



CITY BRANCH

Transit Feasibility Study



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.



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ACKNOWLEDGMENTS

DVRPC would like to acknowledge the following individuals for offering their opinions and expertise to this study. The findings and recommendations reflected in this report do not necessarily represent the opinions of those who participated in the study process.

Jennifer Barr, Southeastern Pennsylvania Transportation Authority

Jeannette Brugger, Philadelphia City Planning Commission

Michael Carroll, City of Philadelphia, Streets Department

Byron Comati, Southeastern Pennsylvania Transportation Authority

Stephanie Craighead, Philadelphia Parks and Recreation

Steven D'Antonio, Southeastern Pennsylvania Transportation Authority

Vincent D'Antonio, The Barnes Foundation

Larry Dubinski, The Franklin Institute

Patricia Ellis, Mayor's Office of Transportation and Utilities

Tanya Flint, Southeastern Pennsylvania Transportation Authority

Mark Focht, Philadelphia Parks and Recreation

Andrew Gillespie, Southeastern Pennsylvania Transportation Authority

Aaron Goldblatt, Friends of the Rail Park

Nancy Goldenberg, Pennsylvania Horticultural Society

Joshua Gottlieb, Southeastern Pennsylvania Transportation Authority

Alan Greenberger, Deputy Mayor for Economic Development, City of Philadelphia

June Idzal, The Philadelphian

Lauren Leonard, Pearl Properties

Paul Levy, Center City District

Ian Litwin, Philadelphia City Planning Commission

Brent Martin, Four Seasons Hotel Philadelphia

Sarah McEneaney, Friends of the Rail Park

Andrew Meloney, Philadelphia City Planning Commission

Mark Mills, The Barnes Foundation

Leah Murphy, Friends of the Rail Park

Jennifer Nagle, Independence Visitor Center

Daniel Nemiroff, Southeastern Pennsylvania Transportation Authority

Kate O'Connor, Southeastern Pennsylvania Transportation Authority

Judith Rogers, The Parkway Council Foundation

Donald Root, Free Library of Philadelphia

Scott Sauer, Southeastern Pennsylvania Transportation Authority

Sven Schroeter, Logan Square Neighborhood Association

David Searles, Logan Square Neighborhood Association

Laura Spina, Philadelphia City Planning Commission

Sheldon Stein, Ranger Properties



CHAPTER I:

EXECUTIVE SUMMARY

The City Branch Transit Feasibility Study was conducted by the Delaware Valley Regional Planning Commission (DVRPC) at the request of the City of Philadelphia, and in collaboration with the Southeastern Pennsylvania Transportation Authority (SEPTA).

The study examines transit reuse opportunities for the City Branch, an unused former rail right-of-way in Center City Philadelphia.

Study Overview

Project Background

Since its last active use as a freight rail line, in 1992, the City Branch right-of-way has sparked interest, ideas, and debate over its future use. Several recent planning and development proposals have incorporated the City Branch as a key element of their concept. The right-of-way is owned by Philadelphia's primary public transit operator, Southeastern Pennsylvania Transportation Authority (SEPTA).

The City Branch extends from Broad Street near Noble Street to the intersection of 31st Street and Girard Avenue (see Figure 1). Over the course of its 1.75-mile length, it alternates between an open-cut condition, and a tunnel—in each case, below street grade. As such, the City Branch is unusual among 21st century transportation infrastructure as a fully grade-separated facility in the heart of a major city without an immediately apparent transportation use.

DVRPC studied three bus transit concepts, identified by the Mayor's Office of Transportation and Utilities (MOTU) and SEPTA as the most relevant ongoing proposals for transit reuse of the City Branch. MOTU, SEPTA, and DVRPC

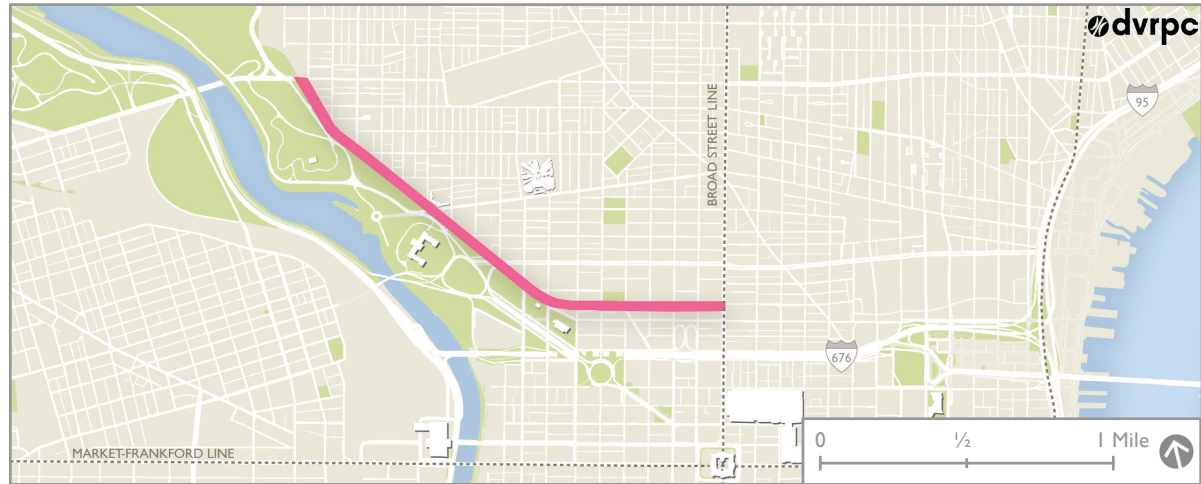


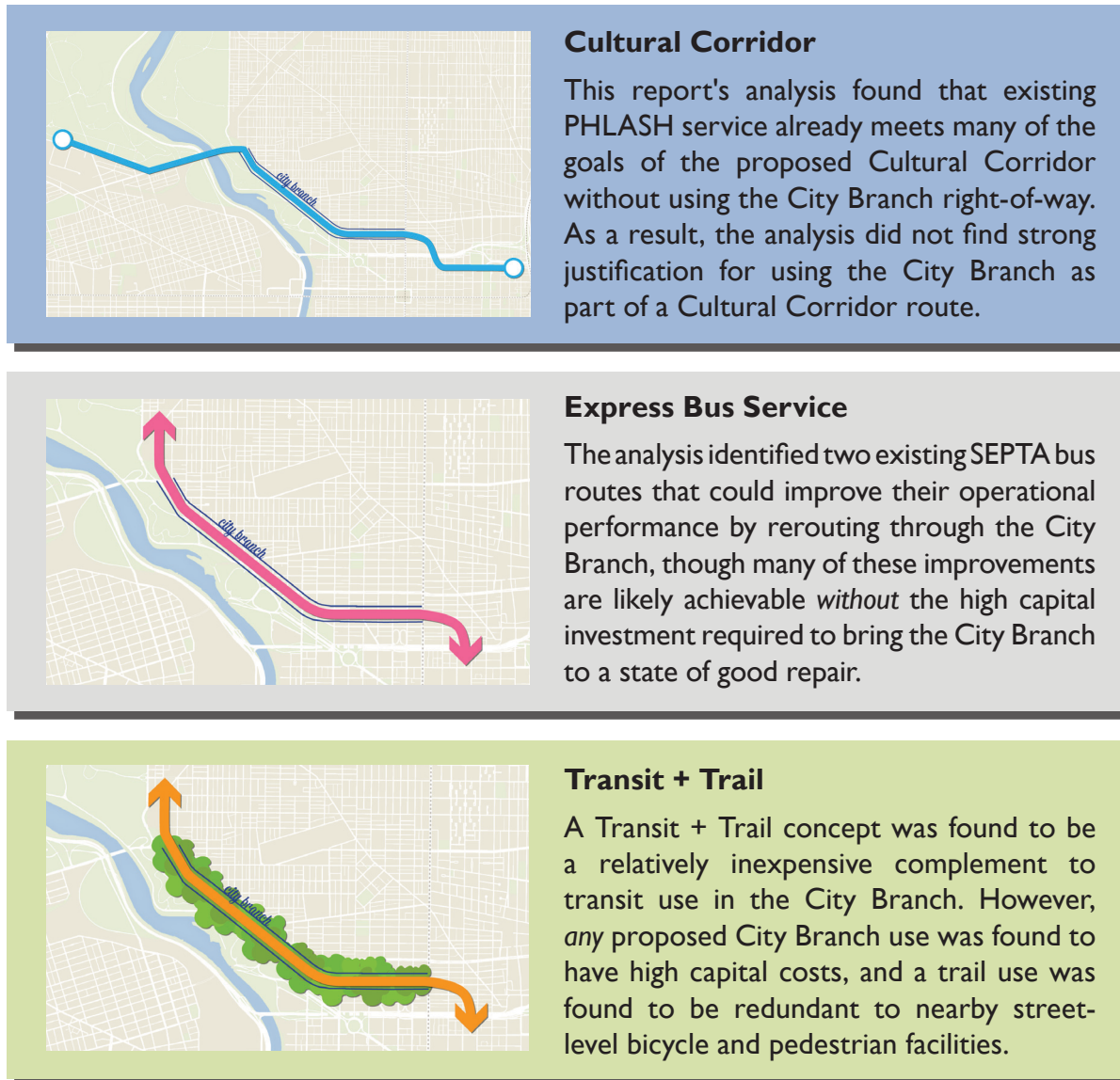
Figure 1: The City Branch

selected these concepts (summarized on page 3) because they build upon existing planning efforts related to City Branch reuse, and because their implementation was perceived as realistic within the current fiscal and administrative context.

These services vary in their proposed route lengths, operating context, and trip purpose, but analysis showed that each type of bus service would require a significant capital investment to bring the City Branch to a safe operating condition.

Stakeholders

The process for the analysis included close collaboration between the City of Philadelphia, SEPTA and DVRPC to evaluate the proposed transit concepts for the study. In addition, interviews were held with key stakeholders for the study area whose interests range from expanding recreational space, attracting tourism, economic development, neighborhood quality-of-life, and developing real estate. Interviewees provided feedback on the transit concepts, weighing in on existing conditions, the concept of operating transit within the City Branch, and suggesting complementary uses for the right-of-way.



Concepts

Each of the three concepts considered for the study (see Figure 2) was explored generally for its transit benefit and design implications relative to cost but also for its inherent purpose.

For purposes of analysis, the study team approached each concept differently. The Cultural Corridor was studied for its **conceptual feasibility**, with attention paid to stakeholder input, similar existing transit services, and the merits of its directional alignment.

Analysis for the Express Bus Service concept focused on the **operational feasibility** of rerouting existing SEPTA bus routes to the City Branch in order to improve travel times and operational costs of existing SEPTA service near the City Branch.

The Transit + Trail concept explored the **physical feasibility** of accommodating a multi-use trail adjacent to a transit runningway within the City Branch right-of-way.

Figure 2: City Branch Concepts: Executive Summary

Findings

The City Branch represents a highly sought after public transportation asset—a grade-separated, transit agency-owned facility located in a high-density, urban environment.

Due to the high cost and undetermined benefits for the transportation network of Philadelphia and the surrounding neighborhoods, an immediate bus transit use, such as those explored in this study, is not recommended. However, because of the rarity of this urban infrastructure, and because of demographic and civic trends towards greater public transit investments, this report advocates a high-intensity public transit use in the long-term future. Therefore, this study proposes recommendations that support the preservation and preparedness of the right-of-way for a future transportation use.

Trending Towards Transit

The inherent transit-friendly traits of the right-of-way, along with the direction of economic, political, and demographic trends, are likely to make the City Branch right-of-way a more attractive alignment for transit in the future. Existing trends toward a more transit-oriented urban lifestyle—a rise in Center City population, flat or falling vehicle miles traveled (VMT), and increased demand on SEPTA’s already strained system—could make high-quality transit in the City Branch

an effective tool to meet Philadelphians’ future transportation needs.

Changes in fiscal policy that allow for service expansion, potentially by means of a transit-favorable federal transportation bill, private investment, or public-private partnerships, could make financing a new transit service within the City Branch possible in the longer-term future. Further study of these long-term transit options should be undertaken in the future.

Table 1: Recommendations

1	Preserve and enhance PHLASH service. (See p. 83)
2	Devote further study to route modifications to Route 32 using Pennsylvania Avenue. (See p. 84)
3	Devote further study to route modifications to Route 48 using Pennsylvania Avenue. (See p. 85)
4	Devote further study to a new local route. (See p. 86)
5	Expand and maintain bicycle facilities at street-level to improve nonmotorized transportation networks near the study area. (See p. 87)
6	Establish a master plan for future transit use in the City Branch. (See p. 87-89)
7	Identify interim uses for the City Branch. (See pp. 90-91)
8	Publish a systemwide rights-of-way preservation guide. (See pp. 92)

Recommendations

A number of recommendations are identified in the study to lay the groundwork for future transit within the City Branch right-of-way (see Table 1 and Figure 3). These recommendations are

intended as guidance for SEPTA, the City of Philadelphia, and other stakeholders on how to meet some of the goals of the three transit concepts under analysis, while preserving the City Branch for future

transit use. Site-specific guidance for transit right-of-way preservation is shown in Figure 3: Near-term City Branch Right-of-way Preservation Priorities (explained in greater detail on pages 88-89.)

Near-term City Branch Right-of-way Preservation Priorities:

- (1) Facilitate Transit Connections at 31st Street & Girard Avenue
- (2) Formalize Safe Pedestrian Crossings
- (3) Maintain Pennsylvania Avenue Air/Light Wells
- (4) Encourage Transit-supportive Development
- (5) Preserve Structural Integrity of Walls, Tunnel, and Sidings
- (6) Support Development that Unblocks the Right-of-way Between Broad and 16th Streets, if Possible
- (7) Facilitate Transit Connections to Broad Street Line

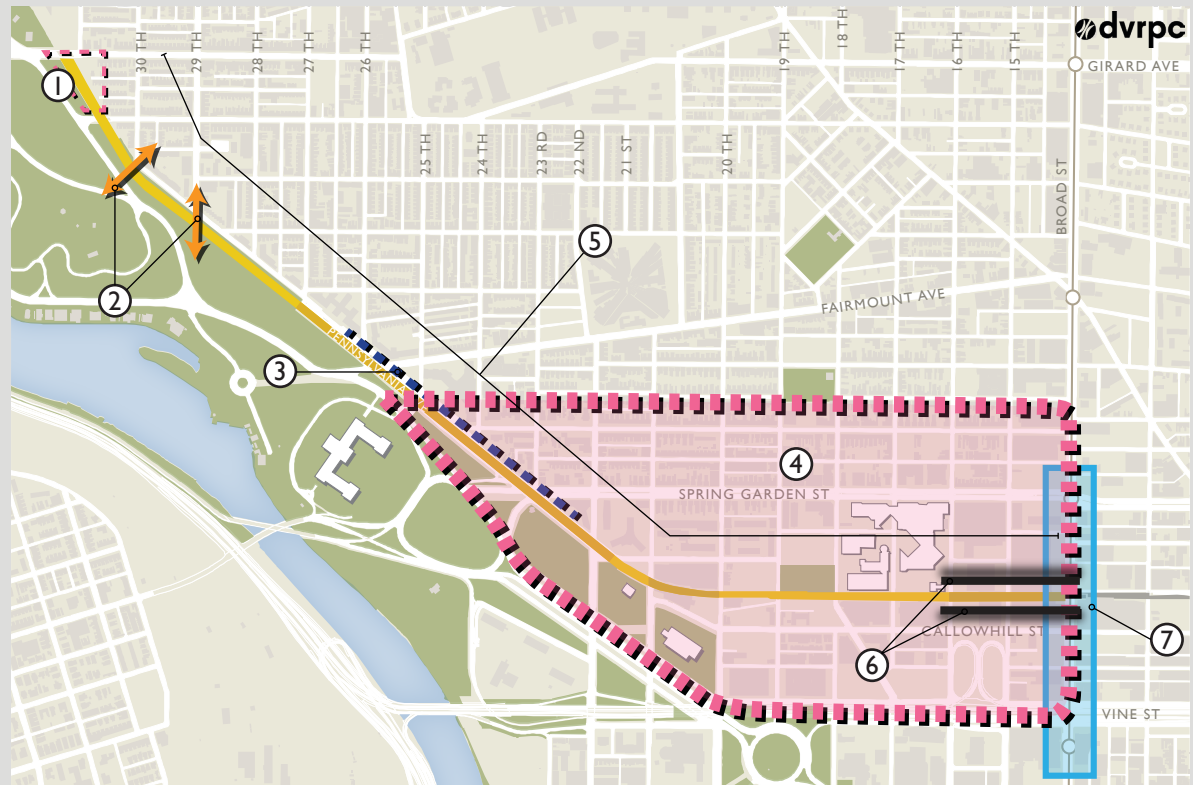


Figure 3: Near-term City Branch Right-of-way Preservation Priorities



CHAPTER 2:

PROJECT BACKGROUND

The City Branch is a 1.75-mile-long, unused former freight rail right-of-way in Philadelphia (see Figure 4). The right-of-way is owned by Philadelphia's primary public transit operator, Southeastern Pennsylvania Transportation Authority (SEPTA). The City Branch alternates between being an open-air cut below grade, and a tunnel between Broad Street and the intersection of 31st Street and Girard Avenue. Since its last active use, in 1992, as a freight rail line, the right-of-way has sparked perennial debate over its future use.

In response to recent interest in reusing the right-of-way, the City of Philadelphia, with support from SEPTA, asked DVRPC staff to take a fresh look at (re)using the City Branch. This report identifies and evaluates alternative transportation uses for the City Branch in the near- and long-term, while also considering the adjacent neighborhood context.

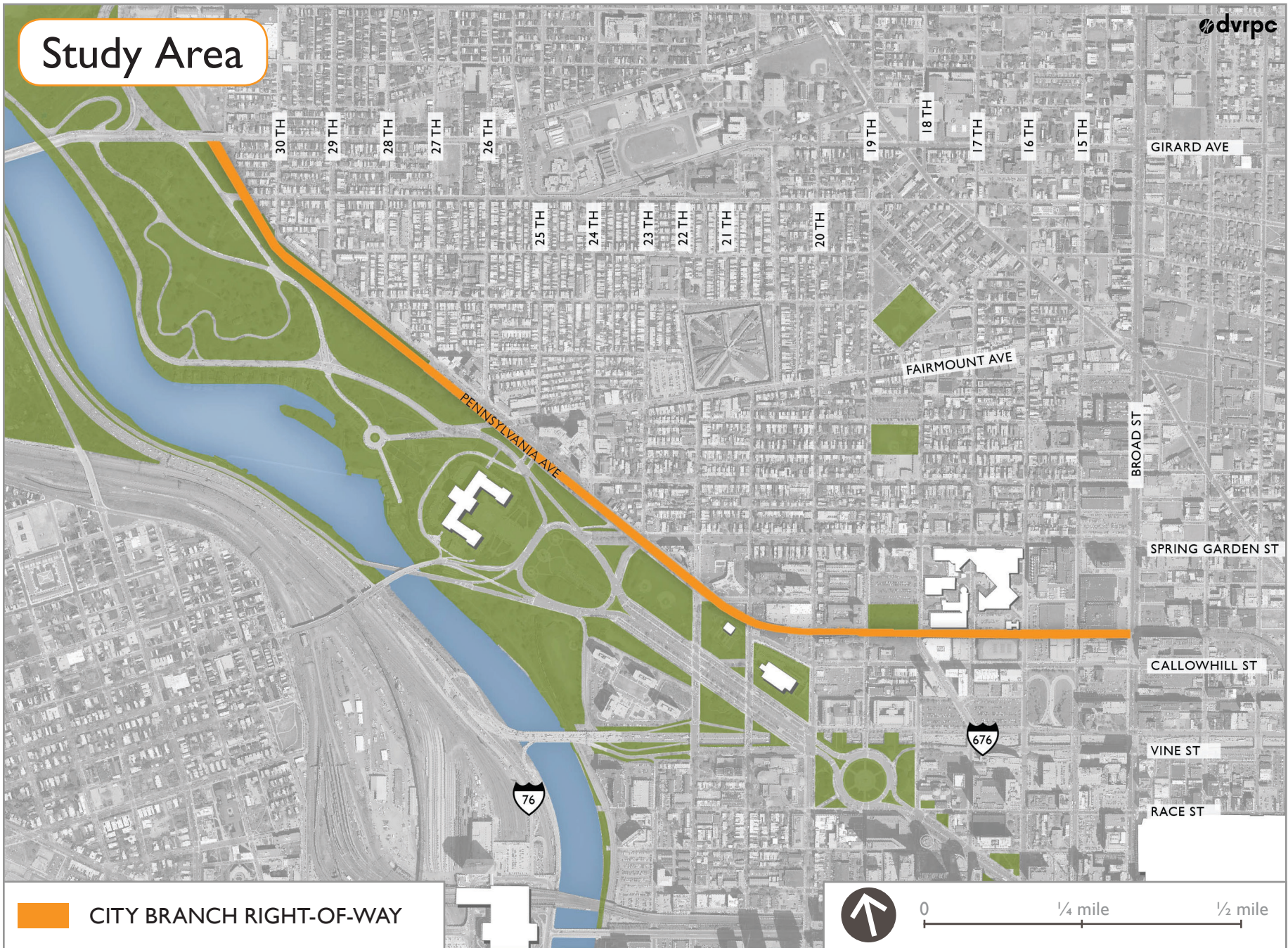


Figure 4: City Branch Transit Feasibility Study Area

Historical Background and Recent Trends

Establishment and Use

Transportation service along what would become the City Branch dates to 1792, when the Delaware and Schuylkill Navigation Company began construction on a canal linking Philadelphia's two rivers (see Figure 5). The enterprise folded, however, and the incomplete canal's right-of-way evolved into a surface street.

By 1834, the City of Philadelphia used the same right-of-way for a public railroad (its ownership giving rise to the name "City Branch") connecting to the Columbia Bridge over the Schuylkill River.¹

The City Branch was acquired by the Philadelphia and Reading Railroad (P&R) in 1850. For the next half-century, P&R operated the City Branch at grade through the burgeoning industrial district north of Center City. By the 1890s, however, the City Branch's 17 at-grade crossings proved problematic (see Figure 6).

Between 1894 and 1911, P&R excavated a trench from 13th to 21st Streets, and a tunnel from 21st Street to 27th Street. This grade-separation project, undertaken at the peak



Figure 5:Varle Map (Detail)

Charles P. Varle's map of Philadelphia shows the partially completed canal.

Source: David Rumsey Historical Map Collection

of the American rail industry's prominence, was a monumental engineering feat with a monumental price tag. P&R spent \$5.5 million (approximately \$150 million in 2014 dollars) to complete the project.²

The new, below-grade City Branch operated as a freight-only line, serving major industrial customers, including Baldwin Locomotive Works, William Sellers & Co. machine tools, Pequea Mills textiles, and

Knickerbocker Ice Co. (see Figures 7 and 8). P&R passenger traffic was relocated to the newly constructed 9th Street Branch—a portion of which is known today as the Reading Viaduct—which carried passengers to and from P&R's new Reading Terminal at 12th and Market Streets.

Abandonment

Railroad traffic experienced a dramatic general decline after World War II, and many major railroad companies struggled to stay in business. The P&R declared bankruptcy in 1971, and, like many

¹ Harry Kyriakodis, Origins of the City Branch? Canal, Natural & Man-made, *Hidden City Philadelphia*, June 11, 2012, <http://hiddencityphila.org/2012/06/origins-of-the-city-branch-canal-natural-man-made/>.

² George S. Webster and Samuel Tobias Wagner, "History of the Pennsylvania Avenue Subway, Philadelphia, and Sewer Construction Connected Therewith," *Transactions of the American Society of Civil Engineers, Volume XLIV* (December 1900), pp. 1-33 and plates I - IV.

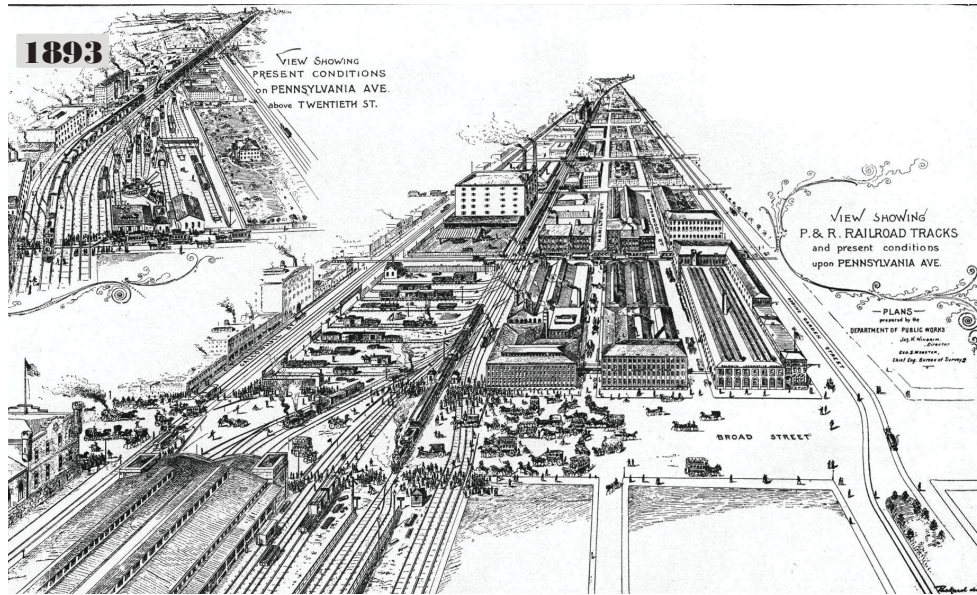


Figure 6: City Branch Grade-separation Illustration

This illustration shows congestion and safety issues that plagued the City Branch before it was grade separated.

Source: PhilaGeoHistory.org



Figure 7: City Branch View From Pennsylvania Avenue & 27th Street

Source: Temple University Urban Archives

industrial-era railroads in the northeast, its rail assets were transferred to the federally chartered corporation Conrail.

Concurrently, a national decline in manufacturing left fewer direct customers for urban freight rail in general, and along the City Branch in particular. Freight service in the City Branch finally ceased in 1992, when the route's last customer, the Philadelphia Inquirer, moved its printing operations from its headquarters at 400

The City Branch is unusual among 21st century transportation infrastructure: a fully grade-separated facility in the heart of a major city without an immediately apparent transportation use.

North Broad Street to West Conshohocken.

SEPTA purchased the City Branch right-of-way in 1995, anticipating its future use for passenger transit. The route was studied primarily in association with the

Schuylkill Valley Metro project, which would have restored a passenger rail link between Philadelphia and Reading. That proposal's failure makes the City Branch unusual among 21st-century transportation infrastructure: a fully grade-separated



Figure 8: City Branch View From the Inquirer Building
Source: Temple University Urban Archives



Figure 9: Contemporary City Branch View From 18th Street

facility in the heart of a major city without an immediately apparent transportation use.

Since freight service was discontinued, the City Branch has mostly remained idle. The rails were removed in the early 1990s. Some of the more accessible portions of the trench, between 19th and 22nd Streets, have been cleared and leased for parking, while many of the open-air sections have been overtaken by vegetation (see Figure 9).

Rail Corridor Reuse in the 21st Century

The Greater Philadelphia region contains an extensive system of rail lines used for the movement of passengers and freight. But over the last several decades, factors such as the shift from a manufacturing to a service economy, the growth of the interstate highway system, and the restructuring of the railroad industry have resulted in the elimination of service from a number of lines, many of which now lie abandoned.

Planners have long been involved in studying these corridors for potential reuse. Some of these inactive or abandoned lines have found new lives as utility rights-of-way or trails, while others have been acquired or developed by adjacent property owners.

In recent years, renewed interest in urban development and growing traffic congestion has led to abandoned rail corridors being reconsidered for reuse as transportation

facilities. Their strategic alignments often make them attractive candidates for new or reactivated rail service in areas where adding additional roadway capacity is difficult or undesirable.

Pittsburgh has taken a transit focus for its reactivated railroad corridors. Portions of the city's light rail system and east and west busways use rights-of-way once occupied by a railroad line. The Martin Luther King Jr. East Busway, running from downtown to Swissvale, is a two-lane dedicated bus-only roadway that originally opened in 1983 (see Figure 10). In 2003, the busway was extended by 2.3 miles to make its current length 9.1 miles.

Conversely, the success of the High Line park, built on an elevated abandoned railway trestle in Manhattan, has inspired many cities to consider converting their own inactive rail infrastructure into parkland (see Figure 12). In addition to Philadelphia's potential conversion of the Reading Viaduct—an elevated right-of-way east of the City Branch—cities such as Chicago (see Figure 11), St. Louis, and Jersey City are working to renovate their abandoned trestles and railways for public space. In addition to creating an important amenity for nearby neighborhoods, a key



Figure 10: Martin Luther King, Jr. Busway East, Pittsburgh
Source: Deanna Garcia, 90.5 WESA



Figure 11: The 606, Chicago
Source: Chicago Tribune



Figure 12: The High Line, New York
Source: DVRPC



Figure 13: Dequindre Cut, Detroit
Source: JJR via livenhighline.com

consideration for each of these projects is the fact that renovating old rail structures can be cheaper than tearing them down.

Examples of recent at- or below-grade railroad corridor reuse projects can be found in Detroit and Atlanta. Detroit's Dequindre Cut Greenway is an urban recreation path that opened in 2009 on a right-of-way formerly occupied by a Grand Trunk Railroad line (see Figure 13). The Dequindre Cut is a 1.35-mile, open-air, below-street-level trail with a 20-foot wide paved pathway.

Atlanta's BeltLine is a former railway corridor that circles the core of the city that is being developed in stages as a multi-use trail. Two early components of the project, the Eastside Trail and Historic Fourth Ward Park, received the 2013 Overall Excellence in Smart Growth award from the U.S. Environmental Protection Agency. The BeltLine could eventually extend 22 miles and may incorporate light rail lines along all or part of the corridor at some point.

Planning Context: Visioning for the Future of the City Branch

An Asset of Great Interest

Several recent planning and development proposals have incorporated the City Branch as a key element of their concept.

The Philadelphia City Planning Commission (PCPC), for example, has proposed a “Cultural Corridor Line” using the City Branch right-of-way. This proposal, recommended in the *Philadelphia2035: Central District Plan* (2013), recommends exploring a bus rapid transit (BRT) route—a specialized bus service focused on branded, frequent, high-capacity service—that would run from the Delaware River waterfront to the Centennial District in West Fairmount Park. The proposed Cultural Corridor Line would serve Old City, Center City Philadelphia, cultural institutions along the Benjamin Franklin Parkway, the Philadelphia Zoo, the Please Touch Museum, and the Mann Music Center.

Other proposals for the City Branch include its use as a signature public space that combines a multi-use trail with thoughtfully designed open space. The most prominent advocate for this vision is Friends of the Rail Park, an organization focused on creating a continuous park and recreational trail using

both the City Branch, and its east-of-Broad-Street and above-grade counterpart, the Reading Viaduct.

The communities adjacent to the City Branch are experiencing vigorous redevelopment activity. Those ongoing and future projects will likely reshape the land uses and demographics of the surrounding area, as well as the configuration and access into the City Branch for any proposed use.

A Transportation Focus

Because of its historic rail use, and as a SEPTA-owned asset, transportation uses for the City Branch have traditionally focused on public transit. Two prior proposals, the Schuylkill Valley Metro and the 52nd Street Study (summarized on page 16), were found not to have sufficient public benefit to warrant the expenditure under Federal Transit Administration (FTA) alternatives analysis guidelines.

In the near term, SEPTA’s funding situation and extensive service area limits the types of projects that it is able to fund. Thanks to a comprehensive state transportation funding law, Act 89 of 2013, SEPTA now has additional capital funding

to address a long backlog of state-of-good-repair projects—its top capital funding priority. New subway or rail uses outside of the projects that are already under analysis (for example, extensions to the Norristown High Speed Line, Media/Elwyn Line, and the Broad Street Line) are unlikely in the near future. More likely are public transit uses that make use of buses, which are more affordable and easier to implement.

