

11th STREET BRIDGE PARK:
A FRAMEWORK FOR CONNECTING COMMUNITIES

Elevated Parks On the Rise

Six Projects with Lessons for the
11th Street Bridge Park

Virginia Tech Studio Report, May 2013

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REPORT OVERVIEW AND ACKNOWLEDGEMENTS

This report represents the work of students enrolled in the Planning Studio of the Masters in Urban and Regional Planning program at Virginia Tech's National Capital Region campus. Working closely with 11th Street Bridge Park Project Director, Scott Kratz, students spent the spring semester of 2013 conducting an in depth study designed to inform the process of transforming the obsolete 11th Street Bridge into DC's first elevated park.

The studio team produced a set of three independent but related reports:

1) *People, Places and Plans* includes an analysis of demographic characteristics of census tracts adjacent to the proposed 11th Street Bridge Park; an inventory of unstructured spaces, structured active spaces, cultural points and food related spaces in the vicinity; and an assessment of other relevant planning documents and initiatives with overlapping goals.

2) *Access, Walkability and Wayfinding* examines and provides recommendations on issues that relate to the experience of getting to the 11th Street Bridge Park.

3) *Elevated Parks on the Rise* presents six detailed case studies of projects with key similarities to and lessons for the 11th Street Bridge Park. The analysis looks closely at four main issues: site context; planning process; management, operations and programming; and site design considerations.

The 11th Street Bridge Park studio team would like to thank our studio client, Scott Kratz, for the opportunity to participate in the launch of this exciting project. We would also like to express our appreciation to DC community advocates, personnel from the DC Office of Parks and Recreation, and other city officials, architects and engineers who have provided us with important data and insights. Finally, we would like to thank our studio advisor, Dr. Elizabeth Morton, who guided us through the process and provided invaluable feedback as we worked to deliver this final report.

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ELEVATED PARKS ON THE RISE

INTRODUCTION

The “High Line effect,” as some have termed it, has captured the imagination of citizens and policy makers alike in recent years; elevated parks have become trendy new public spaces. As certain types of transportation infrastructure have become obsolete, opportunities arise to creatively adapt parts of that infrastructure to meet other community needs. Although the concept is not new, many elevated parks are now being constructed or considered across the country. To inform the proposed 11th Street Bridge Park, we selected six projects, half of which have been completed, with key commonalities or lessons that could be applied in planning for this project. The case studies examined include:

- **Bridge of Flowers** (Shelburne Falls, MA)
- **Walnut Street Bridge** (Chattanooga, TN)
- **The High Line** (New York, NY)
- **Bloomingdale Trail** (Chicago, IL)
- **Reading Viaduct** (Philadelphia, PA)
- **Providence River Pedestrian Bridge** (Providence, RI)

The case studies were reviewed and analyzed based on some key characteristics, highlighting useful connections to the proposed 11th Street Bridge Park. The following sections examine each characteristic in detail:

- **Site Context** provides background information on each project under review including physical descriptions of the projects, surrounding communities and how the projects were initially funded.
- **Planning Process** describes how the project vision was developed through community engagement, design competitions and coordination among stakeholders.
- **Management, Operations and Programming** describes how the projects function, or plan to function, after the bridge or park is open for use. This section identifies the agencies involved with maintenance of the parks, as well as the mechanisms for funding programming and maintenance.
- **Site Design Considerations** describes what role the projects have in pedestrian and cyclist routes as along with wayfinding and physical connections to the parks.

METHODOLOGY

Selection of the case studies was influenced by a list provided by the 11th Street Bridge Park Project Director, Scott Kratz, and independent Internet research. Final case studies were chosen based on their similarity to the 11th Street Bridge Park project and the availability of information. The case studies were also selected to represent projects in various stages, from an idea to an established community institution. Reviewing case studies which are still in early stages may help the 11th Street Bridge Park project team organize joint efforts and information sharing with the planners of the other projects.

Information was gathered from Internet searches and by interviewing individuals familiar with the case studies. Potential interview candidates were identified either through a public Internet search or referrals from Scott Kratz or other interviewees. Once identified, the interviewer sent an email informing them of the study and requesting their participation. If a potential interviewee was interested in participating, the interviewer sent an information sheet explaining any potential risks and benefits. Informed consent was given when participants agreed to set up the interview. Interviews were conducted by phone, lasted approximately 30 minutes and consisted of ten open-ended questions about their involvement in the case study of interest. A total of seven people were interviewed, all of whom agreed to be quoted. There may be limitations in the data collected since the interviewers were unable to collect information from key players for every case study and from many different perspectives on the case study due to time constraints and limited access to interviewees. For instance, a resident's experience may be quite different from the project manager's experience and may have different responses to the interview questions. Although there is a risk of biased information, we believe that the information is still valuable since it allowed us to obtain a more in-depth understanding of the case studies.

CASE STUDY ANALYSIS

SITE CONTEXT

The case studies detailed in this section of the report represent a range of projects with some similarities to the 11th Street Bridge Park. Three make use of old bridge foundations across rivers, while the other three are adaptive reuse of elevated rail structures. In most cases, the structures are in or near downtown areas, but each case has a unique site context. The Bridge of Flowers is a concrete arch bridge that is now over one hundred years old and needed to be preserved after rail travel ceased since the structure also carries pipes for drinking water across the river. The Walnut Street Bridge is even older and was repurposed from use as a highway to a bike and pedestrian bridge with a surface of composite wood decking. The High Line and the Reading Viaduct are built on old, elevated steel rail structures within dense urban contexts and provide spectacular views of the city. The Reading Viaduct and the Bloomingdale Trail have arched masonry bridges and filled areas, which sit entirely on a

constructed embankment. Both the Reading Viaduct and Bloomingdale Trail create a perceived physical barrier dividing neighborhoods even though underpasses allow for pedestrian movement between them.

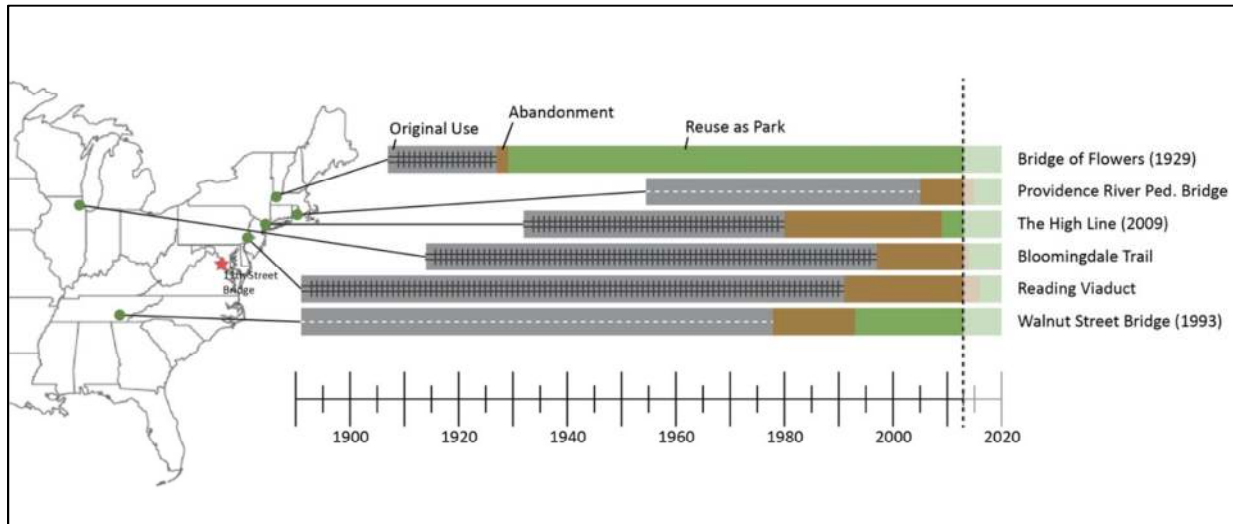
The case studies are now in various stages of completion. Figure 3.1 shows a timeline with each case study's origin (i.e. rail or highway) and the stage of development of each, including the periods for each structure's original transportation use, abandonment and use as a public park. Two phases of The High Line have opened and the final phase is expected to open in 2014. The first half of the Bloomingdale Trail is under construction and also due to open in 2014. The Reading Viaduct is mostly still in the design phase, but its quarter-mile northwestern section has funding and is expected to start construction in the near future. The Providence River Pedestrian Bridge will provide entirely new surface conditions over the pilings of an old highway bridge and shares many similarities in site context and design intentions to the 11th Street Bridge Park, but has not yet moved past the design phase.

