other bike facilities |
| To Navy Yard | High Would connect to Navy Yard | High Would connect to Navy Yard | High Would connect to Navy Yard | Low Users would have to be redirected onto the southbound side of Broad Street before reaching the Navy Yard |
| Conflicts with other users | | | | |
| Bicycles and vehicles | Medium Conflicts between bikes and cars at cross streets | High Conflicts in road and at turns on both sides of Broad Street | Medium Conflicts in road and at turns on southbound side of Broad Street | Medium Conflicts between bikes and cars at cross streets |
| Bicycles and pedestrians | High Bikes and pedestrians would share space | Low Conflicts only when cyclists are turning | Low Conflicts only when cyclists are turning | Low Conflicts only when cyclists are turning |
| Impacts on current road configuration | Medium Some shoulders may have to be narrowed/removed and one traffic lane south of FDR Park would have to be removed | High One traffic lane on each side of Broad Street would have to be removed | Medium One traffic lane on southbound side of Broad Street would have to be removed | Medium Some changes to turning movements may have to be made to allow for a median path |
| Ancillary benefits | High Greening and beautification of west side of Broad Street; may attract more cyclists | Medium May attract more cyclists | Medium May attract more cyclists | High Beautification of the median; may attract more cyclists |
| Cost (order of magnitude) | High The sidepath is one of the more expensive options | Low Bicycle lanes are the least expensive option | Medium A cycletrack is estimated to cost 80 percent of the sidepath, according to Philadelphia Streets Department estimates | High A median bikeway would likely be the most expensive option, according to Philadelphia Streets Department estimates |

Source: Delaware Valley Regional Planning Commission, 2012.

Sidepath—General Guidelines

Many standards for sidepath design are established by the American Association of State Highway and Transportation Officials (AASHTO) and described in the publication *Guide for the Development of Bicycle Facilities* (2012). In this reference, a *sidepath* is defined as a shared-use path adjacent to a roadway. This differs from a trail, which runs on its own right-of-way. There are several conditions that determine whether a sidepath is a viable alternative to an on-road facility. These conditions are:

- ❧ The adjacent roadway has relatively high-volume and high-speed motor vehicle traffic that might discourage many bicyclists from riding on the roadway, potentially increasing sidewalk riding, and there are no practical alternatives for either improving the roadway or accommodating bicyclists on nearby parallel streets.
- ❧ The sidepath is used for a short distance to provide continuity between sections of path in independent rights-of-way, or to connect local streets that are used as bicycle routes.
- ❧ The sidepath can be built with few roadway and driveway crossings.
- ❧ The sidepath can be terminated at each end onto streets that accommodate bicyclists, onto another path, or in a location that is otherwise bicycle compatible.

This section of Broad Street fits some of these criteria. It has high traffic volumes that may make bicycling on the road unattractive. The distance of the proposed sidepath is short (approximately 1.5 miles) and would connect to existing bike lanes on Oregon and Packer avenues. It would facilitate access to attractions such as the sports complex, FDR Park, and the Navy Yard. There are, however, several driveways and intersections along the corridor, which are not optimal for a sidepath.

General Design Recommendations

Width

The AASHTO guide recommends a minimum width of 8 feet, a preferred width of 10 feet, and, in heavily trafficked areas, a width of 12 feet for multi-use trails. The guide recommends that sidepaths follow these same guidelines. Along Broad Street, the existing sidewalk varies from 5 feet to 14 feet along the corridor, with the widest section running adjacent to FDR Park. The narrowest section is between Bigler and Pollock streets, where the sidepath would shift to the median that separates Broad Street from a residential service road to the west. Here the sidewalk

narrows to 4 feet and then disappears. It is recommended that, wherever possible, the sidepath be at least 12 feet wide.

To provide an additional sense of security to sidepath users, AASHTO guidelines recommend a buffer of at least 5 feet separating the sidepath from vehicular traffic. In many places along this corridor there is already a sufficient buffer in place between the sidewalk and the road. Sometimes the separation increases to 10 feet. Wherever possible, a 5-foot buffer should be present between the path and the road.

Surface Materials

The most common materials used for sidepath construction are concrete or asphalt. Concrete is more expensive but will last longer. Asphalt is generally 30 percent less expensive and has a softer impact, preferable to walkers and joggers. Asphalt requires more frequent repairs than concrete and has a shorter lifespan. Other existing sidepaths in the city, such as the newly completed 58th Street Greenway (shown below in Figure 1), are paved in asphalt; therefore that treatment is recommended here. Additionally, the sidepath should be painted in such a way as to notify users that this is not a standard sidewalk but a shared facility intended to be used by both bicyclists and pedestrians.

Figure 1: 58th Street Greenway



Source: PlanPhilly (<http://www.planphilly.com>), 2013.