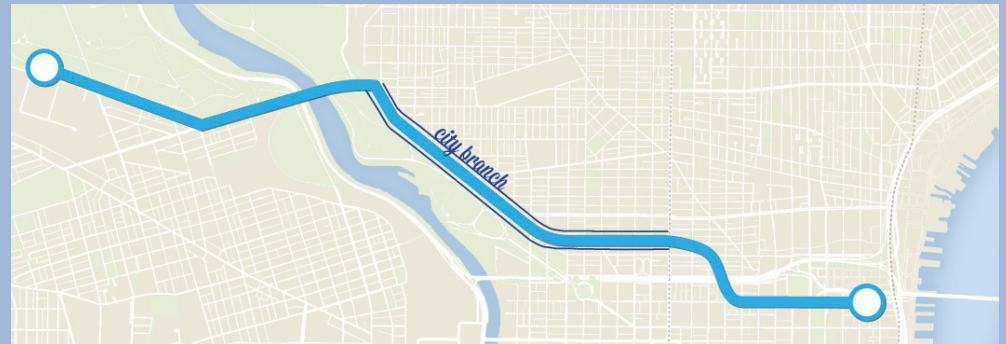
Considering Bus Service

The City Branch right-of-way offers a context to consider several types of bus service. These services vary in their proposed route lengths, operating context, vehicle types, and expected ridership. Each type of bus service would require some amount of capital investment to bring the City Branch to a safe operating condition.

The DVRPC study team was charged with assessing the feasibility of the transit uses described in detail on the facing page. The study also includes cataloging and holistically reviewing other transportation and non-transportation uses for the City Branch—especially in consideration of what needs each proposed use might serve.

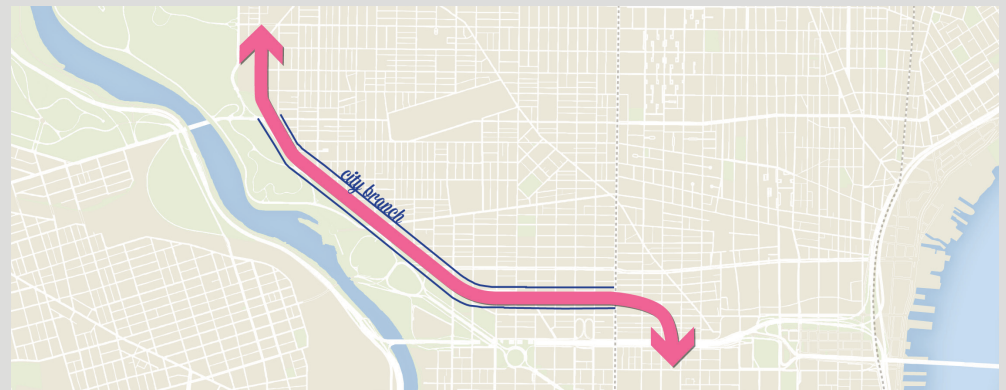
Cultural Corridor

The Cultural Corridor, proposed by PCPC in the Central District Plan, would use the City Branch right-of-way for a portion of its alignment. If fully realized, it would connect the Delaware riverfront, Old City, the Pennsylvania Convention Center, Center City, Benjamin Franklin Parkway institutions, Fairmount Park, the Please Touch Museum, and the Mann Center.



Express Bus Service

Bus service on routes connecting Fairmount, Brewerytown, Strawberry Mansion, and other North Philadelphia neighborhoods to Center City is heavily used. Relocating some routes into the City Branch right-of-way presents an opportunity to shorten travel times for passengers, and ameliorate street-level bus congestion for Fairmount residents.



Transit + Trail

The City Branch right-of-way may also be sizable enough to support both a busway concept and a trail or other recreational use side by side. Combining active, nonmotorized transportation with public transit emphasizes alternative modes of transportation that support greater mobility choices.

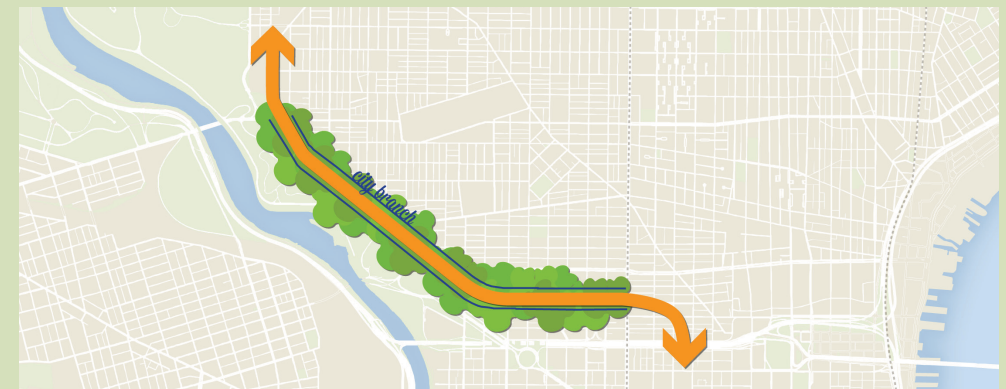


Figure 14: City Branch Concepts: Project Background

Planning Context: Past Studies

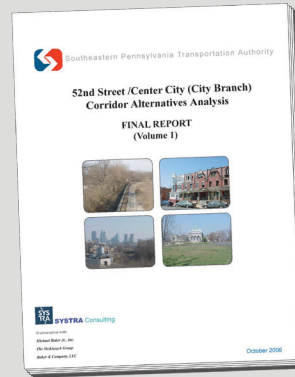
Since its closure in 1992, the City Branch has been the subject of several planning studies, each of which attempted to identify a public use for the corridor.

Three planning efforts, in particular, are most relevant to DVRPC's current study:

- *52nd Street / Center City (City Branch) Corridor Alternatives Analysis* (2006). Completed by SYSTRA for SEPTA, this report examined six alternatives for public transit use linking Center City to a proposed rail station at 52nd Street.
- *Philadelphia2035: Central District Plan* (2013). A district plan by the Philadelphia City Planning Commission, which proposed use of the City Branch for a “cultural corridor” public transit line.
- *Continuous and Connective: Conceptual Design for Placemaking and Linkage* (2013). A Community Design Collaborative report completed on behalf of the advocacy organization Friends of the Rail Park, which proposes using the City Branch as a park.

52nd Street/Center City (City Branch) Corridor Alternatives Analysis:

The *52nd Street Study* examined alternatives for a potential public transit line that would provide a direct link between the proposed Schuylkill Valley Metro (SVM) station at 52nd Street and the Pennsylvania Convention Center. The SVM was a proposed rail line linking Philadelphia and Reading, PA. The project was discontinued in the mid-2000s after failing to receive federal funding.



The *52nd Street Study* includes in-depth analysis of three alternatives: light rail transit (LRT), bus rapid transit (BRT), and transportation system management (TSM), an express bus-like option. Both the LRT and BRT options were studied under the assumption that they would use the City Branch right-of-way.

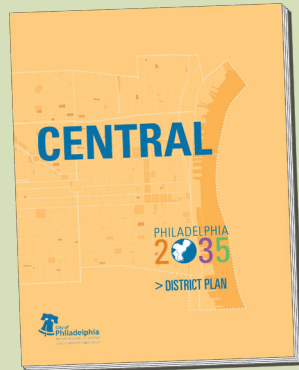
The study concluded that none of the alternatives offered enough public benefit to justify public expenditure. The study reached this conclusion about the most expensive alternative, LRT, assumed to cost \$222 million to build in 2006. The study reached the same conclusion about the TSM and BRT options, calculated to cost \$5 million and \$100 million, respectively, to implement.

None of the alternatives was determined to be cost-effective enough to secure federal New Starts funding for capital improvements, effectively cancelling the project.

Philadelphia2035 Central District Plan:

The *Central District Plan* was published in 2013 as part of the *Philadelphia2035* comprehensive planning process. The *Central District Plan* is one of 18 district plans that apply the City's broad goals to specific portions of Philadelphia—in this case Center City.

The plan identifies a lack of connection between local cultural destinations (including the Philadelphia Museum of Art and the Philadelphia Zoo) and Center City, which it proposes to solve by implementing a new transit service: the Cultural Corridor.



The proposed Cultural Corridor's alignment would connect Penn's Landing, Old City, the Pennsylvania Convention Center, museums along the Benjamin Franklin Parkway, the Philadelphia Zoo, and the Please Touch Museum and the Mann Center in Fairmount Park. The *Central District Plan* also suggested that a Cultural Corridor could serve burgeoning River Ward communities

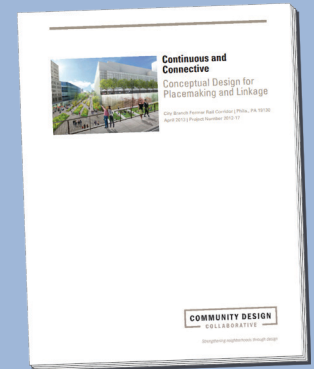
along the Delaware.

The plan suggested BRT as a transit mode for the Cultural Corridor, both because of its perceived cost-effectiveness, and its perceived reputation as a high-quality public transit mode that could appeal to tourists.

The *Central District Plan* included a route map for the Cultural Corridor, but did not include more detailed analysis of the route's feasibility in terms of ridership potential or capital costs.

Continuous and Connective: Conceptual Design for Placemaking and Linkage:

Continuous and Connective was published in April 2013 by the Community Design Collaborative (CDC), an organization that provides pro bono design services to nonprofits. The report was prepared by a team comprised of volunteers led by the landscape architecture firm OLIN, who worked with CDC client Friends of the Rail Park, an organization advocating for use of the City Branch and the nearby Reading Viaduct as a park.



The report proposed using the portion of the City Branch between 18th and Broad Streets, as well as the currently unconnected portion of the Reading Viaduct between Broad Street and 13th Street, as a high-performing public space modeled on New York City's High Line.

The report examined basic capital improvements needed to allow public use, finding that minimum construction costs would amount to nearly \$29 million for the portion of the City Branch between 18th and Broad Streets, excluding the cost of several additional improvements. That figure also excludes costs associated with potential environmental remediation, and assumes that the cost of any improvements to the bridge that carries Broad Street over the City Branch would be borne by PennDOT. As of March 2015, Friends of the Rail Park had raised about \$7 million in grant and donation funds towards a 1.5-block-long section of park between 13th & Noble Streets and the 1100 block of Callowhill Street.

Participation and Outreach

Two methods of participation, conducted between December 2013 and December 2014, informed the study process:

Agency Coordination

The DVRPC study team collaborated closely throughout the study process with staff from SEPTA, PCPC, and the Mayor's Office of Transportation and Utilities (MOTU) to brainstorm and consider findings. Each agency provided background information on related development proposals and planning analysis, offering the DVRPC study team guidance on the likelihood of various outcomes. SEPTA's service planning, engineering, and cost estimating staff provided their respective expertise throughout the study.

Stakeholder Input

Early in the study process, DVRPC hosted a series of individual interviews for stakeholder groups and agencies with an interest in the future development of the City Branch right-of-way. Participants met with the study team in individual meetings, and in small groups to provide input on the elements of the study that were most relevant to their respective organizations.

Stakeholder Interview Participants:

SEPTA:



- Service Planning
- Strategic Planning
- Engineering (Bridges and Buildings)
- Financial Analysis and Operational Performance

City of Philadelphia:



- Philadelphia City Planning Commission
- Mayor's Office of Transportation and Utilities
- Philadelphia Parks and Recreation

Nonprofit Organizations

- Center City District
- Fairmount Civic Association
- Friends of the Rail Park
- Independence Visitor Center
- Logan Square Neighborhood Association
- The Parkway Council Foundation
- Philadelphia Convention and Visitor's Bureau
- Visit Philadelphia

Real Estate Developers

- Pearl Properties
- Ranger Properties

Stakeholders were encouraged to speak frankly about how the City Branch interfaced with their goals, or their organization’s goals. Held over several days and in various locations, these interviews focused on topics such as:

- ideal uses for the City Branch,
- which of the city and region’s transit needs could be served by the City Branch,
- how nearby properties and communities might be affected by an active City Branch right-of-way,
- and the ideal transportation connections between cultural and tourist destinations along the Benjamin Franklin Parkway, in Old City, and in Fairmount Park.

The results of these interviews are detailed on the following pages.

Transit Service:

Major stakeholder interest centered on the potential to use the City Branch as a transit connection giving North and West Philadelphia neighborhoods faster access to Center City.

Participants noted that SEPTA bus routes serving this area are frequently overcrowded with passengers making a trip that runs roughly parallel to the the City Branch for a portion of their routes. These routes were known to stakeholders for frequent “bus bunching” (when two or more buses on the same route that are meant to be spaced evenly, in fact, run very close to each other due to delays), and for passing up passengers because vehicles are filled to capacity.

Dedicating the City Branch right-of-way to serve as a full or partial “express” version of these routes, alleviating bunching and passenger pass-ups, was a consistent stakeholder suggestion.

Participants, however, repeatedly noted the physical difficulties of bringing buses into and out of the City Branch, and likewise, that the City Branch’s eastern extent is blocked by an annex to the School District of Philadelphia’s headquarters, preventing an easy connection with the Broad Street Line.



Figure 15: SEPTA Bus Image

Several existing SEPTA bus routes travel near the City Branch on the way to Center City.

Cultural Corridor:

Interview participants expressed strong interest in promoting transit to tourism, but skepticism towards aspects of the Cultural Corridor concept. Participants with expertise in Philadelphia’s tourism industry highlighted several key transportation preferences for out-of-town visitors:

- service that drops visitors directly at prominent tourist destinations;
- guided service and information from vehicle operators;
- intuitive branding or wayfinding that distinguishes tourist transportation from standard transit service; and
- frequent, predictable scheduling.

Several stakeholders were quick to note that there is already a tourist bus service meeting most of these criteria: PHLASH, a seasonal downtown bus route connecting historic and cultural institutions in Center City Philadelphia, operated by Independence Visitor Center.

PHLASH service also includes an extension that serves destinations west of the Schuylkill River, including the Philadelphia Zoo, the Please Touch Museum, and the Mann Center for the Performing Arts. Stakeholders further suggested that existing SEPTA bus service—particularly Routes 38, 40, and 43—already provide access to West Fairmount Park, and the Parkside neighborhood for locals and slightly more intrepid tourists.

Stakeholders noted that, in the past, PHLASH often had to curtail service due to funding challenges, but had recently acquired more permanent public funding through Act 89.



Figure 16: PHLASH Image

PHLASH service brings tourists to many of the same destinations that the proposed Cultural Corridor would.

Trail and Park Use:

Stakeholders cited both benefits and constraints to the idea of a recreational use within the City Branch right-of-way. Some participants felt that a well-designed and maintained, “destination” recreational facility would draw visitors and residents to the Fairmount and Logan Square neighborhoods, while also enhancing nonmotorized transportation connections.

Many other stakeholders questioned the wisdom of investing in a recreational facility they believed to be expensive, potentially

unsafe, and redundant to facilities along the Parkway.

Several participants noted that the tunnel portion of the City Branch, in particular, appears likely to need extensive retrofitting before it is physically sound for public use, and accessible to the disabled.

Interviewees expressed concern for personal safety when considering recreational uses for the City Branch based on poor visibility, and few entrance/exit points.



Figures 17 & 18: Baana, Helsinki

The Baana recreational corridor in Helsinki is one example of a former rail cut converted to a multi-use trail and recreational space.

Source: Krista Muurinen for www.hidden-helsinki.com

Safety:

Stakeholders repeatedly expressed concerns about perceived threats to personal safety inherent in any City Branch use that allowed individuals to enter the City Branch tunnel or cut on foot. Meeting participants suggested that many factors, including poor lighting, lack of “eyes on the street,” and policing challenges, could create potentially dangerous conditions for users—whether parkgoers, or transit passengers.

Participants suggested that lighting, limiting access, and emergency phones could each enhance safety, but with significant costs and administrative challenges. Participants also suggested that a hybrid use for the City Branch that encouraged use by more people—a busway/trail hybrid, for example—could help alleviate negative safety perceptions.



Figure 19: View from City Branch Cut

The seclusion of the City Branch gives it unique potential as a public space, but raised safety concerns among stakeholders.

Congestion & Quality-of-Life Impacts:

Several participants noted that the current configuration of buses operating in the Fairmount neighborhood causes a nuisance to the largely residential neighborhood. Some interviewees noted that relocating bus routes in Fairmount to the City Branch could mitigate concerns over congestion and noise among Fairmount residents.

Similarly, some stakeholders suggested that the City Branch could be an effective detour route for buses during events for which the Benjamin Franklin Parkway is closed—a situation that prompts reroutings for both public transit and private vehicles.



Figure 20: Fairmount Street Scene

Source: R. Kennedy for Visit Philadelphia

Relationship to the Benjamin Franklin Parkway:

Most stakeholders noted the cultural and transportation significance of the Benjamin Franklin Parkway, and the longstanding public investment that has been spent creating and maintaining it. A significant portion of the City Branch runs parallel to the Parkway. In some places, the two rights-of-way are less than 500 feet away from each other.

Stakeholders noted that nearly all of the frequently proposed uses for the City Branch (i.e. bus transportation, bicycle facilities, and active recreation) already exist in similar form on the Parkway. Many stakeholders believed that investing in these initiatives in the City Branch would be redundant to similar initiatives on the Parkway, creating unwarranted competition for resources and visitors.

Stakeholders from institutions along the Parkway, in particular, viewed the City Branch as an inferior substitute to the Parkway—both aesthetically and functionally—as a means for promoting and bringing visitors to their institutions.



Figure 21: Benjamin Franklin Parkway View



Figure 22: Existing Parking Lot in Fairmount
Source: Google Street View

Neighborhood Context:

Some stakeholders noted that mixed use development is occurring at a fast rate, especially in portions of Fairmount, Logan Square, and Spring Garden towards the City Branch’s eastern half. Participants suggested that this growing development interest could help mitigate some of the personal safety concerns by providing more “eyes on the street” for any active City Branch use.

Some participants also expressed interest in finding a use that would specifically benefit the Fairmount neighborhood because of its close proximity to the City Branch. A frequent suggestion in this mode was to use the portion of the City Branch between 27th and 30th Streets as parking that could be made available to Fairmount residents.



CHAPTER 3:

EXISTING CONDITIONS

Today's City Branch reflects more than two hundred years of urban history, with diverse architecture and land uses visible from every section of the right-of-way. The City Branch, itself—its retaining walls, its alignment, and the vegetation growing in it—is historically rich.

Similarly, the social and economic indicators in the communities adjacent to the City Branch illuminate several ongoing trends in Philadelphia. Those trends, along with ongoing developments and nearby destinations, help inform decisionmaking on transit uses for the City Branch.

This section of the report will highlight the many assets to, and challenges facing, a transportation reuse for a piece of legacy infrastructure like the City Branch.

Location and Alignment

Physical Description

Beginning at its eastern terminus, the City Branch extends westward from Broad Street at Noble Street to its western terminus at 31st Street and Girard Avenue.

Between Broad and 16th Streets, the City Branch right-of-way is a below-grade cut that has been either covered or fully blocked by buildings, namely, the School District of Philadelphia’s headquarters between Broad and 15th Streets, and parking structures between 15th and 16th Streets.

Continuing westward, between 16th and 20th Streets the City Branch is an “open cut,” sunk approximately 30 feet below street level and open to the sky. The right-of-way’s width in this portion of the City Branch varies between approximately 46 feet and 60 feet.

Between 20th and 21st Streets, the City Branch curves northwestward, running beneath a parking structure and portions of 2001 Pennsylvania Avenue, current home to the Callowhill location of Whole Foods Market. This is the only portion of the City Branch with an extant vehicular access ramp from street level.

Next, the City Branch continues northwestward for half a block through a below-grade, open-air triangular parcel bounded by Hamilton Street, Pennsylvania Avenue, and 21st Street.

The right-of-way then enters a tunnel extending northwest to 27th Street. This segment runs beneath Pennsylvania Avenue, evidenced by the many grate-covered ventilation shafts in the median of Pennsylvania Avenue. The tunnel is a uniform 52 feet wide and approximately 27 feet from the floor to the top of the tunnel’s arched ceiling.

The tunnel ends at 27th Street, and the City Branch continues northwest in a cut condition. The linear profile slopes gently towards street level, and meets street-level grade near the intersection of 30th Street and Pennsylvania Avenue. The City Branch’s grade then levels off while the street grid slopes uphill so that by its western terminus, at 31st Street and Girard Avenue, the City Branch is again below grade. For the portion of the City Branch between 27th and 31st Streets, the right-of-way runs parallel to an active CSX freight rail line.



Figure 23: City Branch Tunnel View

Discarded railroad ties and other debris beneath a ventilation shaft in the City Branch tunnel near 25th Street.



Figure 24: City Branch Looking West Between 19th and 20th Streets.



Figure 25: City Branch Looking West Between 18th and 19th Streets.

Physical Appearance

The City Branch cut and tunnel's physical appearances reflect a rich history, dating back to the 19th century when they were constructed.

The trench is formed by masonry retaining walls roughly 30 feet in height, many of which have been altered to allow direct freight rail access to adjacent properties via sidings.

Likewise, the City Branch's present condition reflects its years of abandonment. Native and invasive vegetation thrives in the open-air portions of the cut. Periodically, graffiti, trash, and makeshift shelters can be seen in the right-of-way.

Physical Condition

A: The City Branch right-of-way (to the left of the tracks) runs parallel to an active CSX freight line near its western terminus.

B: The western entrance to the tunnel, where the City Branch and the CSX line converge.

C: Ventilation shafts provide light in the otherwise dark tunnel.



D: The Philadelphia Police Department uses the area near the City Branch tunnel's eastern entrance as parking for their nearby substation.

E: Vegetation within the open-air portions of the City Branch east of 19th Street.

Figure 26: City Branch Physical Condition



CITY BRANCH CONDITION

-  Covered
-  Open to the sky



City Branch Cross-Sections

A: This open cut section of the City Branch, between 28th and 29th Streets, features a pedestrian overpass, and is adjacent to an active freight rail line.

B: The City Branch tunnel stretches from 27th Street to 22nd Street, running under Pennsylvania Avenue.

C: This open cut section of the City Branch looking east from between 19th and 20th Streets is used for public parking.

D: This portion of the City Branch, between 18th and 19th Streets, is adjacent to Matthias Baldwin Park

E: Between 17th and 18th Streets, the City Branch runs between two parking garages.

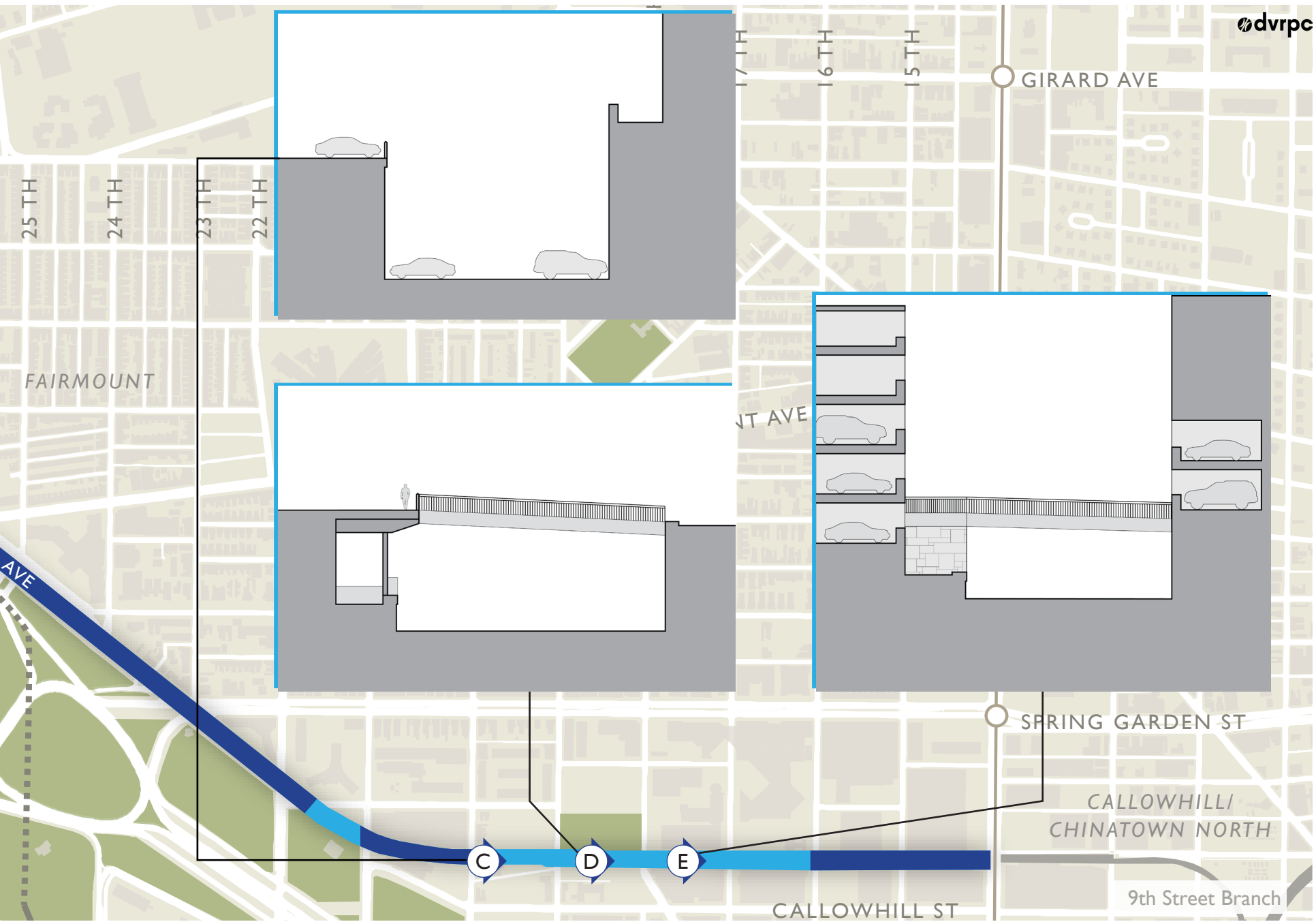
Note: All cross-sections are approximations based on field measurements by the project team.

Figure 27: City Branch Cross-Sections



CITY BRANCH CONDITION

- Covered
- Open to the sky



Ownership

SEPTA owns the majority of the City Branch right-of-way from Broad Street to 31st Street and Girard Avenue. There are, however, several exceptions to SEPTA's ownership, along with some restrictions on its use:

- (A) Conrail sold the portion of the City Branch right-of-way between 16th and Broad Streets prior to SEPTA's 1995 purchase of the rest of the City Branch. That portion of the right-of-way is now owned by the School District of Philadelphia, which uses it as an annex to its headquarters.
- (B) Between 18th and 20th Streets, a lease agreement exists between SEPTA and Rodin Market Partners, allowing Rodin to operate a parking facility within the City Branch cut through 2024.
- (C) SEPTA has a volumetric easement only between 20th Street and the eastern extent of the tunnel. This easement gives SEPTA access to a tube-like linear space, but *not* ground or air rights.

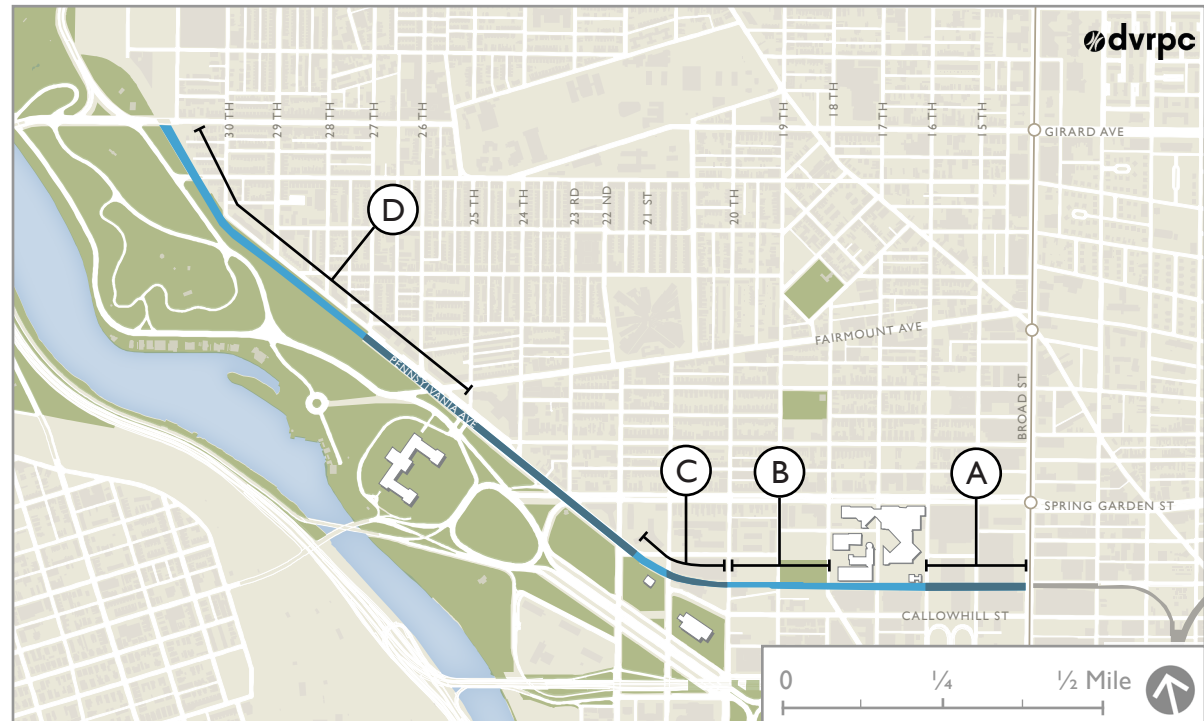


Figure 28: City Branch Ownership
Sources: SEPTA, 2015; DVRPC, 2015

- (D) Between 25th and 31st Streets, the City Branch Tunnel runs parallel to active CSX tracks. Consequently, CSX has a maintenance interest in any proposed use adjacent to its tracks.

In addition to its specific interest in maintenance along Segment D, CSX, as the successor corporation to Conrail, maintains that it holds a contractual right to share all of SEPTA's City Branch right-of-way for freight service, should SEPTA use the City Branch for passenger rail service.

Pedestrian and Bicycle Network



Figure 29: Auto Access to the City Branch
Source: DVRPC, 2014



Figure 30: Pedestrian Crossing the City Branch
Source: DVRPC, 2014

The City Branch crosses a complex network of bicycle and pedestrian facilities and destinations. Nearby destinations (1/4 mile or closer) include cultural institutions, recreational destinations, retail establishments, large residential destinations, educational institutions, and public transit stations—each of which are potential generators of nonmotorized transportation.

Accessibility

Though the City Branch cuts through dense, often walkable portions of Center City Philadelphia, its grade separation means that there are very few opportunities to access it safely and legally. Between Broad and 16th Streets, several of the buildings and parking structures covering the City Branch feature passageways that open into the City Branch cut, but each is presently blocked.

The only legal public access to the City Branch is between 19th Street and mid-block between 20th and 21st Streets, where the cut is used for parking (see Figure 29). Each end of this segment is closed off by chain link fencing. This portion of

the City Branch is accessible to cars via a ramp at 20th Street, and to pedestrians via access doors in the basement levels of 2001 Pennsylvania Avenue, and 2000 Hamilton Street.

A SEPTA-provided chain link fence prevents access to the City Branch tunnel at its eastern extent between 21st and 22nd Streets. There is no access within the tunnel, but minimal light and air circulation is provided by grate-covered shafts in the ceiling, day-lighting in the median of Pennsylvania Avenue. The tunnel is open at its western end, sharing an entrance with an active CSX rail line, which then splits into a separate tunnel.

Finally, the westernmost portion of the City Branch is open to the sky, and gently slopes up towards grade at 30th Street and Pennsylvania Avenue. Here, the alignment parallels the active CSX line, and a worn path indicates frequent pedestrian crossings between the Fairmount neighborhood and Poplar Drive within Fairmount Park (see Figure 30). Accessing the City Branch here is illegal, but not physically prevented.

Pedestrian Network

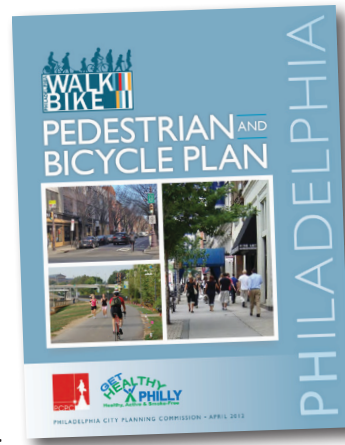
Pedestrian infrastructure near the City Branch is generally robust and high-quality, with some important exceptions. Specifically, Pennsylvania Avenue between 22nd and 26th Streets—running directly above most of the City Branch tunnel—was designated a Pedestrian Priority Area in the *City of Philadelphia Bicycle and Pedestrian Plan* (2012). That plan’s recommendations call for improved pedestrian signals, shorter crossing distances, curb extensions, and enhanced signage to ensure pedestrian safety—particularly at complex, multidirectional intersections along Pennsylvania Avenue.