Table 3.1 Site Context

	BRIDGE OF FLOWERS	WALNUT STREET BRIDGE	HIGH LINE	BLOOMINGDALE TRAIL	READING VIADUCT	PROVIDENCE RIVER PEDESTRIAN BRIDGE
Years from conception to opening	1 year: 1928-1929	13 years: 1980-1993	10 years: 1999 to 2009	2003- present (initial phase expected to be completed 2014)	2003 – present (not yet completed)	2007 – present (not yet completed)
Project Type	Pedestrian bridge park on old trolley bridge	Pedestrian bridge	Elevated park on old rail lines	Elevated trail and park	Elevated park on old rail lines	Pedestrian/cyclist bridge across river on old freeway piers
Length/Size	400 ft. long by 14 ft. wide	2376 ft. long by 35 ft. wide	1.5 mi by 25-70 ft. wide	2.7 mi by 30-80 ft. wide	1 mile (1/4 mile for the SEPTA Spur) by 30-70 ft wide	350 ft. long by 20-75 ft. wide
Original advocacy group(s)	Shelburne Falls Area Women’s Club	Chattanooga Ventures	Friends of the High Line	Friends of the Bloomingdale Trail	Reading Viaduct Project	Student, Rhode Island School of Design
Geographical context	Small town in Massachusetts	Urban environment, Downtown Chattanooga	Urban environment, Manhattan	Urban environment, Northwest Chicago	Urban environment, North Philadelphia	Urban environment, near downtown Providence, RI; over water, with planned parks on each side
Social context	Near center of a small town	Connecting Downtown Chattanooga to under developed North Shore	Connects three neighborhoods in lower West Side	Traverses multiple neighborhoods	Within two neighborhoods: Callowhill and Chinatown North	Connects the Knowledge District and Downtown to neighborhoods across river
Purpose of Project	Creating a pleasant garden path on a bridge over the river	Connecting communities, restoring iconic bridge	Preserving the experience of walking along a “railroad artifact”	Increasing open space and provide more active modes of transportation	Providing needed park space and economic development	Providing missing transportation link across river and additional public open space
Allowed uses	Walking only	Walking, cycling, pets, special events by permit	Walking, jogging, extensive programming, no dogs	Walking, cycling	Walking, pets (for SEPTA Spur); undecided whether bicycling will be allowed on Reading section	Walking, cycling, pets

Figure 3.1 *Timeline of Selected Case Studies*

Source: Gonski 2013



THE BRIDGE OF FLOWERS - SHELBURNE FALLS, MA

The Bridge of Flowers (Bridge) is a well-known attraction for Shelburne Falls, Massachusetts. Around 35,000 people sign the guest book each year, indicating the significance of this tourist attraction for this small town in the rural western part of the state (Leavell 2012). The bridge crosses the Deerfield River and is about 400 feet long by 14 feet wide, with a straight walking path bordered by flowers on either side open from April through October. Figure 3.2 shows the path size and elaborate landscaping. Although size and site context differ from other elevated parks examined in this study, it is notable for its age, its sense of place identity and the connection that has developed between the bridge and the community over time.

The Bridge was originally constructed for trolleys and freight in 1908. Weeds grew upon the Bridge after the railroad went bankrupt in 1927 and it was considered it an eyesore; however, it was too expensive to demolish and also carried pipes needed to transport the local water supply. It was found to be more practical to maintain and repurpose the bridge and the Shelburne Falls Area Women's Club proposed turning it into a flower garden. The idea caught on and the Women's Club was able to organize volunteer labor to cover the Bridge with soil and plant it with flowers. The Shelburne Falls Fire District purchased the bridge for \$1,250 in 1928 (Bridge of Flowers 2013). The modest cost and scope of the project, which did not involve structural repairs or modifications, made it the only one of the case studies in which the structure was not abandoned for a significant period of time.

By the 1970s, the Bridge needed physical restoration to improve the condition of the structure. The Women's Club created Bridge of Flowers Preservation, Inc. as a separate entity specifically to raise funds and work with the Towns of Buckland, Shelburne and the Shelburne Falls Fire District, which still owns the bridge. The Women's Club and the newly formed Shelburne Falls Area Business Association worked

with the Franklin County Planning Department to achieve the goals of the overall restoration project. Around \$500,000 was secured for the project: \$100,000 appropriated by the Shelburne Falls Fire District; \$290,000 from a Massachusetts Small Cities Community Development Block Grant; and the remainder from donations by individuals, businesses and other organizations. All trees and shrubs were removed from the Bridge and cared for in private gardens during the restoration, which was undertaken in 1983 (Bridge of Flowers 2013). No formal design competition was ever held for the Bridge.

THE WALNUT STREET BRIDGE - CHATTANOOGA, TN

The Walnut Street Bridge (WSB), the bridge in the middle of in Figure 3.3, was originally constructed in 1891 by the Smith Bridge Company as the first non-military bridge over the Tennessee River. The WSB is a “Pennsylvania through truss bridge” with pinned connections and sits atop limestone piers. The structure is approximately 2,376 feet long and 30 feet wide. It served vehicle traffic until 1978 when the bridge was closed for safety reasons. The bridge then sat unutilized for nearly 15 years. During this time, several ideas for reuse of the bridge were presented to the Mayor and City Council, including reopening the bridge for pedestrian access with a trolley. There was no clear direction for the WSB during this time period. Chattanooga then received a \$400,000 grant from the Department of Transportation under the Federal Bridge Replacement Act. The city planned to use towards its demolition, however it lacked additional funds necessary to complete the acquisition.

Garnet Chapin, a local architect, was one of several residents who wanted to see the bridge saved. Various community leaders, historians and activists joined together and presented a plan to save the bridge. The local preservation group Landmarks Chattanooga nominated the bridge for the National Register of Historic Places, although this meant the city could no longer use the \$400,000 grant from the Department of Transportation. The Parks Foundation and Chattanooga Venture raised money to restore the bridge as a pedestrian walkway, which was initially estimated to cost \$8.5 million due its dilapidated condition. A second study found that restoration could be done for \$4.5 million by using an alternative technique with steel cable supporting the underside of the bridge.

In 1993, the WSB reopened as a pedestrian-only linear park connecting Downtown Chattanooga with the city’s North Shore neighborhood, which had experienced considerable decline in the 1980s and 1990s. The rehabilitation of the WSB has been credited with sparking the resurgence of both the Downtown and North Shore areas of the city. Several development projects including Coolidge and Renaissance Parks, several hotels and housing complexes, an IMAX theater and a baseball park (AT&T Field) have been completed.

Applications

- Case study examples vary from highly landscaped to more active, trail-based recreation
- Property values surrounding project are likely to increase
- Irregularly-shaped parcels near projects may still have redevelopment potential for housing or adjacent park space
- Affordable housing concerns may be addressed by using vacant properties for expansion of affordable housing

The High Line is situated within a very dense, urban context since its elevated freight rail structure was first built to serve the lower west side of Manhattan in the early 1930s. Figure 3.4 shows the path that exists today meandering between tall buildings. A rail line had already occupied the same route at ground level, but the intensity of foot and vehicle traffic moving through the area created pressure to move the rail traffic above the street. The trains stopped running by 1980, but the elevated rail remained in place, unused and soon overgrown with vegetation. Public sentiment was that the rail line was becoming a source of blight, but demolishing it would have cost an estimated \$80 million (HR&A 2002). The co-founders of Friends of the High Line, Joshua David and Robert Hammond, met at a community meeting about the proposed demolition in 1999 and began their effort to have the rail line instead preserved and repurposed as public space.

The High Line park has been expensive to create, even accounting for the \$80 million that would have been required for demolition. The first two phases cost \$152 million, while the third and final phase at the rail yards is expected to cost another \$90 million. New York City contributed \$43.5 million for construction, but almost all of the remainder is being paid for through private fundraising. Several rich and famous individuals stepped up as key donors and spokespeople. Actors Edward Norton, Kevin Bacon and Ethan Hawke all spoke on behalf of saving The High Line, and in 2011 the Diller-von Furstenberg family donated \$20 million. The success Friends of the High Line has had in securing financial support from individuals and companies in the area with deep pockets has been critical to the project's success. As of early 2013, Friends of the High Line had raised \$81 million out of the \$125 million target for its capital fund to pay for maintenance, programming and remaining construction at The High Line (Foderaro 2013).

In 2009, the first half mile of The High Line opened as a public park. Real estate prices within a 5-minute walk of The High Line rose 103 percent between 2003 and 2011 (NYCEDC 2011) and the park is credited with helping to catalyze an estimated \$2 billion of new real estate investment in the surrounding neighborhood over the same period (McGeehan 2011). Public officials viewed this as a good thing for the city and a justification for supporting the project with public funding, but The High Line is also criticized for accelerating a process of gentrification that was already sweeping through the west side of Manhattan. Many small businesses that had been in the neighborhood and depended on regular local customers had declining profits or closed as rents and real estate prices rose (Feeney 2011). The High Line had around 4.4 million visitors in 2012, half of whom were from outside New York City (Friends of the High Line 2013).

Figure 3.2 *Bridge of Flowers*

Source: Gonski 2012



Figure 3.3 *Walnut Street Bridge, Aerial View (center bridge)*

Source: Rivercity Company 2010



Figure 3.4 *The High Line, view north near 24th Street*

Source: Gonski 2012



THE BLOOMINGDALE TRAIL - CHICAGO, ILLINOIS

In the late 19th century, the Bloomingdale Line was part of Chicago's remarkable rail system serving the city's industry. The tracks were built at street level and ran along Bloomingdale Avenue. Rails at street level posed a significant hazard to pedestrians and many people were killed at rail crossings. The city of Chicago passed an ordinance in 1910 requiring 140 miles of railway to be elevated by 1914, including the 2.7 mile stretch of the Bloomingdale Line. The rail was raised 16 feet above street level on a 30-foot right of way used until the 1990s. The Bloomingdale Trail (BT) was first proposed in 1998 during a preliminary study of how the surrounding properties might be developed. As with most aging infrastructure, there was discussion of removing the line instead of taking on the task of rehabilitation and reuse. Friends of the Bloomingdale Trail formed in 2003 as a 501(c)3 non-profit organization to advocate for the conversion of the elevated Bloomingdale Line into the Bloomingdale Trail. Figure 3.5 depicts the length and location of the BT in relation to the Loop in downtown Chicago.

In 2004, the project was included in the Chicago Park District's *Logan Square Open Space Plan*. The *Plan* suggested the conversion of the 2.7 mile elevated rail line from North Ridgeway Avenue to the Kennedy Expressway into a trail and park since it identified the lack of open space in one of Chicago's most densely populated neighborhoods (LSOSP 2004). The plan also placed emphasis on the need to increase recreational opportunities, restore historic integrity and improve the aesthetics of the community, which includes the neighborhoods of Logan Square, Humboldt Park, Wicker Park and Bucktown. The document only considered converting vacant underutilized land to open space due to the resistance of city planners and residents of Logan Square to adding parks through demolition of residential buildings

(LSOSP 2004). The BT vision plans to connect neighborhoods, provide open space that contributes to public health and create a new and vibrant area for socializing.