Lighting

Broad Street has cobra-style light poles that illuminate the road and, to a lesser degree, the sidewalk. In other sidepath projects, more attractive pedestrian-scale lighting is being installed to better illuminate the path and enhance the experience for users. Lights like the one shown in Figure 2 are an example of a streetlight style that could be used.

Figure 2: Pedestrian-Scale Lighting



Source: Delaware Valley Regional Planning Commission, 2012.

Trees and Plantings

Portions of the sidewalk along South Broad Street already have an attractive tree canopy that enhances the walking environment and provides an added sense of separation for sidewalk users. Where possible, this canopy (shown in Figure 3) should be replicated.

Figure 3: Trees along Broad Street



Source: Delaware Valley Regional Planning Commission, 2012.

In locations where planting trees is not an option, other plantings should be considered to beautify the buffer, add vertical separation between sidepath users and vehicles, and improve stormwater management.

Bus Stops

Southeastern Pennsylvania Transportation Authority (SEPTA) Routes 4 and 68 make stops along the corridor, and passengers waiting to board must be given a waiting and loading area off of the sidepath so as not to interfere with pedestrians and bicyclists. Far-side stops (like the one at

Broad Street and Oregon Avenue) should be considered whenever possible. Stops should adhere to recommendations published in the *SEPTA Bus Stop Design Guidelines* (DVRPC, 2012).

Managing Potential Conflicts

Conflicts between Pedestrians and Cyclists

Appropriate measures should be taken to ensure safe co-mingling between pedestrians and bicyclists. Figure 4 depicts some signs that may help prevent conflicts. Because cyclists are not typically permitted to use sidewalks, a “Bikes Allowed on Path” sign should be placed at regular intervals. Some other signage that should be used includes “Yield to Pedestrian” and “Use Bell or Voice when Passing” signs. These signs direct cyclists to ride responsibly and respect pedestrians along the path.

It should also be apparent to cyclists that, beyond the sidepath, they should ride in the road rather than on sidewalks (as per city laws). Installing “No Cyclist on Sidewalk” is recommended on streets connected to the sidepath.

Figure 4: Signs that Could Reduce Bicycle and Pedestrian Conflicts



Source: 58th Street Greenway Construction Plans, 2012.

Conflicts at Driveways

The presence of driveways is a challenge in sidepath design. Figure 5 depicts some driveways that will impact the sidepath. Some sections of Broad Street have no driveways while other blocks have several of them close together. The treatment used for the sidepath should continue straight through the driveways, and the driveways should be as narrow as practicable. If possible, driveways on adjacent properties should be consolidated.

Figure 5: Driveway Conflicts along Sidepath



Source: Delaware Valley Regional Planning Commission, 2012.

Figure 6 depicts signs that can be used to prevent conflicts at driveways. Sidepath users should be warned of upcoming driveways and that vehicles may be turning in front of them. Signs such as “Watch for Turning Vehicles” and “Driveways Ahead” are appropriate.

Signage notifying drivers to watch for pedestrians and cyclists using the sidepath is also necessary. One example of signage that can be used is a “Trail X-ing” sign. These signs should be placed at driveways.

Figure 6: Signs to Mitigate Conflicts at Driveways and Intersections



Source: 58th Street Greenway Construction Plans, 2012.

Crossing Streets

Intersections along the Sidepath

There are six intersections along this corridor. This is not an ideal situation for a sidepath, particularly because some of these intersections are close together. For example, in one 1,500-foot stretch, sidepath users will have to cross Packer Avenue, the I-76 on-ramps, Curtin Street, and Hartranft Street.

At certain intersections, signs similar to those used to mitigate conflicts at driveways may be appropriate. Prohibiting cars from turning on red lights is another possible intervention. Curb extensions, which would shorten the crossing times for sidepath users, are also recommended wherever possible. For intersections like Packer and Pattison avenues, which are wide and carry high traffic volumes, more detailed studies are needed to determine what measures are appropriate.

Figure 7: Crossing of Broad Street at Pattison Avenue

Crossing Broad Street

A sidepath would concentrate bicyclists and pedestrians on the west side of Broad Street. Because of this, the crossings to the east side of Broad Street should be as safe as possible. The crossings at Pattison (shown in Figure 7) and Hartranft are particularly important because of the stadium complex and Xfinity Live!. As much as possible, the sidepath treatment should be replicated through the crossing and be accompanied by wayfinding signage. Crossing times should be as generous as possible.



Source: Delaware Valley Regional Planning Commission, 2012.

Additionally, the sidewalk along the east side of Broad Street, south of Hartranft, should be completed. This would help relocate some pedestrian activity to the east side of the street and may help alleviate sidewalk overcrowding during events.