Likewise, the Benjamin Franklin Parkway, just to the south of the City



Branch, presents several challenges to pedestrians. The PennPraxis report, *More Park, Less Way: an Action Plan to Increase Urban Vibrancy on the Benjamin Franklin Parkway* (2013), identified several issues that negatively impact pedestrians on and around the Parkway. Among those issues were long crosswalks, narrow sidewalks, and an auto-oriented scale. Moreover, *More Park, Less Way* noted that many of the land uses adjacent to the Parkway (i.e. museums and open space) are not conducive to full-time pedestrian activity.

Within the City Branch itself, the pedestrian environment is generally challenging. Only the publicly accessible portion between 19th and 22nd Streets is paved. East of that area, the cut is overgrown with vegetation, and in the tunnel, rough crushed stone, railroad detritus, and darkness make walking difficult.



Bicycle Network

The City Branch also passes close to several critical components of Philadelphia’s bicycle network (see Figure 31). The Schuylkill River Trail, the city’s premier multi-use trail, runs roughly parallel to most of the City Branch right-of-way.

The City Branch is also near several notable on-street bicycle facilities. The Spring Garden Street and Fairmount Avenue bike lanes are among the most heavily used in Philadelphia, providing key east-west links in the city’s on-street network.

Twenty-second Street features a partially implemented bike lane that makes a crucial north-south on-street network connection. Pennsylvania Avenue, running above the City Branch tunnel, also features bike lanes in each direction.

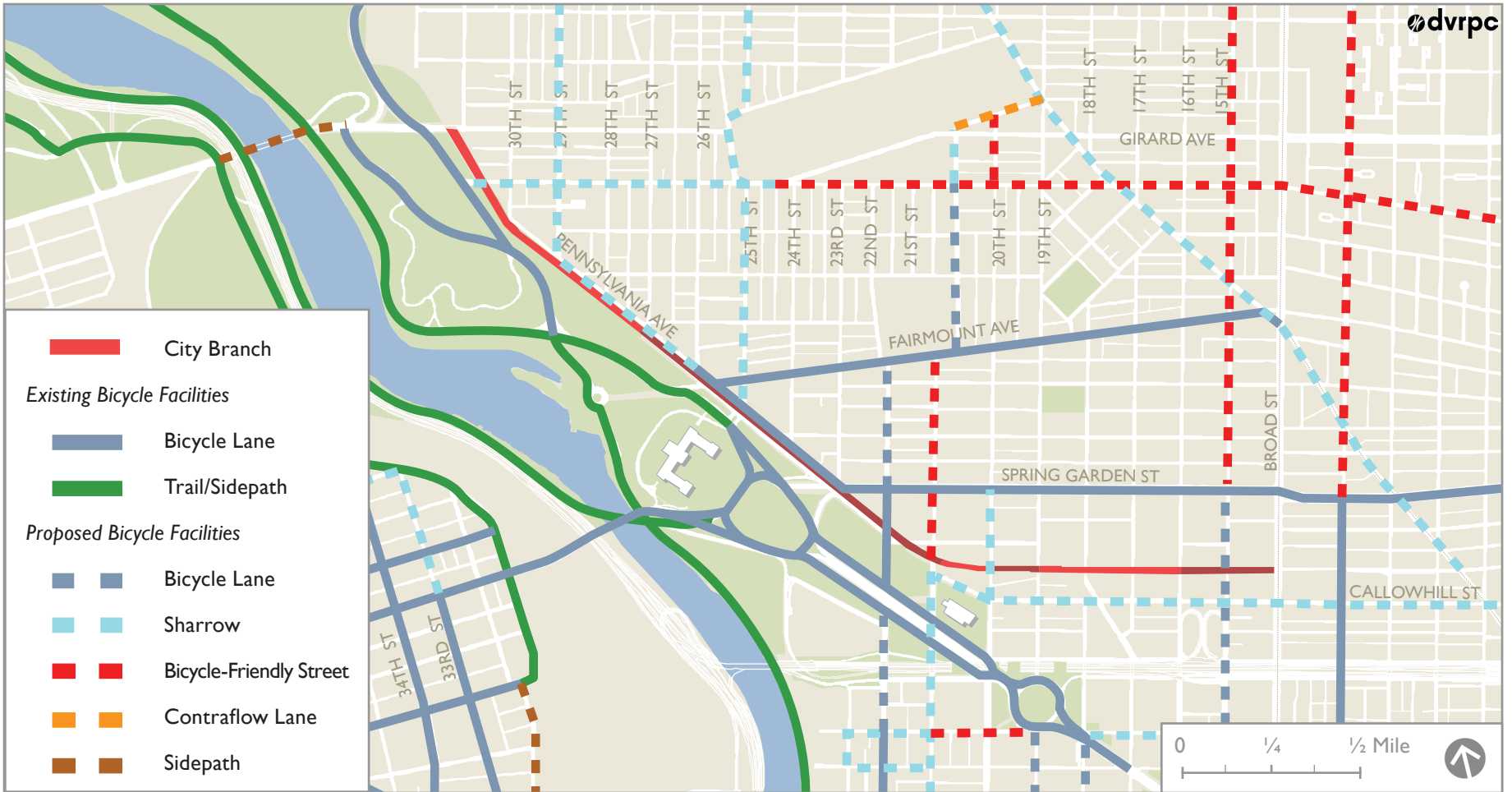


Figure 31: Existing and Proposed Bicycle Facilities Near the City Branch
 Sources: Philadelphia City Planning Commission, 2012; DVRPC, 2014

Public Transit Context

The City Branch is situated near numerous public transit routes (see Figure 32). The most prevalent form of transit serving the area is SEPTA bus service, with eight primary routes passing near the City Branch.

Each terminus of the City Branch right-of-way is located near fixed-rail transit: the Broad Street Line in the east, and the Route 15 trolley in the west. Neither of these routes passes at the same grade as the City Branch, though, meaning a direct connection would require a new transition between services.

The eastern end of the City Branch is approximately 700 feet from the Spring Garden station on the Broad Street Line, and would require extensive construction to facilitate a pedestrian transfer. At its western end, the City Branch is only 50 feet from the 31st and Girard stop on the Route 15 trolley. Here, a pedestrian transfer could be accomplished with stairs, elevators, ramps, and other station infrastructure.

The City Branch is also located within a half mile of SEPTA Regional Rail service at Suburban Station. The nearest Amtrak service is located about two-thirds of a mile away, at 30th Street Station, which also hosts Regional Rail service.

Transit Routes Near the City Branch

Bus Route 2: 20th-Johnson to Pulaski-Hunting Park

Serving: South Phila., Center City, and North Phila.

Bus Route 7: Pier 70 to 33rd-Dauphin

Serving: South Phila., Center City, and North Phila.

Bus Route 27: Broad-Carpenter to Plymouth Meeting Mall

Serving: Center City, Manayunk, Roxborough, and Barren Hill

Bus Route 32: Broad-Carpenter to Ridge-Lyceum

Serving: Center City, Manayunk, and Roxborough

Bus Route 33: Penn's Landing to 23rd-Venango

Serving: Center City and Tioga

Bus Route 38: 5th-Market to Wissahickon Transportation Center

Serving: Parkway Attractions, Please Touch Museum, and Mantua

Bus Route 43: Richmond-Cumberland to 50th-Parkside

Serving: Northern Liberties, Fairmount, Powelton Village, and Mantua

Bus Route 48: Front-Market to 27th-Allegheny

Serving: Center City and North Philadelphia

Market-Frankford Line: Frankford Transportation Center to 69th Street Terminal

Serving: Center City

Broad Street Line: AT&T Station to Fern Rock Transportation Center

Serving: Center City

Route 15 Trolley: 63rd-Girard to Richmond-Westmoreland

Serving: Haddington and Port Richmond

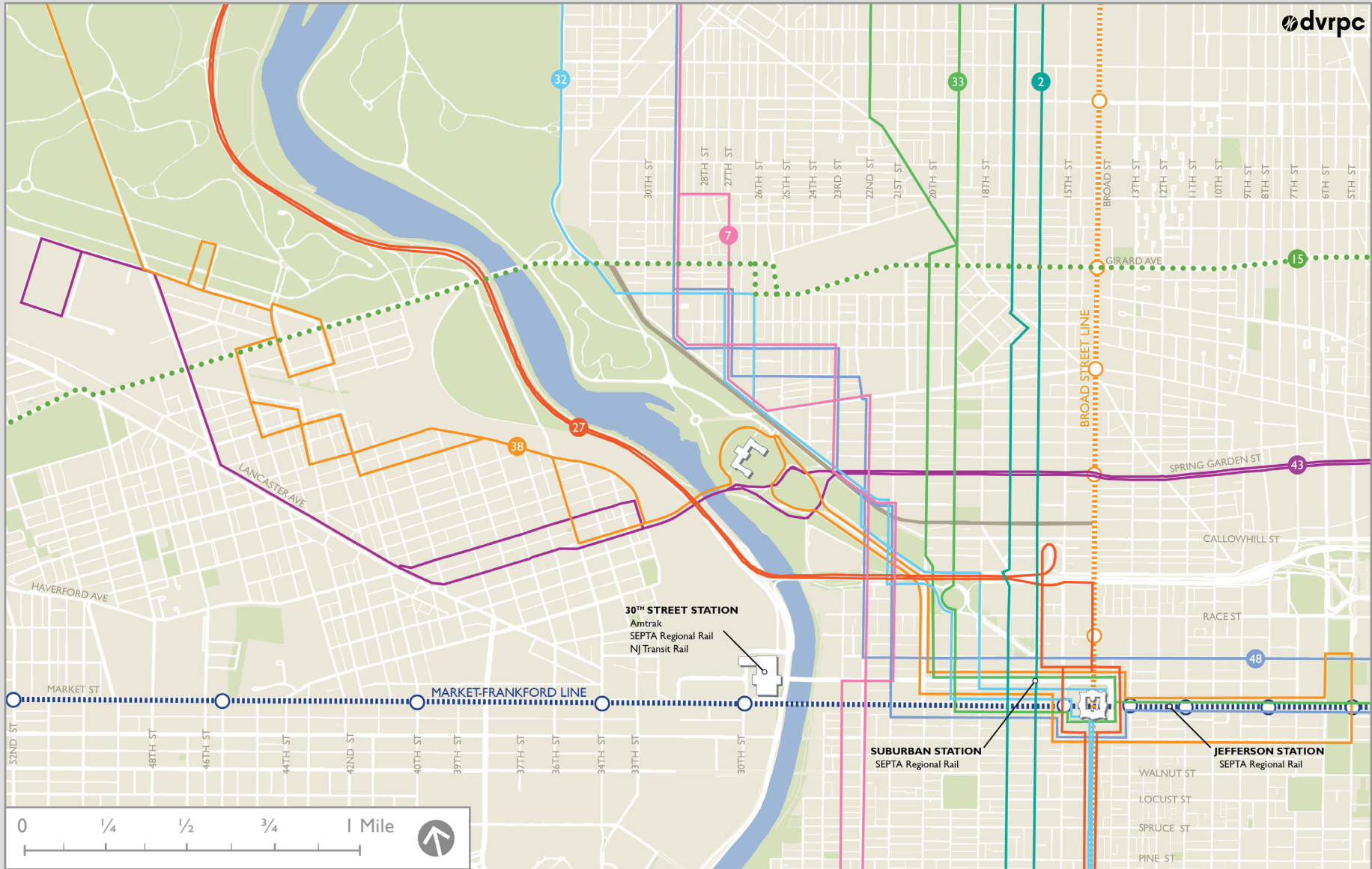


Figure 32: Transit Routes Near the City Branch

Sources: SEPTA, 2014; DVRPC, 2014

Tourist Transit and Private Shuttles

Several routes serve tourist and specialty destinations near the City Branch (see Figure 33):

PHLASH is a seasonally operated route (May-December) that serves popular tourist and cultural attractions in Center City and West Philadelphia. The \$2-per-ride service offers direct access to attractions along with hands-on guidance from drivers

not commonly found on standard public transit. PHLASH service runs in two loops, the Downtown Loop, and the less-frequently-operated Zoo and Please Touch Museum Loop. PHLASH service operates between 10:00 AM and 6:00 PM, with evening service during special events and holidays.

In addition to PHLASH, SEPTA promotes Bus Route 38 for service to tourists because

its route passes by many tourist attractions, including West Fairmount Park, Parkway museums, City Hall, and Old City.

Additionally, large residential complexes—including the Philadelphian, Park Towne Place, and 2601 Parkway—operate shuttles between their properties and various destinations, primarily in Center City.



Figure 33: Tourist Routes and Destinations

Sources: SEPTA, 2014; Visit Philadelphia, 2014; Parkway Council Foundation, 2014

Land Use Context

The City Branch passes through a diverse set of neighborhoods that impact its reuse potential (see Figure 34).

In the west, the City Branch begins at the end of the West Girard Avenue commercial corridor, before passing to the south of Fairmount’s two- to three-

story rowhouses. To the south, the right-of-way passes the southernmost portion of Fairmount Park, with several recreational and civic uses.

Between 23rd and 19th Streets, commercial density begins to increase. Several apartment buildings along with medium-

density commercial uses make up a mixed-use corridor centered on Callowhill Street.

East of 19th Street, the City Branch is adjacent to more public and civic institutions. Most prominently, the Community College of Philadelphia flanks the City Branch cut between 16th and 18th Streets. In addition, Matthais Baldwin park, between 18th and 19th Streets, directly overlooks the City Branch cut.

The City Branch’s eastern terminus is adjacent to the Inquirer Building, a high-profile space on the North Broad Street corridor.

Other areas that are not adjacent to the City Branch, but could impact its reuse potential are:

- western Center City about half-a-mile to the south, the region’s largest employment center;
- Brewerytown and Strawberry Mansion to the north, residential neighborhoods with high vacancy rates; and
- the Centennial District’s residential and cultural destinations on the west side of the Schuylkill River.

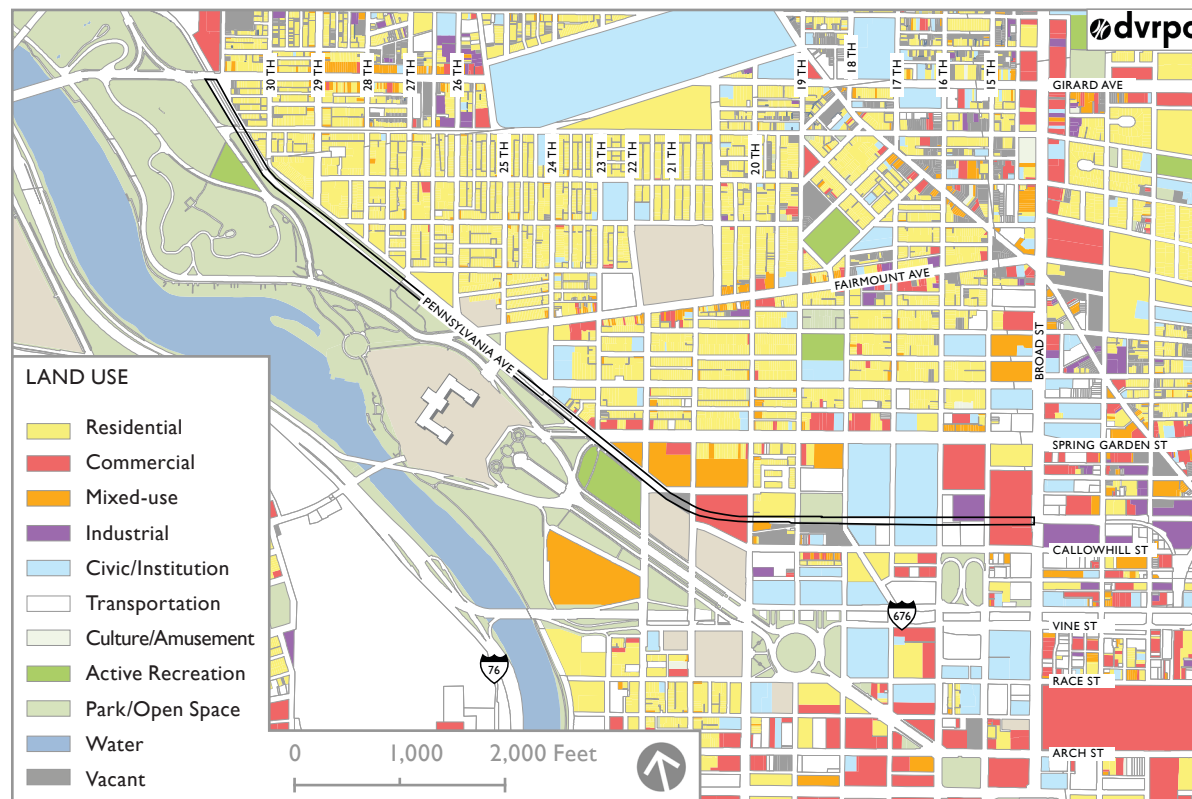


Figure 34: Land Use Context

Commuting Context

Neighborhood Patterns

Economic and demographic data for the neighborhoods near the City Branch offer some insight into its potential for transit reuse.

The neighborhoods closest to the Center City core, Spring Garden, Logan Square, and Callowhill/Chinatown North, (see Figures 38–40) have comparatively high rates of transit and nonmotorized commuting. Just over 40% of Spring Garden and Logan Square residents, and under 30% of Callowhill/Chinatown North residents commute by car. These neighborhoods are near large centers of employment, and generally have access to abundant transit options. In each of these neighborhoods, a relatively high percentage—roughly 30%—of residents work in Center City.

Conversely, Center City is a less common commute destination for residents in Brewerytown, Mantua, East Parkside, and Powelton Village (see Table 3 and Figures 37 and 41–43). Transit use as a share of commute modes varies between these neighborhoods—likely in response to economic characteristics, but also in response to varying transit options. Of

these communities, only Powelton Village has easy access to rapid transit service, in the form of the Market-Frankford Line.

One interesting outlier in the commute data is Fairmount. Fairmount residents work in Center City at roughly the same rate as their counterparts in Spring Garden, Logan Square, and Callowhill/Chinatown North, but, unlike residents of those neighborhoods, over 50% of Fairmount residents commute by car (see Figure 38).

These high auto commute figures may reflect high rates of reverse commuting owing to a dispersed job market in the Greater Philadelphia region, but may also be tied to a lack of rapid transit options within the selected Census tracts. In Fairmount, in particular, the high auto commute rate in spite of the high percentage of workers who commute to Center City suggests that a lack of high-quality transit options may be hindering residents’ desire to use transit in their commutes.

Mode	Rate
Car	60.0%
Transit	25.9%
Bus/Trolley*	18.7%
Bike	1.7%
Walk	8.6%
Home	2.7%
Other	1.1%

* “Bus/Trolley” is included within “Transit,” but expressed as a percentage of all modes.

Source: U.S. Census, ACS 5-year Estimates 2007-2011

Neighborhood	Rate
Callowhill/Chinatown North	28%
Logan Square	32%
Spring Garden	29%
Fairmount	27%
Brewerytown	21%
Powelton Village	9%
Mantua	19%
East Parkside	16%

Source: U.S. Census, ACS 5-year Estimates 2007-2011

Neighborhood Profiles

As part of the existing conditions research for this report, the project team gathered demographic and Journey to Work data for the eight Philadelphia neighborhoods shown below. In order to best match this data to neighborhood geography, the neighborhood boundaries used to conduct this analysis are approximations based on Census tracts. Data for each neighborhood profile was pulled from the American Community Survey, 2007-2011 Five Year Estimate.

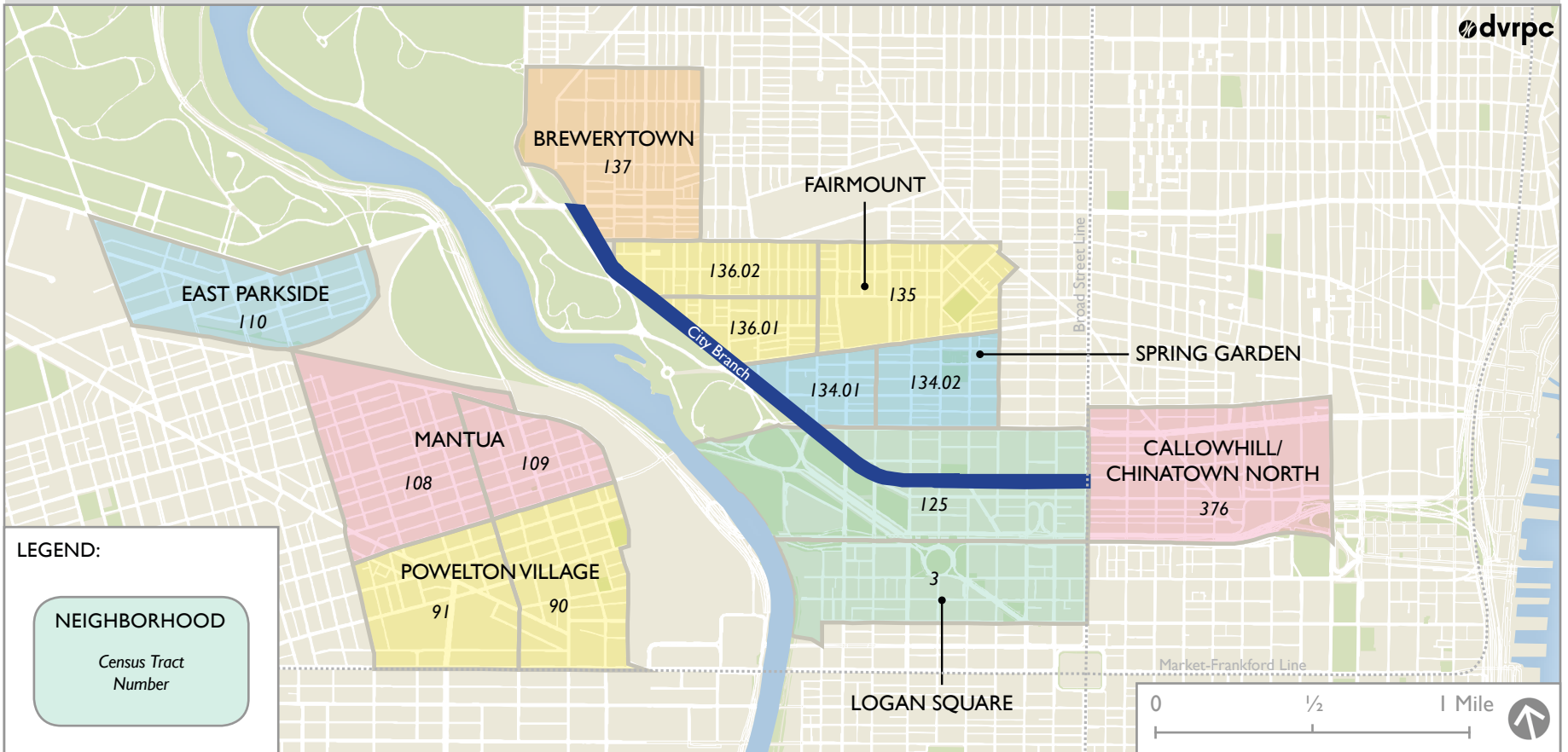


Figure 35: Neighborhood Profiles

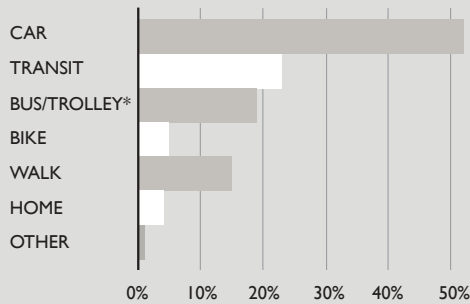
NEIGHBORHOOD PROFILE: FAIRMOUNT

Population: 9,593
Workforce: 5,470
Housing Units: 4,820
Households: 4,273
Owner-Occupied: 65%
Renter-Occupied: 35%

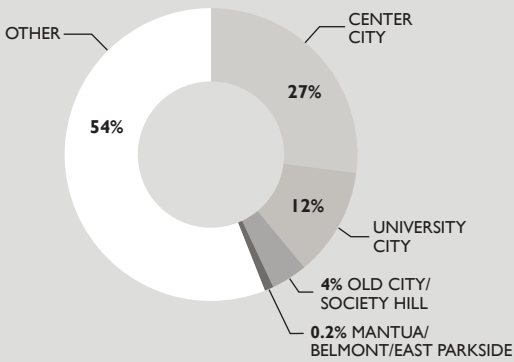
Selected Transit Lines



Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

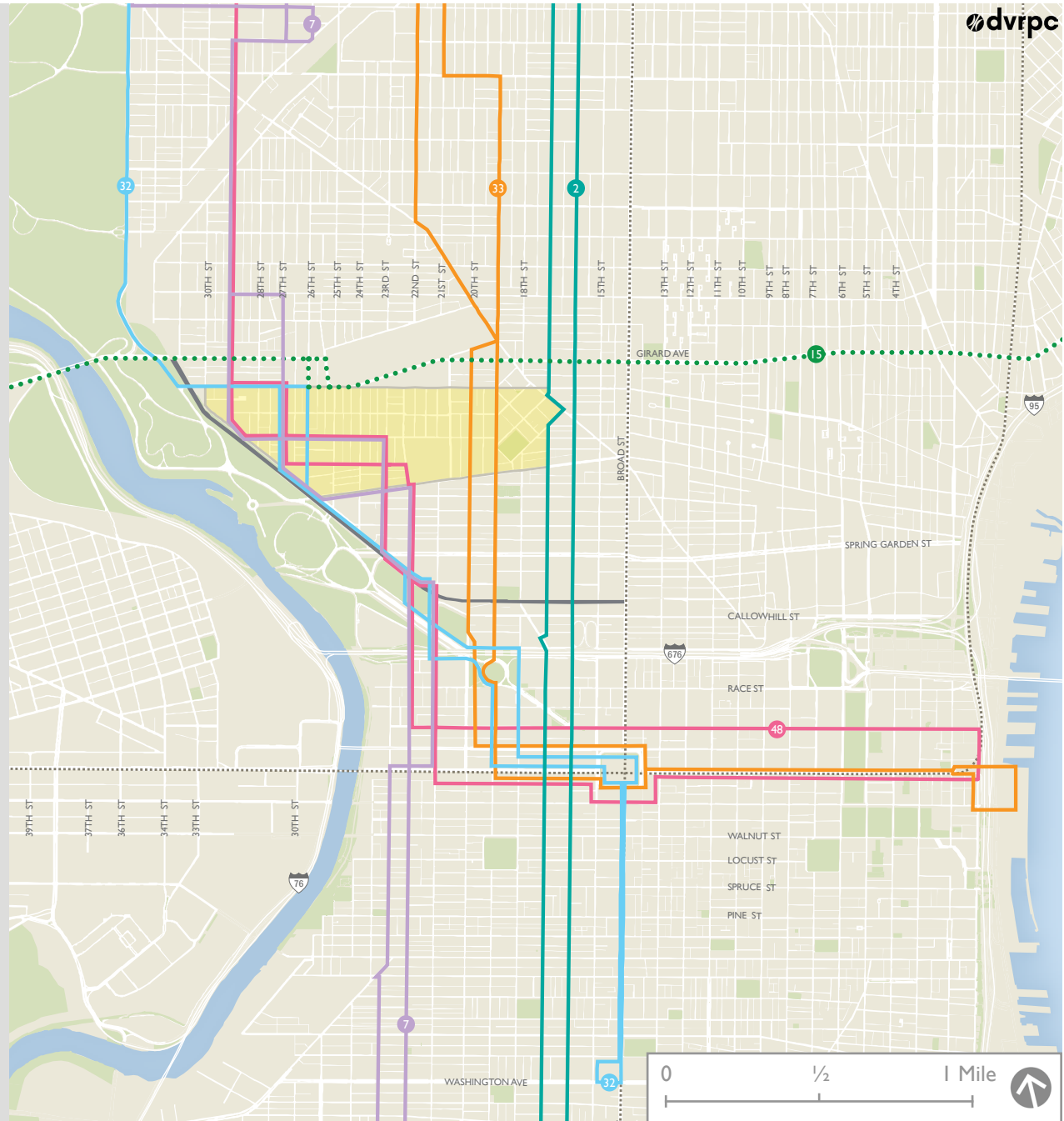
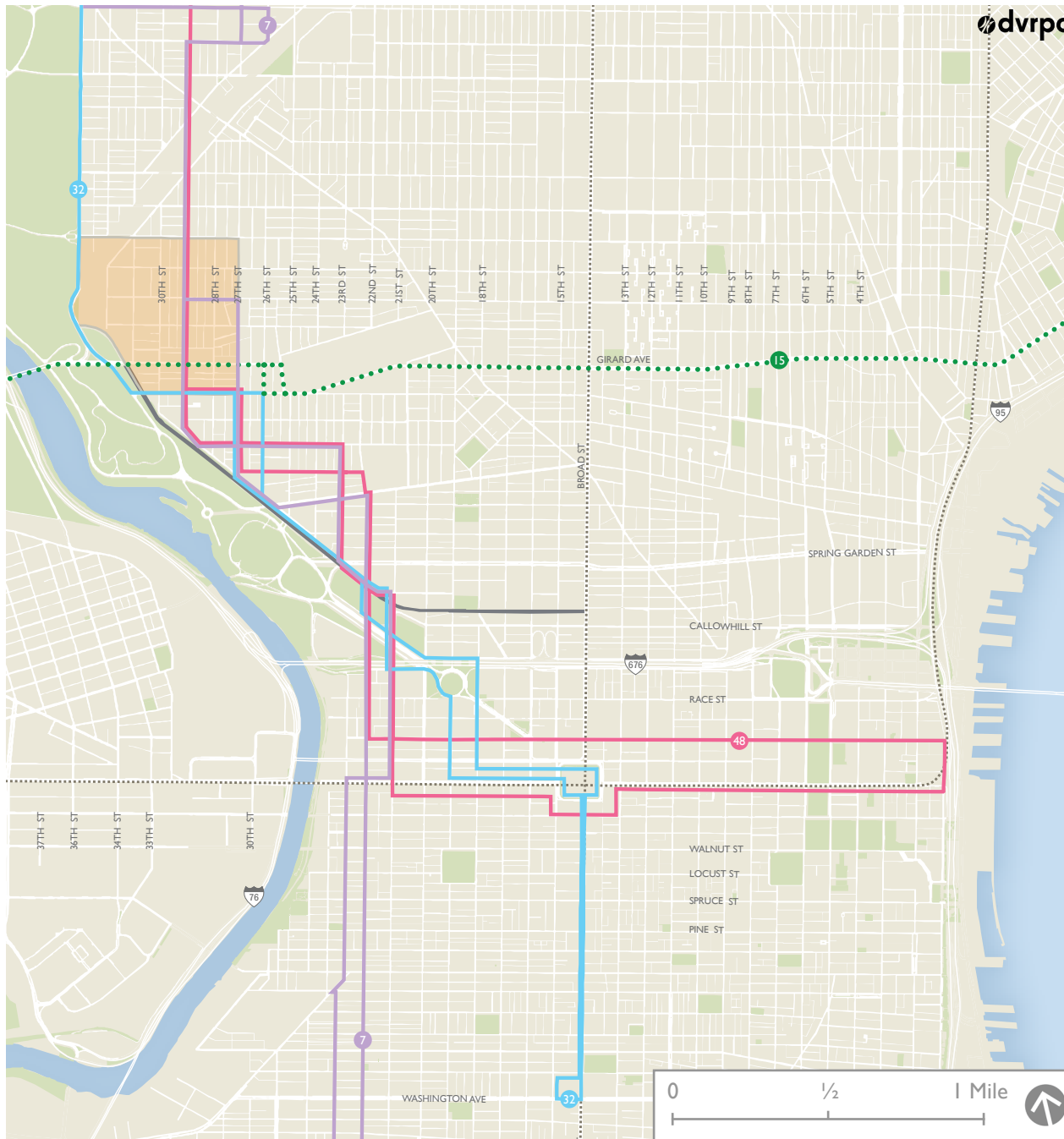


Figure 36: Neighborhood Profile: Fairmount



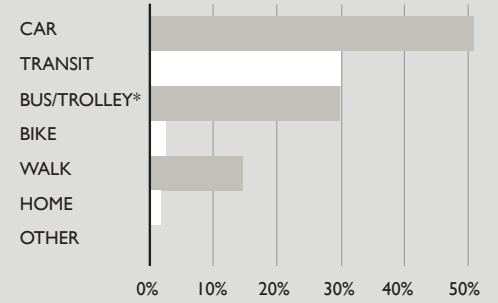
NEIGHBORHOOD PROFILE:
BREWERYTOWN

Population: 4,462
Workforce: 1,384
Housing Units: 2,613
Households: 1,724
Owner-Occupied: 56%
Renter-Occupied: 44%