THE READING VIADUCT - PHILADELPHIA, PA

Owned and operated by the Reading Railroad company, the viaduct was built in the 1890s to carry passenger and freight trains into Center City and operated until 1984 (CCD 2012d). Its abandoned structure currently has many weeds and is in disrepair. In 1995, Southeastern Pennsylvania Transportation Authority (SEPTA) acquired the quarter-mile-long, 26,000-square-foot spur that curves off northwest from the main branch and runs from Callowhill Street to Noble Street (CCD 2012d). The main branch and northeast curved section is still owned by Reading Company. Figure 3.6 shows where the Viaduct is located within Philadelphia. The shape and neighborhood locational context of the Viaduct is shown in Figure 3.7.

Organized efforts to rehabilitate the Reading Viaduct (Viaduct) began in 2003 with the formation of the Reading Viaduct Project organization and the initiative has gained momentum due to the success of The High Line. Rehabilitation would increase park space in what has historically been a warehouse district and also allow for economic development opportunities. The City of Philadelphia's Department of Commerce gave a grant to the business improvement district, Center City District (CCD), to fund a study of alternatives in 2003 and the study determined that it would cost about \$50 million to completely demolish the remaining branches of the viaduct, compared to about \$5.1 million to retrofit a portion of it into a park and recreational pathway, including landscaping, benches, access ramps and staircases (CCD 2013). The Viaduct is now a key feature in Philadelphia's *Philadelphia 2035* plan, especially in the neighborhood-focused report, the *Callowhill-Chinatown North Strategic Plan*. The park would physically bring together the economically and culturally diverse neighborhoods of Callowhill and Chinatown North and provide a catalyst for the redevelopment of North Philadelphia, which contains many vacant properties.

The SEPTA Spur, the park's northwestern section, has been fully designed and will be the first phase to be constructed. This section is only 35 feet (two tracks) wide and will be targeted for passive, slow recreational use. Figure 3.8 is a rendering of the proposal to use existing catenary structures as flower trellises. The rest of the northwestern section is 60 feet (4 tracks) wide and may include a cycling component in the future (Google Earth 2013). A key development in Phase 2 is acquiring ownership of the rest of the Viaduct from the Reading Company.

The many supporters of the Viaduct redevelopment project have differing ideas and concerns to address throughout the planning process. The Philadelphia City Planning Commission has served as the neutral body to review all ideas, suggestions and visions for the development. The role of the local business improvement district, Center City District, has been to coordinate with the community-based advocacy groups, the city's Department of Commerce and the Department of Parks and Recreation to evaluate the options and make the project come to fruition.

Residents and employers in Chinatown North have expressed some concerns about the project. Since the Philadelphia Chinatown Development Council (PCDC) felt that the Viaduct has caused blight in the neighborhood, the group took a stance in favor of demolition. The shadows and abandoned condition of the current structure have made the Viaduct a crime hot spot in the neighborhood (Russ 2011). The executive director of PCDC, John Chin, expressed concern about the existing Viaduct system in the Chinatown area causing some parcels in the neighborhood to be unusable for development and advocating for demolition of the Viaduct as a solution to develop these parcels (Russ 2011).

The Reading Viaduct is being considered as a both a local and regional park (Spina 2013) and is predicted to raise local property values abutting the Viaduct by four to eight percent, assuming it is a passive park of high quality and adequate security and maintenance (Jones Lang LaSalle 2010, 25). Chinatown North's concerns about moving forward with the rehabilitation of the Viaduct also included the risk of losing current and expanded affordable housing due to changes in neighborhood composition and a rise in property values. To address this concern, the CCD studied the potential development capacity and found that development of housing or commercial areas was possible on the irregularly shaped parcels and that the City of Philadelphia's zoning code would allow for this development (Jones Lang LaSalle 2010, 27-43, Spina 2013). Additional space needed to accommodate affordable housing for Chinatown North's projected growth were found to be met by the parcels abutting the Reading Viaduct (CCD 2012b, 23-24). Cecil Baker & Associates concluded that housing development was possible on the existing irregularly-shaped parcels and suggested some design concepts as shown in Figure 3.9 for a parcel at the intersection of Noble St. and 11th St., which includes mid-rise housing with seven stories, 59 units and 12 parking spaces.

PROVIDENCE RIVER PEDESTRIAN BRIDGE - PROVIDENCE, RI

This pedestrian bridge is part of the larger relocation of the I-195 highway which began in the early 1990s with an Environmental Impact Statement and other related studies for feasible alternatives. In the late 1990s or early 2000s, a college student from the Rhode Island School of Design pitched the idea of using the old piers for a pedestrian bridge to the City of Providence and it was passed on to the Rhode Island Department of Transportation (RIDOT) for consideration (Zerva 2013). While RIDOT did not rule the idea out, it also did not agree to it because the agency needed to focus on the immediate high priority of relocating the highway. Once the highway relocation was underway, RIDOT revisited the idea of the pedestrian bridge since it could then be a viable option and started discussing the project with the City of Providence around 2007. The I-195 relocation project has \$2 million set aside for the demolition of the piers that will, instead, be applied to the building of the pedestrian bridge. RIDOT and the City of Providence will secure the rest of the funding necessary, through state funds, before beginning construction. The bridge is part of a larger infrastructure change since the adjacent land used to be part of the highway route. The old highway is now demolished and the piers remain in the river as seen on the right in Figure 3.10 (Providence Department of Planning and Development 2012a).

Source: Friends of the Bloomingdale Trail 2012



Source: PCPC 2013



Figure 3.7 Close-up of Strategic Plan boundaries.

Note: Reading Viaduct is the y-shaped gray structure

Source: PCPC 2013

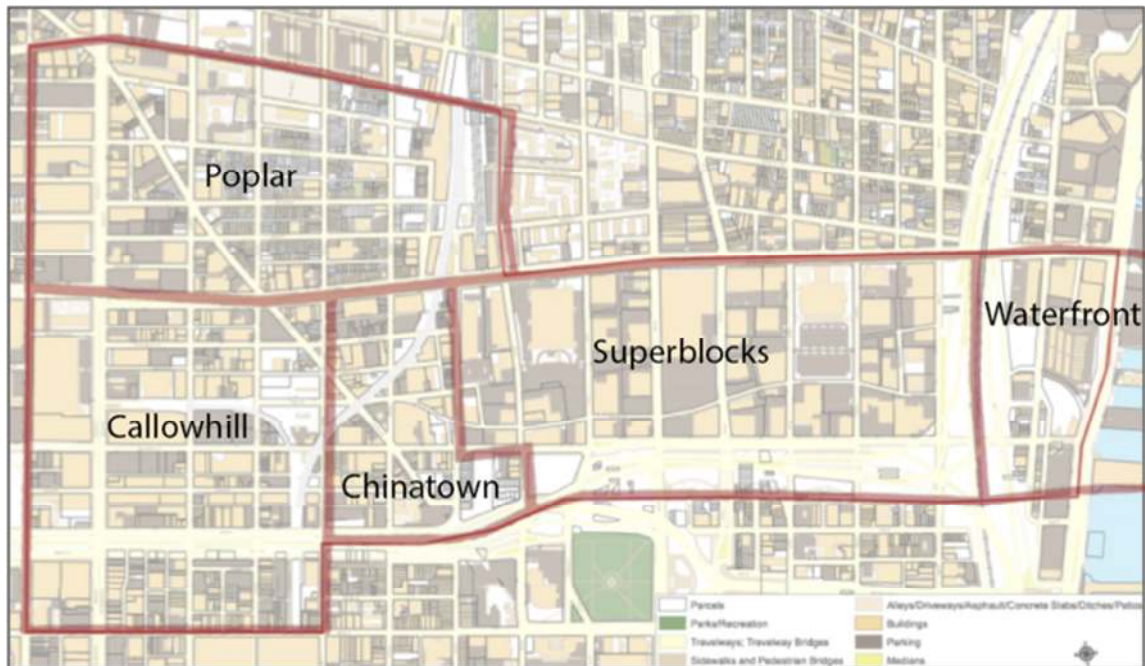


Figure 3.8 Rendering of catenary structures as a trellis (Reading Viaduct)

Source: Bryan Hanes 2012



Figure 3.9 *Residential development feasible on triangular parcel, design by Cecil & Baker Associates (Reading Viaduct)*

Source: CCD 2012b, 23-24

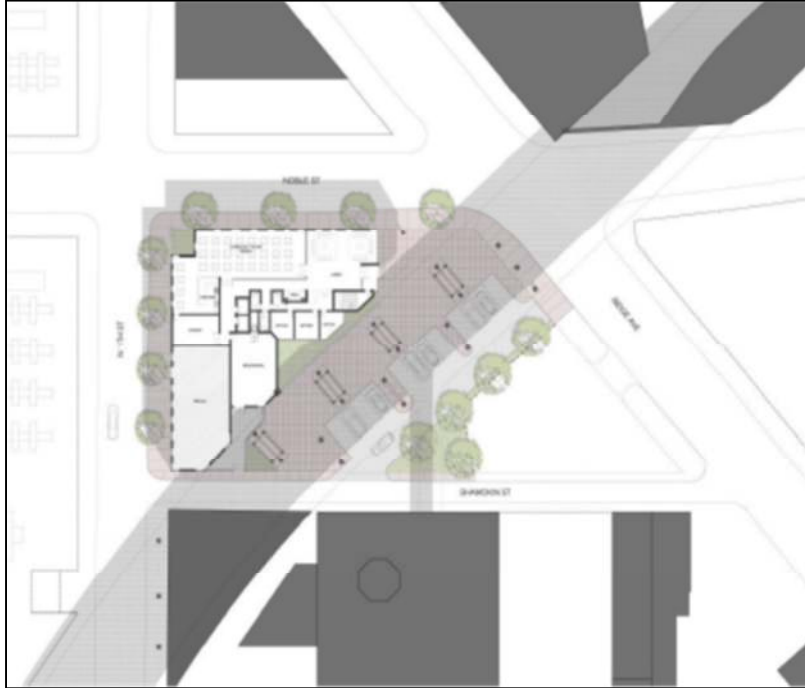


Figure 3.10 *Aerial view of Providence, Rhode Island's current I-195 highway route and old piers in river (Providence River Ped. Bridge)*

Source: Providence Department of Planning and Development 2012a



COMMUNITY ENGAGEMENT

Throughout the planning process of the Bloomingdale Trail and Reading Viaduct, there have been many community meetings with residents and landscape architects. On October 1-4, 2011 a series of public design charrettes for the Bloomingdale Trail was held at the McCormick Tribune YMCA in Chicago. During these four days hundreds of people worked to discuss programming, access, landscaping and art for the trail (Figure 3.11). In a “Post-it” exercise, attendees were asked to write down their thoughts on the Bloomingdale Trail and place them on an eight foot tall image of the trail (Figure 3.12). Beginning in the fall of 2011, the CCD worked with community groups, the Philadelphia City Planning Commission, the City’s Commerce Department and Department of Parks and Recreation to host a neighborhood meeting to discuss community design preferences for the Viaduct. In January 2012, the Viaduct design team presented multiple design options at a community meeting with residents, property owners and businesses from the area.