Other Issues

Freeway Underpasses

Figure 8 depicts the two freeway underpasses located along the proposed sidepath. Users would have to navigate underneath both I-76 and I-95. As part of its ongoing mission to facilitate easier access to the Delaware River, the city has begun making improvements under some freeway overpasses, most notably the Race Street Connector, which crosses under I-95. Similar treatments along the underpasses in the study area would beautify the area, as well as help direct users to the various local attractions.

Figure 8: Freeway Underpasses along the Sidewalk



Source: Delaware Valley Regional Planning Commission, 2012.

Accessing the Sidewalk

One key design issue is transitioning cyclists from the road to the sidewalk. There are bike lanes striped on Oregon and Packer avenues. Bicycle lanes are recommended for Pattison Avenue in the city's pedestrian and bicycle plan. Moving cyclists from these on-road facilities to the sidewalk will require some special treatments.

Bicycle boxes (shown in Figure 9) can be used to move cyclists into position to access the sidewalk. This example (shown from the Benjamin Franklin Parkway) depicts a "Copenhagen Left," a two-stage crossing. It is possible to use bike boxes to allow cyclists to make a protected left turn as well.

Figure 9: Bike Box Depicting a Copenhagen Left



Source: Bicycle Coalition of Greater Philadelphia, 2012.

Sidepath—Conceptual Design

Broad Street Panels

The following panels (Figures 10–16) depict different segments of Broad Street and include descriptions of existing conditions, as well as depicting possible interventions. The corridor was broken down into seven segments, listed from north to south.

- (1) Oregon Avenue to Bigler Street;
- (2) Bigler Street to Packer Avenue;
- (3) Packer Avenue to Hartranft Street;
- (4) Hartranft Street to Pattison Avenue;
- (5) Pattison Avenue to Zinkoff Boulevard;
- (6) Zinkoff Boulevard to I-95; and
- (7) I-95 to the Philadelphia Navy Yard.

Each segment of the sidepath presents different challenges. Some segments seem ready-made for a sidepath (such as the portion running alongside FDR Park) while others require more serious interventions. Other locations (such as the key intersections of Packer and Pattison avenues) require more detailed traffic analysis to determine how to balance the needs of the different users. The location of the study area within Philadelphia is shown below (Figure 10).

Figure 10: Map of Study Area



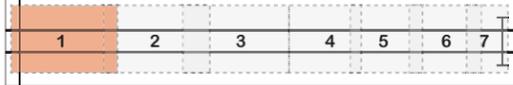
Source: Delaware Valley Regional Planning Commission, 2013.

Figure 11:

SECTION 1: Oregon Avenue to Bigler Street

The sidepath begins at Marconi Plaza, which straddles Broad Street between Oregon Avenue and Bigler Street. The plaza has baseball fields, two playgrounds, and interior paths currently used by walkers and joggers. Adjacent to the plaza, the current width of the sidewalk is 12 feet with a 10-foot grass buffer.

MAP KEY



Existing.

The intersection of Oregon Avenue and Broad Street is wide and complex, with cars competing for space with buses, pedestrians, and bicyclists.

Interventions.

To support safe access to the sidepath, paint bike boxes onto Oregon Avenue and Broad Street (not shown on the map). This would allow bicyclists to safely make a two-stage crossing or “Copenhagen Left,” when necessary. Install signs indicating that cyclists should move from the road to the sidepath. Begin the path with a distinct gateway treatment (shown here as a turnaround) and properly sign the start of the path.

Existing.

Bus passengers do not have a separated waiting area at the Broad and Oregon stop and currently wait on the sidewalk.

Interventions.

Construct a full bus stop including concrete pads for passenger waiting, boarding, and alighting. Stripe a bus zone in the road to further establish proper space for the bus stop.

Existing.

The sidewalk is 12 feet wide with a 10-foot grass buffer. Some utilities are present along the path.

Interventions.