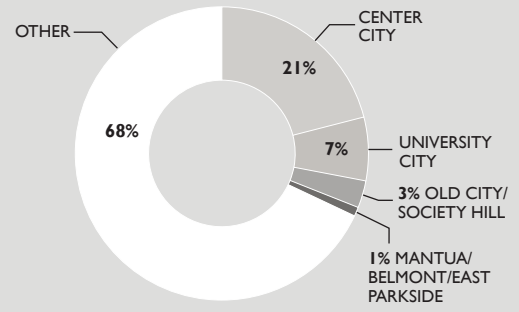
Selected Transit Lines



Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

Figure 37: Neighborhood Profile: Brewerytown

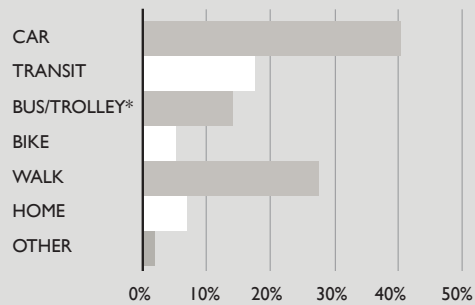
NEIGHBORHOOD PROFILE:
SPRING GARDEN

Population: 5,210
Workforce: 3,253
Housing Units: 3,170
Households: 2,900
Owner-Occupied: 55%
Renter-Occupied: 45%

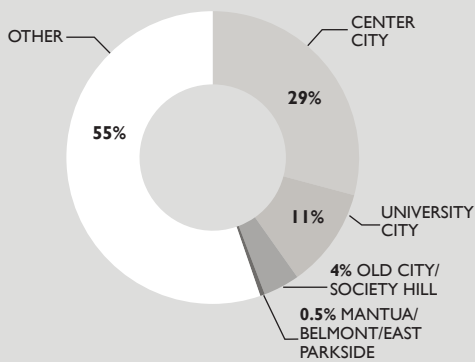
Selected Transit Lines



Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

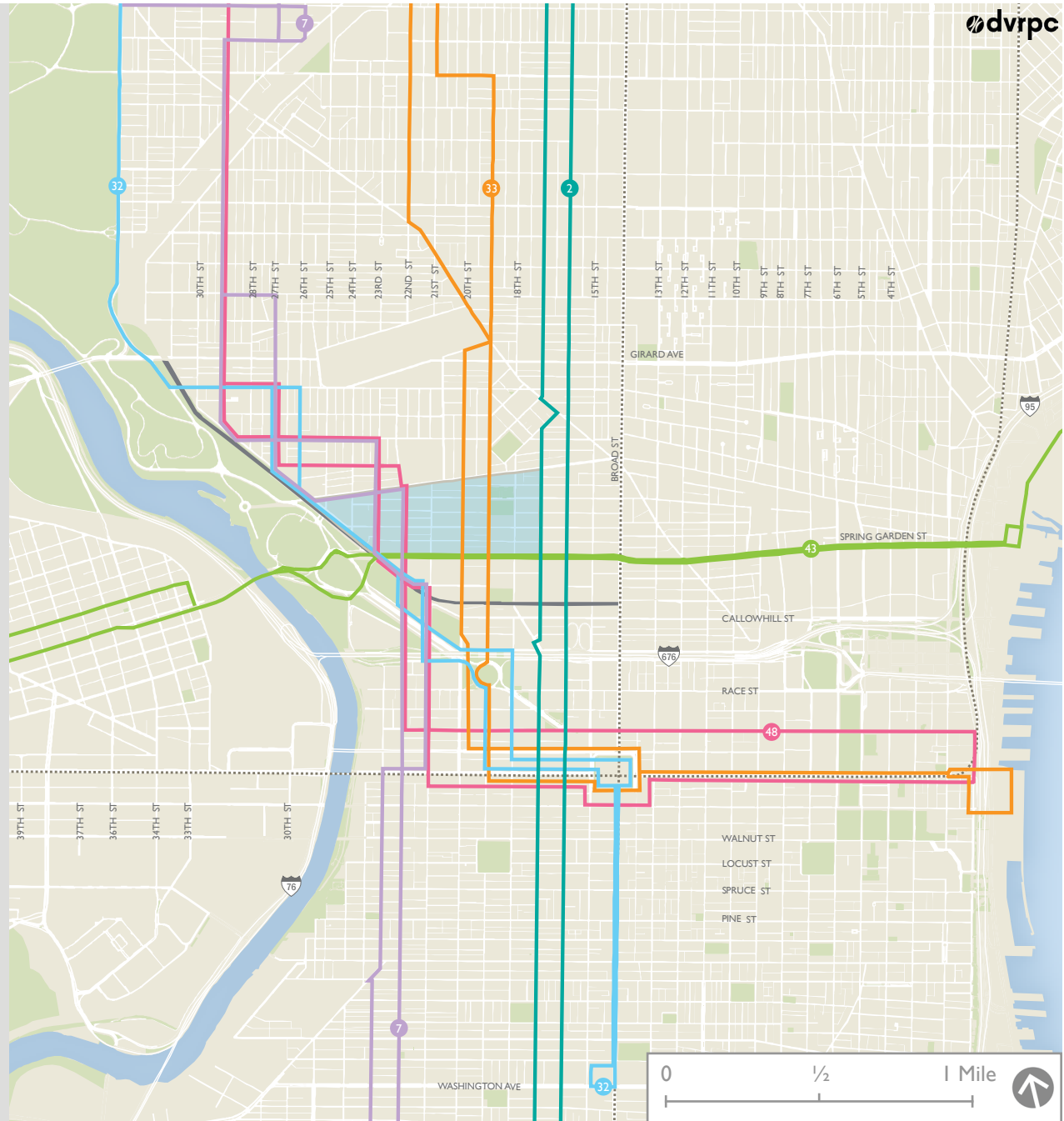
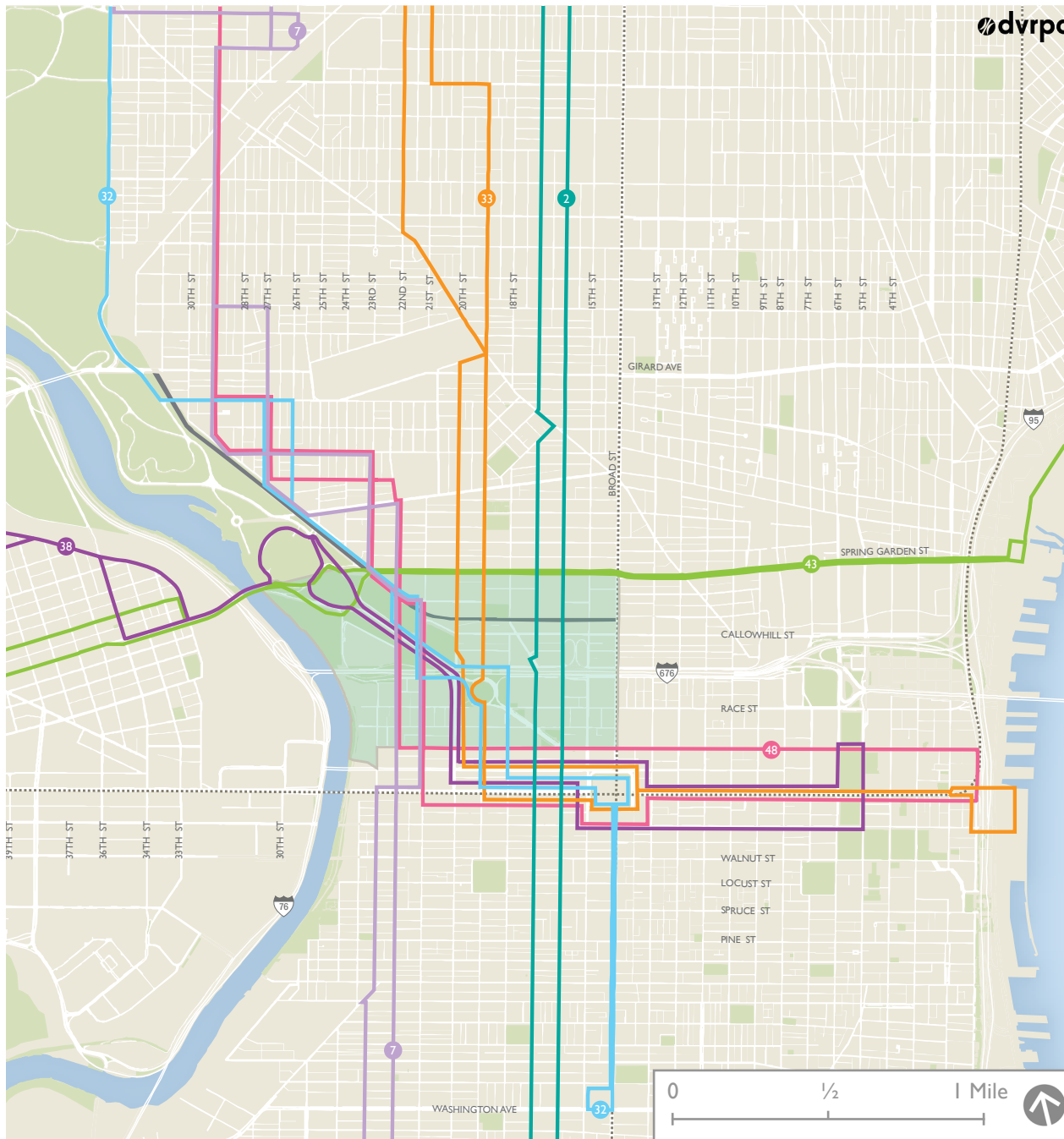


Figure 38: Neighborhood Profile: Spring Garden



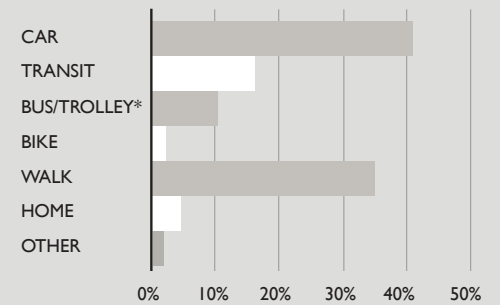
NEIGHBORHOOD PROFILE: LOGAN SQUARE

Population: 7,519
Workforce: 4,551
Housing Units: 5,207
Households: 4,557
Owner-Occupied: 17%
Renter-Occupied: 83%

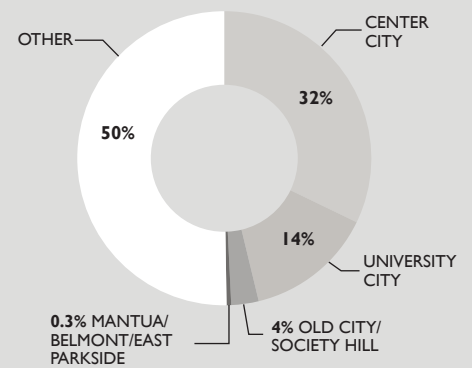
Selected Transit Lines



Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

Figure 39: Neighborhood Profile: Logan Square

NEIGHBORHOOD PROFILE:

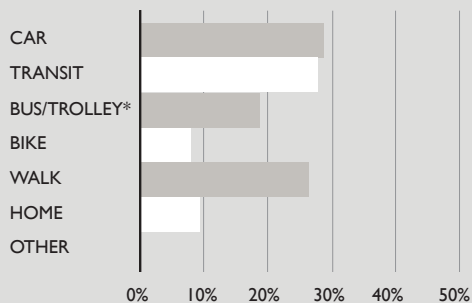
CALLOWHILL/ CHINATOWN NORTH

Population: 1,944
Workforce: 1,011
Housing Units: 1,154
Households: 904
Owner-Occupied: 24%
Renter-Occupied: 76%

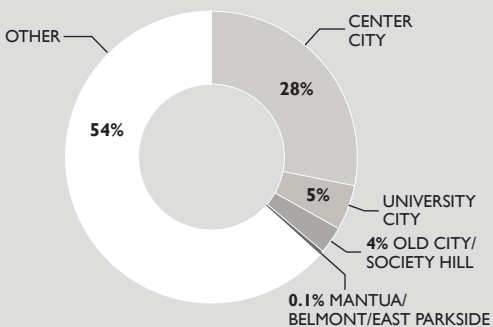
Selected Transit Lines

43 **BSL**

Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

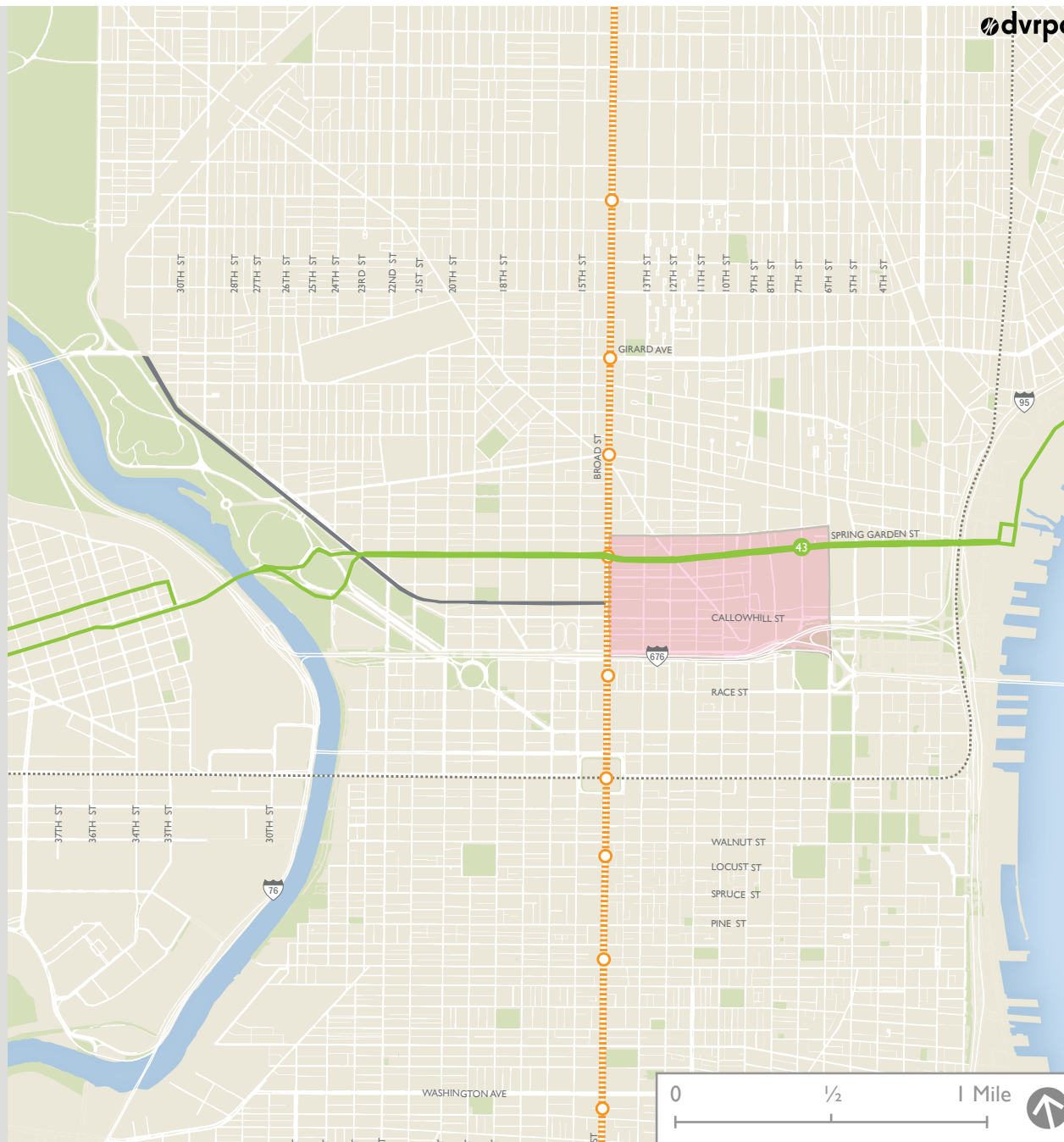
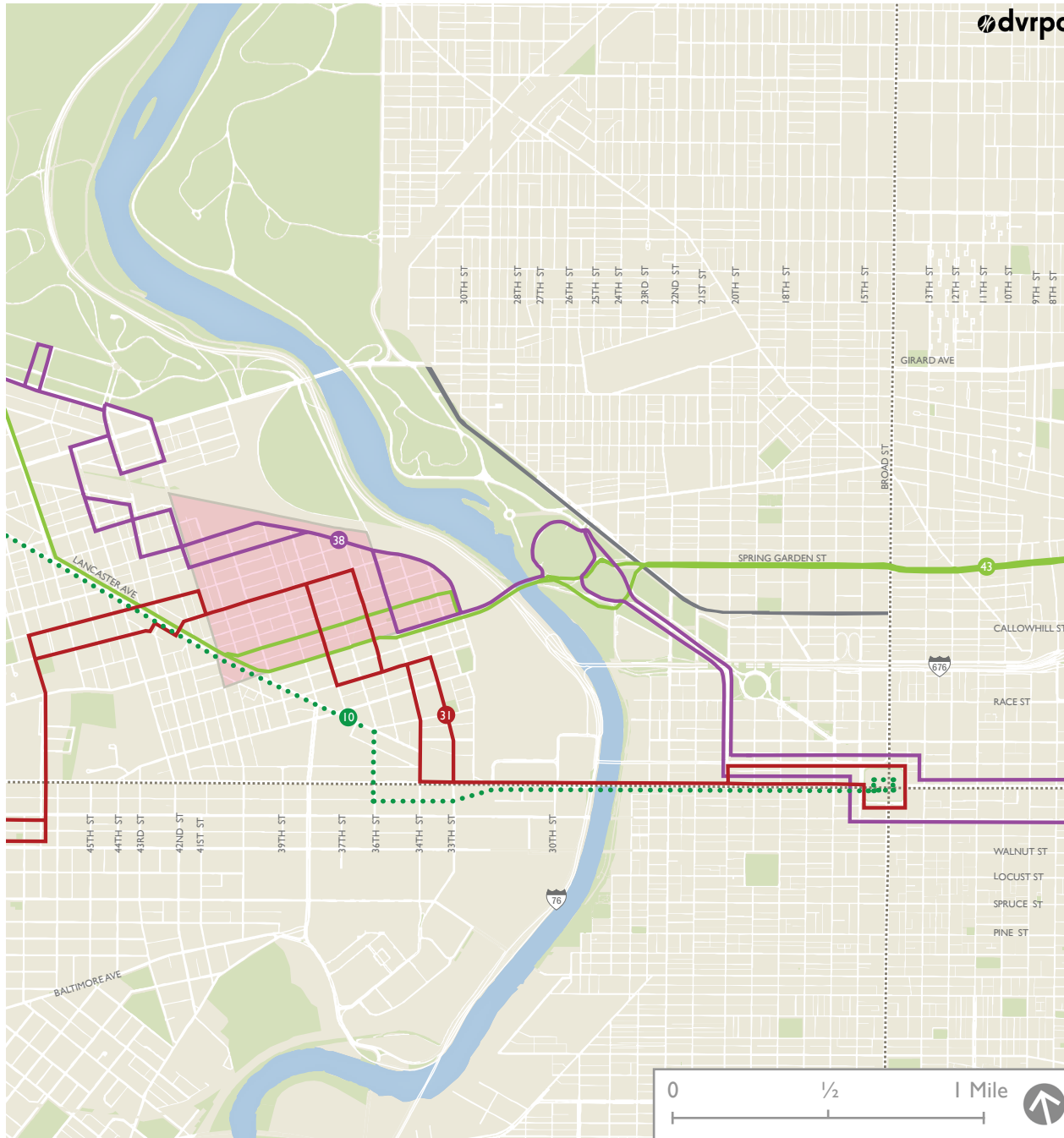


Figure 40: Neighborhood Profile: Callowhill/Chinatown North



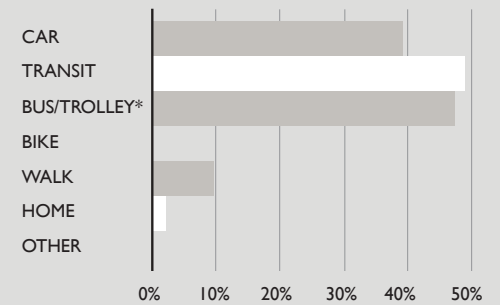
NEIGHBORHOOD PROFILE:
MANTUA

Population: 5,603
Workforce: 1,348
Housing Units: 2,933
Households: 2,143
Owner-Occupied: 31%
Renter-Occupied: 69%

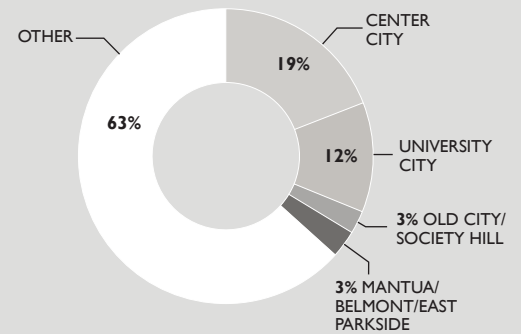
Selected Transit Lines

10 31 38 43

Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

Figure 41: Neighborhood Profile: Mantua

NEIGHBORHOOD PROFILE:

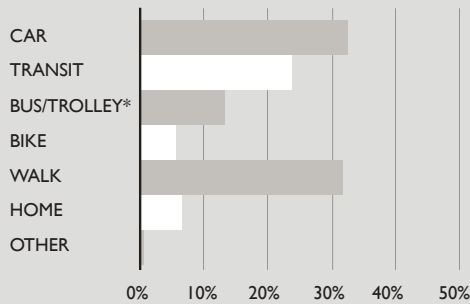
POWELTON VILLAGE

Population: 7,201
Workforce: 2,772
Housing Units: 2,902
Households: 2,435
Owner-Occupied: 16%
Renter-Occupied: 84%

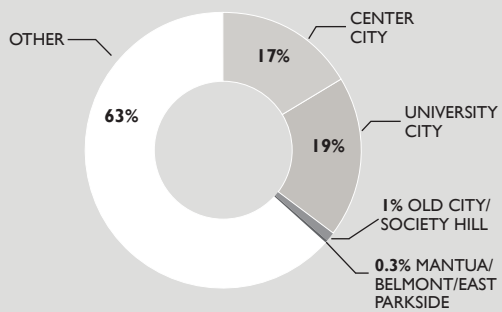
Selected Transit Lines



Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

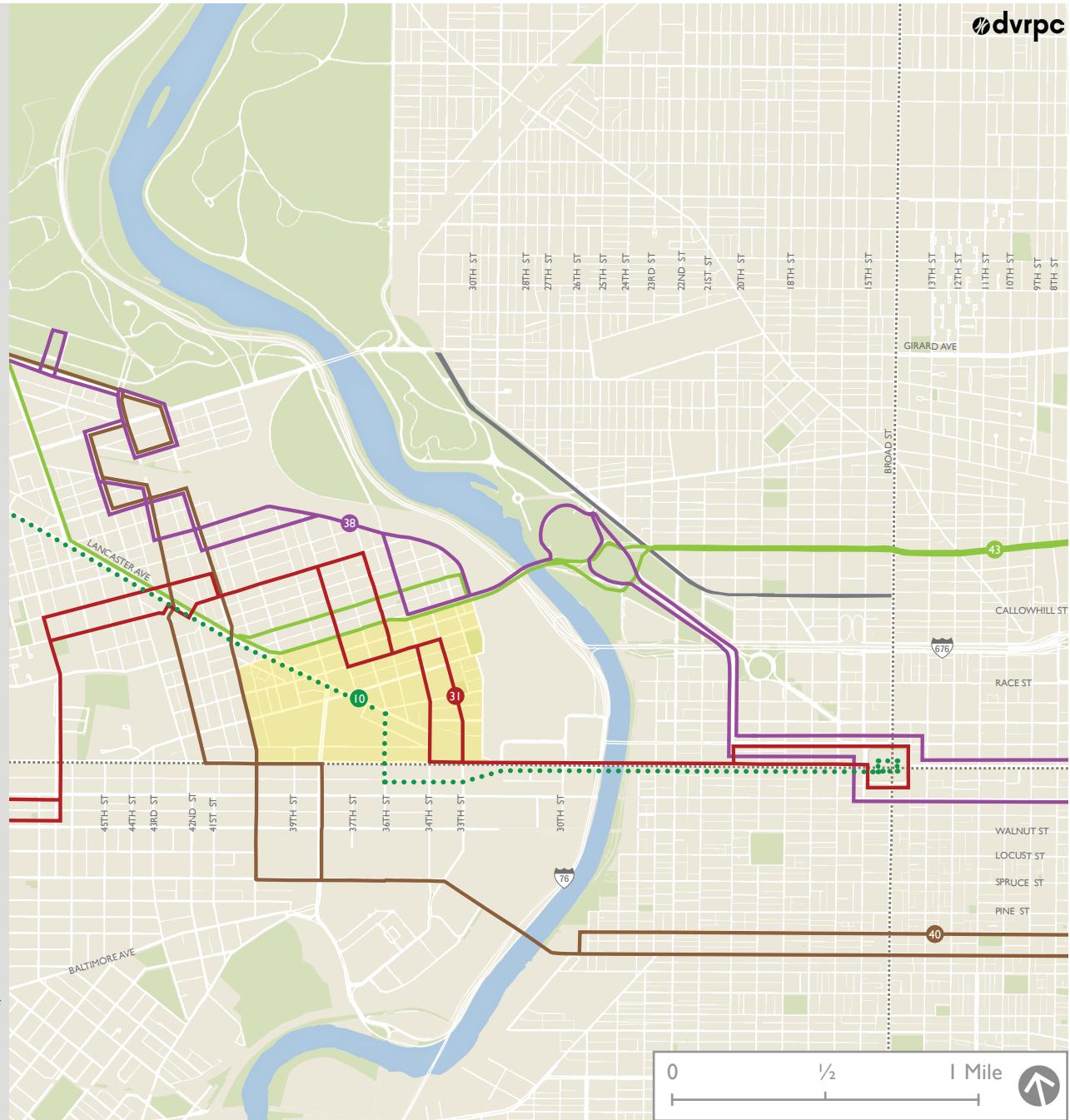
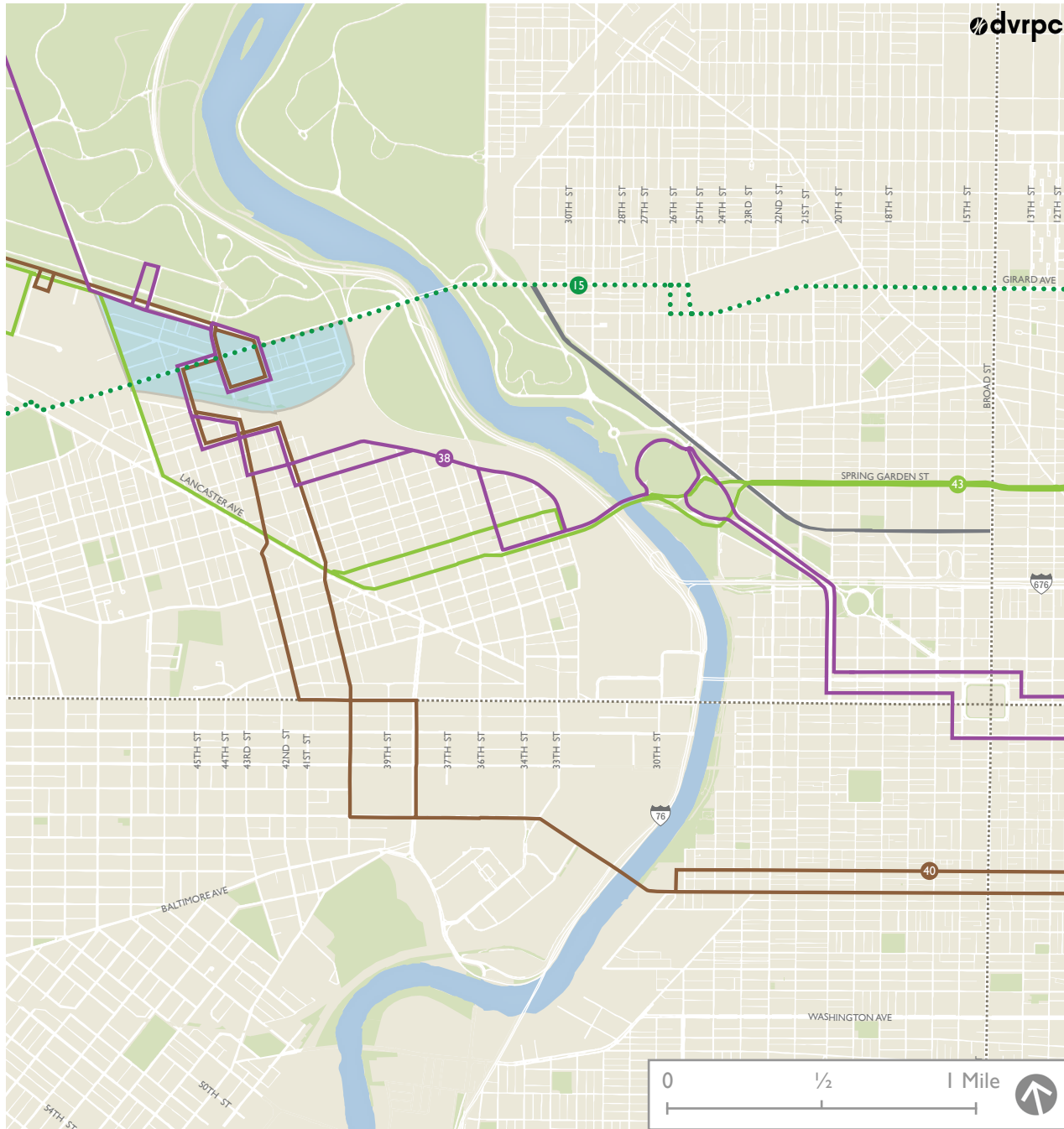


Figure 42: Neighborhood Profile: Powelton Village



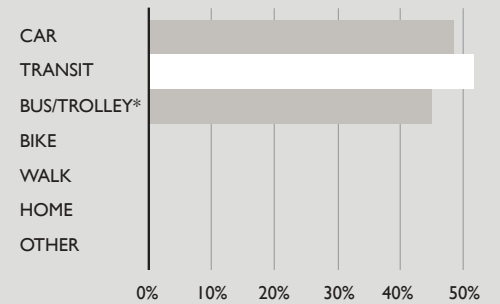
NEIGHBORHOOD PROFILE:
EAST PARKSIDE

Population: 3,410
Workforce: 1,156
Housing Units: 1,902
Households: 1,309
Owner-Occupied: 39%
Renter-Occupied: 61%

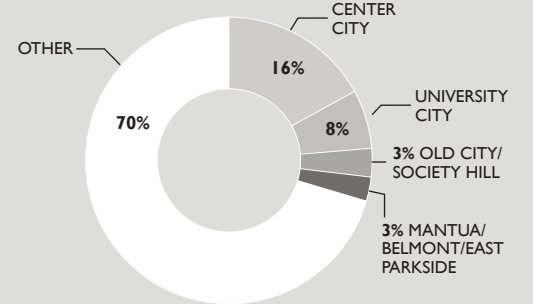
Principal Transit Lines

15 38 40 43

Journey to Work



Employment Destinations



* "Bus/Trolley" is included within "Transit," but expressed as a percentage of all modes.

Source: U.S. Census Bureau: American Community Survey (2007-2011); Longitudinal Employer-Household Dynamics (2010)

Figure 43: Neighborhood Profile: East Parkside

A photograph of a weathered stone wall, likely made of dark, rough-hewn stones. The wall shows signs of age and wear, with some white residue or paint on the surface. In the foreground, there is a pile of dark, charred wood and debris, suggesting a site of demolition or a construction site. The lighting is somewhat dim, highlighting the textures of the stone and wood.

CHAPTER 4:

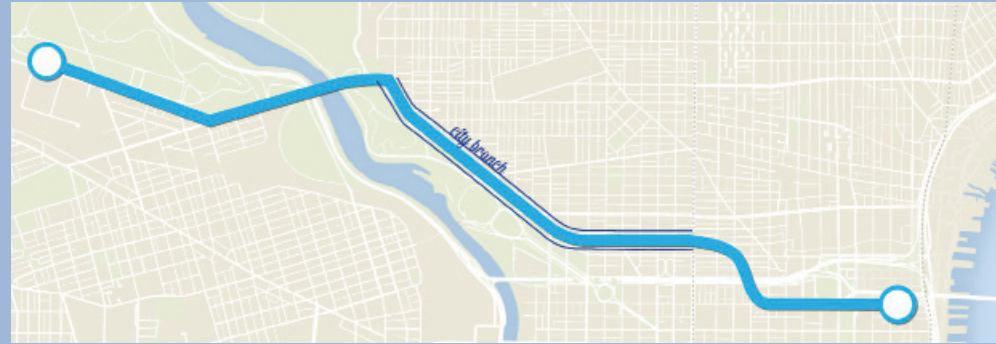
CONCEPTS + ANALYSIS

This report seeks to identify and assess existing proposals for reuse of the City Branch. Because of the diversity of these proposals, the DVRPC project team used a multifaceted approach to evaluate their feasibility.