Through these community meetings, residents have been able to discuss their desires for the planned projects and have many of their concerns addressed. In the case of the Reading Viaduct, community participants strongly favored making the park an informal, passive, leafy green space with plenty of grass and flowering plants and with room to walk and sit. The participants also wanted to balance the retention of the industrial authenticity with the requirements of modern safety, code and access compliance. Chicagoans expressed similar desires for the BT project. They also wanted access for vendors to sell ice cream and food, more trees planted, safe biking transitions and community gathering space.

The use of the internet and social media has been as influential in engaging the community as in person meetings. The Friends of the Bloomingdale Trail has used social media such as Facebook and Twitter to reach residents and others who may be interested in the progress of the trail’s conversion. Online photo sharing sites such as Flickr have also been used to promote engagement, as in the case of the pedestrian bridge in Providence. The planners used a photo album posted on Flickr to collect comments from the community on the 11 design team finalists’ renderings. Following a January 2012 Viaduct design team meeting, there was continued dialogue to reconcile different opinions through an online survey in which more than 50 participants expressed their preferences and provided extensive comments (CCD 2012c). Through community engagement, the project team was able to embed themselves in the community to understand their needs and desires and, according to Bryan Hanes, CCD Director Paul Levy was able to convert a lot of naysayers into supporters (Hanes 2013).

Source: Bloomingdale Trail and Park Framework Plan



Source: Bloomingdale Trail and Park Framework Plan

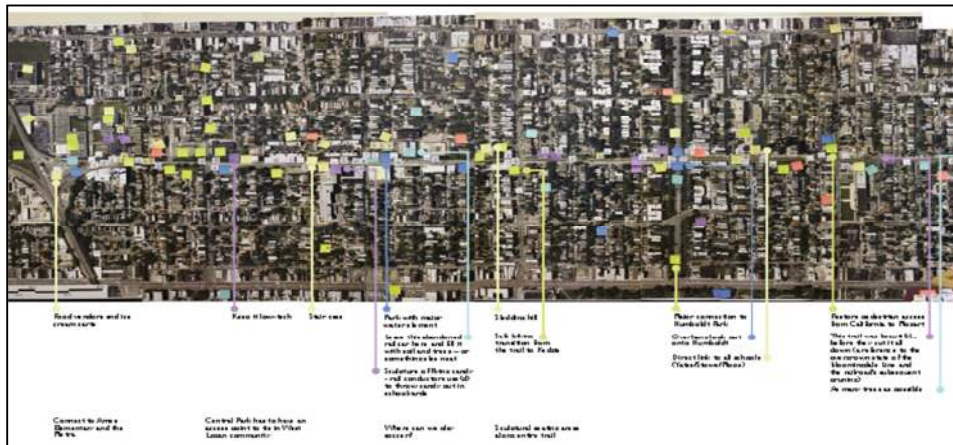


Table 3.2 Planning Process

	BRIDGE OF FLOWERS	WALNUT STREET BRIDGE	HIGH LINE	BLOOMINGDALE TRAIL	READING VIADUCT	PROVIDENCE RIVER PEDESTRIAN BRIDGE
Key Development in park genesis	Repurposing the bridge much less expensive than demolition and construction of new separate water line	Placement on National Register of Historic Places	Photography exhibition by Joel Sternfeld at MoMA	Sale of embankment by Canadian Pacific	The Center City District's interest in redevelopment	Costs were a minimal increase compared to demolition
Community engagement methods	Not Known	Public meetings and fundraising efforts utilized volunteers from the community	Programming organized by Friends of the High Line	Public meetings throughout concept and design phases	Public meetings with dot voting	Stakeholder committee for design selection and public meetings for neighborhood plan
Social and Economic Impact analysis	Significant economic impact from tourism for local economy	No formal analysis, several presentations given on change in demographics	Real estate values significantly increased, especially within a 5 min. walk	No formal analysis done	Economic impact analysis and feasibility study for irregularly shaped parcels	Supplemental analysis needed since pedestrian bridge not originally in I-195 project plan
Design Competition	No formal competition	No formal competition	Ideas competition in 2003, formal design competition in 2004	No formal competition; design team chosen in 2009	No formal competition; design team chosen in 2010	Formal design competition in 2010
Key challenges faced	Raising sufficient funds for structural restoration in the early 1980s	Securing structural integrity, raising remaining funds; Opening bridge use to pets; Operating 24 hrs/day	Gathering a critical mass of popular support and funding to construct, maintain and program	Purchase of embankment; Acquisition of adjacent vacant and useable property; Fundraising remaining \$38 million to implement entire phasing plan	Ownership of northeast section; Funding methods; Pushback from Chinatown North	Achieving consensus on bridge design

INTERAGENCY COORDINATION

Interagency coordination is a critical element across all six case studies. Coordination was apparent in the conceptualization and design phases and carried over into the management and post construction phases. There was no standard or common mix of agencies charged with implementing projects or maintaining structures. Organization and division of responsibilities was based on each municipality's specific type of governance and resources; depending on the type of structure, it could also be influenced by state agencies.

Interagency coordination is extended to partnerships with private groups as in the Bridge of Flowers, where the Shelburne Falls Fire District and Shelburne Falls Area Women's Club share in the operation and maintenance. In Chattanooga, the Department of Public Works and Department of Parks and Recreation share in the operation, maintenance and programming of the Walnut Street Bridge but they also receive assistance from the Parks Foundation which raises money to fund some of the bridge's improvements.

In Chicago, there is a concerted effort among many agencies working together to ensure success of the Bloomingdale Trail. The Chicago Department of Transportation will oversee the design and construction of the trail. The Department of Housing and Economic Development, in coordination with the Trust for Public Land, will work with communities to foster future investments. The Chicago Department of Cultural Affairs and Special Events will work to establish the arts in the trail's development.

Turning the dream of the Reading Viaduct into a reality will require the effort of many players. The CCD has spearheaded the effort, involving the City's Commerce Department, Department of Parks and Recreation, the PCPC and many community groups. Although bicycles will not be allowed on the SEPTA Spur section, discussions with bicycle coalition groups were held to plan how to integrate bike parking since the park is anticipated to be a popular destination rather than a throughway (Hanes 2013). The uniqueness of this park project has caused some challenges for the Philadelphia Parks and Recreation (PPR). Unlike many other private public partnerships the PPR has been involved with, the design

Applications

- It is important to involve key players early in the process
- Funding parks through a tax on local neighborhoods is not popular
- Private foundations are a common funding source for initial costs
- For a design competition, decide and communicate early on who will make final decisions since consensus is difficult to achieve
- Social media and exhibitions allow for more public comment on designs than traditional community meetings

specifications have caused some complications with practical implementation for management and operations. Although the PPR is eager to have the increased park space in a neighborhood that is underserved, the design calls for specialty lights, trash receptacles and benches the city does not usually use. Since the city does not have replacement parts in stock as part of their normal inventory the new design elements would not be as cost effective as using existing standard fixtures (Focht 2013). Another logistical issue is the narrow width of the pathway, which impedes the ability of the PPR to transverse the Viaduct to maintain it and collect trash with their current vehicle fleet; instead, they would need a golf-cart sized vehicle (Focht 2013). Mark Focht, the

First Deputy Commissioner of the Philadelphia Parks and Recreation, explained that since the PPR was to be the responsible party for the Reading Viaduct after construction he wished the agency was included more in the conversation about the park design to avoid these types of logistical problems later on.

The Providence River Pedestrian Bridge is a joint effort between the state and the local government for the initial planning and construction of the bridge. The RIDOT works with the city planning department to coordinate supporting zoned uses on either side of the bridge since there may be potential for economic development to occur. Many of the city's departments are also collaborating, such as the Public Works; Arts, Culture and Tourism; and Parks and Recreation departments.

DESIGN SELECTION

Selecting a final design for any infrastructure improvement can take many forms and largely depends on state and local laws and whatever stipulations are placed on funding sources. Federal acquisition laws and most local laws require competitive bidding. Private sector acquisition may incorporate more flexible mechanisms for a selection process. Without scrutinizing the regulatory parameters of each jurisdiction for the projects listed in this report, a general overview of what is known about the design selection for The High Line, Bloomingdale Trail, Reading Viaduct and Providence River Pedestrian Bridge is provided.