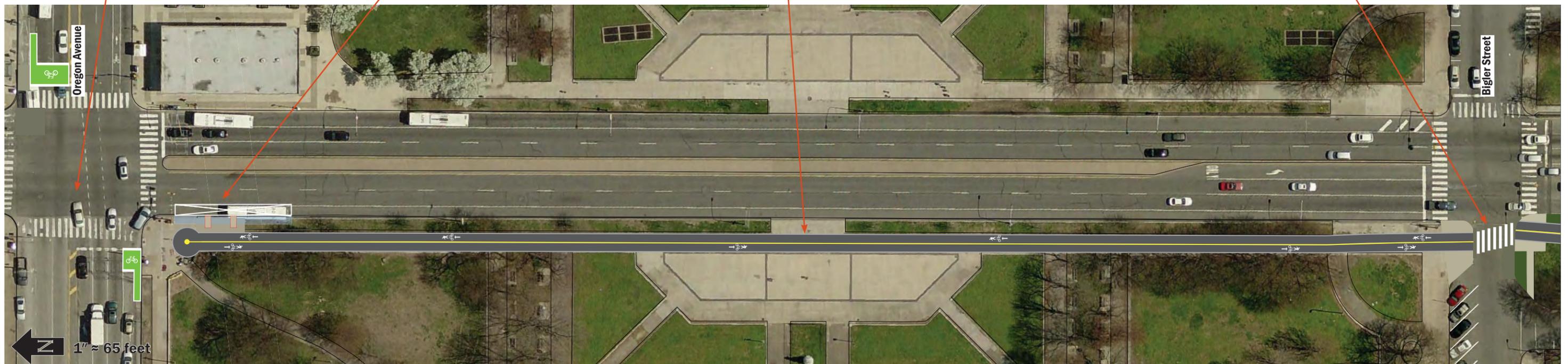
The sidewalk would be reconstructed with asphalt and striped to clearly delineate the path. Utilities should be accommodated and moved, as needed.

Existing.

The intersection of Broad and Bigler streets is 48 feet wide. The curb ramps and crosswalks are narrow.

Interventions.

Widen the crossing markings and curb ramps and build bumpouts on both sides of the intersection to ease the crossing for path users.



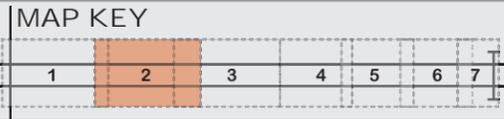
Source: Delaware Valley Regional Planning Commission, 2012.

Note: Pavement markings are intended to illustrate single user and multi-user trail segments for the purposes of the plan graphics. Actual pavement and signage treatments should be considered in more detail as the project advances.

Figure 12:

SECTION 2: Bigler Street to Packer Avenue

The section of the sidepath from Bigler Street to Packer Avenue presents several challenges due to the configuration of the medians and the narrow sidewalks with abutting parking on the residential frontages. Additionally, the auto-centric land uses south of Pollock Street and the ambiguous location of the sidewalk need to be addressed.



Existing.
There is excess width at the intersection of Broad and Bigler streets along with narrow curb ramps and crosswalks.

Interventions.
Widen the crossing markings and curb ramps and build bumpouts on both sides of the intersection to ease the crossing for path users.

Existing.
The median narrows from 50 feet at Bigler Street to 8 feet at Pollock Street.

Intervention.
Widen the median to accommodate the sidepath. Adjacent to the through lanes on Broad Street is a striped shoulder that would be added to the median. On the southern end of the median, space from the residential slip road would be taken, too. This would narrow the intersection of the residential portion of Broad and Pollock.



Existing.
The current bus stop is a worn dirt spot at the end of the median. There is a sewer inlet on the eastern tip of the median.

Intervention.
A new bus pad would be constructed based on the *SEPTA Bus Stop Design Guidelines*. This would provide an improved waiting area and would ensure that riders would not have to wait on the sidepath. The space added on each side of the median would provide the necessary space for this improvement. Stormwater management, potentially with green infrastructure, would need to be incorporated in this and would require further study.

Existing.
On both sides of Pollock Street at Broad Street, 10 feet by 20 feet pavement markings are striped to keep cars from blocking the intersection.

Intervention.
To ensure that these clear areas remain clear, bumpouts would be constructed on both sides of Pollock. This would ensure that vehicles do not block the crossing and would make the crossing safer by shortening the distance and forcing vehicles to slow as they began turns.

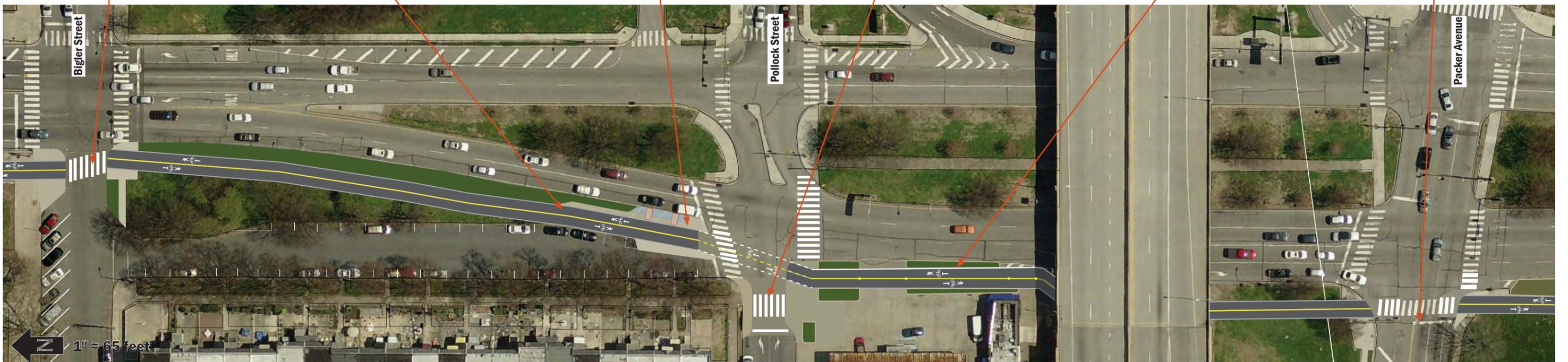
Existing.
From Pollock Street to the I-76 overpass, the sidewalk is undefined and used by adjacent buildings as a driveway and for parking.