Analysis for this report's three main concepts (detailed on page 52) is conducted according to each proposal's unique characteristics. Analysis of the Cultural Corridor, for example, takes a conceptual feasibility approach, seeking to understand the merits of that concept in general. Alternatively, the Express Bus Service concept is evaluated in terms of transit operations feasibility. The report then considers the Combined Busway and Trail concept's physical feasibility.

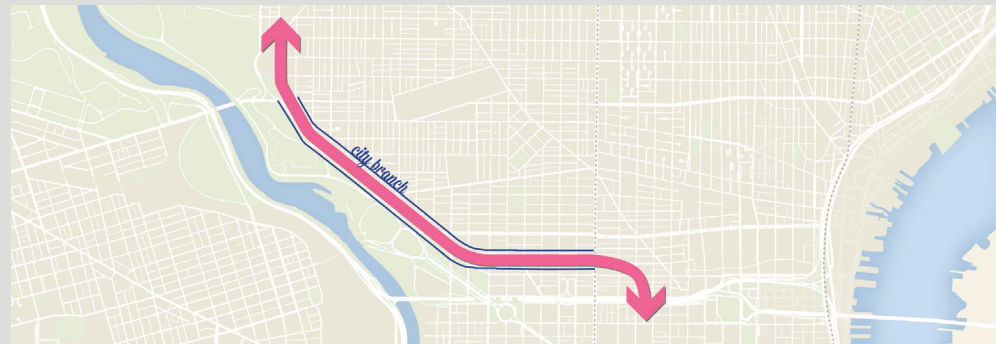
Cultural Corridor

Based on PCPC's recommendations, this scenario calls for a new bus route serving tourist and cultural destinations using the City Branch right-of-way. This analysis focuses on the Cultural Corridor's operational merits, its potential capital costs, and general assessments of tourism-based transit service in Philadelphia.



Express Bus Service

In this scenario, existing SEPTA bus routes are proposed for rerouting using the City Branch right-of-way. This portion of the analysis covers selection of appropriate bus routes, evaluations of potential time and operations cost savings, and potential capital costs.



Transit + Trail

Recognizing public enthusiasm for more active public uses within the City Branch, this scenario pairs a busway with a trail. The analysis covers potential physical layout, appropriate conditions for pairing the trail and busway portions of the concept, and potential capital costs.

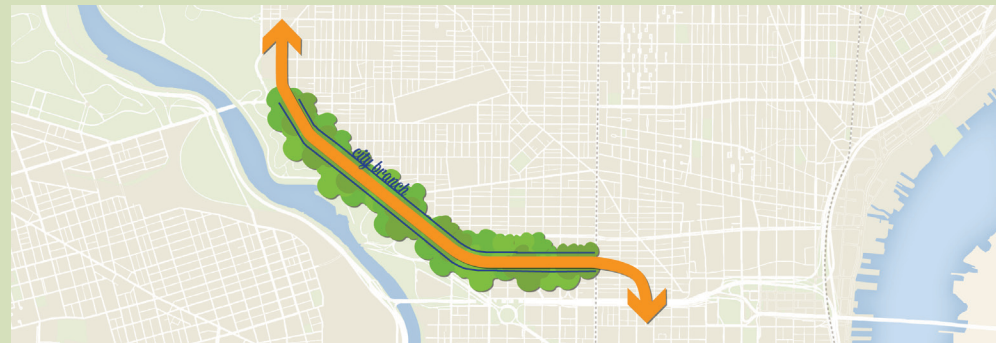


Figure 44: City Branch Concepts: Concepts + Analysis

Dimensions

Cost Estimate Methodology

Each City Branch concept presented in this report includes rough, order-of-magnitude cost estimates for its associated capital improvements.

These estimates were prepared in collaboration with SEPTA's Engineering and Long Range Planning staff. The estimates identify costs associated with each concept's typical runningway, along with exclusions—costs that are likely to be necessary, but are not possible to calculate with accuracy at this conceptual stage.

Cost estimates were presented to DVRPC staff in 100-linear-foot increments for both open-cut and tunnel sections based on each proposed use. (Sections of the City Branch where buildings exist over air rights are calculated as open-cut sections.)

Each concept's cost estimate is calculated by identifying the length of the concept's runningway for both tunnel and cut portions of the alignment. (See Figure 45 and Table 4 for an overview of the City Branch's linear measurements.) SEPTA's per-100-linear-foot cost estimates are then applied to each concept's length. Baseline project costs, and costs for any stations are then added to arrive at a concept cost estimate.

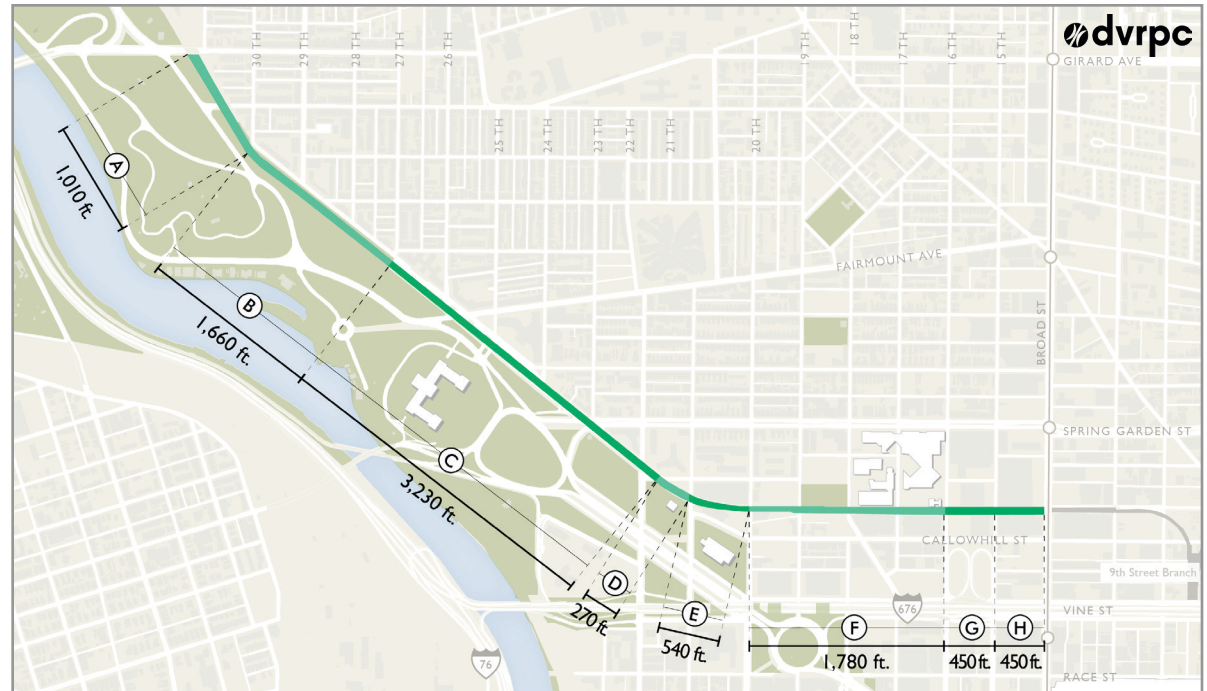


Figure 45: City Branch Dimensions

Table 4: City Branch Dimensions		
Label	Linear Distance	Condition
A	1,010 ft.	Open-air, below grade, alongside CSX tracks
B	1,660 ft.	Open-air, below and at grade, alongside CSX tracks
C	3,230 ft.	Tunnel
D	270 ft.	Open-air, below grade
E	540 ft.	Covered by buildings, below grade
F	1,780 ft.	Open-air, below grade
G	450 ft.	Covered by parking structure, below grade
H	450 ft.	Blocked by building, below grade

Concepts

Cultural Corridor

The idea for a Cultural Corridor transit service has its origin in the *Centennial District Master Plan* (2005), prepared for the Fairmount Park Commission. That plan identified a perceived need for improved transit access to West Fairmount Park, and proposed "a dedicated transit route... that would link all of the major visitor destinations within the city by taking advantage of existing roads, bridges and rights-of-way."³

Since then, PCPC has further developed this idea in its *Citywide Vision* (2011) and *Central District Plan* (2012). These plans proposed Bus Rapid Transit (BRT) service using the City Branch for a portion of its route for the following two reasons:

- Service with a unique brand identity would be recognizable and desirable for visitors to Philadelphia.
- Establishing BRT in the City Branch was believed to be a cost-effective first step towards developing light rail service that would also use the City Branch.

³ Fairmount Park Commission, *Centennial District Master Plan* by MGA Partners, Architects, et al., 2005. <http://www.fairmountparkconservancy.org/project/documents/FPCD.MPEXECUTIVE.SUM.pdf>

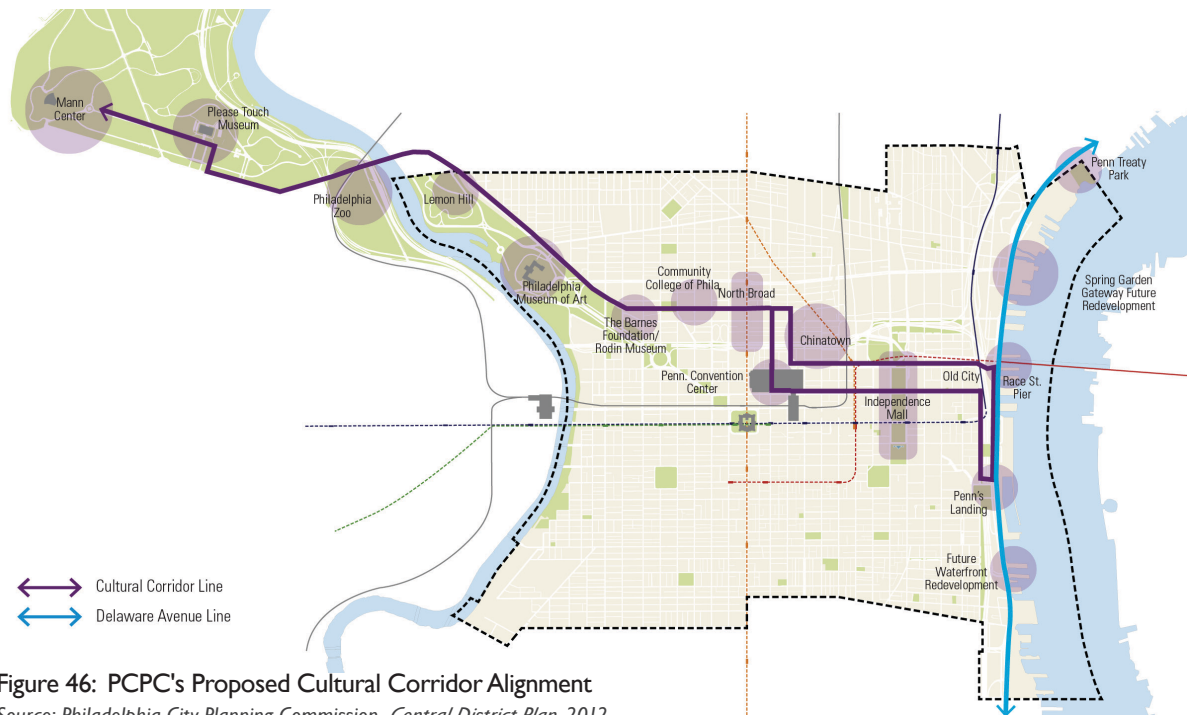


Figure 46: PCPC's Proposed Cultural Corridor Alignment
Source: Philadelphia City Planning Commission, *Central District Plan*, 2012

Stakeholder Outreach

In order to determine the feasibility of a tourist-focused transit route, the DVRPC project team interviewed stakeholders representing prominent institutions along the proposed Cultural Corridor route, and other tourism promotion organizations. (These interviews are summarized on pp. 18-23.)

These stakeholders confirmed that branded, tourist friendly bus service along the

cultural corridor route was, indeed, useful. However, as nearly all stakeholders noted, PHLASH, an existing tourist bus service, already operates on a route nearly identical to that of the proposed Cultural Corridor. The PHLASH route, moreover, runs in part on the Benjamin Franklin Parkway—widely considered a cultural attraction in its own right that could benefit from increased pedestrian activity.

PHLASH RIDERSHIP

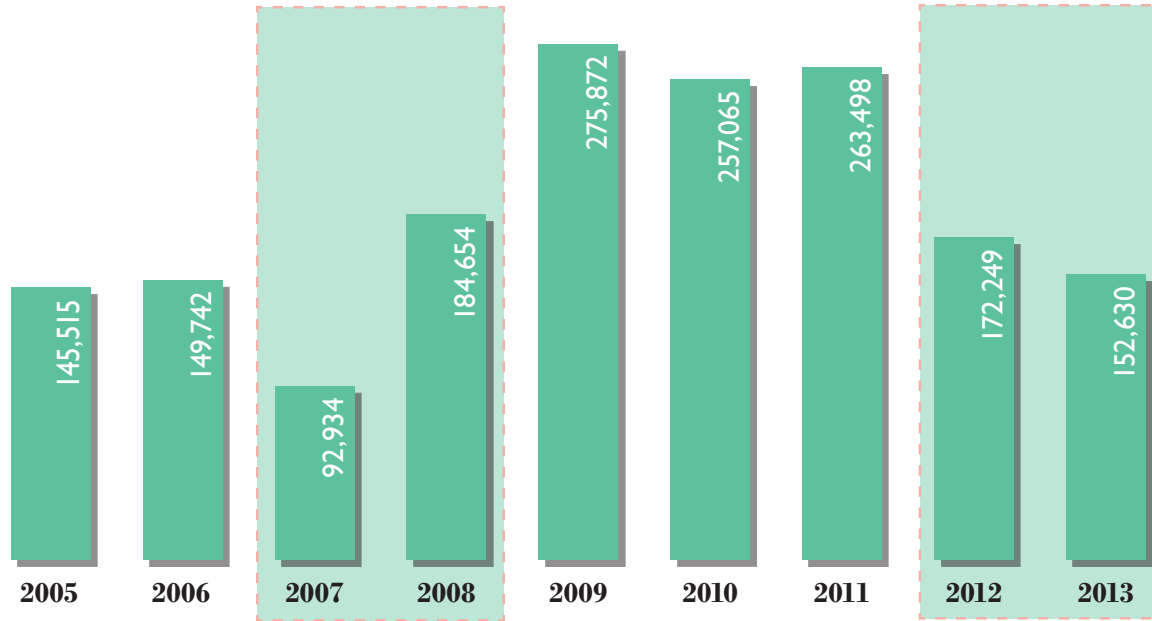



Figure 47: PHLASH Yearly Ridership (2005-2013)
Data source: Independence Visitor Center Corporation, 2014

 Years when PHLASH operated with reduced stops and/or for fewer months of the year.

PHLASH Service

As noted, existing PHLASH service accomplishes many of the goals anticipated by the proposed Cultural Corridor line. For instance, PHLASH offers a \$2-per-ride fare, along with drivers who can answer questions from tourists, and service to major tourist destinations. One point of concern, however, is the fiscal sustainability of PHLASH service.

PHLASH's level of service has been inconsistent over the last decade due to funding challenges. Recent events, however, suggest it has found solid footing. In 2012, Independence Visitor Center took over operation of PHLASH from Center City District, and in 2013, successfully lobbied for permanent state transportation funding. This funding, provided through Pennsylvania's state transportation law,



Figure 48: PHLASH Image

With the help of new state transportation funding, PHLASH operates with modern, recognizable transit vehicles.

Source: J. Fusco for Visit Philadelphia

Act 89 of 2013, ensures that PHLASH will be able to operate its full route from year to year.

Based on previous experience, this funding is likely to ensure high PHLASH ridership. Figure 47 shows the disparity in PHLASH ridership between years in which it was fully funded, and years in which funding challenges caused it to curtail service.

Physical Requirements

The *Philadelphia2035: Citywide Vision* report suggests that a Cultural Corridor busway in the City Branch may have transit benefits beyond cultural connections—specifically, that bus service may be relatively inexpensive to implement, and, once operational, could serve as a foothold for future, higher-intensity transit service.

In order to understand the potential capital costs associated with Cultural Corridor bus service, the DVRPC project team adapted a proposed route from the *Citywide Vision*. The proposed route would enter and exit the City Branch at 29th/30th Streets in the west, and at 18th Street in the east (see Figure 49). The eastern entry/exit was selected to facilitate access to landmarks slightly west of Broad Street, and to forestall high capital costs associated with demolishing the existing building between 15th and Broad Streets.

In keeping with its purpose as a tourism and culture link, the proposed route also includes two station stops, one behind the Rodin Museum near 21st and Hamilton Streets, and one near the Philadelphia Museum of Art (PMA) beneath 25th Street and Pennsylvania Avenue.

At a minimum, capital costs for a Cultural

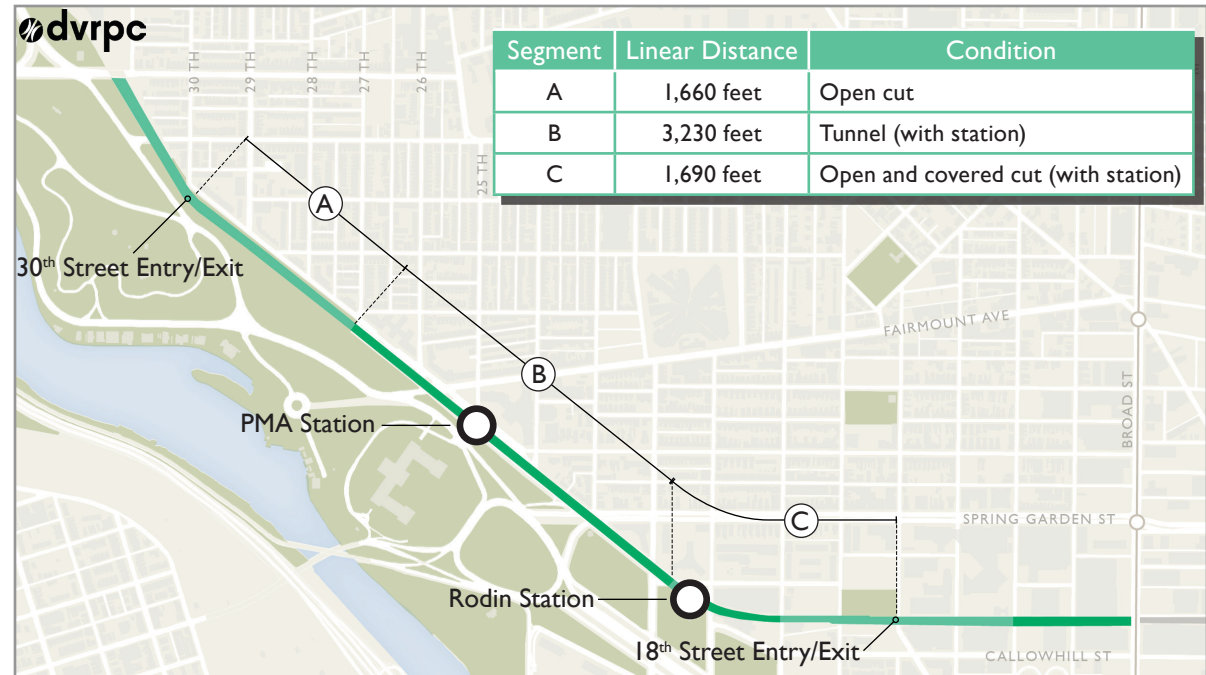


Figure 49: Proposed Cultural Corridor Alignment
Source: DVRPC, 2014; SEPTA, 2014

Corridor busway would include the construction elements that are listed along with their cost estimates in Table 5.

This portion of the Cultural Corridor concept analysis deals only with capital costs associated with a busway in the City Branch. Other capital costs may be necessary on the remaining portions of the proposed route.

Findings

This study finds the operations case for Cultural Corridor service in the City Branch to be a relatively weak one. In light of PHLASH's fiscal stability and continuing popularity, a Cultural Corridor service that would duplicate PHLASH service is not advisable. Likewise, replacing PHLASH on Benjamin Franklin Parkway with Cultural Corridor service

Table 5: Cultural Corridor Cost Estimates

Project Element	Quantity	Cost
Cartway in cut Demolish and disposal of cut materials; underground drainage; precast catch basin with casting; busway; fire department connection and feed; secondary power distribution; general lighting	3,250 linear feet	\$ 39,877,500
Cartway in tunnel Demolish and disposal of tunnel paving; underground drainage; Precast catch basin with casting; stormwater/groundwater pump station; repair to tunnel masonry ceiling (non-structural); HS grout inject; busway; fire department connection and feed; secondary power distribution; general lighting	3,130 linear feet	\$ 70,331,100
Bus station in open cut Underground drainage; precast catch basin with casting; machine room-less 2-stop elevator with glass tower with bridge to street grade and stair; bus shelter with steel frame, glass block wind screen, lighting, furnishings, and signage; 16' X 80' bus platform at elevator with lighting, furnishings, and signage; busway; secondary power distribution; general lighting	1 station (100 linear feet)	\$ 5,000,000
Bus station in tunnel Demolish and disposal of tunnel paving; underground drainage; precast catch basin with casting; repair to tunnel ceiling; HS grout inject; machine room-less 2-stop elevator with glass tower through air grate with minor structural modification and stair; 16' X 80' bus platform at elevator with lighting, furnishings, and signage; busway; miscellaneous finishes within tunnel; police enclosure; fire department connection and feed; secondary power distribution; general lighting	1 station (100 linear feet)	\$ 6,000,000
Baseline project components Stormwater/groundwater pump station; to-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; at-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; police enclosure; fire department connection tap, and main to tunnel and cut; exhaust fan with housing and controls at street grade; 15KVA emergency generator diesel with 72 hour tank with automatic transfer switch; modular distributed power in tunnel; PECO power tap; primary power distribution; communications; warning signage; landscaping at cut	—	\$ 16,365,000
Total (without exclusions):		\$ 137,573,600

Source: SEPTA, 2014

in the City Branch would likely be done at the expense of support from Parkway institutions, whose buy-in is critical to this form of tourist transportation.

In addition, a review of the infrastructure capital costs does not suggest that the Cultural Corridor scenario merits public investment in the foreseeable future. The rough, order-of-magnitude cost estimates presented here (see Table 5) exclude numerous expenses that are not calculable at this time (see Table 6).

Table 6: Exclusions from Cultural Corridor Cost Estimates

Hazardous material remediation
Escalation
Premium time labor
Unclassified excavation
Tunnel linings
Utility relocation
Design/force account fees
Stair towers beyond elevator locations
PC pavers
Fencing
Repairs to cut retaining wall
Fire sprinkler system
Closed circuit TV
Asphalt paving

Source: SEPTA, 2014

Express Bus Service

Neighborhoods in western North Philadelphia and northwestern Center City have excellent neighborhood assets—including Fairmount Park, historic housing stock, and proximity to Center City. These neighborhoods, however, do not share the transit benefits that Philadelphia neighborhoods near the Market-Frankford Line or the Broad Street Line enjoy. These neighborhoods' primary transit access to Center City is along heavily-used bus lines, which cause street-level congestion issues for residents along their routes.

The following analysis investigates whether the City Branch could feasibly be used to reroute these bus routes to reduce travel times, build ridership, and ease street-level congestion.

Route Selection

The DVRPC project team, with the assistance of SEPTA's Service Planning division, evaluated three existing bus routes for rerouting using the City Branch right-of-way:

- **Route 27:** Broad-Carpenter to Plymouth Meeting Mall;
- **Route 32:** Broad-Carpenter to Ridge-Lyceum; and
- **Route 48:** Front-Market to 27th-Allegheny.

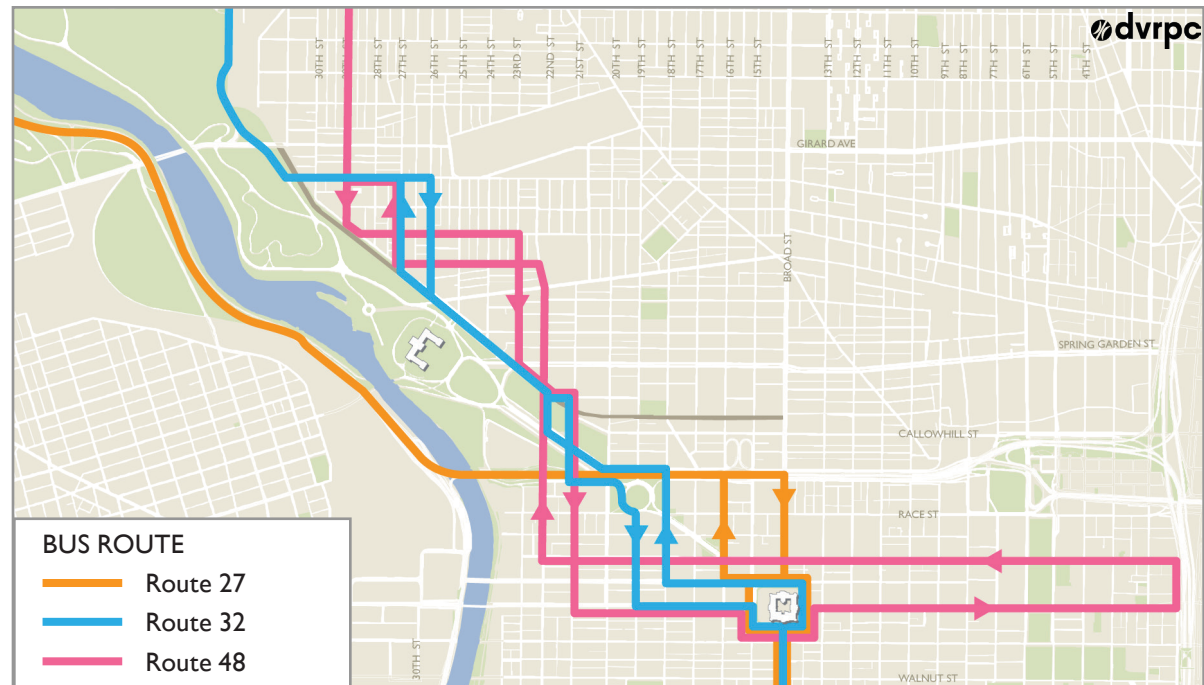


Figure 50 Existing Bus Routes For Express Bus Service Analysis

Source: DVRPC, 2014; SEPTA, 2014

These routes, in particular, were selected because they serve Center City, affording riders access to a high-density employment center. Another factor in selecting these three routes was their existing route alignments (see Figures 50 and 51). Each existing bus route could be rerouted into the City Branch without dramatically altering their respective route operations.

In order to maximize SEPTA's use of the City Branch, while still maintaining as much of each route's ridership as possible, a western bus entry/exit was selected for 29th/30th Streets (see Figure 52). This entry/exit would take advantage of the fact that, at 30th Street, the City Branch is at the same grade as the street network. The eastern entry/exit, at 20th Street (see Figure 53), takes advantage of an

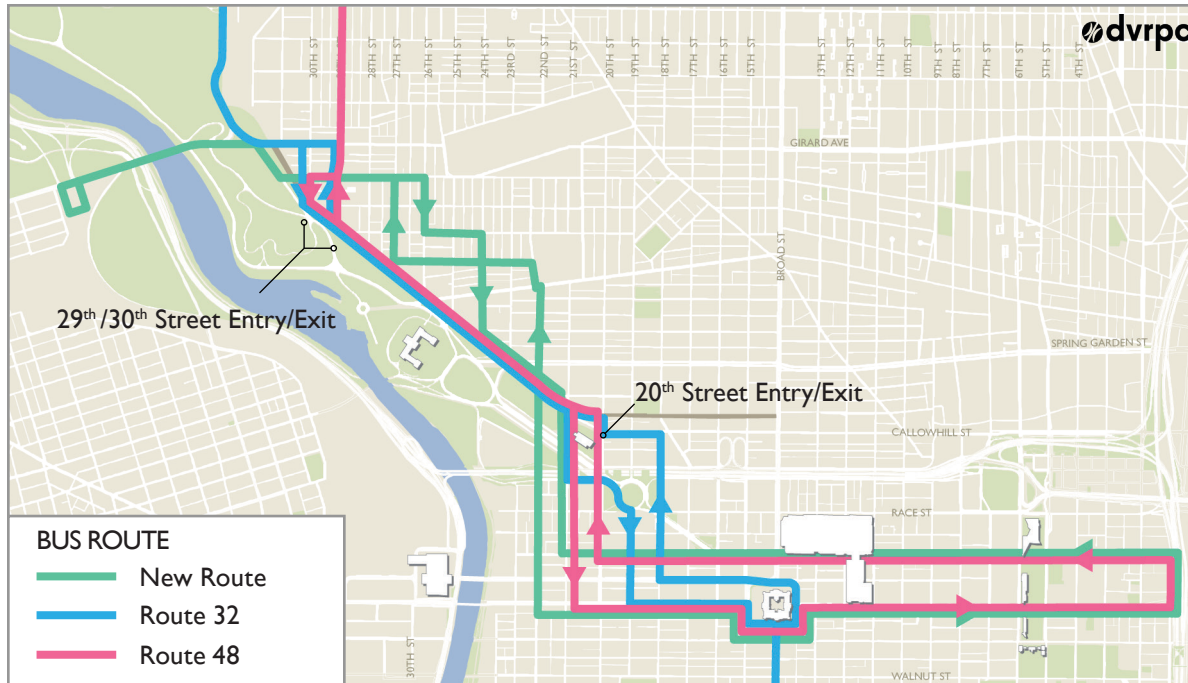
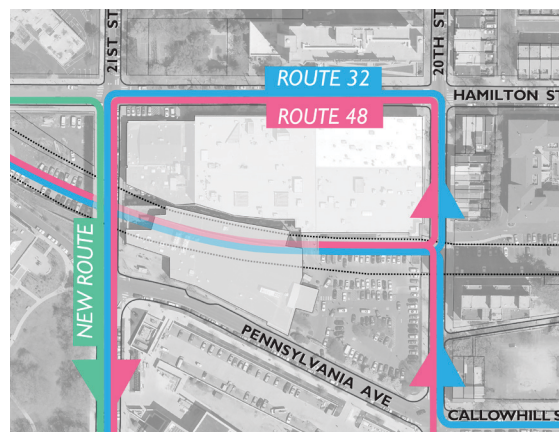
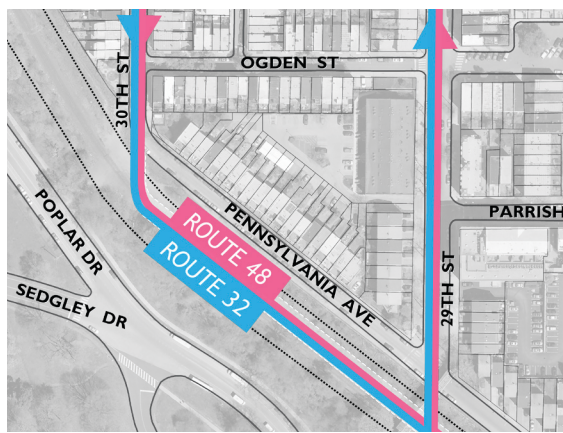


Figure 51: Proposed Rerouting For Express Bus Service Analysis
 Source: DVRPC, 2014; SEPTA, 2014

existing ramp beneath 2001 Pennsylvania Avenue—though, this ramp would likely need to be modified before it could accommodate bus service.

The eastern entry/exit, in particular, was selected because it would allow bus access to Center City west of Broad Street—an area of high employment density and several high-ridership stops on each studied route.

Reconfiguring these routes to use the City Branch would remove several stops from Routes 32 and 48, and would potentially add stops to Route 27. In addition, SEPTA's automatic passenger counter (APC) data show that 1,572 people board Route 32 and 48 buses at stops that would be missed due to rerouting, most of them in the Fairmount neighborhood. To preserve access to Center City for Fairmount residents, this analysis includes a new bus route which would serve the neighborhood at street level. This new route would serve the existing high ridership stops in Fairmount, and provide access to Center City from 22nd to Front Streets, with stops along Market and Arch Streets, while also providing access to the Philadelphia Zoo via Girard Avenue (see Figure 51).