In 2003, Friends of the High Line generated public interest in the project by organizing a Design Ideas Competition. The group received 720 submissions, which were put on display at Grand Central Station (David and Hammond 2011). The next year, it issued a request for qualifications from professional teams and chose 4 finalists out of 52 submissions. The finalists then developed their ideas for The High Line, which were reviewed by a jury, which selected the team of James Corner Field Operations and Diller, Scofidio and Renfro. The winning team described its approach as follows:

“Inspired by the melancholic, unruly beauty of the High Line, where nature has reclaimed a once-vital piece of urban infrastructure, the team retools this industrial conveyance into a post-industrial instrument of leisure, life, and growth. By changing the rules of engagement between plant life and pedestrians, our strategy of agri-tecture combines organic and building materials into a blend of changing proportions that accommodates the wild, the cultivated, the intimate, and the hyper-social. In stark contrast to the speed of Hudson River Park, this parallel linear experience is marked by slowness, distraction and another-worldliness that preserves the strange character of the High Line. Providing flexibility and responsiveness to the changing needs, opportunities, and desires of the dynamic context, our proposal is designed to remain perpetually unfinished, sustaining emergent growth and change over time” (Friends of the High Line 2013).

The city of Chicago selected ARUP North America from a collection of potential teams to create the preliminary design of the Bloomingdale Trail in 2009. A significant delay in awarding the contract left many residents wondering if the project would actually take off. The contract was finally awarded in 2011, almost two years after the winning team was selected. Once the award was made, ARUP and its

team, which includes Ross Barney Architects and Michael Van Valkenburgh Associates, began work to produce designs that incorporated the suggestions and concerns of residents.

There was no formal design competition held for the Reading Viaduct. The CCD chose Studio Bryan Hanes as the designer after being pleased with the firm's work on the Sister Cities Park project in Center City, Philadelphia (Levy 2013). The construction, however, will be in the form of competitive bids (Levy 2013). Paul Levy, the Executive Director of the CCD, suggests that designs should appeal to diverse perspectives and blend those perspectives; moreover, it is important that the design be unique to the area (Levy 2013).

In 2009-2010, RIDOT started developing options with the city and stakeholders for the Providence River Pedestrian Bridge, but the designs produced by the state were not popular. In late 2010, RIDOT started a design competition by requesting qualifications (RFQs) from interested design teams. After receiving qualifications from 47 teams from across the world, 11 finalists were chosen by the stakeholder committee and the city (Nickerson 2013). The design requirements included use of existing piers, planning for the connection to the two future adjacent parks and helping to solve current and future transportation needs. Design team selection criteria included the following:

- Design philosophy and approach to design
- Experience of key personnel
- Prior design experience with pedestrian bridge projects of similar scale and complexity
- Articulated understanding of the functional and operational needs of the proposed bridge
- Commitment to developing a proposed bridge design within the timeframes and constraints outlined in the RFQ (Nickerson 2010).

Public input was gathered in various ways. Comments on the designs of the 11 finalists were collected at an exhibition at City Hall and from the online Flickr photo album and then combined for the stakeholder committee to review. After comments were reviewed, the committee deliberated on final design selections and presented two recommendations to the mayor. The Mayor then chose one of the recommended teams: inFORM (designers) and Buro Happold (engineers).

KEY CHALLENGES AND LESSONS LEARNED

Reuse of aging infrastructure is often seen as very exciting way to promote green and sustainable planning principles. That excitement, however, does not come with ready-made designs or cheap price tags and rarely are all interested parties ready to immediately embrace the change that is proposed. Each of the case studies presented has its own unique challenges to overcome and an account of lessons learned can be beneficial for future projects such as the 11th St. Bridge Park.

There were very few problematic issues with the Bridge of Flowers, as new ownership and construction occurred within a year after abandonment. On the other hand, the Walnut Street Bridge's challenges were much more complex: the bridge was in a dilapidated state; funding to demolish or rebuild it was

lacking; the North Shore was a declining neighborhood with few viable businesses; and the bridge had a tainted history as the site of two hangings in the late 19th and early 20th century. These were all issues that Chattanooga Venture, Landmark Chattanooga, a local preservation group and city officials had to overcome and address in seeing the WSB saved. Twenty years after the bridge reopened there are continued challenges that stem mainly from preserving and propelling the success of the bridge, addressing maintenance cost and public safety since the bridge is open 24 hours a day and a recent challenge on whether or not to allow pets on the bridge. Responding to the pet issue, DOGood Chattanooga has been very instrumental in keeping the WSB pet friendly. As a citizen volunteer group, it works with city leaders and Parks and Recreation officials to develop educational programs to teach responsible dog ownership (DOGood 2013).

The Bloomingdale Trail design team has developed an ambitious framework for converting the rail into an elevated trail and park. With funding not 100% secure, the completed project is difficult to envision. The city cleared one hurdle by completing the purchase of the embankment from Canadian Pacific Railway. Also, the project will encounter structural issues in ensuring the integrity of the 37 viaducts. The city has been on a campaign to acquire land along the trail that is vital to making connections to neighboring parks, creating new parks and constructing access points on the trail. Keeping the enthusiasm going seems to have been a challenge for proponents of the trail. Nearly two years passed between the announcement of the winning design team and the award of the contract to the ARUP team. This caused many residents to question the city's commitment to the project.

The biggest challenge the City of Philadelphia is facing is obtaining ownership rights to the northeastern section of the Viaduct owned by Reading Company. The Reading Company is now an entertainment business and it is an uninterested party with little will to make any movement towards a sale. Many, including Paul Levy and Laura Spina (Senior Planner, PCPC), believe that the negotiations with Reading may be easier once the SEPTA Spur is constructed since it will provide an example to build from. A second major challenge is accommodating all parties' interests since the Callowhill neighborhood is interested in more condos and cultural activities, while Chinatown North's main concern has been the ability to expand affordable housing into the project area. Lastly, there is confusion with respect to the management structure, which was not defined in great detail before the design phase.

When creating a new project like the Providence River Pedestrian Bridge, Lambri Zerva, RIDOT Project Manager for the I-195 relocation project, suggests that it is important to create a "backbone for things to expand on," and that sometimes it is best to leave a little left to do since it may be a disservice to plan to the "nth degree" (Zerva 2013). In other words, people may really want to use the space for something planners may not have anticipated. And a project like this is really a "melding together of things," making the project bigger and more meaningful than what it is physically. Also, consensus is difficult to accomplish and sometimes never achieved with respect to the design selection process. Understanding and communicating who will actually decide on the final design and whether the public is "voting" or just submitting comments is also very important. In this case, the Mayor had the final say, but the city and stakeholder committee reviewed all the public comments before making recommendations.

PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnerships are common among all of the case studies. The Bridge of Flowers has functioned as a public-private partnership throughout its 84-year history. The Shelburne Falls Fire District has a vested interest in keeping a vital pipe transporting water across the Deerfield River on the bridge since it also manages public water services; this prompted the purchase of the bridge after the trolley company went bankrupt. Management of the surface of the structure falls within the role of the Shelburne Falls Area Women's Club. Similarly, The High Line is also managed as a public-private partnership between a Friends group and the City. The City of New York owns and maintains the structure (City of New York Parks and Recreation 2013) while Friends of the High Line pays for maintenance and programming in the park. There may also be a partnership formed between the City of Providence, Brown University (which is adjacent to the planned parks and bridge) and a Friends group to cover ongoing maintenance for the Providence River Pedestrian Bridge (Nickerson 2013).

The planning of the Bloomingdale Trail is under the purview of the Chicago Department of Housing and Economic Development (DHED), and as part of the planning operation DHED has been working with the nonprofit Trust for Public Land (TPL) to acquire parcels along the trail for access point parks. The Chicago Department of Transportation (DOT) will oversee the engineering, design and construction of the project. The Chicago Park District will then own and manage the completed project along with the adjacent parks that will be developed along the embankment. An organization called Bloomingdale Collaborative is a working group co-chaired by the TPL and DHED, which consists of several city agencies

Table 3.3 *Management, Operations and Programming*

	BRIDGE OF FLOWERS	WALNUT STREET BRIDGE	HIGH LINE	BLOOMINGDALE TRAIL	READING VIADUCT	PROVIDENCE RIVER PEDESTRIAN BRIDGE
Ownership	Shelburne Falls Fire District	City of Chattanooga	City of New York	Chicago Parks District	Current: SEPTA and Reading Co. After Construction: City of Philadelphia	Current: RIDOT After Construction: City of Providence
Responsible entity for maintenance and operations	Shelburne Falls Area Women's Club, Bridge of Flowers Preservation, Inc. and Fire District	Chattanooga Department of Public Works and DPR	Friends of the High Line	Chicago Parks District	Philadelphia Parks and Recreation and CCD partnership with potential friends group	City of Providence (Parks and Recreation and Public Works)
Cost: construction	\$2,250 (1929), \$500,000 restoration in 1983	\$4.5 million	\$240 million (est.)	\$91 million (est.)	\$7-8 million (est.) for SEPTA Spur only and \$40-50 million for whole project (Levy 2013)	\$6 million (est.) (Zerva 2013)
Cost: annual operating	\$40,000	Not Available	\$5 million (2012)	TBD	TBD	TBD
Initial fundraising methods	Not Known	Combination (Public-private funding)	Combination (Public-private funding)	Combination (Public-private funding)	Combination (Public-private funding)	\$2 million from bridge relocation project plus the rest in state funding
Funding for operating costs	Primarily donations as "Friends of the Bridge"	City of Chattanooga plus private endowment	\$1 million from New York City, remainder from private donations	TBD	PPR's city-wide operating budget	City's Department of Public Works
Programming through design	Fountain, benches	Benches	Several types of seating, public art, space for events and play structures	Playgrounds, skate parks, outdoor classrooms	Raised seating and lawn area and swings made from industrial materials	May contain a café and sundeck
Programming for community	Annual plant sale; Annual 10k	Annual festivals, interactive art shows and weddings are permitted	Food vendors, environmental education and volunteerism	No planned programming	No planned programming	Children's waterscape, food vendors and on-shore fishing in adjacent parks

such as Chicago Park District and Chicago DOT, along with nonprofit and civic associations like Friends of the Bloomingdale Trail and Logan Square Neighborhood Association. The working group reviews progress, generates ideas, reports on administrative activities and facilitates communication between agencies.