Intervention.
The striped shoulder would be taken to construct a planted buffer between the roadway and the sidepath. Planted areas would also be constructed between the sidepath and the businesses. This would prevent parking and green the area. Additionally, bollards would be installed on either side of the driveways to prevent cars from pulling on to the sidepath. Warning signage would be placed prior to the driveways to alert drivers and sidepath users.



Existing.
At Packer Avenue, Broad Street has very wide curb radii, allowing vehicles to maintain high speeds during turns.

Intervention.
Appropriate traffic calming treatments are necessary but require additional study. Any intervention should be coordinated with other ongoing efforts along Packer Avenue.



Source: Delaware Valley Regional Planning Commission, 2012.

Figure 13:

SECTION 3: Packer Avenue to Hartranft Street

From Packer Avenue to Hartranft Street, the main challenge is path users crossing the I-76 on-ramp. The path would also cross two smaller streets in between, one of which is signalized. The path continues south, passing an abandoned residential property and then an active commercial center.

| MAP KEY | | | | | | |
|---------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Existing.
At Packer Avenue, Broad Street has very wide curb radii, allowing vehicles to maintain high speeds during turns.

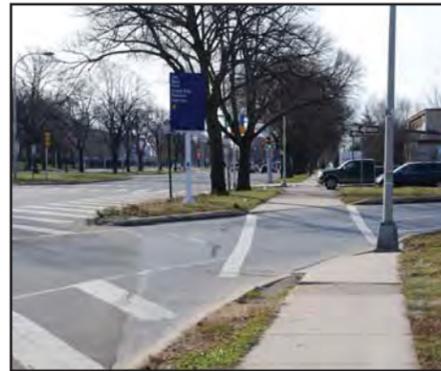
Intervention.
Appropriate traffic calming treatments are necessary but require additional study. Any intervention should be coordinated with other ongoing efforts along Packer Avenue.

Existing.
A striped shoulder channelizes vehicles as they approach the on-ramp.

Intervention.
Convert the gore-striped area to a planted buffer with a full curb. This will provide increased separation between the sidepath and traffic. Also, the planted area will provide a strong physical signal for cars to maintain slower speeds.

Existing.
Traffic entering the on-ramp for I-76 crosses the sidewalk. Most drivers begin gaining speed upon entering the on-ramp, causing a potential safety issue.

Intervention.
Stripe zebra or continental crosswalks. The crosswalk would be rotated to cross the ramp perpendicularly so users are more visible to drivers. Additional signage would be installed to instruct drivers to maintain slower speeds and watch for sidepath users.

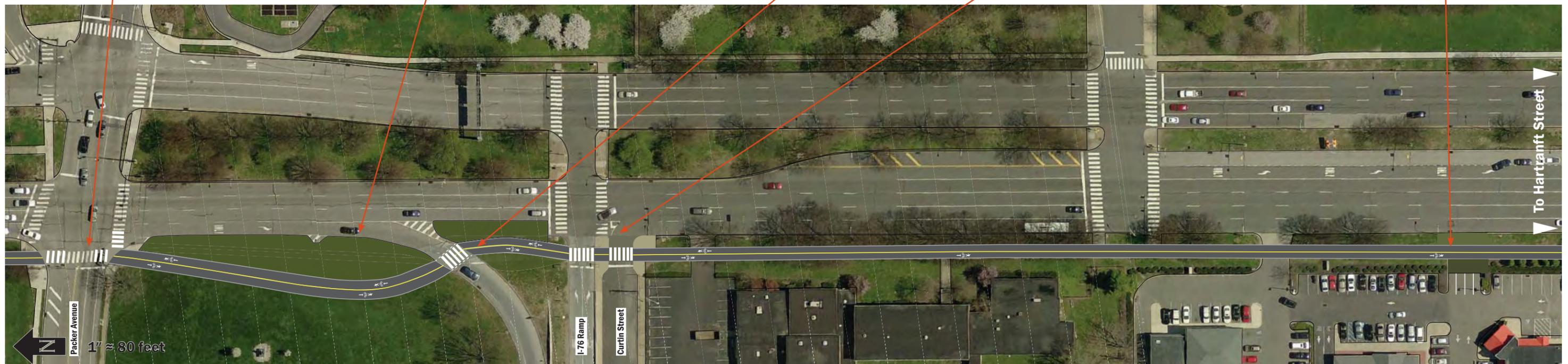


Existing.
The intersection of Curtin Street and Broad Street is channelized because only right turns onto Broad Street are permitted.