Figures 52 & 53: Proposed Western Entry/Exit Point; Proposed Eastern Entry/Exit Point.
 Source: DVRPC, 2014; SEPTA, 2014

Estimated Time Savings

SEPTA Service Planning calculated the change in average run times for each route if it were to use the City Branch.

Run times under a City Branch reroute scenario were calculated using existing APC data for on-street portions of the proposed routes, and assuming an average speed of 25 m.p.h. within the City Branch with no station stops—in keeping with this concept's purpose as an express busway.

Routes 32 and 48 showed significant estimated time savings when rerouted to the City Branch. Route 32's rerouting produced 8 minutes 48 seconds of time savings per full route (northbound and southbound) (see Table 7). Extrapolating that savings to a full weekday's trips (138 trips per weekday) shows that Route 32 could save 10 hours 6 minutes of operating time per weekday if rerouted to the City Branch.

Route 48 showed 8 minutes 31 seconds of estimated full route time savings when rerouted (see Table 7). With 176 trips per weekday, Route 48 would save 12 hours 30 minutes of operating time per weekday.

Route 27's northbound reroute was estimated to save nearly 1 minute, but those savings were cancelled out by a 2 minute 2 second increase when traveling southbound (see Table 7). Consequently, Route 27 was ruled out for rerouting in the City Branch.

Table 7: Estimated Time Savings

Route	From	To	Current Run Time	Estimated City Branch Run Time	Estimated Time Savings Per Trip
Route 27 Southbound	Wissahickon Transportation Center	Broad Street & Race Street	0:14:10	0:16:12	+0:02:02
Route 27 Northbound	16 th Street & Race Street	Wissahickon Transportation Center	0:14:44	0:13:50	0:00:54
Route 32 Southbound	30 th Street & Poplar Street	21 st Street & Hamilton Street	0:08:09	0:03:04	0:05:05
Route 32 Northbound	19 th Street & Vine Street	28 th Street & Poplar Street	0:09:09	0:05:26	0:03:43
Route 48 Southbound	29 th Street & Poplar Street	21 st Street & Hamilton Street	0:07:54	0:03:34	0:04:20
Route 48 Northbound	21 st Street & Arch Street	29 th Street & Poplar Street	0:11:41	0:07:30	0:04:11

Source: SEPTA, 2014

Estimated Operating Costs

SEPTA Service Planning staff compared the estimated costs of rerouting Routes 32 and 48 through the City Branch to those routes' existing costs. Service Planning also calculated the costs of the proposed new route connecting Fairmount to Center City, which would provide service to the stops that would be skipped if Routes 32 and 48 were rerouted into the City Branch. In order to make the new route financially feasible, the rerouted Routes 32 and 48 must achieve enough combined cost

savings to offset the cost of the new route.

The primary way of reducing costs on rerouted Routes 32 and 48 would be to decrease bus frequency by reducing the number of daily trips on those two routes. Service Planning staff found that weekday service on these routes could be reduced by approximately 20 percent and still comfortably accommodate current passenger volumes.

The service changes to Routes 32 and 48 result in significant operating cost savings—approximately 40 percent and 44 percent, respectively, of each route's operating costs (see Tables 8 and 9). These savings were found to be more than enough to cover the cost of a new local route. As an added benefit, the new route would run between the Penn's Landing area and the Philadelphia Zoo, a route similar to that of the proposed Cultural Corridor.

One important caveat to this analysis is that, while the City Branch is the infrastructure that makes the Routes 32 and 48 reroutes possible, the cause of the estimated cost savings is the reduction in service frequency, *not* the time savings achieved by using the City Branch as a high-speed, exclusive right-of-way.

Further study, especially of ridership, is warranted to determine whether these or similar alterations to Routes 32 and 48 would be beneficial for SEPTA riders, whether a proposed route used the City Branch, or Pennsylvania Avenue.

Table 8: Estimated New Costs

Route	Weekday Trips (per day)	Weekday Costs (per year)	Weekend Trips (per day)	Weekend Costs (per year)	Total Annual Costs
Route 32	115	\$ 3,576,745	62	\$ 736,372	\$ 4,313,117
Route 48	149	\$ 3,460,468	106	\$ 956,398	\$ 4,416,866
New Route	130	\$ 2,551,685	94	\$ 676,045	\$ 3,227,730

Source: SEPTA, 2014

Table 9: Estimated Cost Savings

Route	Current Costs	Estimated New Costs	Cost Savings/Increase
Route 32	\$ 7,063,785	\$ 4,313,117	\$ 2,750,668
Route 48	\$ 7,828,021	\$ 4,416,866	\$ 3,411,155
New Route	N/A	\$ 3,227,730	\$ 3,227,730
TOTAL:	\$ 14,891,806	\$ 11,957,713	\$ 2,934,093

Source: SEPTA, 2014

Physical Requirements

As with each primary concept in this analysis, the project team sought to understand the capital costs associated with using the City Branch right-of-way for the Express Busway concept's particular form of transit service—presented here as a rough, order-of-magnitude cost estimate.

The intended purpose of the Express Busway is to achieve time savings on selected, existing SEPTA bus routes by taking advantage of the City Branch's alignment and grade separation. In keeping with this purpose, the Express Busway was assumed to have a western entry/exit at 29th/30th Streets, have no station stops within the City Branch, and an eastern entry/exit at 20th Street (see Figure 54).

At a minimum, capital costs for an Express Busway in the City Branch would include the construction elements that are listed along with their cost estimates in Table 11. It is important to note the numerous costs excluded from this estimate, which are listed in Table 10.

These estimates only address capital costs associated with the City Branch right-of-way. Any additional capital costs resulting from route realignment are excluded from this analysis.

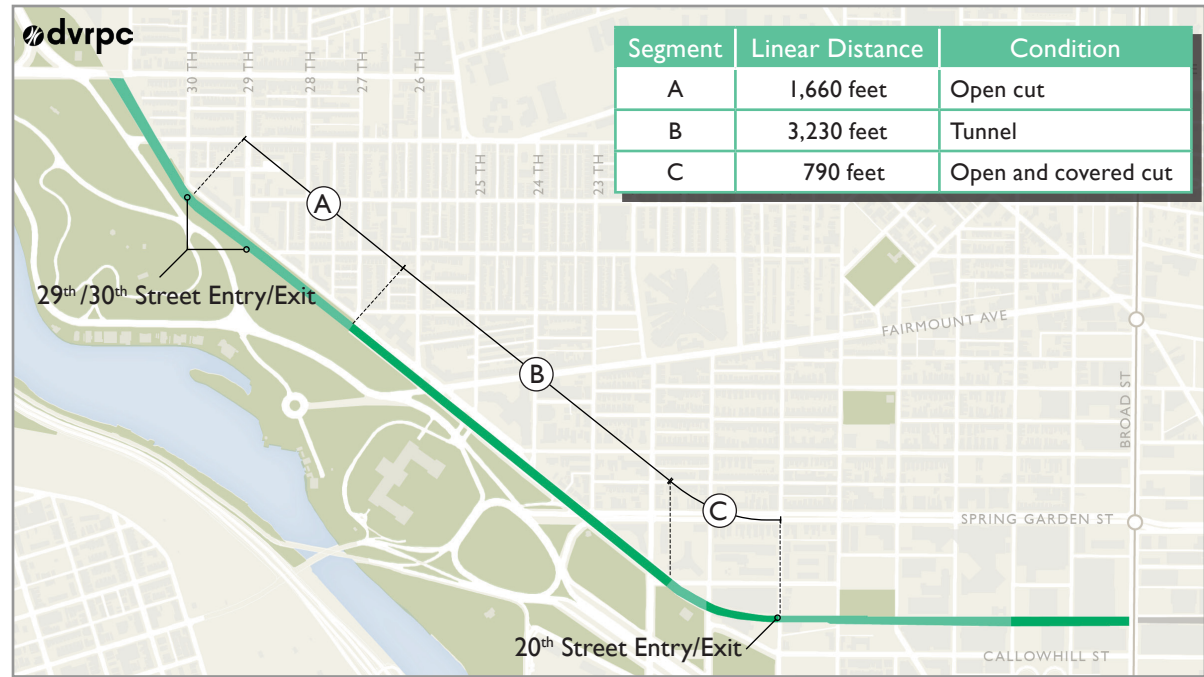


Figure 54: Proposed Express Bus Route Alignment

Source: DVRPC, 2014; SEPTA, 2014

Table 10: Exclusions from Express Busway Cost Estimates	
Hazardous material remediation	Stair towers beyond elevator locations
Escalation	PC pavers
Premium time labor	Fencing
Unclassified excavation	Repairs to cut retaining wall
Tunnel linings	Fire sprinkler system
Utility relocation	Closed circuit TV
Design/force account fees	Asphalt paving

Source: SEPTA, 2014

Findings

The Express Busway concept was proposed as a method to achieve time- and operations cost savings on existing SEPTA bus routes. The initial assertions of this concept were that: (a) the City Branch's directional alignment would make it advantageous for transit routes to access Center City from the north and west; and (b) the City Branch's grade separation would facilitate time savings.

Three routes (Routes 27, 32, and 48) were selected as having potential to benefit from the City Branch's alignment without losing significant portions of their ridership due to rerouting. Of these routes, only Routes 32 and 48 would experience time savings if they were rerouted. Those savings would be significant: 8 minutes 48 seconds per round trip for Route 32, and 8 minutes 31 seconds for Route 48.

These time savings, however, could not be achieved without consequences. A new bus route would be required to replace lost bus service on Routes 32 and 48 in Fairmount. The operating costs for this new route would be offset by reducing service frequency on the rerouted Routes 32 and 48. As a result, riders north of Fairmount would experience faster, more reliable—but less frequent—service because the routes would take a more direct, express route through Fairmount. Riders in Fairmount would likely benefit from less crowding on vehicles, and fewer instances of bus bunching due to the proposed new route's shorter route length.

The City Branch right-of-way may not, however, be necessary to achieve these benefits. Because Pennsylvania Avenue follows roughly the same alignment as the City Branch, Routes 32 and 48 could be modified in a similar way without entering the City Branch. While operations in mixed traffic would likely blunt estimated time savings, taking advantage of Pennsylvania Avenue would help avoid high capital costs.

Table II: Express Busway Cost Estimates

Project Element	Quantity	Cost
Cartway in cut Demolish and disposal of cut materials; underground drainage; precast catch basin with casting; busway; fire department connection and feed; secondary power distribution; general lighting	2,450 linear feet	\$ 30,061,500
Cartway in tunnel Demolish and disposal of tunnel paving; underground drainage; Precast catch basin with casting; stormwater/groundwater pump station; repair to tunnel masonry ceiling (non-structural); HS grout inject; busway; fire department connection and feed; secondary power distribution; general lighting	3,230 linear feet	\$ 72,578,100
Baseline project components Stormwater/groundwater pump station; to-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; at-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; police enclosure; fire department connection tap, and main to tunnel and cut; exhaust fan with housing and controls at street grade; 15KVA emergency generator diesel with 72 hour tank with automatic transfer switch; modular distributed power in tunnel; PECO power tap; primary power distribution; communications; warning signage; landscaping at cut	—	\$ 16,365,000
Total (without exclusions):		\$ 119,004,600

Source: SEPTA, 2014

Transit + Trail

The primary purpose of this study is to conceptually evaluate transit feasibility. Nevertheless, significant public interest in recreational or nonmotorized transportation uses for the City Branch warrant a closer look at how these uses could be incorporated into a reinvented City Branch.

Because the City Branch is owned by SEPTA, which has consistently intended to use it for transit, this project's scope is limited to studying the conceptual feasibility of any pedestrian or recreational use with the precondition that it could operate alongside a transit use.

Concept and Route Selection

In recent years, local governments and public transit agencies in the United States have recognized the synergistic effects of combining transit and bicycle/pedestrian facilities. Locating bicycle facilities (such as bicycle lanes or cycle tracks) and bicycle amenities (such as bicycle lockers or bike share stations) near transit facilities can support transit riders by increasing a transit line's service area, and can support cyclists by providing higher quality facilities than they might find on streets.



Figure 55 : Reseda Station, Orange Line

The Orange Line in Los Angeles County uses a shared right-of-way with physical separation to include a bikeway (at left) and BRT service (at right).

Source: Flickr user Dan Reed, 2012

Nationwide, several transit-with-trail facilities serve as examples to inform this City Branch concept. Los Angeles County Metro's Orange Line, for instance, features bus rapid transit (BRT) service paired with a bicycle and pedestrian path—both of which share a former freight rail right-of-way (see Figure 55).

The main proponent of a recreational use for the City Branch is the nonprofit organization, Friends of the Rail Park. While their visioning document, the *Continuous and Connective* report, only contains an in-depth proposal for using the City Branch for recreational space between Broad and 18th Streets, the organization has expressed interest in an active public

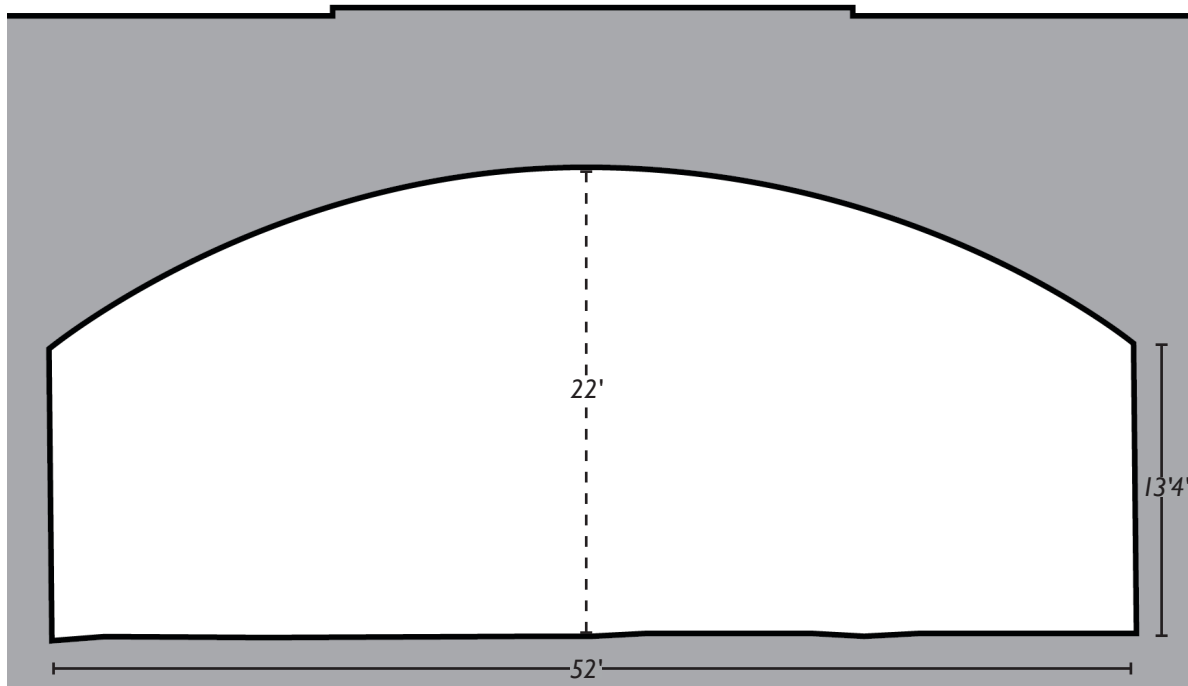


Figure 54: Existing Dimensions inside the City Branch Tunnel.

use for the cut and tunnel portions of the City Branch west of 18th Street.

With these considerations in mind, this analysis examines the physical feasibility and capital cost of pairing a trail with a busway in both the cut and tunnel portions of the City Branch right-of-way.

Operationally, a busway with stations (similar to the Cultural Corridor concept) was selected as an appropriate pair for a trail because station stops would provide an opportunity for pedestrians and cyclists to enter and exit the right-of-way using the station's stairs and elevator.

The physical requirements for shared

busway and trail use of the City Branch are informed by industry-standard design guidelines. Specifications for standard bicycle facilities were derived from the National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide*. Specifications for the transit elements in each proposed cross-section are based on the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for Geometric Design of Transit Facilities on Highways and Streets*. Further guidance on appropriate City Branch cross-sections was provided by SEPTA's Strategic Planning and Engineering divisions.

Using existing dimensions for both the tunnel and open cut sections of the City Branch determined through field measurements, conceptual cross-sections for transit and trail use are presented on the following pages.

Finally, as with each other main City Branch concept, rough, order-of-magnitude capital costs are presented to help inform this scenario's relative cost. Above all, the conceptual design strives to promote safe use for pedestrians, cyclists, and transit users at minimum capital cost.

Busway with Trail in the City Branch Tunnel

The typical proposed Transit + Trail alignment within the City Branch tunnel would find ample width for both a dedicated busway, and an active bicycle and/or pedestrian use (see Figure 57).

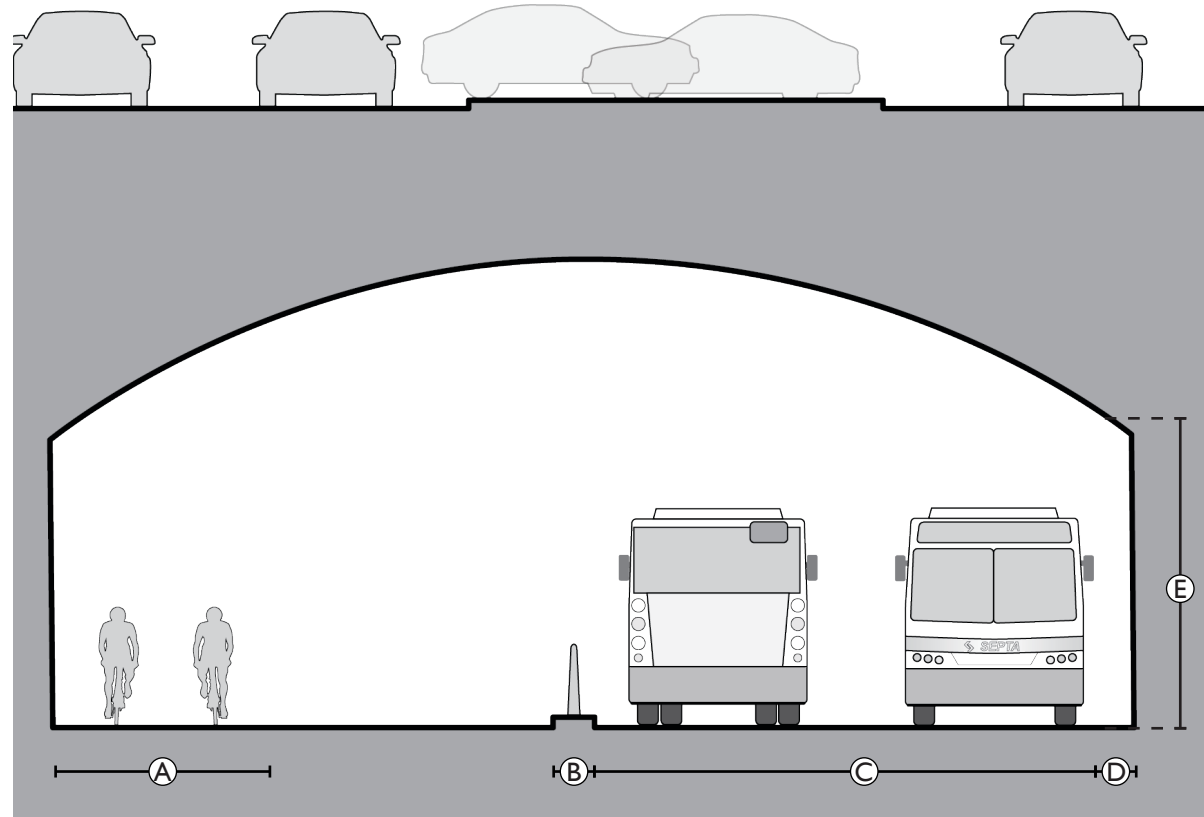
The main portion of the trail includes a two-way cycle track with six-foot lanes in each direction. A 2-foot raised buffer with bollards separates the trail area from the busway. Buses run along 12-foot lanes in each direction.

To facilitate a median boarding platform at stations, the bus lanes are contra-flow, necessitating a lane crossover near each entrance.

This cross-section is representative of the vast majority of the City Branch tunnel, varying only at the western end, where the CSX freight line runs alongside of the City Branch right-of-way.

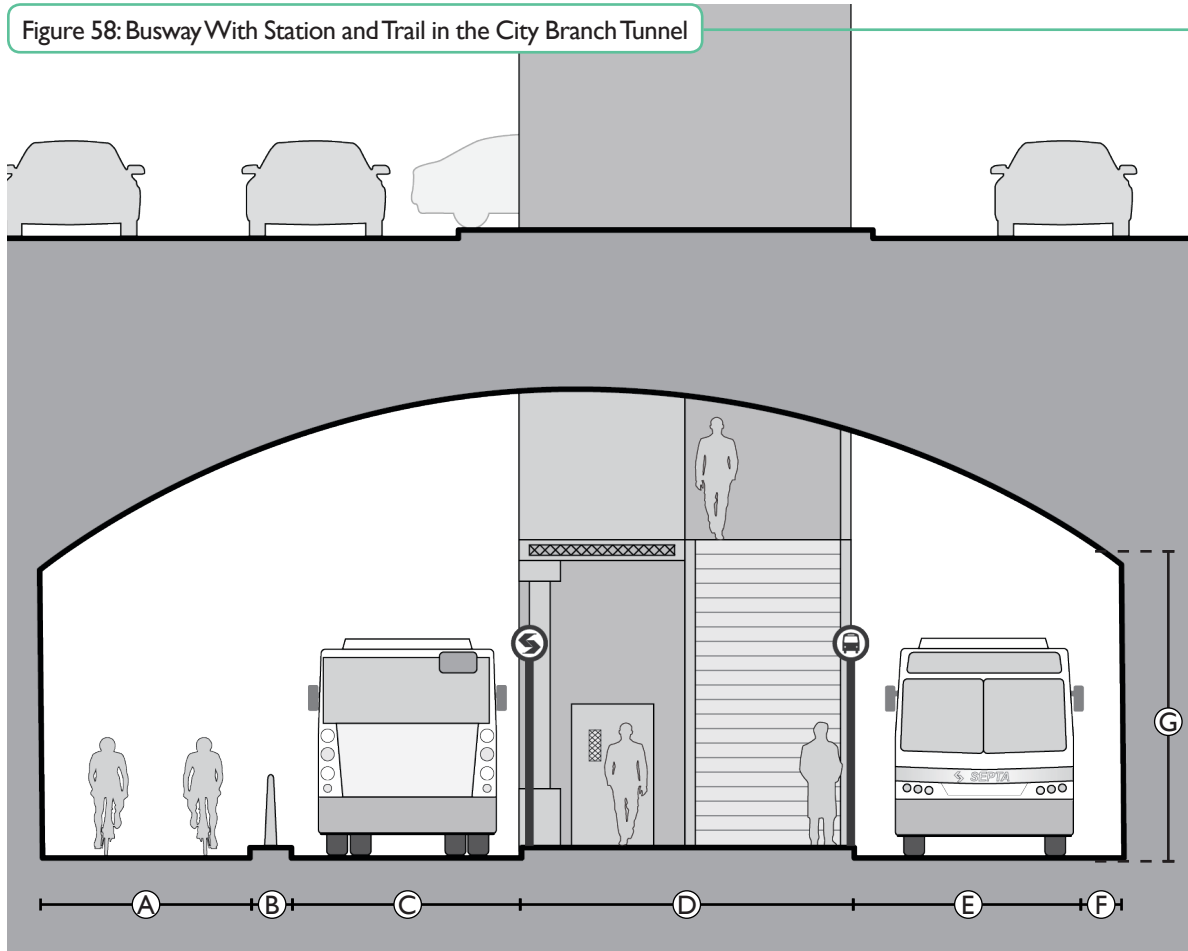


Figure 57: Busway With Trail in the City Branch Tunnel



Dimension	Description	Measurement	Design Standard
A	Two-way cycle track (standard)	12 ft.	NACTO
B	Raised curb buffer with bollards	2 ft.	AASHTO
C	Two-way busway	24 ft.	AASHTO
D	Buffer to ensure minimum vertical clearance	2 ft.	AASHTO
E	Minimum vertical clearance	14 ft. 6 in.	AASHTO

Figure 58: Busway With Station and Trail in the City Branch Tunnel



Dimension	Description	Measurement	Design Standard
A	Two-way cycle track (constrained)	10 ft.	NACTO
B	Raised curb buffer with bollards	2 ft.	AASHTO
C	One-way busway	11 ft.	AASHTO
D	Raised passenger platform	16 ft.	AASHTO
E	One-way busway	11 ft.	AASHTO
F	Buffer to ensure minimum vertical clearance	2 ft.	AASHTO
G	Minimum vertical clearance	14 ft. 6 in.	AASHTO

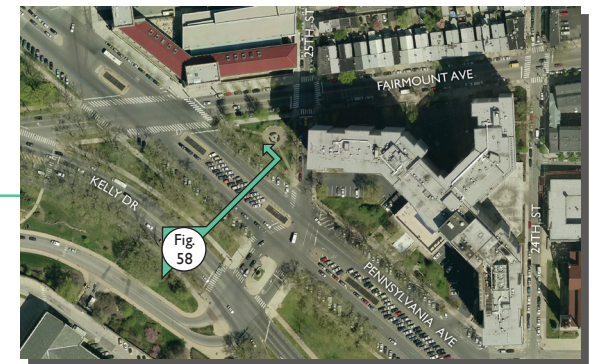
Busway with Station and Trail in the City Branch Tunnel

In addition to a typical running way, the project team also evaluated the physical feasibility of a station within the City Branch tunnel with a trail running alongside it (see Figure 58).

In order to provide adequate space for the station, the cycle track would be briefly constrained to five-foot lanes in each direction, while each bus lane would shrink to 11 feet.

A 16-foot median boarding platform allows passengers to board in either direction, and eliminates the need for two elevators serving two side-boarding platforms. As noted earlier, a bus lane crossover would be necessary to allow median boarding at stations.

Elevator and stair access to the station is presumed to occur from the center median on Pennsylvania Avenue.



Busway with Trail in the City Branch Cut

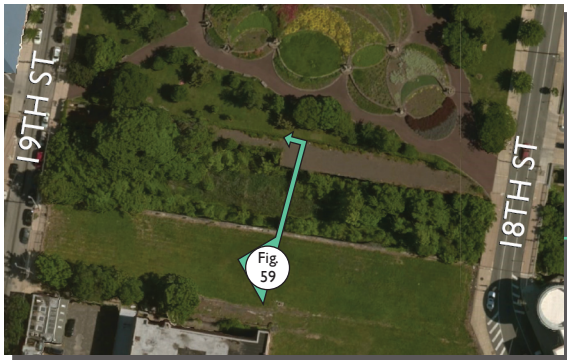
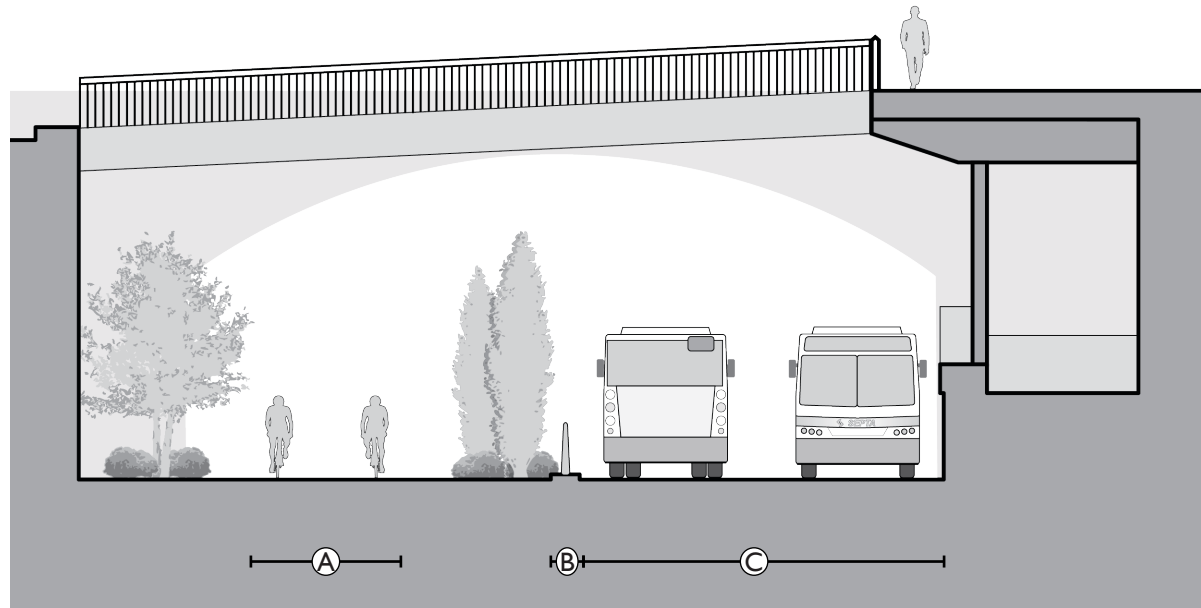
West of 18th Street, the City Branch cut is wide enough to accommodate both a trail and busway (see Figure 59).

As shown in the typical tunnel cross-section, two 12-foot, contraflow bus lanes are separated from a two-way, 12-foot-wide cycle track by a raised, 2-foot buffer with bollards.

Within the open-cut sections of the City Branch, extra space not used by travel lanes could include landscaping.

This cross-section is based on the width of the City Branch between 18th and 19th Streets. Some open-cut portions of the right-of-way are narrower, but could still accommodate a busway and trail.

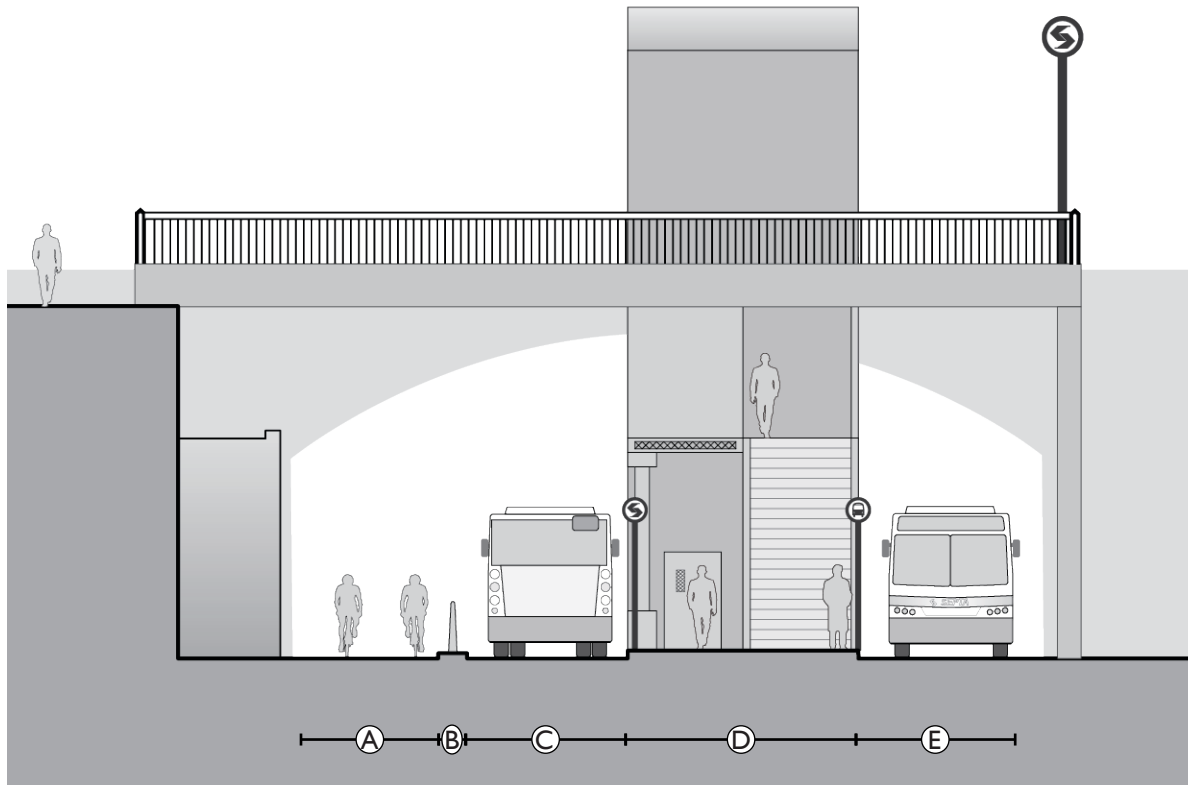
Figure 59: Busway With Trail in the City Branch Cut



Dimension	Description	Measurement	Design Standard
A	Two-way cycle track (standard)	12 ft.	NACTO
B	Raised curb buffer with bollards	2 ft.	AASHTO
C	Two-way busway (station lane)	24 ft.	AASHTO

Source: DVRPC, 2014; SEPTA, 2014

Figure 60: Busway With Station and Trail in the City Branch Cut



Dimension	Description	Measurement	Design Standard
A	Two-way cycle track (constrained)	10 ft.	NACTO
B	Raised curb buffer with bollards	2 ft.	AASHTO
C	One-way busway (station lane)	11 ft.	AASHTO
D	Raised passenger platform	16 ft.	AASHTO
E	One-way busway (station lane)	11 ft.	AASHTO

Source: DVRPC, 2014; SEPTA, 2014

Busway with Station and Trail in the City Branch Cut

The segment of the City Branch cut between 21st Street and the eastern entrance to the tunnel is one of the more amenable locations for an open-cut station (Figure 60)—with ample width, and a pedestrian-friendly area behind the Rodin Museum.