For Philadelphia's Reading Viaduct, the city will acquire the property for the Viaduct, lease it to a private nonprofit for construction and then retain ownership and management after construction. The Viaduct is currently owned by two separate transportation authorities: Southeastern Pennsylvania Transportation Authority (SEPTA) and the Reading Company. Before redevelopment of the first phase begins, SEPTA will sell the northwestern section, the SEPTA Spur, to the City and the City will then lease it to the CCD for it to build the park. After construction, the lease will terminate and the park will be managed by the City for Philadelphia Parks and Recreation (PPR). Although there is no official "Friends" group established yet, there will be a three-way partnership between PPR, CCD and a Friends group for operations, maintenance and programming of the park. Details of the specific responsibilities in the partnership are still being worked out between the PPR and CCD. After the distribution of responsibilities is understood, the three partners will work together to maintain and operate the Viaduct.

The success of the Walnut Street Bridge's rehabilitation is due to the efforts of several public and private groups, including private foundations. Chattanooga Venture was a nonprofit organization funded by the Lyndhurst Foundation to promote the public interest and community development in the city. The Viaduct owes its initial funding success to major contributors as well, receiving funding from the William Penn Foundation and Poor Richard's Charitable Trust, both local foundations.

The funding needs and resources vary by project, corresponding in part to the project scale. About \$40,000 is spent annually for the Bridge of Flowers, including money for two part-time staff who spend 15 hours per week maintaining the flowerbeds. Much of the planting, weeding and maintenance is performed by the volunteer "Flower Brigade" organized by the Women's Club. Recent improvements include a new fence at the entrance and a fountain on the Shelburne side that were donated by local businesses (Bridge of Flowers 2013). Approximately \$5 million per year is spent on The High Line, as of 2012. \$1 million in funding per year comes from the budget of New York City Department of Parks and Recreation, while the remainder comes from fundraising efforts by Friends of the High Line. Fundraising for the Bloomingdale Trail has been a coordinated effort between the Friends of the Bloomingdale Trail and TPL. PPR's existing budget should cover its portion of responsibilities for

Applications

- Public-private partnerships between the city and a Friends Group are common
- Code compliance is challenging for building, bridge and park standards due to unique combination of standards and responsibilities
- Linkage to history of place through design can be done through plaques, pavement inserts, iconic artwork or materials used
- Active spaces such as playgrounds, skate parks and soccer fields are typically planned in adjacent park spaces, but it is possible to have a linear playground as planned for the High Line
- Outdoor classrooms are possible through stadium seating
- Youth employment program can help with maintenance and teach environmental stewardship

the Reading Viaduct, while other aspects, which are yet to be determined, will be covered by the CCD and a Friends group (Focht 2013).

The design team for the Providence River Pedestrian Bridge recommended building an “Environmental Interpretive Center” and a mixed-use facility, suggesting public-private partnerships that would encourage economic investment from the private sector for the project (inFORM and Buro Happold 2010); however, this was seen as a “pie-in-the-sky” idea and will not be implemented due to lack of funding (Nickerson 2013). The proposed cafe could potentially be run as a public-private partnership, but complications with running utilities for the cafe when there is room in adjacent park spaces to accommodate similar activity may prevent that idea from happening. Philadelphia’s old Spring Garden station on the Reading Viaduct has potential for private investment and operations as a cafe or retail that would also provide a public benefit of an additional ADA accessible entrance through use of an elevator in the building.

PROGRAMMING THROUGH DESIGN

Design can often influence activities that occur within parks, both active and passive uses, and can occur through available seating choices, play structures, restaurants or retail and active playfields. Incorporation of a site’s history can also be accomplished through plaques, art or overall style.

The Bridge of Flowers, High Line and Reading Viaduct are all designed to be slow, fairly passive spaces. The linear form and dense urban surroundings of The High Line guided the forms of programming provided by the design. The community and design team felt The High Line should be more of a “slow space,” given the proximity to the “fast” Hudson River Greenway and it was therefore designed for people to walk along at a slow pace and look around – whether at the plantings, outdoor art exhibitions or the surrounding streets and buildings. Many benches were designed with a “peel-up” typology that evokes the feeling of horizontal movement through the space and “stadium seating” looking out over street crossings engage the park visitor to observe and contemplate the activity of the surrounding urban landscape. Figure 3.13 shows some various “peel-up” designs and Figure 3.14 demonstrates the stadium seating. Open grassy spaces invite a different, more relaxed type of sitting and activity as shown in Figure 3.15 and 3.16.

Similarly, the Reading Viaduct will be designed with mostly passive spaces. The SEPTA Spur is only wide enough to accommodate walking, although the northeastern section may be designed with a little more flexibility to include more than just a walking path. Design suggestions include a raised seating area and raised lawn and industrial swings, as shown in Figure 3.17.

Figure 3.13 *“Peel-up” typology design (High Line)*

Source: James Corner Field Operations and Diller Scofidio + Renfro 2012.



Figure 3.14 *“Stadium seating” overlooking 10th Avenue (High Line)*
Source: Vintay 2009

Figure 3.15 *The Lawn at 22nd Street (High Line)*

Source: Gonski 2012



Figure 3.16 *Seating at the Lawn at 22nd Street (High Line)*

Source: Friends of the High Line and James Corner Field Operations 2012



Figure 3.17 *Raised seating and lawn area and industrial swings (Reading Viaduct)*

Source: Bryan Hanes 2012



Cyclists are, or will be, allowed on the Walnut Street Bridge, Bloomingdale Trail and Providence River Pedestrian Bridge, which provides a more active experience than the aforementioned case studies.

Planning for community spaces through design has also been a goal for many of the case studies. Walnut Street Bridge's boardwalk style (pictured in Figure 3.18) with large open-space area makes it very accommodating to larger festivals and events. Areas in the third (and final) phase of The High Line will include additional raised seating space over 10th Avenue, as shown in Figure 3.19, and feature play structures created out of the underlying girder structure, as pictured in Figure 3.20. Residents at a community meeting for the third phase expressed support for the design of the first two phases, but said they would like to see seating space for events and spaces that had more for kids to do such as a children's playground (Friends of the High Line 2012). Specific programming on the Bloomingdale Trail has not been set; however, the focus will be on neighborhood-specific activities to promote community engagement. Where the trail encounters parks and other adjacent space, there will be both active and passive uses and amenities to support them, including skate parks, playgrounds and outdoor classrooms. Figure 3.21 depicts a rendering of a skate park near the park entrance providing a unique experience for visitors. The incorporation of community gardens in the design for the Reading Viaduct was discussed, but was discouraged due to the lack of space available on the Viaduct. Since park space is at a premium, there are anticipated long-term conflicts if part of the park was sectioned off for private use (Hanes 2013).

In Philadelphia, the old, abandoned Spring Garden Station has great potential to become a café or retail with an at-grade entrance to the Viaduct. Figure 3.22 shows a rendering of the station reactivated with landscaping and cafe seating. This would create additional activity for the Viaduct and is likely to be conducted in Phase 3 of the project (Levy 2013). There is a chance that a café may be a part of the Providence River Pedestrian Bridge (PRPB), but there have been logistical issues, such as utilities and building codes, that may prevent it from being constructed. Figure 3.23 shows what this café may look like as depicted in the original design concept.

Figure 3.18 *Open area for community events (Walnut Street Bridge)*

Source: The Parks Foundation 2011



Figure 3.19 *Event Space on spur over 10th Avenue (High Line)*

Source: James Corner Field Operations 2012



Figure 3.20 *Children's playscape concept (High Line)*

Source: Stoelker 2012



Figure 3.21 *Ashland Skate Park (Bloomingdale Trail)*

Source: Friends of the Bloomingdale Trail 2012



Figure 3.22 *Proposed improvement to the old Spring Garden Station (Reading Viaduct)*
Source: Bryan Hanes 2012



Figure 3.23 *Cafe proposed at river level (Providence River Ped. Bridge)*
Source: inFORM and Buro Happold 2010



An iconic piece of artwork is used in the case of the PRPB to help blend the bridge with the adjacent West Waterfront Park. Integration of the bridge architecture and park is a key design element to ensure that there is no abrupt transition. Rather than sculptures or artwork on the bridge itself, an artwork is planned for the plaza at the intersection of the bridge and the West Waterfront Park, as pictured in Figure 3.24. Connections to the Riverwalk on both sides of the river will be seamless as well. There is a children's waterscape planned for the West Waterfront Park at the intersection of Dorrance St. Promenade and the plaza in front of the bridge entrance (inFORM and Buro Happold 2010).

A deliberate reference to the historical context of the area has also been incorporated into these case studies. Most have, or plan to have, connections to the existing historical signs in the city. The design concept for the Reading Viaduct retains the feel of industrial authenticity, linking to its past usage as a railroad (Hanes 2013). The design of The High Line clearly evokes the historical form of the elevated rail, even saving and incorporating the original tracks into the park. This connection to past use is also very important for the Bloomingdale Trail. Designers of the trail hope to capitalize on the vehicle separation and sense of discovery the rail represented during its operation (Bloomingdale Framework 2011). Another way to evoke history is paving inserts. The PRPB is considering incorporating the history of the waterfront and the previous highway use by using embedded paving inserts as the city has done in other areas of Providence (Nickerson 2013). Figure 3.25 is an example of a current historical paving insert in the city.

Figure 3.24 *Iconic artwork in plaza immediately off of the bridge (Providence River Ped. Bridge)*

Source: Providence Department of Planning and Development 2012b



Figure 3.25 *Paved inserts depicting area history (Providence River Ped. Bridge)*

Source: Providence Department of Planning and Development 2012b



PROGRAMMING FOR COMMUNITY

Permits for vending, special events and private gatherings are issued by different types of entities across the case studies. The parks and recreation departments issue, or plan to issue, the permits for the Walnut Street Bridge, Reading Viaduct and Bloomingdale Trail. Providence's Department of Arts, Culture and Tourism will manage the programming for the Providence River Pedestrian Bridge (Nickerson 2013).