Intervention.
Convert the concrete channelizer on the northern side of Curtin Street into a full bumpout. Also, a bumpout would be constructed on the southern side of Curtin Street to slow turning traffic and shorten the crossing, thereby improving safety for path users.

Existing.
The commercial center has two driveways onto Broad Street, only about 140 feet apart, as well as exits onto Hartranft Street.

Intervention.
To reduce points of conflict and increase safety for sidepath users, the more southern of the two driveways would be closed. This would also add about four parking spaces for customers.



Source: Delaware Valley Regional Planning Commission, 2012.

Figure 14:

SECTION 4: Hartranft Street to Pattison Avenue

| MAP KEY | | | | | | |
|---------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

The sidewalk running adjacent to the NovaCare facility is wide and is free from any disruptions. On the north side of the block, the sidepath would connect to the beautified sidewalk that runs along the south side of Hartranft Street. Some utility conflicts may exist.

Existing.
At the intersection of Broad and Hartranft Streets, there is a small island or traffic diverter that channelizes traffic and creates a two-phase crossing for sidewalk users on Broad Street.

Intervention.
Reconstruct the island and straighten the crosswalk to create a single-phase crossing.

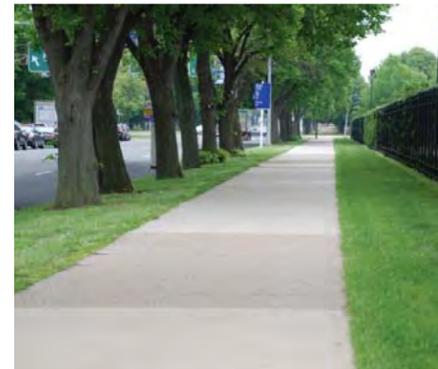


Existing.
When there are events at the stadium complex, pedestrian volumes on the west side of Broad Street can be high and intensified by the fact that the sidewalk on the east side of Broad Street is discontinuous. This may create difficult situations between cyclists and groups of pedestrians.

Intervention.
Complete the sidewalk network on the east side of Broad Street to help disperse pedestrian activity. Install signage indicating that cyclists should dismount and walk their bikes during times of heavy pedestrian activity.

Existing.
The current sidewalk is straight and relatively wide at 10 feet. Some utility conflicts may exist.

Intervention.
The sidepath would be built on the existing sidewalk footprint. Consider maximizing sidepath width to accommodate high pedestrian volumes on this segment. Any utility conflicts would be mitigated appropriately.



Existing.
Crossing Broad Street at Pattison is daunting for non-motorized users. There are 10 lanes spread out over three separate sections of roadway. Yet it is a significant crossing because of the stadium complex and subway access on the other side.

Intervention.
Narrow the lanes to 10–11 feet and combine resulting width with striped gore areas to construct bumpouts. Install bike boxes to facilitate turns from the sidepath onto Pattison Street.



Figure 15:

SECTION 5: Pattison Avenue to Zinkoff Boulevard

After crossing the intersection of Broad Street and Pattison Avenue, the sidepath follows the eastern edge of FDR Park and connects to the park's internal bicycle and pedestrian pathways. The sidepath would use the existing sidewalk footprint, which is about 15 feet wide.

| MAP KEY | | | | | | |
|---------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Existing.
 Crossing Broad Street at Pattison is daunting for non-motorized users. There are 10 lanes spread out over three separate sections of roadway. Yet it is a significant crossing because of the stadium complex and subway access on the other side.

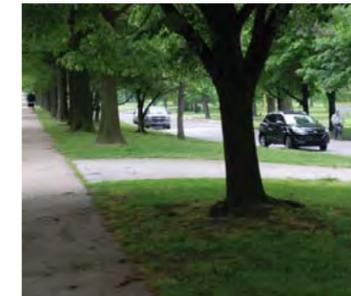
Intervention.
 Narrow the lanes to 10–11 feet and combine resulting width with striped gore areas to construct bumpouts. Install bike boxes to facilitate turns from the sidepath onto Pattison Street.

Existing.
 Cyclists must ride in the road to access destinations off the sidepath.