In this conceptual station design, an elevator and stairway connect a pedestrian bridge to a 16-foot passenger platform. As with the typical tunnel station cross-section, the width of the platform requires constraining both the bicycle lanes, and the bus lanes slightly.

One special consideration for this site is the significant development interest on air rights over the City Branch. Coordination with potential developers of the site could help incorporate space and access for a future transit station in the development's site plan.



Physical Requirements

As with each primary concept in this analysis, the project team sought to understand the capital costs associated with using the City Branch right-of-way for the Transit + Trail concept's particular form of transit service—presented here as a rough, order-of-magnitude cost estimate.

The purpose of the Transit + Trail concept is to include a nonmotorized transportation option along with a transit concept that takes advantage of the City Branch's unique character. In keeping with this purpose, this concept includes an entry/exit at 30th Street and at 18th Street, along with two stations, which could provide entrances or exits for cyclists and pedestrians.

At a minimum, capital costs for the Transit + Trail concept would include the construction elements that are listed along with their cost estimates in Table 12. It is important to note the numerous costs excluded from this estimate, which are listed in Table 13.

These estimates only address capital costs associated with the City Branch right-of-way. Any additional capital costs resulting from route realignment or additional amenities are excluded from this analysis.

Table 12: Transit + Trail Cost Estimates

Project Element	Quantity	Cost
Cartway in cut Demolish and disposal of cut materials; underground drainage; precast catch basin with casting; busway; bicycle/pedestrian path; trail/busway separation with pipe-and-chain bollard; fire department connection and feed; secondary power distribution; general lighting	3,250 linear feet	\$ 44,752,500
Cartway in tunnel Demolish and disposal of tunnel paving; underground drainage; Precast catch basin with casting; stormwater/groundwater pump station; repair to tunnel masonry ceiling (non-structural); HS grout inject; busway; bicycle/pedestrian path; trail/busway separation with pipe-and-chain bollard; fire department connection and feed; secondary power distribution; general lighting	3,130 linear feet	\$ 75,026,100
Bus station in open cut Underground drainage; precast catch basin with casting; machine room-less 2-stop elevator with glass tower with bridge to street grade and stair; bus shelter with steel frame, glass block wind screen, lighting, furnishings, and signage; 16' X 80' bus platform at elevator with lighting, furnishings, and signage; busway; bicycle/pedestrian path; trail/busway separation with pipe-and-chain bollard; secondary power distribution; general lighting	1 station (100 linear feet)	\$ 5,000,000
Bus station in tunnel Demolish and disposal of tunnel paving; underground drainage; precast catch basin with casting; repair to tunnel ceiling; HS grout inject; machine room-less 2-stop elevator with glass tower through air grate with minor structural modification and stair; 16' X 80' bus platform at elevator with lighting, furnishings, and signage; busway; bicycle/pedestrian path; trail/busway separation with pipe-and-chain bollard; miscellaneous finishes within tunnel; police enclosure; fire department connection and feed; secondary power distribution; general lighting	1 station (100 linear feet)	\$ 6,000,000
Baseline project components Stormwater/groundwater pump station; to-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; at-grade level exit with improvements, traffic signalization, signage, striping, and landscaping; police enclosure; fire department connection tap, and main to tunnel and cut; exhaust fan with housing and controls at street grade; 15KVA emergency generator diesel with 72 hour tank with automatic transfer switch; modular distributed power in tunnel; PECO power tap; primary power distribution; communications; warning signage; landscaping at cut	—	\$ 16,365,000
Total (without exclusions):		\$ 147,143,600

Source: SEPTA, 2014

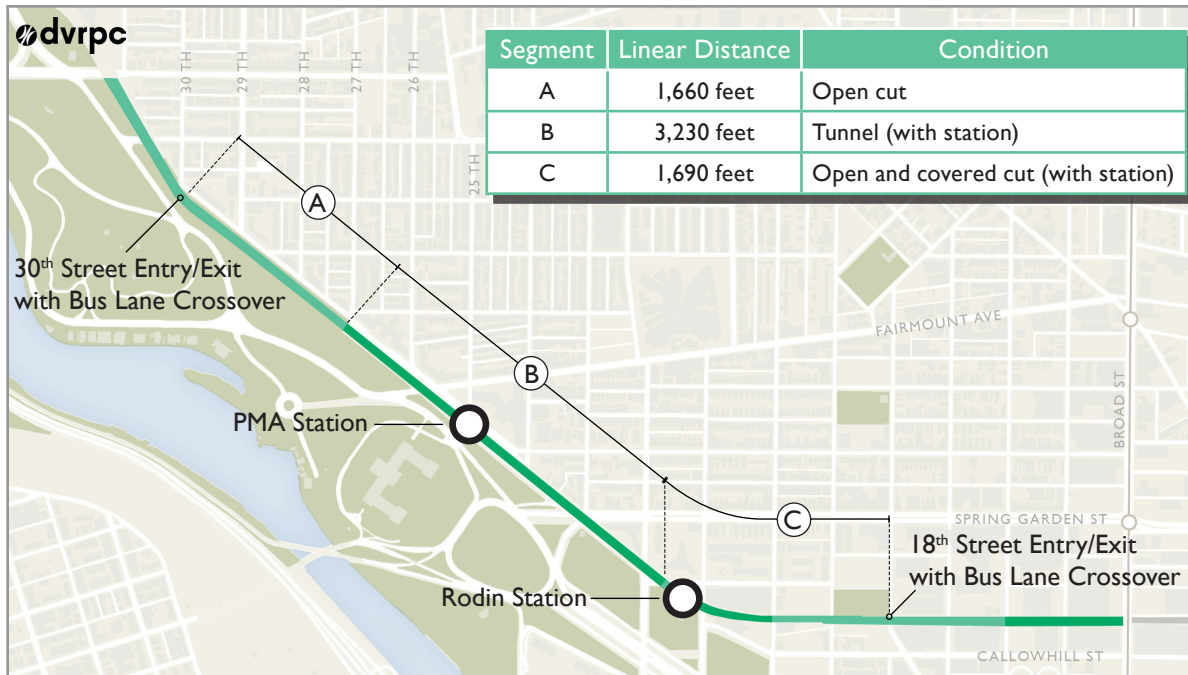


Figure 61: Transit + Trail Proposed Alignment
 Source: DVRPC, 2014; SEPTA, 2014

Table 13: Exclusions From Transit + Trail Cost Estimates	
Hazardous material remediation	Stair towers beyond elevator locations
Escalation	PC pavers
Premium time labor	Fencing
Unclassified excavation	Repairs to cut retaining wall
Tunnel linings	Fire sprinkler system
Utility relocation	Closed circuit TV
Design/force account fees	Asphalt paving

Source: SEPTA, 2014

Findings

This analysis looks specifically at the physical feasibility of including a trail use with a busway in the City Branch. By creating typical cross-sections for the Transit + Trail concept, the project team found that the City Branch right-of-way is generally wide enough to accommodate both transit and trail uses.

Furthermore, the cost of adding a trail use to the City Branch is relatively low in comparison to the cost of adding a busway alone—roughly \$10 million, or 7% more, than the cost of the Cultural Corridor concept (see Tables 5 and 12).

This relative cost-effectiveness does not, however, eliminate the flaws in the two transit concepts presented earlier in this analysis. Nor does it negate the fact that a trail in the City Branch would partially duplicate bicycle and pedestrian facilities on Pennsylvania Avenue, the Benjamin Franklin Parkway, and the Schuylkill River Trail.

Finally, this analysis' cost estimates do not address the exclusions listed in Table 13, nor do they address any additional public space or safety improvements that might be included with a bicycle and pedestrian use in the City Branch.



CHAPTER 5:

NEXT STEPS

The three concepts explored in this study propose uses for the City Branch right-of-way that would separate transit and bicycle uses from street level in order to make them safer and faster, as well as mitigate congestion on local streets. These concepts have special value because they take advantage of the City Branch's unique characteristics—its separation from the street grid, and its historical significance.

Each concept aims to offer tangible transit and quality-of-life benefits, including speedier transit service, congestion mitigation, and complementary public space improvements.

This report's analysis (see Chapter 4: Concepts + Analysis) showed that some of these concepts have discrete benefits. In context, however, each concept's respective shortcomings suggest larger flaws in a short-term transit use for the City Branch.

Findings

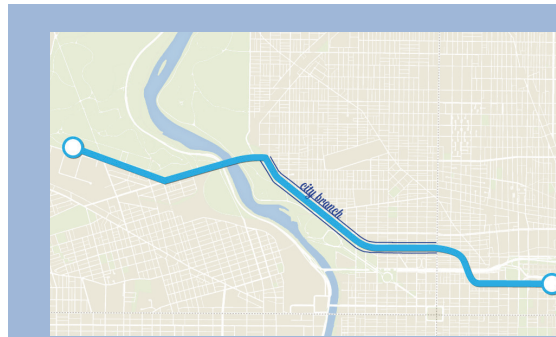
A Solution in Search of a Problem

Interest in the City Branch often stems from its unique and compelling characteristics as an existing, linear right-of-way that is grade-separated in the heart of a major city, and almost entirely owned by SEPTA. These essential qualities suggest that implementing transit service would be easy and practical. On the other hand, its historic and aesthetic qualities suggest great potential as an active public space. In either case, many compelling characteristics of the City Branch—its location in Center City, its large footprint, and its dramatic sense of place—foster tremendous civic interest.

The three transit concepts described on this page were identified as part of this project’s scope because a) they were assumed to make connections that were missing or could be improved in Philadelphia’s transit network, and b) bus service was considered “the most cost effective way to achieve these connections.”⁴

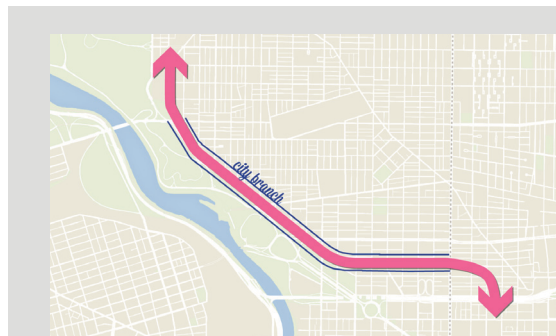
In spite of its transit-friendly characteristics, the City Branch does not currently demonstrate significant value in making these specific transit connections, nor is it possible to do so in a cost effective way—at least not in the very near future.

⁴ PCPC, *Central District Plan*, p. 64.



Cultural Corridor

The recent success of PHLASH service suggested that Cultural Corridor service in the City Branch would duplicate existing civic investment. As a result, this project did not find strong support for this concept among the institutional stakeholders who would be critical to the concept’s success.



Express Busway

This study found opportunities for improvement to existing bus service, but that the bulk of these enhancements were likely to be achievable without the high capital investment required to bring the City Branch to a state of good repair.



Transit + Trail

This report found a trail use to be a relatively inexpensive complement to transit use in the City Branch, but that any proposed use would be very expensive. The trail use is thought to be redundant to several nearby, street-level bicycle and pedestrian facilities.

Figure 62: City Branch Concepts: Next Steps

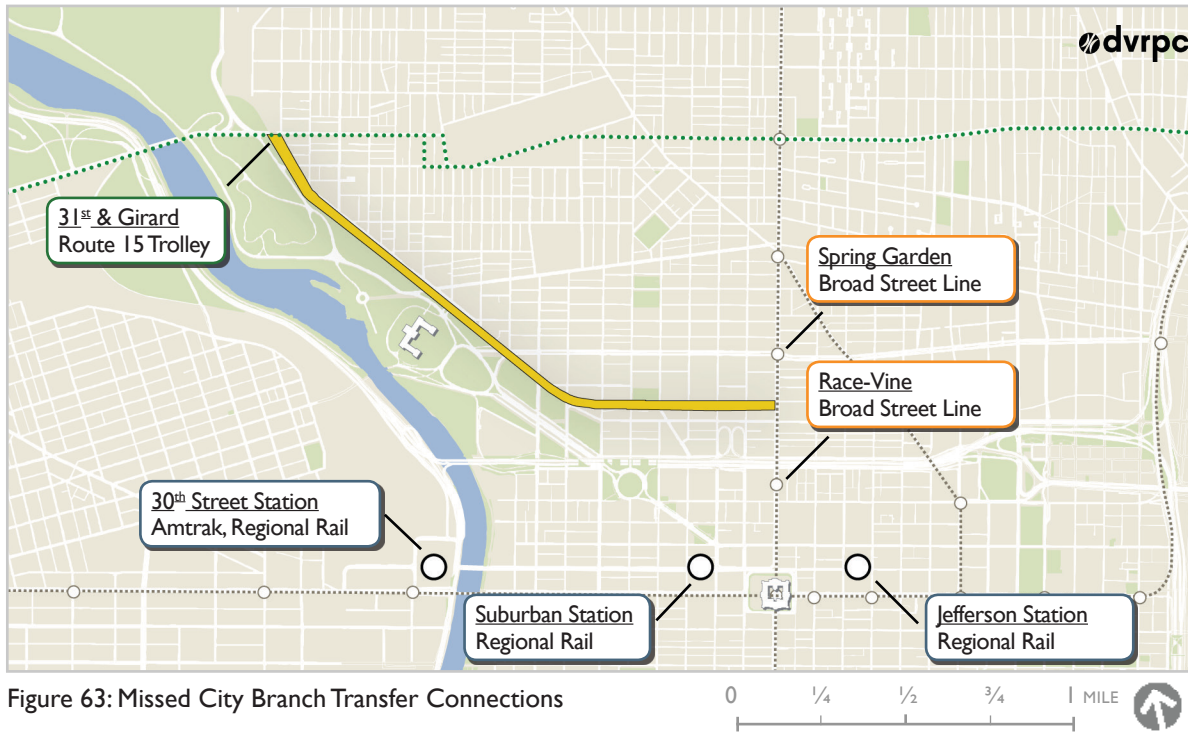


Figure 63: Missed City Branch Transfer Connections

Orientation and Siting

At first glance, the City Branch’s geographic orientation suggests that it could be part of an effective transit connection between residential neighborhoods (including Fairmount, Brewerytown, Strawberry Mansion, and Parkside) and the high employment density of Center City. A closer look reveals significant missing connections in the right-of-way’s orientation and siting.

First and foremost, the City Branch’s eastern terminus at Broad and Noble Streets is not close enough to the heart of Center City to provide a one-seat ride to any major employment centers—neither the established office district west of Broad Street, nor the burgeoning commercial district of East Market Street. As shown in this report’s Express Busway analysis, for example, efficient access to high ridership stops in Center City would

require exiting the City Branch at 20th Street, significantly reducing the right-of-way’s transit utility.

Opportunities for transfers are also limited. In the east, the City Branch terminates between the Broad Street Line’s Spring Garden Station, 800 feet to the north, and Race-Vine Station, 1200 feet to the south. This distance makes an efficient foot transfer very difficult. By way of comparison, the free interchange between the Broad Street Line and Market Frankford line at 15th Street/City Hall is less than 300 feet by foot. A transfer to the Route 15 trolley at 31st Street and Girard Avenue would be easier to accomplish from an engineering standpoint, but would not offer efficient access to Center City.

The City Branch’s transit utility is also limited by the fact that it does not approach either 30th Street, Suburban, or Jefferson Stations (see Figure 63). This limits easy transfers to SEPTA Regional Rail, and to intercity service via Amtrak. When considering the Cultural Corridor concept, in particular, this limits the City Branch’s ability to connect tourists, who often arrive via Amtrak or Regional Rail, to cultural institutions along the Parkway or in West Philadelphia.

A Heavy Lift

One of the core assumptions for returning the City Branch to transportation use is that transit service could be implemented quickly and at low capital cost, because SEPTA could avoid costly right-of-way acquisition in a high-density area. Cost estimates prepared for this report, however, suggest that bringing the City Branch right-of-way to a state of good repair would require considerable capital investment—even without taking into account some intricate ownership and use restrictions along the right-of-way.

The lack of continuous SEPTA ownership from Broad Street to 31st Street means that any proposed use would require significant real estate transactions to create a continuous corridor, including:

- **Reestablishment of a right-of-way between Broad and 16th Streets**

This portion of the right-of-way would require either purchase or easement acquisition from 400 North Broad Partners, LP, whose current development proposal for the site does not include a transit component.

- **Expiration of the parking lease between 18th and 20th Streets**

SEPTA has leased this portion of the City Branch to Rodin Market Partners for parking through 2024.

- **Coordination with development proposals for the segment between 20th and 22nd Streets**
SEPTA has a volumetric easement for this segment, and would need to coordinate with the owners of the air and ground rights in order to implement a transit use.

Further, transit use along the City Branch could activate potential conflicts with CSX. CSX operates freight rail service running adjacent to, and sharing infrastructure with, SEPTA's portion of the City Branch between 25th and 31st Streets. As a result, SEPTA and CSX would need to coordinate on maintenance for the portions of the City Branch right-of-way that they share.

Costs for the three bus service concepts presented in this analysis ranged from approximately \$120 million to \$150 million. No costs were included for remediation of hazardous material, major structural repairs, or utilities relocation—any of which can be assumed to add significantly to the project's cost.

Reinforcing this fact, many of the goals of the three concepts presented in this study (see Chapter 4: Concepts + Analysis for detailed analysis) could be accomplished without costly upgrades to the City Branch right-of-way. The Cultural Corridor's goals,

Table 14: Concept Cost Estimates

Concept	Cost (less exclusions)
Cultural Corridor	\$ 137,573,600
Express Bus Service	\$ 119,004,600
Transit + Trail	\$ 147,143,600

Data Source: SEPTA, 2014

for example, are largely accomplished with PHLASH service. Some of the service improvements identified in the Express Busway analysis could also be implemented without using the City Branch, simply by realigning Routes 32 and 48 using Pennsylvania Avenue. Likewise, bicycle and pedestrian facilities on Pennsylvania Avenue and the Benjamin Franklin Parkway could be enhanced for a fraction of the cost of improving the City Branch under a Transit + Trail scenario.

Nevertheless, without a future transit use, SEPTA may be faced with significant costs should they relinquish the asset.

The City Branch and 9th Street Viaduct were acquired with Act 26 of 1991 funds provided by the Pennsylvania Department of Transportation (PennDOT). As part of those funding requirements, if SEPTA wishes to sell or give away the property, the sale requires approval from PennDOT. In addition, PennDOT could require that SEPTA either reimburse PennDOT for its outlay of Act 26 funds, or transfer ownership of their City Branch holdings to PennDOT.

Return on Investment

In order to compete with the existing priorities in SEPTA's capital program, a costly project, such as returning transit service in the City Branch, must demonstrate significant benefits to the transportation network; make a connection that remedies a significant lack of transit service; or facilitate a major economic impact to surrounding neighborhoods. The limited benefits found in the analysis, do not seem to justify the capital expense to revitalize the City Branch for transit use at this time.

SEPTA's new program *Rebuilding for the Future, Volume 1*, published in fall 2014, is focused on reinvesting and maintaining their current assets as well as "rebuilding

for the future" by improving the existing system.⁵

This program is made possible by Act 89 of 2013 (PA Act 89), state transportation legislation, which provides a long-term capital funding solution for transit and highway needs for the entire state.⁶ PA Act 89 has enabled SEPTA to begin addressing their backlog of projects to improve critical infrastructure including: vehicle, substation, and bridge replacement; the New Payment Technology project; and the installation of Positive Train Controls signal technology.

Because funding for transit projects is limited, SEPTA's capital program is focused on advancing a small number of system expansion proposals, including extending the Norristown High Speed Line to King of Prussia, and extending the Broad Street Line to the Navy Yard.

While PA Act 89 ensured increased capital funding for transit at the state level, Federal grant funding (such as New Starts) is extremely competitive. To obtain federal funding, significant project justification is required, such as improvements to mobility

⁵ SEPTA, *Rebuilding For the Future, Vol. 1*, 2014

⁶ SEPTA, *Fiscal Year 2015 Capital Budget*, 2014

and the environment, congestion relief, cost-effectiveness, economic development and also requires a significant local fiscal commitment.

Ridership results drive the ratings for mobility and cost-effectiveness. With strong ratings, federal grant funding to implement transit in the City Branch could be possible. At this juncture, however, there is no outcome that indicates a significant ridership increase could result from a new service in the right-of-way, and therefore, federal funding would be difficult to secure.

Additionally, although congested, this area is currently served well by SEPTA bus service. At the corner of Hamilton and 20th Streets, for instance, there are three SEPTA bus routes that either travel through or terminate in Center City Philadelphia.

Transit within the City Branch could relieve some of the bus trips through the Spring Garden and Fairmount neighborhood local streets, in turn, reducing the noise and air pollution. However, the suggested SEPTA route changes would add a neighborhood bus route that would generate some amount of both.

Trending Toward Transit

Recent trends in the Greater Philadelphia region suggest a shift in transportation and lifestyle preferences toward a more urban, less auto-centric paradigm. The inherent transit-friendly characteristics of the right-of-way, along with the direction of economic, political, and demographic trends, could make the City Branch right-of-way an attractive alignment for transit in the longer-term future.

As trends shift toward greater transit demand, maintaining SEPTA's ownership of the City Branch asset will be critical—forestalling costly right-of-way acquisition. By preserving the City Branch for future transit use, SEPTA would maximize its potential to serve growing urban population and employment.

Shifts in Regional Preferences

Over the past few years Philadelphia has seen a shift in residential preference, with more people choosing to live in close proximity to Center City. If this trend of a strengthened Center City core continues, a shift towards greater transit demand is likely. The City Branch's alignment, with the help of improved transfer connections, has the potential to serve

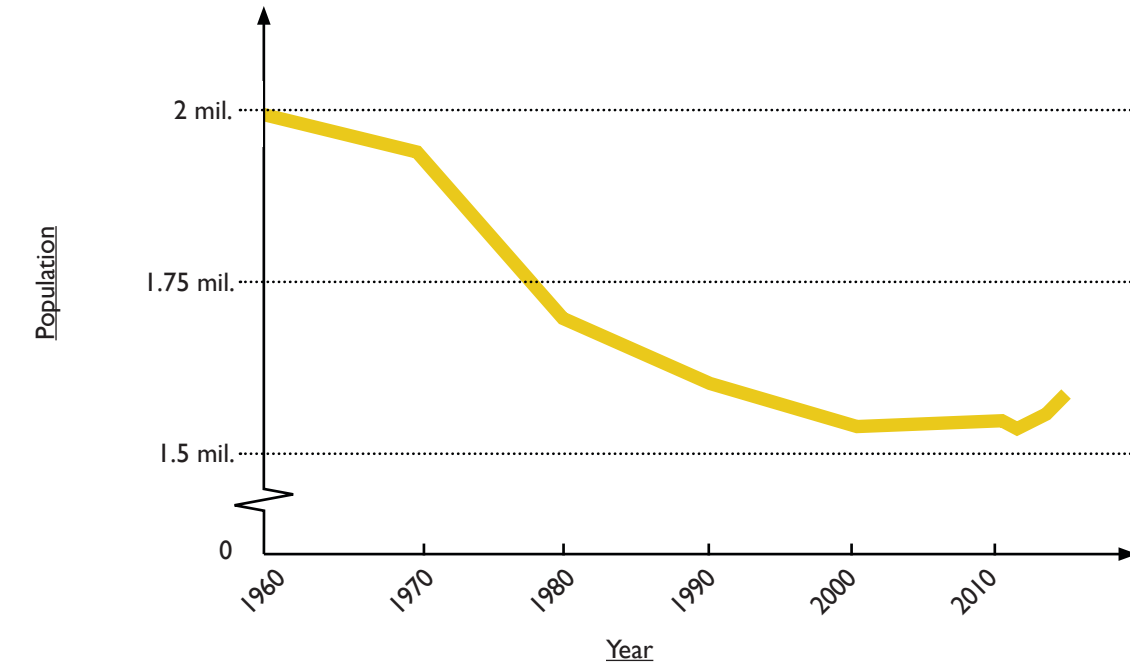


Figure 64: Philadelphia Population (1960-2014)
Data Source: US Census, 2014

both traditional commutes into the Center City core. Furthermore, as redevelopment expands beyond Center City proper—a phenomenon that has already begun—the City Branch may also become useful for less radial trips between growing, dynamic, mixed-use neighborhoods.

Since the 2010 Census, Philadelphia's

population has grown in all but one year, reversing a 60-year trend of population loss (see Figure 64). Center City and adjacent neighborhoods have led this growth, with a population increase of 16% within Greater Center City (the Center City District's definition of the expanded downtown core—the area bounded by the Delaware and Schuylkill Rivers,

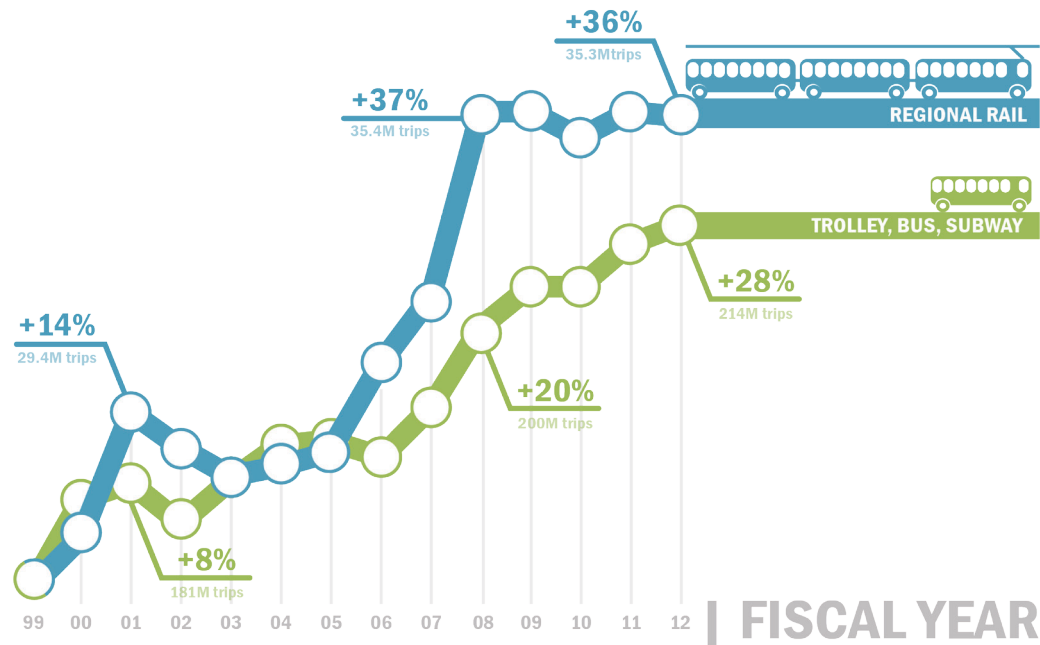


Figure 65: Percent Change From SEPTA's 1999 Ridership
 Source: Mayor's Office of Transportation and Utilities, 2013

Tasker Street, and Girard Avenue) since 2000⁷. This population growth includes a high proportion of 25-34-year-olds (29% of Greater Center City residents), and a high proportion of affluent residents (with an average annual household income of \$85,873 in Greater Center City)⁸.

⁷ Center City District, *State of Center City*, 2015.

⁸ Center City District, *Center City Reports: Retail*,

Residential construction of for-sale units in Greater Center City grew from 18% in 2013 to 32% in 2014⁹. These statistics indicate a strong trend towards mixed-use neighborhoods within the Greater Center City core. Residents of mixed-use communities are less auto-dependent

2014.

⁹ Center City District, *Center City Digest*, 2015.

because they can use transit and nonmotorized transportation to access work and shopping destinations.

Planning policy within Philadelphia—especially near the City Branch—is supportive of these trends. PCPC's Central District Plan recommends “reinforcing West Callowhill and Pennsylvania Avenue as complete commercial corridors by implementing [mixed-use] zoning.” In addition, the Logan Square Neighborhood Plan (2009) identifies the Callowhill corridor as a place to revitalize retail. Developers have responded accordingly. Of the major development projects expected to be completed between 2014 and 2018, residential mixed-use development has accounted for 54% development in Center City, when measured by square footage.¹⁰

While mixed-use neighborhoods continue to grow throughout Greater Center City, Philadelphia's major employment centers remain in transit-rich Center City and University City¹¹. Two other growing employment nodes, the Navy Yard and Temple University, are—or may be in

¹⁰ Center City District, *Center City Philadelphia Developments 2014-2018*, 2014.

¹¹ Center City District, *Center City Reports: Pathways to Job Growth*, 2014.

the future—served by the Broad Street Line. If these locations continue to grow as employment centers, the City Branch could be instrumental in providing job access for residents—particularly if it is effectively connected to the existing transit network.

In addition to socio-economic trends towards a more transit-oriented urban lifestyle for the communities near the City Branch, transportation data suggests future transit growth. In the long term, there has been significant growth in transit ridership in the Greater Philadelphia region. Between 1999 and 2012, for instance, ridership on SEPTA’s Regional Rail lines grew by 36%, and on trolley, bus, and subway lines by 28% (see Figure 62). Meanwhile, driving, as measured in per-capita vehicle-miles traveled (VMT), decreased every year between 2004 and 2014 (see Figure 66).

While significant numbers of Philadelphians continue to rely on cars to get to work and other destinations, the trends described above suggest a broader shift in transportation preferences has already begun, and is likely to continue in the future. When that demand exceeds the capacity on SEPTA’s already strained

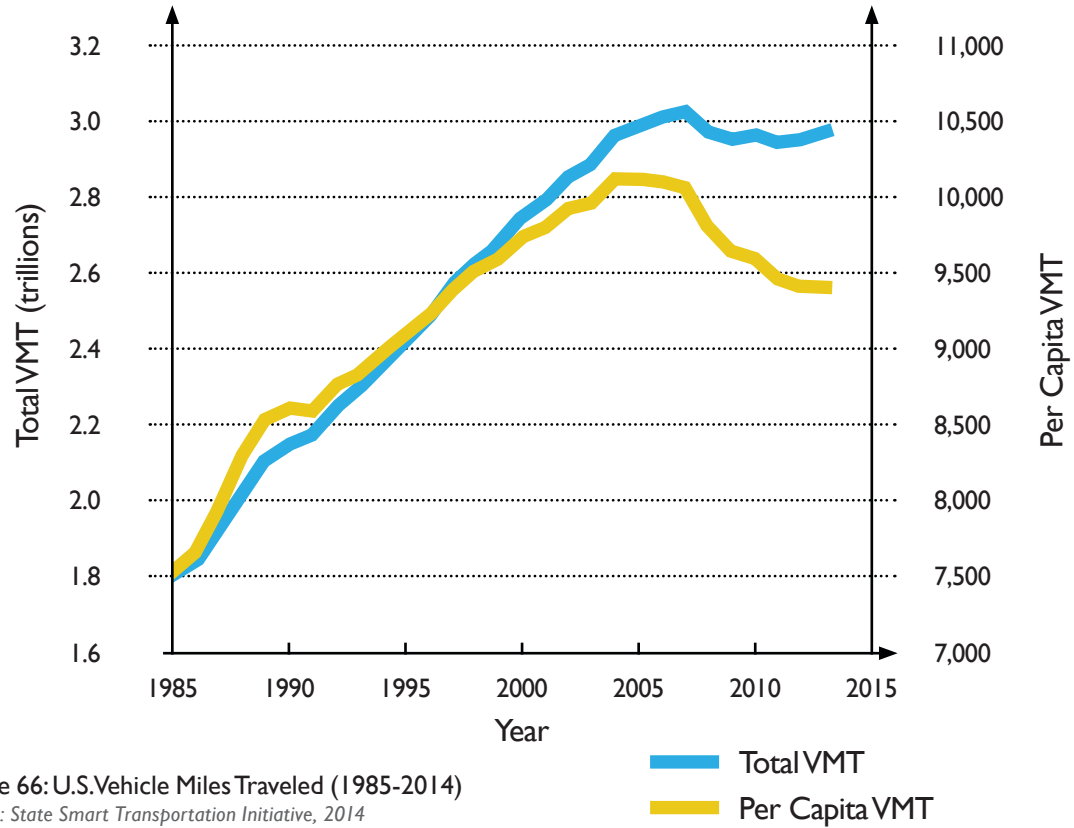


Figure 66: U.S. Vehicle Miles Traveled (1985-2014)
 Source: State Smart Transportation Initiative, 2014

system, high-quality rapid transit in the City Branch can be an effective way to meet Philadelphians’ transportation needs.