Permits for vending, hosting special community functions, city-sponsored activities or private gatherings are issued by the Chattanooga Department of Parks and Recreation in the case of WSB. Programming for the Reading Viaduct will be permitted to nonprofits, such as the Friends group and the Parks and Recreation department could permit the nonprofit to use the park for a whole season for a pre-approved calendar of events like the city does for other large parks. The Friends group would be the point of contact if any group wanted to host film festivals, 5K races, kayak tours, or other special events.

Rather than a parks and recreation department, the Friends groups directly coordinate all of the permits and programming for the Bridge of Flowers and The High Line. The Friends of the High Line coordinates programming on The High Line, which now consists of about 450 free events per year. About half of the 4.4 million visitors to The High Line in 2012 were from New York City and Friends of the High Line goes to great effort to appeal to these local residents (Foderaro 2013). High Line programs aim to support the diverse communities surrounding the project and to facilitate inclusive gatherings for all visitors and target a wide range of age groups. Events range from storytelling and arts for young children to after school programs and field trips. Specific self-guided curricula have been created for local teachers to talk about social studies, literature, math, science and art as they relate to The High Line. Dance parties, musical and art performances, lectures, stargazing and many other cultural activities cater more to adults. The High Line varies in width, up to about 70 feet, providing several spaces with enough room for people to gather at these events.

A wide range of activities occur in the elevated parks. Functions on the Walnut Street Bridge include annual festivals such as Riverbend, Wine Over Water and Oktoberfest. Other special events include outdoor interactive art shows and weddings. Rather than on the bridge itself, most of the activities suggested for the Providence River Pedestrian design will occur in the adjacent parks, with the bridge a means of integrating the two places into one large public space. Planners anticipate that food and art vendors will also activate the space, but again located in the parks adjacent to the bridge (Nickerson 2013). The bridge piers and waterfront edges of the PRPB will be equipped to display “WaterFire” torches, as an extension of the existing elaborate waterfront arts display in downtown Providence and the bridge will be an excellent place to view the displays (Zerva 2013). The Bloomingdale Trail also has extended elevated park space and adjacent parks for community activities.

There is existing, or planned, environmental programming in different forms in many of the case studies. Friends of the High Line has also created opportunities for work experience for local teens that focus on environmental stewardship. The *Green Corps* spring break program pays teens to help with gardening and maintenance of plants on The High Line along with other green jobs lectures and training. In 2012, youth staff members were hired to survey residents in the two public housing complexes closest to The High Line to help find out how they could be better served by the park (Friends of the High Line 2013). Environmental programming will likely be planned by the Academy of Natural Sciences for the Reading Viaduct. The Academy of Natural Sciences has previously looked at all the species of plants on the Viaduct and has an interest in summer camps or classes relating to the Reading Viaduct (Hanes 2013). There is also an elementary school near the Viaduct that may occasionally use the park for educational purposes. By design, the Providence River Pedestrian Bridge provides for on-shore fishing along the eastern embankment where natural grasses meet the river.

MOVEMENT OF PEDESTRIANS AND CYCLISTS

These case studies vary in terms of the kind of movement they encourage and accommodate. The Bridge of Flowers, The High Line and the Reading Viaduct are designed more for slow movement and serve more as “destination parks” for a recreational or contemplative stroll than as pedestrian infrastructure used to get somewhere quickly. These three parks do not allow cycling, although jogging is permitted on The High Line and will be permitted on the Reading Viaduct.

Applications

- Adjacent park space commonly used to integrate elevated structures into parks and recreation system and communities
- Screening techniques planned for the PECO power facility may apply to parking garage in Navy Yard
- Cycle tracks need barriers from pedestrian walkways
- Underpasses could have artistic lighting or natural skylights
- Wayfinding can either be very obvious and geared toward tourists or left for others to “discover” the area
- Gateway and wayfinding elements can incorporate local historical context

The Walnut Street Bridge (WSB), the Bloomingdale Trail (BT) and the Providence River Pedestrian Bridge (PRPB) are designed with both cyclists and pedestrians in mind, providing key connections and also functioning as destinations in themselves. The rehabilitation of the WSB was instrumental in the development of a 22-mile-long Riverwalk system that travels along both sides of the Tennessee River around Chattanooga. Added walkability, in general, has been very important for the revitalization of Chattanooga’s Downtown and North Shore (Eichenthal 2008). The WSB provides the best pedestrian and *only* bicycle route across the Tennessee River near downtown Chattanooga. There are Bike Chattanooga bike sharing stations within 100 feet of the bridge access points on either side of the river. Downtown attractions like the Hunter Art Museum, the Tennessee Aquarium, the baseball stadium plus shops and riverfront parks are all more accessible because of the WSB.

Building connections between communities is a component of all of these cases, but it is especially evident in the plans for the BT. The embankment currently has space for pedestrians where it crosses roads but is still a psychological barrier. After the BT becomes a park, it will attract people and serve as a conduit for non-motorized travel between neighborhoods and towards downtown. The shared use of the BT is also a key aspect of the park’s design. Many portions of the trail have two paths, with the cycle track next to, but distinct from, an unpaved path for pedestrians. Material change, elevations, signage and the use of nature as a physical barrier are strategies used to address safety issues created by having both pedestrians and cyclists moving through the park.

The proposed Reading Viaduct is expected to improve street-level connections for pedestrians and transform the structure from something currently causing blight into a more positive space. Current

Table 3.4 Site Design Considerations

	BRIDGE OF FLOWERS	WALNUT STREET BRIDGE	HIGH LINE	BLOOMINGDALE TRAIL	READING VIADUCT	PROVIDENCE RIVER PEDESTRIAN BRIDGE
Designers	No formal design process	Edwin Thacher (chief engineer)	James Corner Field Operations	Michael van Valkenburgh Associates	Studio Bryan Hanes	inFORM and Buro Happold
Design of entrances/exits and ADA compliance strategies	Signs by entrances crafted by local artists; Path at ground level with either side of the river and is ADA accessible	Access points in Downtown and the North Shore are ADA compliant	Public access points every 2-3 blocks (9 total) and 4 points with elevator access	13 access points planned for the trail will be ADA complaint; Design will utilize AASHTO guidelines for shared use paths	2 public ADA accessible entrances plus one possible private entrance in revitalized Spring Garden Station	Pathway routes people in multiple directions
Infrastructure improvements in study area	\$500,000 restoration of the concrete arch bridge structure was completed in 1983	The bridge was in need of structural repairs and improvements before re-opening for public use	Elevated rail structure was rehabilitated during the process of park construction	Improvements to several systems needed before design is complete	Several streetscape improvements; some pedestrian bump-outs; ground-level recreation spaces adjacent to the Viaduct	Two adjacent parks are planned for each side of river
Linkage to history of the area	Interpretive plaques about the history of the bridge	Plaques have been placed along the length of the bridge displaying historic information	Design makes use of original rails, expresses history of the site	Design will incorporate areas dedicated to site history	May retain catenary structure for trellis; Industrial swings; May incorporate old trolley car at N. Broad St. entrance	May include plaques embedded in sidewalk showing history of bridge and waterfront
Public art usage	Floral displays as artwork	Bridge is often used to display public art	Public art exhibitions part of the programming, which is itself also a work of art	Trail itself viewed as living art; Art will be used to connect travelers to the community	Murals or artwork may be included in underpasses	Sculptures in adjacent park meant to be inspired by architecture of the bridge
Wayfinding techniques	Road signs to Shelburne Falls also make note of the Bridge of Flowers	Signs, plaques and sidewalk medallions used; Color-coded system for Riverwalk path	Signage shows access points and route of the High Line	Creative signage designating access points, transit connections, amenities and community events	Will most likely connect to Center City District signs and wayfinding system	Parks conservancy group charged with marketing, signage and branding; no gateway element in order to blend park system with bridge

designs provide for direct access into some buildings and improvements to pedestrian conditions around underpasses. The Viaduct is not a complete barrier to pedestrian traffic, but the underpasses are leaky and dark and create a generally unpleasant walking experience. The need for underpasses to be more safe and comfortable was one of the primary concerns voiced in community meetings; these issues were addressed by proposed lighting designs as shown in Figure 3.26 (Hanes 2013). Additionally, some underpasses may incorporate natural skylights with removed portions of the above deck (Hanes 2013). While ownership of the northeastern section is still being negotiated with the Reading Company, the city cannot make any structural changes to the Viaduct but may use canvas tarps to catch leaking and help stormwater management as well as lighting (Spina 2013).

Major street greening initiatives are planned for the Callowhill-Chinatown North neighborhood aimed at improving pedestrian streetscapes as well as improving stormwater management. Some pedestrian bump-outs will be included near the Viaduct and there is also an emphasis on planning for recreation at ground-level, adjacent properties through plazas or parks to “maximize community access to the Viaduct” (PCPC 2013, 90). Unattractive electrical equipment and a chain link fence surround an energy substation owned by a local energy company, PECO, at the intersection of the SEPTA Spur and the northeastern section owned by Reading Company. Due to its important role in serving the city and the financial constraints of moving such a system, screening will be used to improve its appearance. A variety of options are being considered including a green wall, partial greening and custom metal panels as shown in Figure 3.27. In the 11th Street Bridge project, such techniques could be considered for the parking garage at Navy Yard to improve the visual character of the blank wall.

As described in the *Providence Downtown and Knowledge District Plan* of 2012, the Providence River Pedestrian Bridge would connect two parks on each side of the bridge. A large linear park on the west bank of the river provides the extension of the Riverwalk from the north as seen in Figure 3.28. The West Waterfront Park’s winning design is by Brown, Richardson and Rowe in 2006 and is pictured in Figure 3.29.