Intervention.
 Install bike racks at the entrance to FDR Park for cyclists who would feel more comfortable, or prefer, to walk to their final destinations or who are accessing the Broad Street Line.

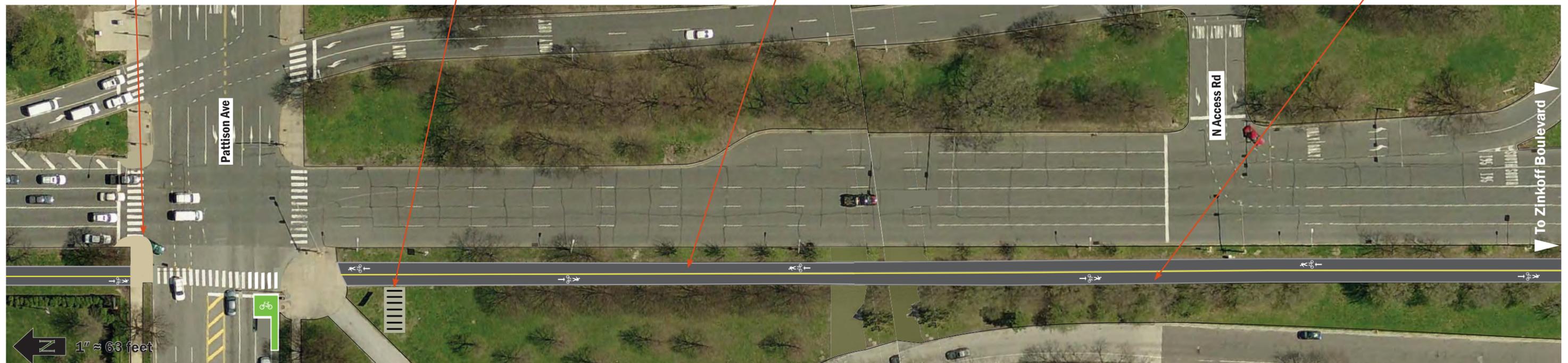
Existing.
 The sidewalk is interrupted by an underused park entrance.

Intervention.
 Remove the driveway, thereby removing a potential conflict point and enhancing safety for path users.



Existing.
 The sidewalk is wide and clear. However, some utility conflicts may exist.

Intervention.
 Construct the sidepath using the existing sidewalk footprint as much as possible. Accommodate utilities where they exist.



Source: Delaware Valley Regional Planning Commission, 2012.

Figure 16:

SECTION 6: Zinkoff Boulevard to I-95

Continuing past Zinkoff Boulevard, the sidepath traces the edge of FDR Park, using the footprint of the existing sidewalk, which is about 15 feet wide. About 300 feet north of the I-95 overpass, the sidepath will shift to the east, expanding the current sidewalk width from 5 feet to at least 12 feet. This is done by taking one lane from southbound traffic, constructing a new curbline, planted buffer, and widening the sidewalk.

| MAP KEY | | | | | | |
|---------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Existing.
A 15-foot sidewalk runs along the east edge of FDR Park. Some utility conflicts may exist.

Intervention.
Primarily use the existing sidewalk footprint, accommodating utility conflicts where they occur.



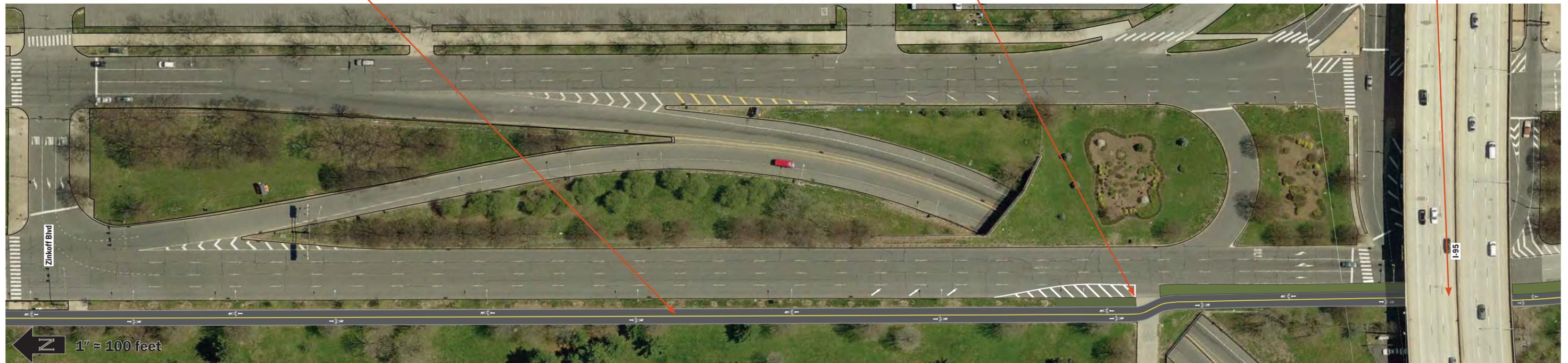
Existing.
After the park entrance, the sidewalk narrows from 15 feet to 5 feet. Grade issues to the west prevent expansion of the sidewalk in that direction.