Right-of-Way Acquisition Costs

Transportation right-of-way acquisition is often a costly and difficult process. Unlike residential or commercial development, transit or other utility uses require linear corridors capable of transporting people and goods, meaning real estate acquisition

While significant numbers of Philadelphians continue to rely on cars, a broader shift in transportation preferences has already begun.

must take place along a linear alignment and across parcels. In a long-developed area like Philadelphia, very few corridors suitable for transit use exist—the City Branch is a rare example of this type of asset.

Acquiring a corridor comparable to the City Branch—even without continuous outright ownership—would likely be prohibitively expensive. Major challenges would likely stem from high real estate costs, legal proceedings associated with eminent domain acquisitions, and difficulty assembling political support—to name only a few. Preserving the City Branch as a transit asset means that, when trends make transit expansion viable, public investment in right-of-way acquisition would be much less problematic.

Transportation Funding

Changes in public transportation finance would likely be required in order to

make the City Branch a successful transit corridor. Some of those changes are already happening, while others will require a long-term, concerted effort on the part of policymakers.

In general, public transportation is funded through financial contributions from various levels of government: federal, state, and local. As previously mentioned, PA Act 89 offers additional state capital funding for transportation.

The outlook for federal transit funding, on the other hand, is less secure due to legislative uncertainty and declining revenue. The United States Highway Trust Fund, for example, which has been the main source for federal transportation funding, has been depleted because the federal gas tax—the Highway Trust Fund’s main revenue source—has not been adjusted to match inflation. Moving Ahead for Progress in the 21st Century (MAP-21), the current federal transportation legislation, expired in 2014, and has since

received short-term reauthorizations. Until long-term legislation replaces MAP-21, little can be expected to change in terms of federal funding.

As with federal funding, changes in local transportation funding would be important to implementing transit service in the City Branch. In its Fiscal Year 2015 Capital Budget, SEPTA reported only \$11.1 million, or two percent, of its capital funds came from local sources.¹² A funding commitment from the City of Philadelphia, and other regional beneficiaries of expanded transit service, would greatly improve the chances of success for transit service in the City Branch. This is also true of private and nonprofit sector stakeholders, who could potentially partner to fund transit that would serve large development projects or cultural institutions.

In sum, these trends are evidence that public transit use in the City Branch is likely to become more feasible in the future. As these trends continue to develop, SEPTA should respond through further study of transit options for the City Branch.

¹² SEPTA, *Fiscal Year 2015 Capital Budget*, p. 6.

Recommendations

Philadelphians seek an influential and cost-effective use for the City Branch that could make it an asset to the surrounding neighborhoods. The right-of-way represents a highly sought after public transportation asset as a grade-separated, transit agency-owned facility located in a high-density, urban environment.

Due to the high cost and undetermined transportation benefits, an immediate transit use, such as those explored in this study, is not recommended. However,

the rarity of this urban infrastructure, and trends toward greater public transportation investments, may support a public transit use in the long term.

It would be judicious to reevaluate the demand for future transit use within the right-of-way every decade or so, as significant shifts in residential and employment densities occur, or as ownership of critical properties changes. For instance, it makes sense to evaluate the potential for transit use again before

deciding whether to renew the lease agreement for parking between 18th and 20th Streets. In the meantime, SEPTA, the City of Philadelphia, and other stakeholders should be open to discussing proposed uses for the City Branch that meet a wider set of transportation, economic, environmental, and quality-of-life goals for the city.

This chapter's previous section “Trending Towards Transit” explored the fixed conditions and shifting trends that are

Table 15: Recommendations

	Recommendation	Implementing Agency
1	Preserve and enhance PHLASH service (See p. 83)	Independence Visitor Center
2	Devote further study to route modifications to Route 32 using Pennsylvania Avenue. (See p. 84)	SEPTA
3	Devote further study to route modifications to Route 48 using Pennsylvania Avenue. (See p. 85)	SEPTA
4	Devote further study to new local route. (See p. 86)	SEPTA
5	Expand and maintain bicycle facilities at street-level to improve nonmotorized transportation networks near the study area. (See p. 87)	City of Philadelphia
6	Establish a master plan for future transit use in the City Branch. (See p. 87-89)	SEPTA
7	Identify interim uses for the City Branch (See pp. 90-91)	SEPTA
8	Publish a systemwide rights-of-way preservation guide. (See pp. 92)	SEPTA

likely to facilitate transit expansion in the future. Building upon those trends, this section, "Recommendations," identifies near-term actions that support the goals underpinning each of the three proposed transit concepts, while preparing the right-of-way for greater investment in the long-term future. Table 15 lists these recommendations, which are explained in greater detail on the following pages.

Recommendation 1:

Preserve and Enhance PHLASH Service.

As a result of Act 89 funding, PHLASH is currently able to operate on its standard route and schedule. In the future, Independence Visitor Center, PHLASH's operator, should continue to provide they type of tourist transit service investigated in this report's Cultural Corridor analysis, and should explore further service enhancements, including increased frequency, more destinations, and extended service hours.



Figure 67: PHLASH Image

Source: J Fusco for Visit Philadelphia

Recommendation 2:

Route 32

Proposed Route Modifications

In Chapter 4: Concepts + Analysis, Route 32 was identified as one of two routes that might benefit from rerouting to the City Branch. This report recommends exploring a similar rerouting for Route 48, but rather than using the City Branch, using Pennsylvania Avenue for express, no-stop service before resuming stops at 22nd Street and Pennsylvania Avenue (see Figure 69).

The proposed headways and total trips (see Tables 16 and 17) are based on bus speeds within the City Branch, and may require recalibration based on slower assumed bus speeds on Pennsylvania Avenue.

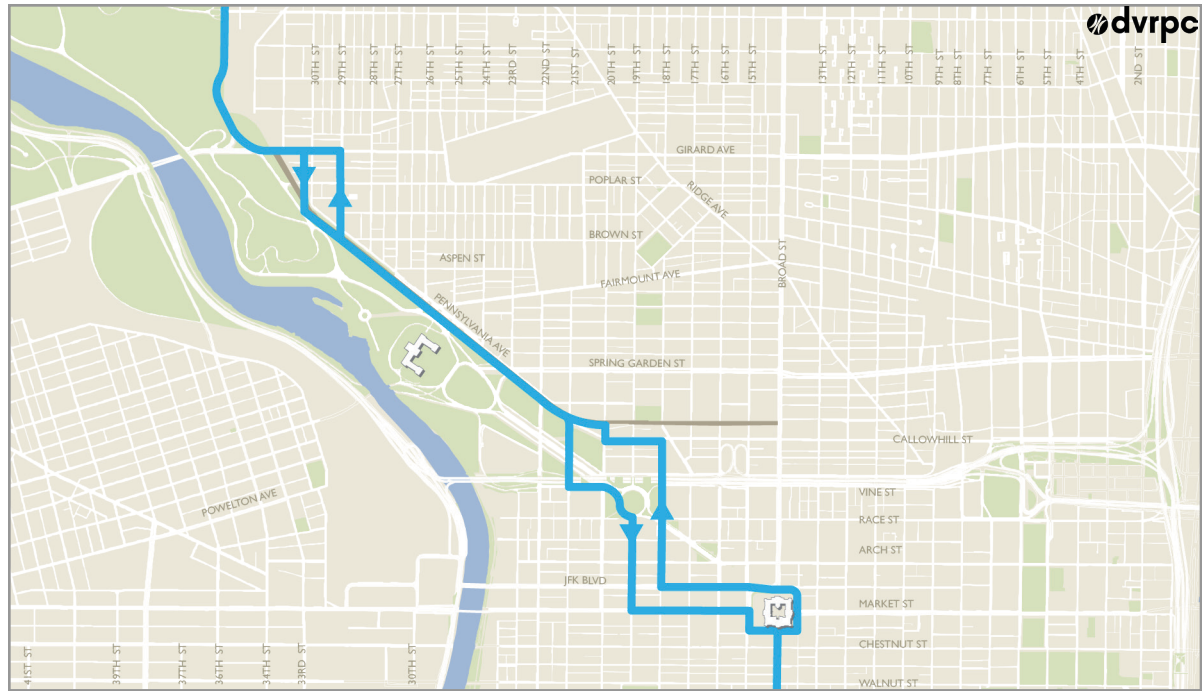


Figure 69: Proposed Route 32 Alignment

Source: SEPTA, 2014

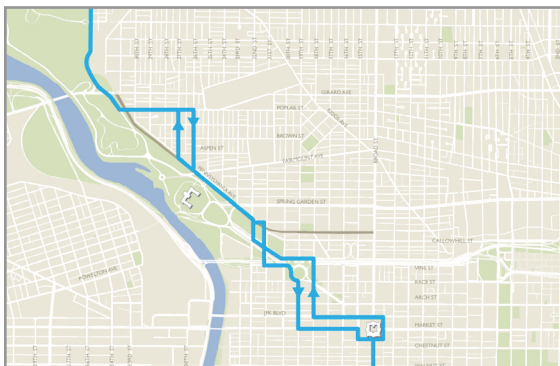


Figure 68: Existing Route 32 Alignment

Source: SEPTA, 2014

Table 16: Route 32 Weekday Headways

Service Period	Existing Headways	Proposed Headways
A.M. Peak	12 mins.	15 mins.
Base	20 mins.	20 mins.
P.M. Peak	10 mins.	15 mins.
Early Evening	30 mins.	20 mins.
Night	30 mins.	30 mins.

Source: SEPTA, 2014

Table 17: Route 32 Total Trips

Service Period	Existing Total Trips	Proposed Total Trips
Weekday	146	115
Saturday	99	78
Sunday	58	46

Source: SEPTA, 2014

Recommendation 3:

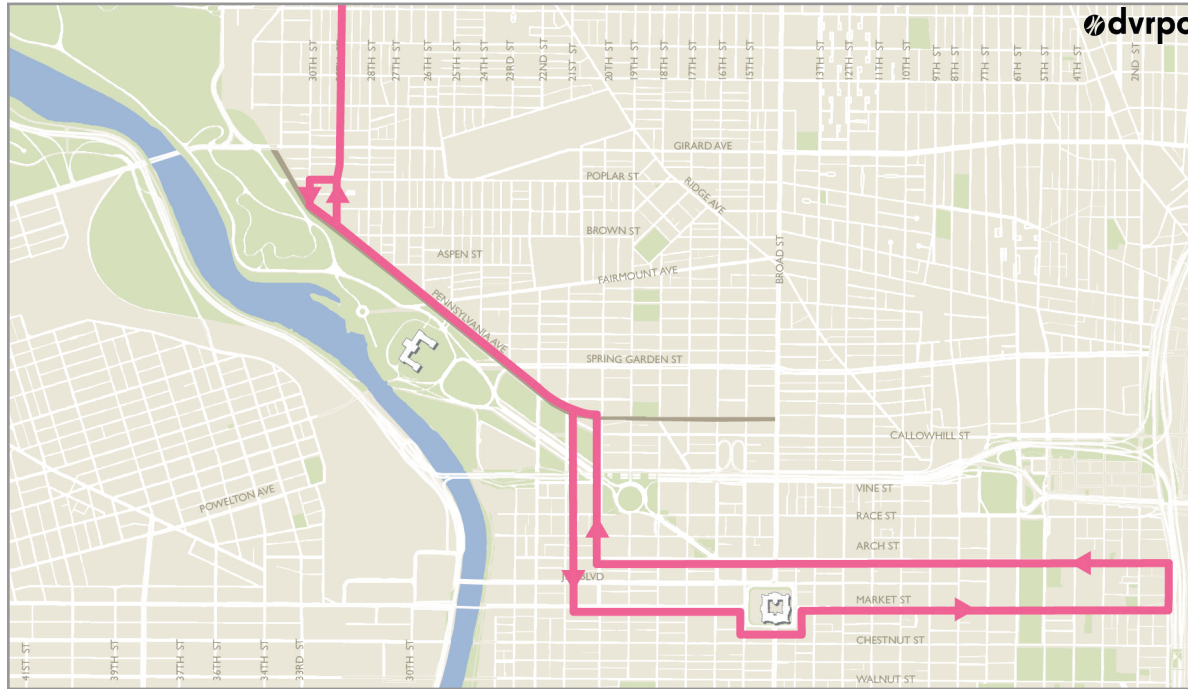


Figure 70: Proposed Route 48 Alignment

Source: SEPTA, 2014

Route 48

Proposed Route Modifications

In Chapter 4: Concepts + Analysis, Route 48 was identified as one of two routes that might benefit from rerouting to the City Branch. This report recommends ex a similar rerouting for Route 48, but rather than using the City Branch, using Pennsylvania Avenue for express, no-stop service before resuming stops at 22nd Street and Pennsylvania Avenue (see Figure 70).

The proposed headways and total trips (see Tables 18 and 19) are based on bus speeds within the City Branch, and may require recalibration based on slower assumed bus speeds on Pennsylvania Avenue.

Table 18: Route 48 Weekday Headways

Service Period	Existing Headways	Proposed Headways
A.M. Peak	6 mins.	12 mins.
Base	12 mins.	15 mins.
P.M. Peak	8 mins.	10 mins.
Early Evening	20 mins.	20 mins.
Night	30 mins.	30 mins.

Source: SEPTA, 2014

Table 19: Route 48 Total Trips

Service Period	Existing Total Trips	Proposed Total Trips
Weekday	191	149
Saturday	162	126
Sunday	110	86

Source: SEPTA, 2014

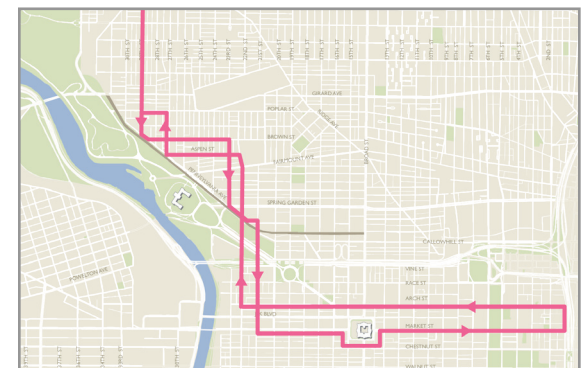


Figure 71: Existing Route 48 Alignment

Source: SEPTA, 2014

Recommendation 4:

New Route

Proposed Service

In Chapter 4: Concepts + Analysis, the Express Busway analysis found that, if Routes 32 and 48 were modified to provide express service, a new route would be necessary to provide service to the stops that would be skipped on the proposed express Routes 32 and 48.

The proposed New Route would begin at Front and Market Streets, traveling along Arch Street, and then crossing over the Benjamin Franklin Parkway before moving through Fairmount in an alignment designed to mimic the existing Routes 32 and 48 (see Figure 72). The Philadelphia Zoo would serve as a western terminus because it could provide the space needed for buses to layover. This terminus would also offer a one-seat ride between Center City and the Philadelphia Zoo, potentially serving residents, tourists, and Zoo employees.

The proposed New Route would make local stops, and follow the headway and total trip specifications detailed in Tables 20 and 21.

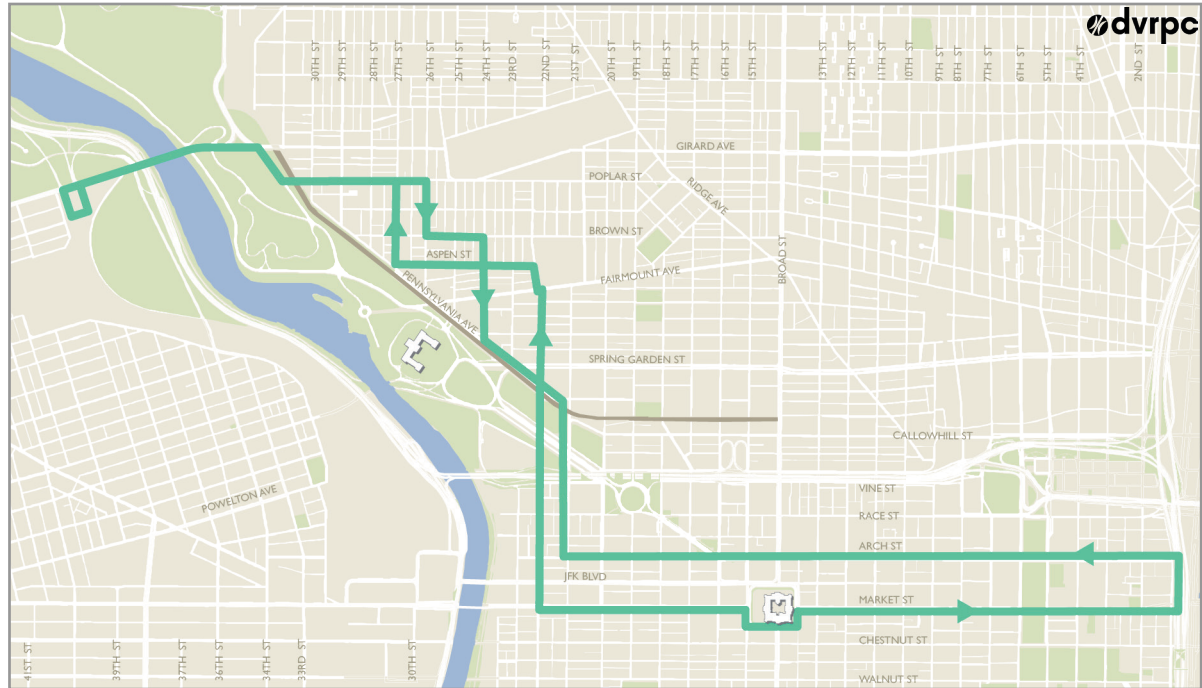


Figure 72: Proposed New Route Alignment

Source: SEPTA, 2014

Table 20: New Route Weekday Headways

Service Period	Existing Headways	Proposed Headways
A.M. Peak	N/A	10 mins.
Base	N/A	20 mins.
P.M. Peak	N/A	15 mins.
Early Evening	N/A	20 mins.
Night	N/A	30 mins.

Source: SEPTA, 2014

Table 21: New Route Total Trips

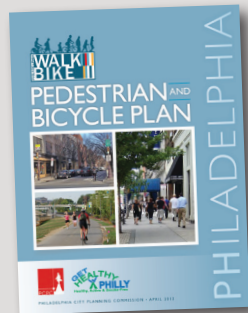
Service Period	Existing Total Trips	Proposed Total Trips
Weekday	N/A	130
Saturday	N/A	110
Sunday	N/A	78

Source: SEPTA, 2014

Recommendation 5:

Expand Street-level Pedestrian and Bicycle Facilities.

The Philadelphia Pedestrian and Bicycle Plan (2012) proposes several improvements to Philadelphia's nonmotorized transportation network, including modifications to several bicycle facilities and priority pedestrian facilities in this project's study area (planned bicycle facilities are shown in Figure 26).



This report does not recommend implementing an exclusive trail use within the City Branch, in part, to avoid duplicating investment of scarce resources into on-street bicycle and pedestrian facilities. Part and parcel with this recommendation is an expectation that the City of Philadelphia will implement the planned bicycle and pedestrian facilities detailed in the Philadelphia Pedestrian and Bicycle Plan.

Recommendation 6:

Establish a Master Plan For Future Transit Use in the City Branch.

SEPTA, in collaboration with the City of Philadelphia and adjacent communities, should develop a master plan that anticipates the potential for a future, high-quality transit use. In addition to a review of this report's analysis, this master plan should include the following components:

- **Transit Visioning and Design**
A visioning and design element of the master plan should include site design components integral to transit, such as passenger access points, stations, and proposed runningways. Additionally, an evaluation should be included of site opportunities for uses that may be complements to transit use.
- **Pro Forma**
Any use proposed for the City Branch right-of-way will require rehabilitation and ongoing maintenance expenses. Regardless of whether those expenses are paid through private or public expenditure, or through some combination of the two, any project will need to be a worthy investment.

The master plan should evaluate future benefits that include capital appreciation or income, as well as environmental or mobility benefits to adjacent neighborhoods.

Site-specific guidance for transit right-of-way preservation regarding the City Branch can be found in Figure 73: Near-term City Branch Right-of-way Preservation Priorities (pp. 88-89).

Figure 73: Near-term City Branch Right-of-way Preservation Priorities

(1) Transit Connection at 31st Street & Girard Avenue

Why it's important: The intersection of the City Branch and Girard Avenue is an opportunity to increase mobility through transit transfers to the Route 15 trolley.

Action: As bus and trolley operations continue to be evaluated, there should be a concerted effort to concentrate stops near the intersection of Girard Avenue and the City Branch. Foster a unified public space that could easily accommodate a transit stop including the City Branch right-of-way, the Route 15 trolley, SEPTA bus routes, the Girard Mural, Veterans Memorial Park, and the Fairmount and Greater Brewerytown CDC's Dream Garden.

(2) Crossability

Why it's important: The City Branch cut creates a gap in walkability between the Fairmount neighborhood and Fairmount Park. The at-grade crossing at 30th Street and the pedestrian bridge at 29th Street increase accessibility for pedestrians across the right-of-way.

Action: Ensure that at least one safe crossing exists near 29th and 30th Streets, and that the facility connects to a safe pedestrian network. On the west side, look for opportunities to connect pedestrians to Poplar and Sedgley Drives.

(3) Preserve Vents Along Pennsylvania Avenue

Why it's important: The vents between the tunnel ceiling and Pennsylvania Avenue provide much needed air and light within the otherwise dark and dank tunnel. Their existence may also provide a sense of security through the visibility and audible connection to street level.

Action: Uphold the aperture provided by the vents as design and engineering changes take place along the City Branch tunnel or Pennsylvania Avenue to allow for the exchange of light, air, and sound.

(4) Callowhill Street and Pennsylvania Avenue Corridor

Why it's important: Future transit within the City Branch is dependent upon population and employment density that creates transit demand. This area contains more parcels that can support new development than other adjacent neighborhoods.

Action: Encourage transit-supportive development around Callowhill Street, Spring Garden Street, and Pennsylvania Avenue that increases population and employment density, with ground uses and access points that would allow for access to transit from adjacent properties.

(5) Protect Integrity of Walls, Tunnel, and Sidings

Why it's important: The structural integrity of the tunnel, walls, and sidings maintain the safety of the cut conditions. Their architectural qualities give the City Branch a sense of history and character.

Action: Maintain the structural and architectural integrity of the masonry walls, tunnel, and sidings along the right-of-way to ease future implementation of transit and to preserve historic character.

(6) Pursue an Unblocked Right-of-way Between Broad and 16th Streets, if Possible

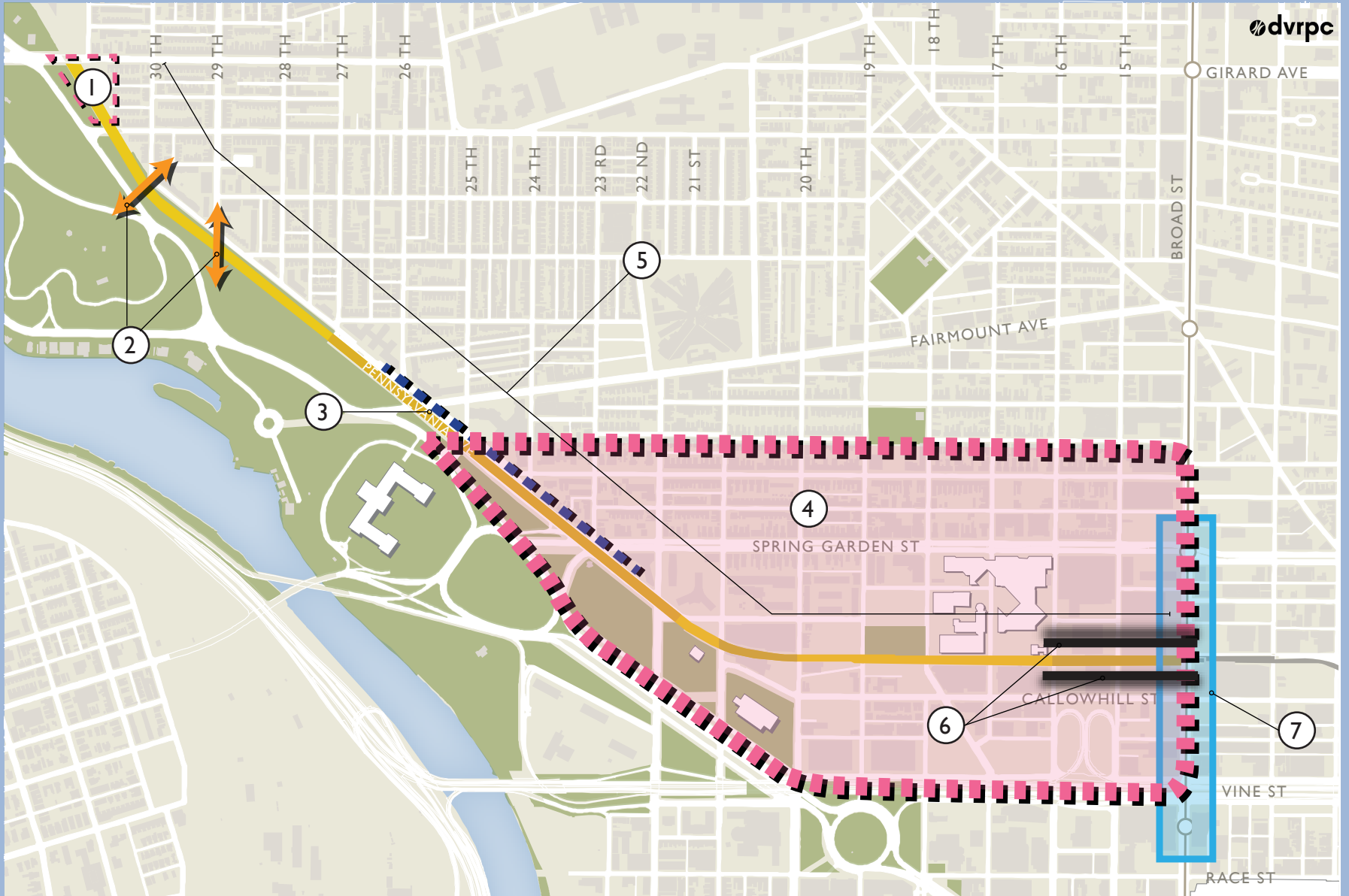
Why it's important: Reestablishing the connection to Broad Street at the City Branch provides for a longer grade-separated transit route, allows for better transfer opportunities to the Broad Street Line, and supports development along North Broad Street.

Action: As properties along the City Branch develop in the future, encourage the reestablishment of an unblocked (building-free) corridor to allow future transit complete passage between Broad Street and 31st Street and Girard Avenue.

(7) North Broad Street Transit Readiness

Why it's important: Connections to Broad Street—either directly to the Broad Street Line, or as a surface connection—increase the efficacy of transit in the City Branch by providing transfer opportunities, and by offering access to North Broad Street.

Action: Infrastructure projects along North Broad Street should preserve or enlarge underground public transit rights-of-way along both the City Branch and Broad Street Line routes. Transit stops along Broad Street should be coordinated to allow transfers to the City Branch.



Identify Interim Uses for the City Branch

This report makes the case for the City Branch's long-term transit utility. In the near term, however, SEPTA should identify interim uses for the City Branch that put the right-of-way to productive use, but do not permanently preclude transit use in the future. In order to ensure the potential for future transit use, these interim uses should be either compatible with transit operations, or temporary.

In identifying interim uses, SEPTA should be open to creative reuse ideas from the public, private, and nonprofit sectors, potentially through an open request for proposals, or through a design competition. Over the course of this study, several stakeholders raised alternative ideas for use of the City Branch that were outside the scope of DVRPC's analysis, but would be useful for investigation by SEPTA in identifying interim uses.

Parking

Several stakeholders noted that parking in neighborhoods adjacent to the City Branch is in high demand, and that the City Branch could be leased to provide parking on a temporary basis. In fact, sections of the City Branch between 18th and 21st Streets are already used for parking.



Figure 74: Existing Parking in the City Branch

SEPTA should consider how parking could work without precluding a future transit use, and identify strategies for access.

Green Stormwater Infrastructure

The Philadelphia Water Department's (PWD) *Green City, Clean Waters* plan sets forth goals for managing stormwater runoff using green stormwater infrastructure. Several stakeholders expressed interest in using the City Branch to help meet those stormwater goals.

Further study should be dedicated to whether the City Branch could be feasibly used to help manage stormwater runoff.



Figure 75: Green Stormwater Infrastructure at Nebringer School in Bella Vista.

Source: PWD, 2013

Mixed-use Development

Private development interest in the area near the City Branch is high, with several new proposals made during the course of this project, including at 2100 Hamilton Street (see Figure 75). Use of the City Branch has been considered for a range of amenities associated with these developments, including parking, building services, and public transit stations.

Depending on its form, new development—whether adjacent to- or on air rights over the City Branch—could be an asset or a hindrance to a transit reuse proposal. SEPTA should set standards for how to manage development proposals on the portion of the right-of-way that it controls.



Figure 76: 2100 Hamilton Street Rendering.

Source: BartonPartners Architects, 2014

Public Space

Several advocates have called for transforming the City Branch into an accessible linear park (see Figure 76). This use would leverage the City Branch's industrial legacy for design inspiration, and benefit surrounding neighborhoods by providing new open space, and serving as a forum for arts and entertainment.

SEPTA should carefully consider if any temporary use of the City Branch as public space would preclude its future use for public transit.



Figure 77: Friends of the Rail Park Rendering

Source: OLIN, 2011

Publish a Systemwide Rights-of-Way Preservation Guide

SEPTA should develop a document focusing on preserving transit rights-of-way that can guide internal decisionmaking, and inform the public about its long-term priorities for SEPTA-owned corridors.

These guidelines should be relevant to all unused, SEPTA-owned rights-of-way. This should include, specifically, preservation strategies for transit use in the City Branch. These strategies should address activities that could interfere with- or preclude future transit uses, such as: removing rails; siting landscaping; use restrictions for adjacent development or development on air rights over a transit right-of-way; and guidance for temporary arts, entertainment, commercial, and recreational uses. The guidelines should also detail vegetation control, litter control, and other aesthetic maintenance duties to ensure the inactive right-of-way does not become a nuisance to neighbors.

Producing a rights-of-way preservation guide would also offer SEPTA the opportunity to assess long-term maintenance

needs for the City Branch and other rights-of-way. Ultimately, that assessment can help SEPTA develop an appropriate maintenance schedule that keeps rights-of-way safe and clean for adjacent neighborhoods, while preserving the transit utility of its unused rights-of-way.

For example, the Los Angeles County Metropolitan Transportation Authority (Metro) outlines parameters for use of Metro-owned corridors in its *Rights-of-way Preservation Guide*. These parameters include allowable temporary uses, siting of particular use restrictions, and prohibitions on rail removal. Under guidance from the Federal Transit Authority (FTA) as a provision of MAP-21, the preservation of future transit corridors may happen early in the identification of a transit need, prior to the environmental review process.

City Branch Transit Feasibility Study

Publication Number	14020
Date Published	October 2015
Geographic Area Covered	Philadelphia, Pennsylvania
Key Words	City Branch, Transit, SEPTA, Philadelphia, Cultural Corridor, Express Busway, Transit + Trail

Abstract

The *City Branch Transit Feasibility Study* was conducted by DVRPC staff in collaboration with SEPTA and the City of Philadelphia. The study takes a fresh look at the City Branch right-of-way, an unused, SEPTA-owned corridor in Center City Philadelphia, to evaluate its greatest potential use as a transportation asset in the near- and long-term.

The study analyzes the feasibility of three existing concepts for reusing the City Branch: the Cultural Corridor, a tourism-focused route proposed by the Philadelphia City Planning Commission; express bus service for existing SEPTA bus routes; and a combined busway and trail. The analysis did not find any of these three concepts to be viable transit options at this time, but acknowledged recent trends that may make the City Branch useful for transit service in the long-term future.

The study includes background on past planning efforts, an overview of existing conditions, conceptual feasibility analysis, order-of-magnitude cost estimates, and recommendations addressing future transit use potential for the City Branch.

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