Figure 3.26 Underpass lighting suggestions (Reading Viaduct)

Source: Bryan Hanes 2012



Figure 3.27 Screening considerations for PECO Substation (Reading Viaduct)
 Source: PCPC 2013, 103

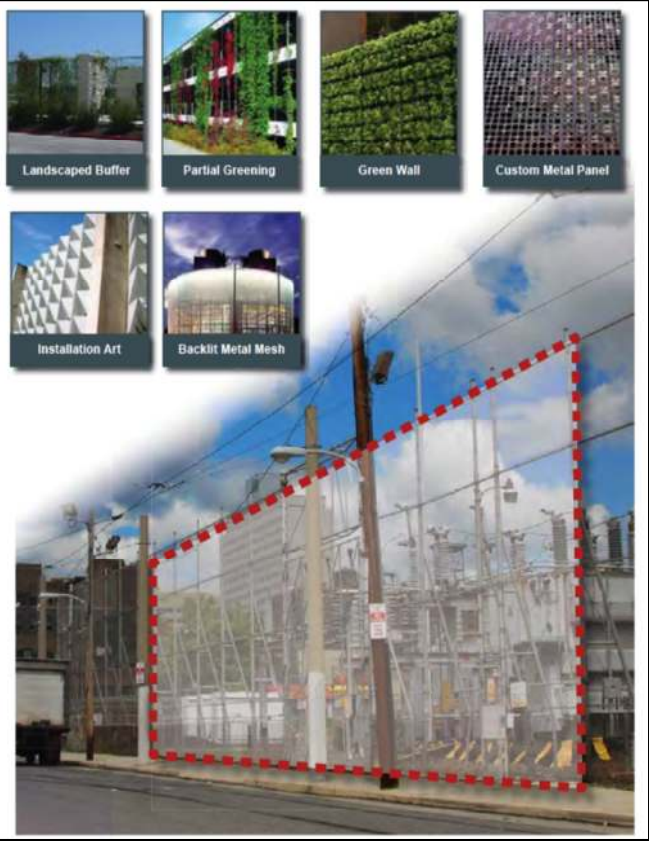


Figure 3.28 Providence River Redevelopment Plan (Providence River Ped. Bridge)
 Source: Providence Department of Planning and Development 2012a



Figure 3.29 West Waterfront Park (Providence River Ped. Bridge)
 Source: Providence Department of Planning and Development 2012a



WAYFINDING

Much of the wayfinding system at the Walnut Street Bridge is used for guiding visitors to the Riverwalk and downtown destinations. Signs, plaques and medallions in the sidewalk guide pedestrians and cyclists to the bridge from blocks near bridge access points. The City of Chattanooga has incorporated a color coded system that alerts pedestrians to the Riverwalk's path. Railings, light posts and the rest of the WSB structure are all painted blue. Access points to the bridge and Coolidge Park on the North Shore are highlighted with steel-framed posts that are also painted blue to show connection to the Riverwalk trail system.

While area residents were aware of The High Line before it was proposed as a park, most people had no idea where it went and how it traveled through the lower west side of Manhattan. The photography of Joel Sternfeld portrayed the sense one felt of being on a “found object” when walking on The High Line and the design sought to maintain that feeling. There is signage at each entry point and street labels on railings to help orient visitors, but little other directional signage (Figure 3.30). There is also some signage that provides some of the historical context to visitors, but there seems to be some restraint in these markers, allowing visitors to mainly understand the history through design.

Figure 3.30 *Wayfinding Signs (High Line)*

Source: Pentagram Design 2013, International Business Times 2011



Wayfinding for the Bloomingdale Trail will support the project's aim of creating physical and social connections. Signage at street level will direct people to access points and alert users to community information and transit connections, as well as distances to local amenities. Informative signs about the historical context of the neighborhoods will also strengthen the sense of connection between users and the surrounding urban area.

Wayfinding signage for the Reading Viaduct will most likely be connected to the Center City District (CCD)'s current wayfinding system (Spina 2013), which consists of approximately 690 uniform pedestrian maps and signs and over 200 motorist signs (CCD 2012a, 4). A celebrated "gateway" to the park for the at-grade N. Broad St. entrance to the Viaduct has been discussed, and results from community meeting comments show preference for preserving the industrial authenticity and respecting the history of the place. Preferred designs include a preserved old trolley car with an exposed cobblestone street, as shown in Figure 3.31, and an industrial catenary structure, pictured in Figure 3.32. Another design suggestion from Bryan Hanes Studio was to commission an artist for a modern "signature statement;" an example is shown in Figure 3.33. The design team is now moving away from this idea since the park is "for the community," as Bryan Hanes describes, adding that "it's something to be found" rather than be clearly marked (Hanes 2013).

The planned pathways along the Providence River Pedestrian Bridge are designed for easy flow to the anticipated destinations. The east side of the bridge divides into several paths, directing pedestrians towards James Street, Transit Street and the existing riverfront walk (inFORM and Buro Happold 2010). A parks conservancy group will be the entity for marketing, signage and other related material. The city will work with them to brand the whole park and bridge network and make walking through the Riverwalk loop an easy thing for residents and visitors to do.

Figure 3.31 Preserved old trolley car with exposed cobblestones for Noble St. entrance (Reading Viaduct)

Source: Bryan Hanes 2012



Figure 3.32 Catenary gateway structure option for Noble St. entrance (Reading Viaduct)

Source: Bryan Hanes 2012



Figure 3.33 Modern signature statement option for Noble St. entrance (Reading Viaduct)

Source: Bryan Hanes 2012



PHYSICAL ACCESS

Naturally, the access and basic site design considerations for the projects reviewed in this case study are guided by the physical location and conditions of existing structures. The Bridge of Flowers and Walnut Street Bridges required no changes other than new surface materials, as they were already at street level on either end. In the future, a spur connecting The High Line to Hudson River Park may provide pedestrians with their own route over the Lincoln Highway, but due to funding limitations that connection has thus far been outside the scope of design.

Access strategies vary slightly for two of the parks created from elevated rail lines due to site context. Stairs up to The High Line are generally located every two blocks and four access points also have elevators. There is no access directly between The High Line and adjacent buildings. In contrast, the Reading Viaduct may include direct access to adjacent buildings, fewer access points and access for wheelchairs only at the ends where the structure slopes down to ground level. There are thirteen proposed access points to the Bloomingdale Trail, several of which will be at “access parks” with ADA-accessible ramps leading up to the top of the embankment as shown at locations in Figure 3.34 and Figure 3.35. Each access point will develop unique approaches to lighting and safety, right of way and the landscape elements.

Four access points are planned for the Reading Viaduct: one existing at-grade entrance at N. Broad St. and three additional entrances as shown in Figure 3.36. Two of the planned entrances will use staircases and the 800 block of Fairmont Avenue entrance will be a ramp on a sloping hill to create an additional ADA accessible entrance. Another (private) entrance may be available on the northeast section by renovating the old Spring Garden Station, which is a perfect place for a café or retail (Spina 2013). Additional private connections may be made to the upper level by private residence or commercial buildings following the example of connections such as that of a Cleveland, Ohio viaduct project shown in Figure 3.37.

The Providence River Pedestrian Bridge will also be ADA accessible (Figure 3.38). In this case, many grade changes are being made in order for the parks to meet the bridge, as one would expect from the conversion of a highway to a pedestrian path. Larger street grid changes include the creation of the Dorrance St. Promenade that will be a wide walkway flowing into the plaza connecting the West Waterfront Park and the bridge (Nickerson 2013).

The physical design of the structures has implications for security and influences whether access can be closed off at night or other designated times. The Bridge of Flowers and The High Line are closed off at night, which is easy to do since there are a limited number of access points; limited access points also helps to maintain security in general with effective use of security cameras (Langdon 2011). The Reading Viaduct and Bloomingdale Trail will also have limited access points and may also have restricted hours. The Walnut Street Bridge is a significant transportation route and open all hours of the day and the same is expected to be true for the Providence River Pedestrian Bridge.

Figure 3.34 *Partial Bloomingdale Avenue Route (Bloomingdale Trail)*

Source: Friends of the Bloomingdale Trail 2012



Figure 3.35 *Bloomingdale Trail connection to Kimball Avenue (Bloomingdale Trail)*

Source: Friends of the Bloomingdale Trail 2012



Figure 3.36 *Physical Access Points*
(Reading Viaduct)
Source: PCPC 2013



Figure 3.37 *Cleveland Viaduct's elevated walkways*
(inspiration for Reading Viaduct)
Source: CCD 2012b



Figure 3.38 *Winning bridge design* (Providence River Ped. Bridge)
Source: inFORM 2010



CONCLUSION

There are several elements that contribute to a successful elevated park project. Those elements presented in the case studies of the Bridge of Flowers, Walnut Street Bridge, The High Line, Bloomingdale Trail, Reading Viaduct and the Providence River Pedestrian Bridge include a snapshot in time of projects that are in various stages ranging from conceptualization to post construction. Although they have similar goals, the projects vary in a number of characteristics:

- Landscaping: High levels of vegetation to industrial-based recreation
- Size: Covering 2-3 miles to a few hundred feet
- Density setting: High urban population to small town
- Transportation function: Destination or travel route
- Programming
- Financials: Cost, funding mechanisms and available financial resources

Elements that seem to be crucial for the successful implementation of plans to transform aging infrastructure into a linear park include the following:

- Gaining local government support and establishing a public private partnership
- Exploring creative funding mechanisms, particularly grant funding from state or federal initiatives for economic development or mitigating impacts of motor vehicle transportation
- Securing a total amount of funds in excess of construction costs at the outset to establish a capital fund for maintenance and improvements
- Engaging the community heavily in the design process
- Discussing project maintenance with the partnering municipal agencies during the design process
- Linking the project to local history and culture through its design

Considering these precedent projects may help 11th Street Bridge Park project organizers frame their strategy as they plan and advocate for the first bridge park in the nation's capital.

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