Intervention.
Extend the sidepath, buffer, and curb to the east into Broad Street by removing one travel lane. Two vehicle lanes would still continue south to the Navy Yard.



Existing.
The I-95 overpass creates a dark, cavern-like environment that will be unattractive to sidepath users.

Intervention.
Install pedestrian-scale lighting under I-95 to make sidepath more attractive. Consider installing public art or other types of “place-making” features like those found along the Race Street Connector and Columbia Street Connector.



Source: Delaware Valley Regional Planning Commission, 2012.

Figure 17:

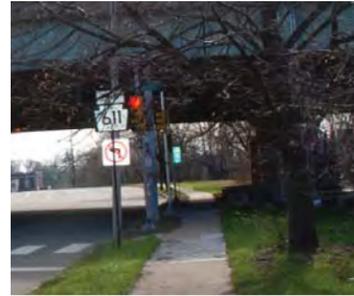
SECTION 7: I-95 to Navy Yard Gates

The final portion of the sidepath continues to replace and expand the footprint of the current sidewalk to the east. A southbound lane is replaced partially with the sidepath and partially with a newly constructed planted buffer. The sidepath terminates at the Navy Yard gates.

| MAP KEY | | | | | | |
|---------|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Existing.
The I-95 overpass creates a dark, cavern-like environment that will be unattractive to sidepath users.

Intervention.
Install pedestrian-scale lighting under I-95 to make the sidepath more attractive. Consider installing public art or other types of “place-making” features like those found along the Race Street Connector and Columbia Street Connector. Similar treatments are also warranted farther north under I-76.



Existing.
Bicycling facilities exist inside of the Navy Yard with plans to construct additional pedestrian and bicycle amenities. Other plans for changes to Navy Yard gates and internal circulation have been proposed, including the complete reconstruction of the intersection of Broad and League Island Boulevard.

Intervention.
Coordinate all sidepath planning and design with the Philadelphia Industrial Development Corporation’s ongoing efforts at the Navy Yard.



Source: Delaware Valley Regional Planning Commission, 2012.

Next Steps

These drawings provide recommendations for a multi-use sidepath along the west side of Broad Street from Oregon Avenue to the Philadelphia Navy Yard. Existing conditions were well documented, and the recommendations were based on established practices and comments from the steering committee. The plan is conceptual, however, and as the project progresses into engineering and construction phases, changes may have to be made to the design of the sidepath. Some key issues moving forward are:

- ☞ Make sure cyclists can cross the I-76 on-ramp. This may be the single most problematic location on the whole corridor.
- ☞ Deal with crossings like Packer and Pattison avenues that carry high volumes of cars. These locations need to be improved to make the sidepath function better, but options may be limited.
- ☞ Determine how to separate the sidepath from the gas station at Broad and Pollock streets; customers park along the sidewalk here, and the site requires better access management to improve safety for sidepath users.
- ☞ Because cyclists will be sharing space with pedestrians, completing the sidewalk on the east side of Broad Street south of Hartranft Street is important to disperse some pedestrian activity and reduce conflicts.

As the Navy Yard continues its growth as a major regional activity center, enhancing non-motorized access is crucial not only for commuters but also for visitors. As this part of the city grows and adds people and amenities, the sidepath should become an integral part of the city's bicycle and pedestrian infrastructure.

Publication Title: South Broad Sidepath Concept Plan

Publication Number: 12021

Date Published: September 2013

Geographic Area Covered: Philadelphia

Key Words: Sidepath, Concept Plan, Bicycling, Multi-Use Path

Abstract: This report provides general guidance and conceptual recommendations for a multi-use sidepath running parallel to South Broad Street from Oregon Avenue to the Philadelphia Navy Yard. This facility was proposed in the city's pedestrian and bicycle master plan, which was funded through the Delaware Valley Regional Planning Commission's Transportation and Community Development Initiative. The accompanying drawings are intended to be used for more detailed engineering plans and to apply for additional funding in order to move the project forward.

Staff Contact:

Cassidy Boulan
Transportation Planner
☎ (215) 238-2832
✉ cboulan@dvrpc.org

Delaware Valley Regional Planning Commission
190 N. Independence Mall West, 8th Floor
Philadelphia PA 19106
Phone: (215) 592-1800
Fax: (215) 592-9125
Internet: www.dvrpc.org

